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EXHIBIT B-2

PROPONENT'S ENVIRONMENTAL ASSESSMENT

DEVERS-PALO VERDE NO. 2 TRANSMISSION LINE PROJECT

VOLUMES I AND II

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) for a Certificate of Public Convenience and Necessity Concerning the Devers-Palo Verde No. 2 Transmission Line Project	)	Application No. 05-04-015 (Filed April 5, 2005)

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DEVERS-PALO VERDE NO. 2 TRANSMISSION LINE PROJECT

VOLUME I – PART 1 OF 2

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Dated: April 5, 2005

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ACRONYM LIST

AAM	annual arithmetic mean
AC	alternating current
ACC	Arizona Corporation Commission
ACEC	Areas of Critical Environmental Concern
ACSR	Aluminum Conductor Steel Reinforced
ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
ANPL	Arizona Native Plant Law
APE	area of potential effect
APS	Arizona Public Service
ASLD	Arizona State Land Department
ASM	Arizona State Museum
BACM	Best Available Control Measures
BLM	Bureau of Land Management
CAISO	California Independent System Operator
Cal/OSHA	California Occupational Safety and Health Administration
CAP	Central Arizona Project
CARB	California Air Resources Board
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
CDNPA	California Desert Native Plant Act
CEC	Certificate of Environmental Compatibility
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRC	Certificate of Right-of-Way Compatibility
CRIT	Colorado River Indian Tribe
CRNR	California Regulatory Notice Register
CVAG	Coachella Valley Association of Governments
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
dB	Decibels
dBA	A-weighted decibels

DC	direct current
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DES	Department of Economic Security
Devers	Devers Substation
DOC	Department of Commerce
DOD	Department of Defense
DPV1	Devers-Palo Verde Project No. 1
DPV2	Devers-Palo Verde Project No. 2
DSWP	Desert Southwest Power, LLC
DSWTP	Desert Southwest Transmission Project
DWMA	Desert Wildlife Management Area
DWR	Department of Water Resources
EHV	extra-high voltage
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
FEIR	Final Environmental Impact Report
FERC	Federal Energy Regulatory Commission
FSEIS	Final Supplemental Environmental Impact Statement
GPS	global positioning system
Harquahala	Harquahala Generating Station Switchyard
Henwood	Henwood Energy Services, Inc.
HGC	Harquahala Generating Company
HOV	high occupancy vehicle
HPMP	Historic Properties Management Plan
I-10	Interstate 10
I-15	Interstate 15
IID	Imperial Irrigation District
ISO	Independent System Operator
kcmil	thousand circular mil
kV	kilovolt
kV/cm	kilovolts per centimeter

LADWP	Los Angeles Department of Water and Power
lbs/day	pounds per day
LTPP	Long Term Procurement Plan
MDAQMD	Mojave Desert Air Quality Management District
MFP	Management Framework Plan
MPA	Municipal Planning Area
MVAR	mega volt-amperes-reactive
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NECO	Northern and Eastern Colorado
NEPA	National Environmental Policy Act
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
O_3	ozone
OHV	off-highway vehicle
OPGW	Optical Ground Wire
OPH	Office of Historic Preservation
OSHA	Occupational Safety and Health Administration
PEA	Proponent's Environmental Assessment
PM_{10}	particulate matter
ppm	parts per million
PVNGS	Palo Verde Nuclear Generating Station
RMP	Resource Management Plan
ROC	reactive organic compounds
ROD	Record of Decision
SBC	San Bernardino County
SCAB	South Coast Air Basin
SCADA	Substation Control and Data Acquisition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCIT	Southern California Import Transmission
SDEIS	Supplemental Draft Environmental Impact Statement
SDG&E	San Diego Gas & Electric
SEIS	Supplemental Environmental Impact Statement

SHPO	State Historic Preservation Office
SONET	Synchronous Optical Network
SONGS	San Onofre Nuclear Generating Station
SO_x	oxides of sulfur
SPCC	Spill Prevention Control and Countermeasure
SR	State Route
SRP	Salt River Project
STEP	Southwest Transmission Expansion Planning
SVC	Static VAR compensation
SWPPP	Storm Water Pollution Prevention Plan
T&D	Transmission and Distribution
TCP	traditional culture properties
TEAM	Transmission Economic Assessment Methodology
$\mu g/m^3$	micrograms per cubic meter
UC-2	Utility Corridor 2
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VAR	voltage ampere-reactive
VRM	Visual Resource Management
WA	Wilderness Area
WAPA	Western Area Power Administration
WECC	Western Energy Coordinating Council
WSA	Wilderness Study Area
WSC	wildlife of special concern
WSCC	Western Systems Coordinating Council

CHAPTER 1.0
SUMMARY

1.1 INTRODUCTION

Southern California Edison Company (SCE) proposes to construct a new 230-mile, high-voltage electric transmission line between California and Arizona known as the Devers-Harquahala 500 kilovolt (kV) transmission line. Operation of the proposed line would require that upgrades be made to certain existing SCE electrical transmission facilities in California. The proposed line and transmission facility upgrades are known as the Devers-Palo Verde No. 2 Transmission Project (DPV2). DPV2 would be constructed within existing and new SCE rights-of-way. Construction of DPV2 would add transmission facilities necessary to import additional lower-cost electricity into California from the Southwest.

1.1.1 Proposed Route

1.1.1.1 Devers-Harquahala 500kV Transmission Line

The proposed Devers-Harquahala 500kV transmission line would be constructed from SCE's Devers Substation (Devers) located near Palm Springs, California to the Harquahala Generating Station switchyard (Harquahala), located near the Palo Verde Nuclear Generating Station (PVNGS) west of Phoenix, Arizona as shown on Map 1-1. The proposed line would extend for 230 miles, of which 102 miles are located in Arizona and 128 miles are located in California. The majority of the proposed Devers-Harquahala route would parallel SCE's existing Devers-Palo Verde No. 1 (DPV1) 500kV transmission line.

1.1.1.2 West of Devers 230kV Transmission Upgrade

Upgrades to SCE's existing 230kV transmission system between Devers and SCE's Vista Substation in the City of Grand Terrace and San Bernardino Substation in the City of Redlands, San Bernardino County, as shown on Map 1-2, would include the following:

- Removal of an existing 40-mile, single-circuit wood H-frame 230kV line between Devers and San Bernardino Junction. San Bernardino Junction is the intersection of 230kV transmission line corridors located 3.4 miles south of the San Bernardino Substation.

- Removal of an existing 40-mile, single-circuit lattice steel 230kV line between Devers and San Bernardino Junction.

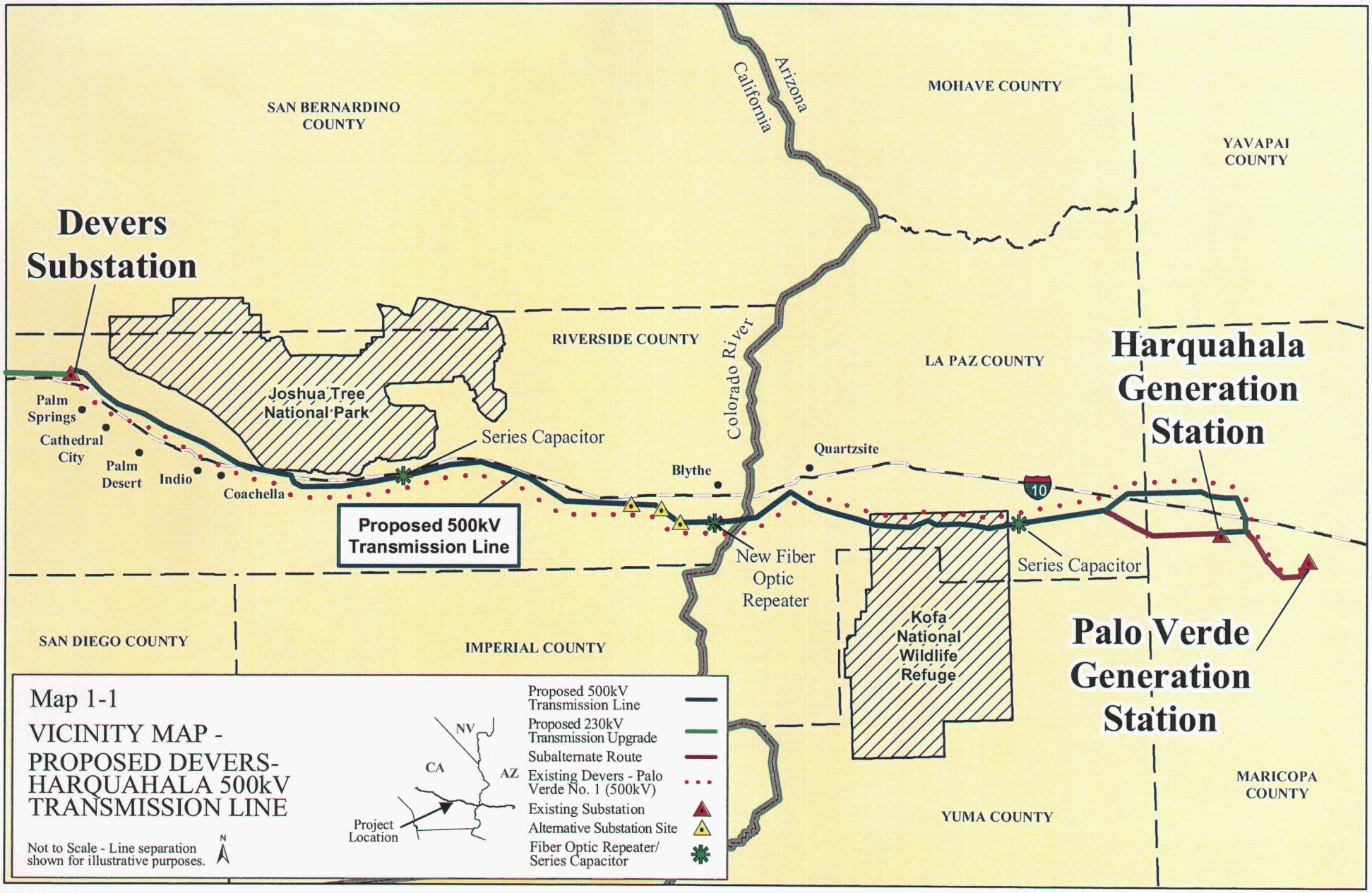
- Construction of a new 40-mile, double-circuit 230kV line between Devers and San Bernardino Junction within the existing right-of-way.

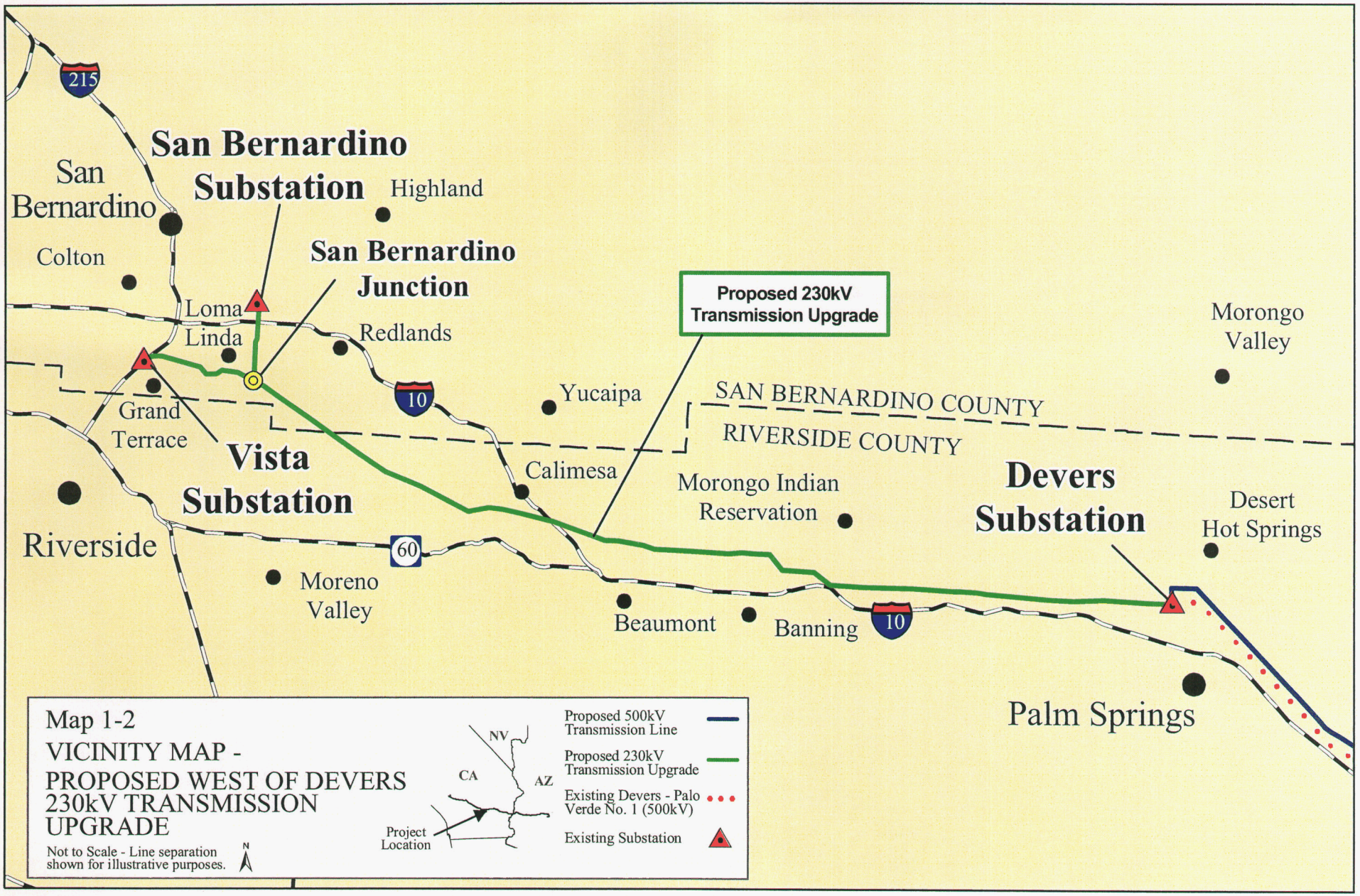
- Reconductoring of and modification to the existing 40-mile, double-circuit 230kV lattice steel tower line between the Devers Substation and San Bernardino Junction.

- Reconductoring both circuits on an existing 4.8-mile, double-circuit 230kV lattice steel tower line between Vista Substation and San Bernardino Junction.

- Reconductoring one circuit on each of the two existing 3.4-mile, double-circuit 230kV lattice steel tower lines between San Bernardino Substation and San Bernardino Junction.

A detailed description of the proposed route is provided in Chapter 3.


SAN BERNARDINO COUNTY
MOHAVE COUNTY
YAVAPAI COUNTY
California
Arizona
Devers Substation
RIVERSIDE COUNTY
LA PAZ COUNTY
Colorado River
Harquahala Generation Station
Palm Springs
Cathedral City
Palm Desert
Indio
Coachella
Joshua Tree National Park
Series Capacitor
Blythe
Quartzsite
10
Proposed 500kV Transmission Line
New Fiber Optic Repeater
Series Capacitor
Kofa National Wildlife Refuge
Palo Verde Generation Station
SAN DIEGO COUNTY
IMPERIAL COUNTY
MARICOPA COUNTY
YUMA COUNTY
Map 1-1
VICINITY MAP -
PROPOSED DEVERS-HARQUAHALA 500kV TRANSMISSION LINE
Not to Scale - Line separation shown for illustrative purposes.
N
NV
CA
AZ
Project Location
Proposed 500kV Transmission Line
Proposed 230kV Transmission Upgrade
Subalternate Route
Existing Devers - Palo Verde No. 1 (500kV)
Existing Substation
Alternative Substation Site
Fiber Optic Repeater/ Series Capacitor


215
San Bernardino
San Bernardino Substation
Highland
Colton
San Bernardino Junction
Loma Linda
Redlands
Proposed 230kV Transmission Upgrade
Morongo Valley
10
Yucaipa
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Grand Terrace
Vista Substation
Calimesa
Morongo Indian Reservation
Devers Substation
Desert Hot Springs
Riverside
60
Moreno Valley
Beaumont
Banning
10
Palm Springs
Map 1-2
VICINITY MAP -
PROPOSED WEST OF DEVERS 230kV TRANSMISSION UPGRADE
Not to Scale - Line separation shown for illustrative purposes.
N
NV
CA
AZ
Project Location
Proposed 500kV Transmission Line
Proposed 230kV Transmission Upgrade
Existing Devers - Palo Verde No. 1 (500kV)
Existing Substation

1.1.1.3 Related Facilities

In addition to the construction of the proposed Devers-Harquahala 500kV transmission line, and upgrades to the 230kV transmission system west of Devers, related facilities would be constructed to enable safe and efficient system operations. These facilities include series compensation banks, improvements to existing substations, a new telecommunications site and system upgrades, and other equipment as listed below.

Devers-Harquahala 500kV Transmission Line

For series compensation, two series capacitor banks would be constructed—one in Arizona and one in California. Also, two shunt line reactors would be installed—one at Devers Substation and one at Harquahala.

At the Devers Substation, a transformer bank, disconnect switches, circuit breakers, static volt-ampere-reactive (VAR) compensation, and control equipment would be added within the existing substation property boundary.

At the Harquahala Generating Station switchyard, disconnect switches, circuit breakers, and control equipment would be added within the switchyard property boundary.

At the Valley Substation, static VAR compensation would be added within the existing substation property boundary.

West of Devers 230kV Transmission System Upgrades

Conductors, wave traps, disconnect switches, and relays would be replaced within existing substation property boundaries at the Devers, San Bernardino, and Vista substations.

Detailed descriptions of the related facilities are provided in Chapter 3.

1.1.2 Purpose and Need

The DPV2 project is primarily driven by the need to provide additional high-voltage electrical transmission infrastructure to enhance competition among energy suppliers, and increase reliability of supply, which will enable California utilities to reduce energy costs to customers by about $1.1 billion over the life of the project. Specifically, DPV2 will increase transmission capacity by 1,200 megawatts (MW), allowing California access to cost-effective energy in the southwestern United States, and potentially displace higher-cost generation in California.

A detailed discussion of the purpose and need for the project can be found in Chapter 2.

1.1.3 Agency Actions and Approvals

SCE submitted an Application for a Certificate of Public Convenience and Necessity (CPCN) and Proponent's Environmental Assessment (PEA) to the California Public Utilities Commission (CPUC) for the DPV1 project in 1978. The CPUC prepared a Final Environmental Impact Report (FEIR) for the DPV1 project and issued a CPCN for DPV1 in 1979. A Record of Decision (ROD) also was issued by the Bureau of Land Management (BLM) and U.S. Nuclear Regulatory Commission (NRC), which approved the DPV1 project. SCE completed construction of the DPV1 transmission line in 1982.

SCE initially applied to the CPUC for a CPCN for DPV2 in 1985. Following reviews of SCE's PEA (1985) and the CPUC EIR (1987) in compliance with the California Environmental Quality Act (CEQA) and subsequent filing and review of the 1988 Amended Application and PEA (SCE 1988), the CPUC issued an Interim Order in December 1988 that granted a CPCN to SCE allowing construction of the DPV2 project. The approval contained several conditions including compliance with an environmental mitigation program specified in the CPUC EIR (1987). In 1997, intervening events, including electric industry restructuring, led SCE to request abandonment of construction of the DPV2 project, and the CPUC granted SCE's request.

The proposed route crosses federal, state, private, and tribal lands. The majority of the proposed Devers-Harquahala 500kV transmission line would be constructed within the right-of-way located on federal lands, granted in perpetuity to SCE for the DPV2 project by the U.S. Department of Interior (DOI), BLM in the 1989 ROD and Right-of-Way Grant (Appendix B). The right-of-way crosses approximately 57 miles of public land in California and approximately 79 miles of public land in Arizona. The majority of the proposed route is within utility corridors designated in the BLM's Resource Management Plans (RMPs), and approved in compliance with the National Environmental Policy Act (NEPA) by the BLM following completion of a Final Supplemental Environmental Impact Statement (FSEIS) in 1988 and ROD in 1989. Also, the U.S. Fish & Wildlife Service (USFWS) issued a Certificate of Right-of-Way Compatibility (CRC) in 1989 for the portion of the proposed Devers-Harquahala 500kV transmission line that crosses the KOFA National Wildlife Refuge (NWR) in Arizona (Appendix C).

The DPV2 route that was approved in 1989 followed the entire length of the existing DPV1 line and terminated at PVNGS. The proposed Devers-Harquahala transmission line would terminate at the Harquahala Generating Station switchyard, located approximately 16 miles directly northwest of PVNGS (see Map 1-1). Therefore, the proposed Devers-Harquahala route would require the construction of new transmission line from the Harquahala Generating Station switchyard, for a distance of 4.8 miles east to the junction with the DPV1 corridor, adjacent to the existing Harquahala-Hassayampa 500kV transmission line.

SCE is submitting this application and PEA to the CPUC so that the CPUC may issue a CPCN for the project and issue and certify an environmental document (i.e., an EIR or Mitigated Negative Declaration) for the California portion of the project pursuant to CEQA.

SCE will submit an application to the BLM for an Amended Right-of-Way Grant and, if approved, the BLM would issue a Notice to Proceed, allowing construction to be administered by the BLM in California and Arizona.

SCE anticipates, based on discussions with CPUC and BLM staff prior to filing this application, that the CPUC and BLM will work cooperatively and will conduct a joint CEQA/NEPA review of the project in California. This cooperation will include use of a single environmental consultant by both agencies.

The Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) and the Arizona Corporation Commission (ACC) are responsible for the environmental review on state-jurisdictional land in Arizona, and the BLM has jurisdiction for environmental review for federal land. The ACC siting process in Arizona is comparable to CEQA review, and thus, pursuant to Arizona Revised Statute 40-360, et. seq., the ACC will conduct the environmental review of the Arizona portion of the project.

Staff of the ACC have indicated a strong preference that SCE time the filing of its application for a Certificate of Environmental Compatibility to coincide with the CPUC's and BLM's issuance of their draft environmental document. This is to allow the Siting Committee and ACC to complete their environmental permitting process concurrently with the final decision by the CPUC and BLM. (The ACC process timelines are shorter than CEQA and NEPA.)

Thus, for a project that traverses state and federal land in California and Arizona, the CPUC and ACC will conduct permitting processes within their respective states, while the BLM will conduct permitting on federal land in both states. SCE anticipates that all three agencies will work cooperatively together and will likely use a single environmental consultant.

1.1.4 Project Design

Construction of the proposed Devers-Harquahala 500kV transmission line would utilize the same four types of structures as the existing DPV1 and Harquahala-Hassayampa 500kV transmission lines. Of the approximately 784 structures required, approximately 709 would be four-legged, single-circuit lattice steel towers. To reduce potential impacts to agricultural operations, approximately 39 two-legged (or H-frame) single-circuit towers would be used in the Palo Verde Valley south of Blythe, California. Where feasible, structures would be constructed next to the existing DPV1 towers. During construction of DPV1, in anticipation of the eventual construction of DPV2, conductors for a 3-mile portion of the DPV2 line were installed on 13 double-circuit towers that were constructed for the DPV1 line to minimize impact to bighorn sheep habitat in the Copper Bottom Pass of the Dome Rock Mountains in Arizona. Approximately 23 new tubular steel poles would be constructed parallel to the existing Harquahala-Hassayampa 500kV line east of Harquahala.

Because the majority of the Devers-Harquahala line would be constructed within the utility corridor that contains the existing DPV1 line and existing access for line maintenance, construction of new main access roads would not be needed in most locations. Spur roads would be extended from the existing DPV1 main access roads to provide construction access for the proposed Devers-Harquahala 500kV line.

The existing 230kV transmission line system west of Devers consists of one set of double-circuit tower lines and two separate sets of single-circuit lines between Devers and San Bernardino Junction. The proposed 230kV system upgrade west of Devers would require the removal of an existing single-circuit 230kV tower line on wood H-frame structures, and the removal of an existing single-circuit 230kV tower line on lattice steel structures between Devers and San Bernardino Junction; replacement with a new double-circuit 230kV line; and reconductoring and modification of the existing double-circuit 230kV tower line. Also, the upgrade would require reconductoring both circuits on an existing double-circuit 230kV tower line between Vista Substation and San Bernardino Junction. In addition, one circuit on each of the two existing

double-circuit 230kV tower lines between the San Bernardino Junction and San Bernardino Substation would be reconductored. Installing inter-set structures, or raising existing structures, would be required at some locations. Existing access roads would be utilized wherever possible for construction and line maintenance.

A detailed description of the proposed transmission line design and construction process is provided in Chapter 3.

1.1.5 Alternative Routes

1.1.5.1 Subalternate Routes Considered and Eliminated

Alternatives and subalternate routes were evaluated in previous studies for DPV1 and DPV2 (BLM 1978, 1988; CPUC 1987; SCE 1978, 1985, 1988). Four subalternate routes were previously considered in response to concerns that the proposed route would impact the KOFA NWR in Arizona or agricultural lands in California's Palo Verde Valley. Subalternate routes are shown on Map 3-1 in Chapter 3. Four subalternate routes were evaluated in the 1988 DPV2 PEA. The subalternate routes were located as follows: Subalternate 1, north of the KOFA NWR, south of Interstate 10 (I-10); Subalternate 2, north of Blythe through the Colorado River Indian Reservation; Subalternate 3, south of the Palo Verde Valley through a portion of Imperial County; and Subalternate 4, north of the KOFA NWR and north of I-10. The results of the 1988 evaluation indicated that each of the subalternate routes would result in greater levels of potential environmental impact than would the proposed route. None of the subalternate routes parallel the existing DPV1 line. If any of these subalternate routes were utilized, between 31 and 72 miles of new access roads would need to be constructed. New access roads would cause greater amounts of ground disturbance and higher levels of impact to wildlife habitat and movement corridors, sensitive vegetation, cultural resources, and scenic quality. The selection of the proposed route for DPV2 was based on a multi-resource comparison of impacts, followed by agency and public reviews that were undertaken as part of the DPV2 permitting process in the late 1980s. A

detailed analysis of the alternatives and selection of the preferred route were documented in the previous studies for DPV2 in the 1988 PEA, EIR, and SEIS (BLM 1988), and is described in Chapter 3.

1.1.5.2 Subalternate Routes Considered and Evaluated in this PEA

Two subalternate routes at the eastern portion of the proposed route for the Devers-Harquahala 500kV line are considered in this PEA. The Harquahala-West Subalternate Route and the Palo Verde Subalternate Route are described below.

Harquahala-West Subalternate Route

This subalternate route would exit the Harquahala Switchyard directly to the west for 12 miles, then follow the El Paso Natural Gas pipeline corridor northwest for 9 miles to its intersection with the proposed Devers-Harquahala 500kV route. The route 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 Subalternate Route would be 14 miles shorter than the proposed route (a total distance of 216 miles), and would require about 48 fewer 500kV towers than the proposed route.

Construction of the Harquahala-West Subalternate route would result in a greater amount of adverse environmental impact than the proposed route. Because this subalternate route would not parallel an existing transmission line, visual impacts to residential viewers would occur. Also, construction of a new access road for a portion of the subalternate route would be required, causing more ground disturbance than the proposed Devers-Harquahala route.

Currently, Arizona Public Service Company (APS) is planning for the Palo Verde Hub to TS-5 500kV transmission line that may parallel DPV1 between the PVNGS interconnection area and the Central Arizona Project (CAP) Canal. If the Palo Verde Hub to TS-5 line is constructed in a

manner that would preclude SCE from entering Harquahala switchyard from the east, then the Harquahala-West subalternate may become SCE's preferred route.

Palo Verde Subalternate Route

The proposed route for the Devers-Harquahala 500kV transmission line is generally parallel to SCE's existing 500kV DPV1, as shown on Map 1-1. Unlike the DPV2 route described in the 1988 PEA, the proposed project involves building a new 500kV transmission line from Devers to the Harquahala Generating Station switchyard terminus, and acquiring the existing Harquahala-Hassayampa 500kV transmission line.

As an alternative to the termination of DPV2 at Harquahala, and SCE's acquisition of the existing Harquahala-Hassayampa 500kV transmission line, the DPV2 line would terminate at the PVNGS Switchyard. This would require the construction of the Palo Verde Subalternate Route, a new 500kV transmission line parallel to the DPV1 transmission line for an additional 10 miles to the PVNGS switchyard. Although environmental impacts of construction and operation of the Palo Verde Subalternate Route would not be substantially more adverse than the environmental impacts resulting from the proposed Devers-Harquahala route, SCE's preference is to construct the proposed Devers-Harquahala route.

1.1.6 Midpoint Substation Alternative Sites

SCE has received an interconnection request from Desert Southwest Power, LLC, the proponent of the Desert Southwest Transmission Project (DSWTP). The proposed DSWTP is a 500kV transmission line that, as currently proposed, would be constructed parallel to SCE's DPV1 and Devers-Harquahala 500kV lines from Blythe, California, to Devers Substation. In an effort to minimize environmental impacts and project costs, SCE and Desert Southwest Power, LLC have agreed to explore ways to integrate the proposed DSWTP and the DPV2 transmission line

projects. Under a joint project proposal, only one of the two 500kV transmission lines would be constructed between Blythe and Devers, since the parties would share a single 500kV transmission line. The joint project would include the construction of a 500kV switchyard called the Midpoint Substation (Midpoint). Midpoint, as proposed, would provide connections for the DPV1 and Devers-Harquahala 500kV lines, and the DSWTP.

The preferred location for Midpoint is about 10 miles southwest of Blythe, adjacent to SCE's DPV1 right-of-way, and immediately west of Imperial Irrigation District's (IID) Blythe-Niland 161kV and Western Area Power Administration's (WAPA) Blythe-Knob 161kV transmission lines. As described in Chapter 3, two alternative sites for the substation have been identified and are evaluated in this PEA.

1.1.7 Environmental Impacts and Mitigation

Because the proposed DPV2 project would be built within established utility corridors and generally adjacent to existing, similar transmission lines, potential environmental impacts would be less than significant. Use of existing access roads for construction and future maintenance would minimize potential soil erosion and disturbance to sensitive plants, wildlife habitat, and wildlife movement corridors. It also would minimize the potential for increased public access into sensitive habitat. Because established utility corridors would be used, existing communities would not be further divided and impacts to land uses would be minimal. Because new structures would be of design and dimensions similar to the existing structures (i.e., DPV1 500kV, west of Devers double-circuit 230kV upgrade, and the Harquahala-Hassayampa 500kV structures), and because they would be installed to approximately match the spans and heights of the existing structures where feasible, the resulting level of visual contrast would be kept to a minimum. With the application of effective mitigation measures incorporated in the project design proposed by SCE, the resultant level of visual impact would be less than significant.

The proposed project is designed to locate structures to avoid archaeological sites. Therefore, impacts to cultural resources would be less than significant. Air quality impacts during construction would be potentially significant, however, implementation of mitigation measures would reduce emissions to levels that are less than significant. Water quality, geology, traffic and transportation, and noise impacts would be less than significant. Impacts to agricultural lands would be minimized by using special towers and would be less than significant. No significant impacts would result to land use, population, housing, and public services due to the temporary nature of construction. Beneficial socioeconomic impacts would result from construction employment, material and equipment purchases, and potential tax revenues to counties in the region.

Detailed descriptions of impacts and mitigation can be found in Chapters 5, 6, and 7.

1.1.8 Public Information and Outreach

SCE conducted public outreach activities for the DPV2 project to encourage communication with local communities, local businesses, elected and appointed officials, and other interested parties. In October 2003, SCE began public outreach and information activities that included distribution of a project fact sheet, in-person interviews, media briefings, open houses, and individual meetings. The project fact sheet was mailed to all property owners within 300 feet of the proposed DPV2 project, and to elected and appointed officials, and other interested parties in the project area. The fact sheet provided basic information about the project scope and purpose. It also provided the names and contact information for local SCE region managers as sources for additional information.

Following the distribution of the project fact sheet, SCE used an independent public involvement specialist to talk directly with a small sample of potentially impacted residents, local businesses,

elected and appointed officials, and others interested in the project. These in-person interviews were conducted during October and November 2003.

In August 2004, SCE provided a project update fact sheet to those persons in the project area that received the 2003 project fact sheet, as well as to those who asked to be added to the project mailing list.

In the summer and fall of 2004, SCE hosted open houses in Blythe, Loma Linda, Calimesa, Beaumont, and Coachella Valley. Invitations were mailed to the list of property owners within 300 feet of the proposed project and to elected and appointed officials, and to other interested persons in the project area. Additionally, SCE advertised the open houses in local newspapers.

Following the open houses, SCE mailed information responding to "Frequently Asked Questions" to property owners within 300 feet of the proposed project right-of-way, as well as to elected and appointed officials, and other interested persons in the project area.

Copies of fact sheets and FAQs are included in Appendix E. The list of property owners located within 300 feet of the proposed project is included in Appendix F.

CHAPTER 2.0
PURPOSE AND NEED

2.1 PURPOSE AND NEED FOR THE PROPOSED 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.

The objectives for building DPV2 are to:

- Increase California's access to low-cost energy by adding 1,200 MW of transmission import capability into California from the Southwest. This is expected to substantially benefit California by reducing energy costs.
- Enhance competition among generating companies supplying energy to California.
- Provide additional transmission infrastructure to support and provide an incentive for the development of future energy suppliers selling energy into the California energy market.
- Provide increased reliability of supply, insurance value against extreme events, and flexibility in operating California's transmission grid.

These objectives are discussed below and in Section 2.2.5.

2.1.1 Increase California's Transmission Import Capability

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, which may be imported into California. The Southwest Transmission Expansion Planning (STEP)[1] 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. As described in Section 2.2 below, SCE's economic analysis, with conservative assumptions, demonstrates 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.

2.1.2 Enhance the Competitive Energy Market

As a public policy matter, SCE believes it is in California's interest to encourage investment in new generation infrastructure through (1) the construction of needed high-voltage transmission lines and (2) through reducing the time to permit such transmission lines. For example, on May 8, 2004, regulatory agencies in California adopted the *Energy Action Plan* for California. The *Energy Action Plan* concluded that adequate, reliable, and reasonably priced energy supplies can be achieved, in part, by upgrading and expanding the electricity transmission and distribution infrastructure and reducing the time needed before facilities are brought on line.[2] In particular, "Action IV" of the *Energy Action Plan* states that ([t]he State will reinvigorate its planning, permitting, and funding processes to assure that necessary improvements and expansions to the bulk electricity grid are made on a timely basis."

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1 STEP's Purpose and Scope states "Southwest Transmission Expansion Plan (STEP) is a sub-regional planning group that was formed to address transmission concerns in the Arizona, southern Nevada, southern California, and northern Mexico area. As a result of a large amount of new generation developed in this area, it was apparent to many that the transmission grid would be inadequate to efficiently deliver that power to the major load areas. The goal of STEP is "To provide a forum where all interested parties are encouraged to participate in the planning, coordination, and implementation of a robust transmission system between the Arizona, Nevada, Mexico, and southern California areas that is capable of supporting a competitive efficient and seamless west-side wholesale electricity market while meeting established reliability standards."(See, Jan. 17th 2003 PDF file at: http://www1.caiso.com/docs/2003/01/22/2003012211380012544.pdf and the May 8th, 2003 document at http://www1.caiso.com/docs/2003/05/13/2003051315061917183.pdf.)

2 The California Energy Commission's Electricity and Natural Gas Infrastructure Assessment Report (December 2003) available at www.energy.ca.gov (http://www.energy.ca.gov/reports/100-03-014F.PDF). Similarly, the report highlights the need for additional transmission infrastructure investment, particularly to support generation infrastructure.

Transmission infrastructure is necessary for a competitive market, and is vital to integrating new generation additions.[3] The Federal Energy Regulatory Commission (FERC) recently stated that FERC's Goal 1 is to "Promote a Secure, High Quality Environmentally Responsible Infrastructure through Consistent Policies." Under this goal is objective 1.1:

> Expedite appropriate infrastructure development to ensure sufficient energy supplies; and
>
> Identify transmission and pipeline projects with high public interest benefits and facilitate their speedy completion, consistent with the Commission's (FERC) statutory mandates and due process.[4]

The California Legislature, likewise, has encouraged investment in transmission facilities to facilitate competition in the generation market. It has stated that reasonable expenditures to expand transmission facilities are in the public's interest, if made for the purpose of facilitating competition in electric generation markets.[5]

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.

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3 See, R.04-01-026, Order Instituting Rulemaking on policies and practices for the Commission's transmission assessment process (January 28, 2004) (Attachment B, Report of Current Planning Process for Investor-Owned Utilities).

4 See, Federal Energy Regulatory Commission Strategic Plan FY2004-FY2008, September 10, 2003, http://ferc.gov/about/strat-docs/09-29-03-detail-strategic-plan.pdf.

5 Cal. Pub. Util. Code § 454.1 ("(a) Reasonable expenditures by transmission owners that are electrical corporations to plan, design, and engineer reconfiguration, replacement, or expansion of transmission facilities are in the public interest and are deemed prudent if made for the purpose of facilitating competition in electric generation markets, ensuring open access and comparable service, or maintaining or enhancing reliability, whether or not these expenditures are for transmission facilities that become operational.")

2.1.3 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 complex 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. DPV2 will also provide insurance against major contingencies such as the emergency outage of a major generating facility or of another high-voltage transmission line; i.e., DPV2 will provide a hedge against low-probability, high-severity events such as short- and long-term outages of generating facilities, substations, and transmission lines. For example, if an earthquake disabled lines from the Pacific Northwest into California, then a line importing power from the Southwest, such as DPV2, would provide significant benefits above what is quantified by DPV2's economic analysis. In fact, some experts conclude that past experience demonstrates that high-voltage transmission lines can pay for themselves in just a few years because of the benefits they provide during low probability, high-impact events.[6]

2.2 SCE's ECONOMIC ANALYSIS

SCE examined DPV2's impact on total production costs, and uncertainty of major assumptions to determine the project's expected economics. Using production cost models, SCE estimated total production costs in California with and without the project and found that total energy production costs for electricity consumers in the CAISO area would be over $1 billion lower with the project than they would otherwise be without the project. SCE determined that the lifecycle benefits of DPV2 are greater than the lifecycle costs of constructing and operating DPV2.

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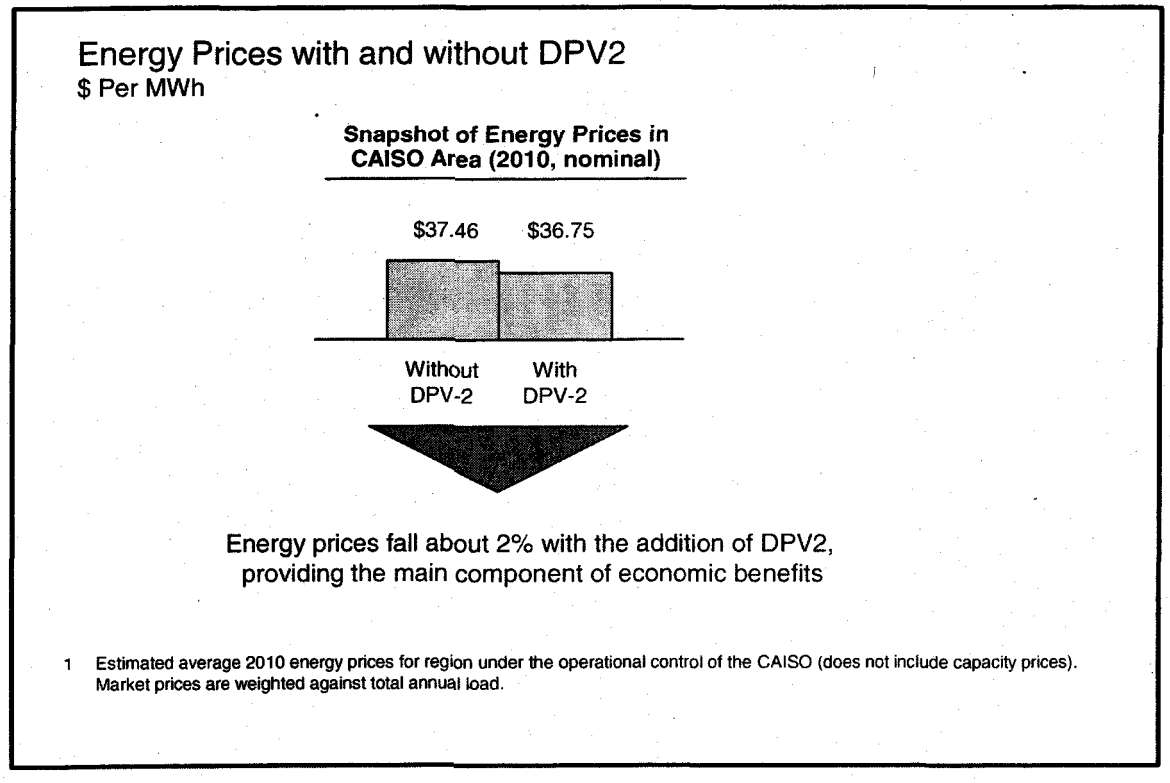
6 http://www.electricpowergroup.com/Downloads/Planning/Planning_CA_FutureTrans_Grid_Final_Task1.pdf

To provide confidence in these results, SCE analyzed DPV2's benefits over a wide range of load forecasts, natural gas prices, and available hydro-generation, providing ample analysis of volatility affects. This analysis was performed using stochastic tools (also known as Monte Carlo Analysis). This type of analysis is important as it provides an expected value of benefits over a wide range of possible futures. Section 2.2.2 describes SCE's cost-effectiveness analysis of DPV2 which illustrates DPV2's benefit-to-cost ratio is 1.7:1. Appendix G-1 and Appendix G-2 provide additional information regarding SCE's cost-effectiveness analysis of DPV2.

DPV2's economic benefits are largely derived from lowering California energy costs. Figure 2-1 below illustrates that constructing DPV2 is expected to significantly lower energy prices for ratepayers in the CAISO area.

FIGURE 2-1
IMPACT OF DPV2 ON ENERGY PRICES



1 Estimated average 2010 energy prices for region under the operational control of the CAISO (does not include capacity prices). Market prices are weighted against total annual load.

2.2.1 Description of Assumptions

SCE first evaluated DPV2 in the context of its July 2004 LTPP,[7] which identifies the baseline assumptions used in the benefits analysis of DPV2. The baseline assumptions were designed around the overall intent and "loading order" of the joint agency Energy Action Plan[8]. The 2004 LTPP was found reasonable and adopted[9] by the CPUC on December 16, 2004, subject to modifications that do not significantly affect the need, timing, or cost effectiveness analysis of DPV2.

For the analysis submitted herein, SCE updated the LTPP assumptions for gas prices, loads, and resources to better reflect more recent forecast conditions. In addition, SCE incorporated in this analysis as many of the Commission directed modifications as appropriate in order to maintain consistency with other regulatory forums that also make use of SCE's 2004 LTPP assumptions and analysis.[10] Those modifications include the acceleration of resource adequacy requirements from 2008 to 2006, updated natural gas prices, and updated procurement activities since the initial filing. In addition to these modifications, the 2004 LTPP also was updated for announced resource additions and retirements (generation and transmission alike), load forecasts throughout the WECC, and generic resource additions due to changes in the load forecast. Major assumptions in the adopted 2004 LTPP include:[11]

- SCE meeting 20 percent Renewable Portfolio Standard by 2010 per the Energy Action Plan

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7 Rulemaking (R.) 04-04-003. SCE's LTPP can be found at http://www3.sce.com/law/cpucproceedings.nsf/vwUFiling?SearchView&Query=long+term+procurement+plan&Start=1&Count=30. Specifically, the analysis performed to evaluate DPV2's economics ties directly to SCE's Medium Load Scenario.

8 State of California Energy Action Plan, adopted May 8, 2003. http://www.energy.ca.gov/energy_action_plan.

9 Decision (D.)04-12-048.

10 For example, the California Energy Commission's IEPR Compliance Filing (Docket 04-IEP-1D), Advanced Metering Initiative (R.02-06-001), and the SCE's 2006 General Rate Case, Phase 2 (A.04-12-014).

11 A more detailed description of SCE's LTPP can be found in Rulemaking (R.)04-04-003.

- Mohave Generating Station Units No.1 and 2 shutdown on December 31, 2005
- Mountainview Generating Station operational by summer of 2006
- San Onofre Nuclear Generating Station (SONGS) steam generator replacement in 2009-2010 time frame
- Compliance with Southern California Import Transmission nomogram import limits
- Significant increases in cost effective energy efficiency and demand response programs

2.2.2 Results of the Economic Analysis

DPV2's transmission revenue requirement will be paid by ratepayers of utilities (Participating Transmission Owners, or PTOs) whose facilities are under the operational control of the CAISO. The impact to ratepayers in the CAISO's area is shown in the Figure 2-2 below. SCE estimated benefits and revenue requirements based upon DPV2's estimated average service life.

FIGURE 2-2
DPV2 PROJECTED LIFECYCLE BENEFITS
(2005 NPV, $ Millions, 10.5% Discount Rate Per Annum)

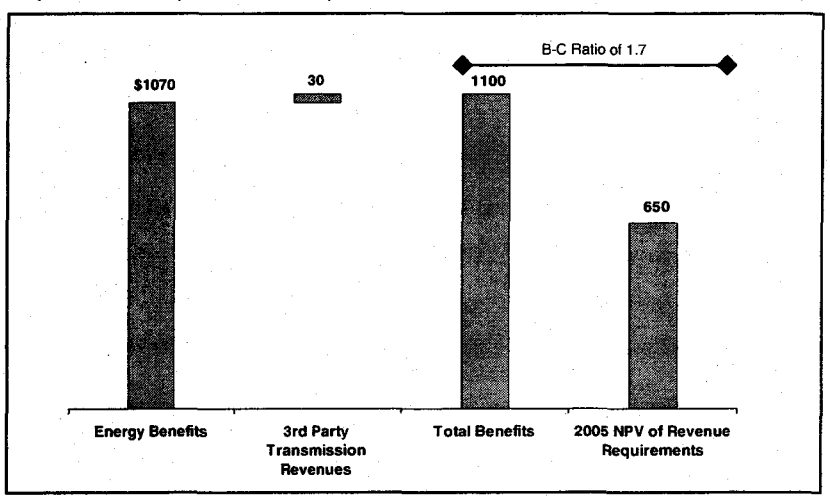

Figure 2-2 illustrates that the economic benefit of DPV2 is $1.1 billion, comprised of energy cost savings, and third-party transmission use revenues. With the addition of DPV2, the revenue requirement used to develop rates for both CAISO wheeling service and Existing Transmission Contracts will increase, and the benefit calculation reflects the increasing revenues from existing

and forecast transmission service users. Edison estimates wheeling service and Existing Transmission Contracts' (ETCs) benefits will provide approximately $0.6 million annually of increased revenue to SCE from certain ETCs and approximately $2.4 million annually of increased CAISO wheeling revenues to SCE or about $30 million (2005 NPV) over the life of the project. This estimate includes only the revenues to SCE, and does not reflect increased revenues to other CAISO entities. If these revenues were taken into account, the benefit would be greater.

The 2005 present value revenue requirement for DPV2 is estimated at $650 million. With a benefit-to-cost ratio of about 1.7:1, DPV2 is a highly cost-effective project for ratepayers in the CAISO area.[12] Appendix G-1 and Appendix G-2 provides additional details regarding SCE's cost-effectiveness analysis of DPV2.

2.2.3 CAISO's Evaluation of DPV2

DPV2 is an economic transmission project as described under Section 3.2.1.1 of the CAISO Tariff. As provided in Section 3 of the CAISO Tariff, SCE submitted a report to the CAISO for their use in evaluating the cost-effectiveness of constructing the Devers-Palo Verde No. 2 Transmission Project.[13] The original report, and a revision to reflect updated assumptions, are included in Appendix G-1 and Appendix G-2. SCE's analysis conformed to the principles and methods the CAISO has outlined in its Transmission Economic Assessment Methodology (TEAM), and demonstrates that DPV2 is cost effective to ratepayers in the CAISO area.

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.[14] The CAISO Board approved the DPV2 project on February 24, 2005 and directed SCE to proceed with the

12 Ratepayers in the CAISO area are those served by utilities, which are CAISO Participating Transmission Owners who have placed their transmission facilities under the operational control of the CAISO.

13 On April 7, 2004, SCE provided a report entitled "Devers-Palo Verde No. 2 Cost-Effectiveness Report".

14 http://www.caiso.com/docs/09003a6080/34/e4/09003a608034e440.pdf.

permitting and construction of the transmission project, preferably to the completed by the summer of 2009.

2.2.4 Alternatives that SCE Considered

The California Environmental Quality Act (CEQA) requires the project proponent to evaluate alternatives to the project that could meet the project's objectives.[15] Alternatives to DPV2 were identified and evaluated in accordance with CEQA Guidelines. CEQA Guidelines (Section 15126(a)) state:

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

CEQA Guidelines (Section 15364) define feasibility as:

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

Chapter 3 discusses alternative routes that were considered for the project. Additionally, SCE evaluated several other potential transmission projects, which could meet SCE's objectives of increasing transmission import capability into California and accessing surplus, low-cost energy in the southwestern United States. SCE also considered generation and demand reduction as possible substitutes for the DPV2 project. These projects are discussed below.

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15 CCR Title 14, Division 6, Chapter 3, Section 15126.6(f).

2.2.4.1 Transmission Alternatives

The following transmission projects were identified as potentially meeting the basic objectives of DPV2:

- Second Southwest Power Link 500kV transmission line
- Upgrades to Southwest Powerlink No. 1, Devers-Palo Verde No. 1 (DPV1), Navajo-Crystal, and Moenkopi-Eldorado 500kV transmission line series capacitors, known as the Path 49 Upgrade Project
- New Imperial Valley-Devers 500kV transmission line (IV-Devers)
- Combination of Imperial Valley-Devers and Series Capacitors Path 49 Upgrade Project

These projects, and DPV2, were screened using production simulations to determine their economic benefits. Only DPV2 and the Path 49 Upgrade Project showed sufficient economic benefits to be evaluated further (i.e., net positive benefits). The other projects had benefit-cost ratios of less than one so they were screened out from further analysis. See, Appendix G-1 and Appendix G-2 for more details regarding this screening analysis. The Path 49 Upgrade Project has been approved by the CAISO and engineering and construction activities have begun. SCE's economic analysis of DPV2 assumes that the Path 49 Upgrade Project is constructed.

The STEP working group also evaluated potential transmission alternatives to DPV2. In its July 11, 2003 Final report on potential 500kV transmission alternatives,[16] the STEP group evaluated 26 transmission alternatives to determine the preferred projects for expanding transmission capacity between the Southwest and California. In addition, after this thorough stakeholder process that started in 2002, the CAISO concluded in 2005 that DPV2 is a "...necessary and cost effective addition to the CAISO Controlled Grid..."[17]. SCE participated in this multi-year stakeholder process and supports its recommendation that DPV2 is a necessary project as compared to other potential transmission alternatives.

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16 See, the document on the CAISO's web site located at: http://www2.caiso.com/docs/2003/07/11/2003071114390719585.pdf.

17 http://www.caiso.com/docs/09003a6080/34/e4/09003a608034e440.pdf.

2.2.4.2 Technical Alternatives

In 2003, SCE performed power system technical studies to evaluate how to increase the East of the [Colorado] River (EOR) transfer capability. The levels evaluated were 1,050 MW, 1,200 MW, 1,500 MW, and 2,400 MW. When performing power system technical studies, it is SCE's practice to use the North American Electric Reliability Council ("NERC"), WECC Planning Standards ("NERC/WECC Planning Standards"), and the CAISO's Planning Standards as the system performance standards.

First, a 1,050 MW increase was evaluated to determine if the west of Devers upgrades could be avoided. However, the studies found that west of Devers upgrades would be needed because the Devers-San Bernardino No. 1 230kV line continued to be overloaded at the 1,050 MW transfer capability increase amount. The 1,500 MW and 2,400 MW levels were likewise evaluated but were also found to require significant amount of voltage support and upgrades west of Devers to support such an increase in transfer capability. Therefore, these three levels of increased transfer capability were excluded from further evaluation.

The technical studies focused on fully developing the Plan of Service for a 1,200 MW increase in transfer capability on the EOR and WOR path due to the DPV2 Project being constructed. The 1,200 MW increase was the level of increase that provided the most cost effective Plan of Service to meet the objectives of the Project.

Alternative technical modifications to the existing DPV1 500kV transmission line were evaluated and include: (1) increasing the percent compensation on the existing DPV1 500kV transmission line, and (2) converting DPV1 from an AC line to a DC line.

The DPV1 increase in percent compensation evaluation assessed the potential for Subsynchronous Resonance (SSR) concerns for the Palo Verde generators. The potential for SSR concerns was evaluated with DPV1 at its present 47 percent compensation and at compensation levels from 50 percent to 70 percent increasing in 5 percent increments. The results of this SSR

study clearly demonstrated that an SSR concern for the Palo Verde nuclear generating units would be present at compensation levels at and greater than 50 percent. Based on this result, this alternative was dismissed and not evaluated any further.

SCE performed a scoping study in 2002 to evaluate converting the existing DPV1 AC line to 3,000 MW, +/-500kV HVDC line. It was assumed that the existing AC line could be converted for HVDC operation with two of the three phases operating as the DC poles for the DC operation, and the remaining phase act as the ground return.

Based on the preliminary power flow and stability studies, the project scope of the DC 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 500kV transmission line
- Build a new Valley-Serrano # 2 500kV transmission line
- Drop load at eight SCE A bank stations
- Drop generation in Arizona for the loss of DC line

This DC Alternative was eliminated from further evaluation due to the higher cost when compared to the DPV2 Project.

2.2.4.3 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[18] 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.[19] Both options are necessary, and DPV2 is the specific transmission project that is being considered here.

The alternatives discussed below are resource options SCE is aggressively pursuing[20] to meet the demands of its customers and southern California in general. As shown by the "in-out" analysis,[21] these resources are complimentary to the future benefits of DPV2 and therefore are not substitutes. 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.

New Generation Alternatives

A project to construct an economic transmission line is not comparable to generation, either conventional or renewable. First, an economic transmission line provides access to many generators, which will increase competition and broaden the energy market. DPV2 will facilitate a robust transmission system that will not only allow for interconnection of new generation

18 CAISO report on Economic Evaluation of Palo Verde Devers No. 2, February 2, 2005.

19 DPV2 does not preclude the development of new generation.

20 SCE prioritizes its resource considerations consistent with the Energy Action Plan's "loading order."

21 A more detailed discussion may be found in Appendix G of the PEA.

resources to the transmission grid, but also will provide for flexible delivery alternatives and increase access to a greater number of resource procurement options.

Second, a transmission line such as DPV2 will allow load serving entities to procure short-, medium-, and long-term contracts with existing low-cost generation from the Southwest in addition to only long-term contracting associated with a new generation alternative located in southern California. As discussed in Section 2.1.1, there are over 6,000 MW of existing surplus generation in the Southwest. New generating plant 'alternatives' 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.[22] In this scenario, these generating plants would not participate in the short-term energy markets and produce the enhanced competition DPV2 is expected to facilitate. Renewable resources, in particular, tend to rely even more on dedicated, long-term, full-requirement contracts. SCE 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.

When considering new generation alternatives, one should also consider whether new transmission is required to deliver the power to the load. DPV2 does not preclude the development of new power, renewable or otherwise. On the contrary, as load continues to grow, DPV2 can provide the additional means for new generation to be delivered to the load.[23]

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22 SCE's experience has been that the current market environment prefers new generating plants in southern California to secure all or most of its full output by a long-term contract to obtain financing. As indicated in various parties' testimony in the R.04-04-003 (see, for example, witness Kelly of the Independent Energy Producers, transcript p.1036), it is currently difficult to finance new power development without a long term contract.

23 Even if DPV2 is fully utilized, new cost effective generation can compete with existing generation for access to DPV2 transmission.

Furthermore, the economics of new generation 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

SCE believes these factors will continue into the future therefore providing a lower-cost energy option to California consumers.

SCE 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.

For these reasons, new generation alternatives do not meet the project's objectives and were excluded from further evaluation.

Demand-Response Alternative

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 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, DPV2 is still a cost effective project. 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 Commission'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.

Energy Efficiency Alternative

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, DPV2 is still a cost effective project even with the amount of energy efficiency SCE is planning to implement. Finally, for similar reasons as the demand response alternative discussed above, the energy efficiency alternative does not meet the project's objectives and was excluded from further evaluation.

Distributed Generation Alternative

As stated in SCE's 2004 LTPP[24], 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 resources[25] exceeding the Energy Action Plan goal of 1 percent growth per year. Note, however, most distributed generation 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 sufficient quantity 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.

No-Project Alternative

Should DPV2 not be completed or should it be delayed indefinitely, the net economic benefits that would have been derived from DPV2's access to surplus, low-cost generation in the Southwest would not materialize. This was demonstrated in the DPV2 "in-out" analysis,[26] which shows SCE purchasing more, higher-cost energy from within the state and importing less economy energy from the Southwest without DPV2. Also, the potential benefits of increased competition within the generation sector would be lost. And finally, the added operational benefits needed during a major generation or transmission outage would not be available.[27] The no-project alternative would mean that DPV2 would not be built, an alternative that does not meet the basic project objectives. As such, the no-project alternative was excluded from further

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24 See, R.04-04-003 Volume 1 at 81.

25 SCE has over 3500 distributed generation sites with a combined capacity of about 255 MW, which have been approved/authorized since 2001.

26 A more detailed discussion may be found in Section 2.2 of the PEA.

27 A more detailed discussion may be found in Section 2.2.5 of this Chapter 2.0.

economic evaluation, but it was analyzed as part of the environmental analyses in SCE's application and PEA.

2.2.5 Non-Quantifiable Benefits

Some examples of potential benefits not quantified in DPV2's benefit-to-cost ratio of 1.7:1 include:

- New Generation Development – Developing the DPV2 could attract new generation development east of Devers Substation, such as in the Blythe and Palo Verde areas, providing additional supply to the California energy market. If new generation is developed, then DPV2's benefits should increase due to increased access to this new low-cost generation.

- Market Power – DPV2 also may provide benefits by reducing the potential for generators to exercise market power. By helping to increase the quantity of generation and number of suppliers available to serve California markets, DPV2 should help to increase competitive pressure on generators. This, in turn, should help to reduce the ability for generators to exercise market power as California experienced in the recent energy crisis.

- Emergency Value – A new transmission line such as DPV2 could provide benefits during an emergency outage of another major import line or generating facility. For instance, if fire or an earthquake disables lines from the Pacific Northwest into California, then a line importing power from the Southwest, such as DPV2, would provide benefits above what is quantified in this report. A similar emergency value could accrue during the long term or untimely outage of generation located in Southern California.

Using a production simulation modeling assessment to evaluate a transmission project will undervalue a transmission project, since it will not capture the benefits listed above. These

benefits are difficult to quantify because they involve uncertainties that are hard to predict. But historically, transmission lines can pay for themselves in just a few years because of low probability, but high-impact events.[28]

DPV2 provides very real economic benefit to ratepayers by providing access to low-cost energy, supporting SCE's energy procurement goals, and enabling competitive new generation to develop, and providing significant operational benefits because grid operators have more facilities in which to depend upon (as discussed in Section 2.2).

2.3 THIRD-PARTY PROJECT PARTICIPATION AND RELATED TRANSACTIONAL ISSUES

2.3.1 Los Angeles Department of Water and Power

SCE and the Los Angeles Department of Water and Power (LADWP) currently have an existing contractual arrangement that provides for participation by LADWP in the DPV2 project. The Los Angeles-Edison Exchange Agreement was entered into on December 18, 1987 (Exchange Agreement). The Exchange Agreement is summarized in Table 2-1.

Under the Exchange Agreement, LADWP will receive 30.7 percent of the DPV2 line capacity and share in 30.7 percent of the DPV2 project costs. The Exchange Agreement provides that the parties will enter into a participation agreement to more fully describe the parties' respective rights and obligations regarding the ownership of DPV2. Provided LADWP participates in DPV2, its transmission capacity between Palo Verde and Devers will remain essentially the same. LADWP's 368 MW of existing transmission service rights between Devers and Palo Verde will terminate and LADWP will acquire a 30.7 ownership interest in DPV2. LADWP's ownership share would equal 368 MW at the planned rating for DPV2 of 1200 MW.

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[28] http://www.electricpowergroup.com/Downloads/Planning/Planning_CA_FutureTrans_Grid_Final_Task1.pdf.

TABLE 2-1 SUMMARY OF EXCHANGE AGREEMENT
Eastern Transmission Service SCE shall make available to LADWP 368 MW of firm bidirectional transmission service between Devers and Sylmar for the life of DPV1 or upon construction of DPV2 the life of DPV2. SCE shall make available to LADWP 368 MW of firm bidirectional transmission service between Palo Verde and Devers beginning June 1, 1990 and shall continue service until the earliest of any of the following events: (i) the in-service date of the DPV2 Line, (ii) the in-service date of any other transmission line connecting Palo Verde and Devers in which LADWP has obtained either an ownership share or entitlement to transmission service, (iii) the date when the DPV1 Line is permanently removed from service, (iv) four years after SCE has obtained the CPUC approval, pursuant to California Public Utilities Code Section 851 to transfer rights of way for DPV2 to LADWP, or (v) upon 12 months' prior written notice by LADWP, on or after January 1, 2003; provided, however, that upon written notice by SCE, provided within three months following the date of such notice by LADWP, such termination date may be extended for an additional period not to exceed 24 months, if and to the extent necessary to allow SCE to reflect fully the revenue impact of such termination in its CPUC and FERC jurisdictional rates. SCE shall make available to LADWP 100 MW of firm bidirectional transmission service over SCE's transmission facilities between Palo Verde and Sylmar through May 2012.
Northwest Transmission Rights LADWP shall make available to SCE from LADWP's ownership share of the extra-high voltage (EHV) Pacific DC Intertie Line, 500 MW of firm bidirectional Transmission Capacity on the EHV DC Line between Sylmar and the Nevada-Oregon border. SCE shall make available to LADWP 320 MW of bidirectional Transmission Capacity on the EHV Pacific AC Intertie Lines. The exchange of Pacific Intertie transmission service terminates when SCE's rights to the Pacific AC Intertie terminate.
Castaic Service LADWP shall make available to SCE 200 MW from the Castaic Power Plant for a term of five years from the effective date of the Exchange Agreement. This provision expired on December 18, 1992. Commencing upon the effective date of the Exchange Agreement and continuing for a term of 22 years, LADWP shall use its best efforts to make Additional Service available to SCE at LADWP sole discretion. Additional Service is any weekly service for spinning reserve, generation and pumping purchased by SCE.
DPV2 Line Ownership LADWP has the obligation to acquire a 30.7 percent ownership interest in the DPV2 line. SCE shall use its best efforts to construct DPV2 with a minimum 1,200 MW Transmission Capacity Rating. LADWP has the option to purchase firm bi-directional transmission service over DPV2 to make up a total of 368 MW in the event DPV2 Transmission Capacity Rating is less than 1,200 MW.

LADWP has not yet committed to participate in DPV2. On August 1, 2003, SCE sent a letter to LADWP informing LADWP of SCE's intention to pursue the necessary regulatory approvals for the construction of the DPV2 Line. LADWP responded to SCE with a letter dated September 5, 2003 that LADWP is currently in the process of evaluating its rights and obligations pursuant to the Exchange Agreement. SCE has provided LADWP with DPV2 project information and will continue to seek LADWP's participation. SCE will keep the CPUC informed of significant developments regarding LADWP's participation in DPV2. Participation by LADWP in DPV2 will not change total project benefits because LADWP would effectively be trading its existing transmission service right for an ownership right with no net change in new transmission

capacity available to the CAISO. Project costs to CAISO ratepayers would be reduced by LADWP's payment of its ownership share of costs, and thus LADWP participation in DPV2 will improve SCE's cost-benefit analysis. For purposes of this application, SCE has used a conservative assumption that LADWP will not participate in DPV2.

2.3.2 Harquahala Generating Company Option Agreement

SCE and Harquahala Generating Company (HGC) entered into an Option Agreement on February 13, 2001 (Option Agreement). The Option Agreement provides that SCE has the option to purchase the 500kV switchyard at Harquahala; the 500kV transmission line from the Harquahala Switchyard to the Hassayampa Switchyard, and the Harquahala transmission line terminal facilities at the Hassayampa Switchyard.

SCE also entered into a License Agreement with HGC on February 13, 2001 that provides for HGC to construct a portion of the Hassayampa-Harquahala transmission line on SCE right-of-way. The agreement also allows HGC to purchase SCE's land rights between Harquahala and Hassayampa if SCE does not exercise the option by 2011, or if SCE desires to terminate the License Agreement. If SCE exercises the Option Agreement, the License Agreement would terminate.

At the time SCE entered into the Option Agreement, HGC was proceeding to build and own a 500kV transmission line to interconnect its new 1,040 MW natural gas-fired generating plant in Maricopa County, Arizona, with the regional transmission system in central Arizona at the Hassayampa 500kV switchyard. SCE was concerned with the potential for HGC building near SCE's DPV2 right-of-way and potentially adversely affecting SCE's ability to build DPV2. SCE entered into the Option Agreement with HGC to preserve the right-of-way for DPV2.

For the DPV2 project, SCE will construct a new 500kV line from Devers to the Harquahala switchyard. SCE would then use the existing Harquahala-Hassayampa 500kV line to complete

the connection of the DPV2 Project to the Hassayampa Switchyard. The Hassayampa Switchyard is a satellite switchyard, and is functionally equivalent to connecting at the PVNGS Switchyard. SCE's preferred route and alternatives are discussed in Chapter 3.

2.3.3 Arizona Public Service TS5 Project

APS has informally proposed to the Arizona Corporation Commission (ACC) that it construct a 45 mile 500kV transmission facility from the Palo Verde hub to a new TS5 substation located in western Arizona. APS's preferred route for its proposed TS5 line parallels SCE's Devers-Palo Verde right-of-way for approximately 18 miles. The ACC has encouraged APS to evaluate using existing transmission capacity between Palo Verde and Harquahala. APS has approached SCE to determine if arrangements could be made to utilize the existing Harquahala-Hassayampa 500kV line, which SCE plans to acquire from HGC pursuant to the Option Agreement, to complete the connection of the DPV2 Project to the Hassayampa Switchyard as described above in Section 2.3.2. APS's preliminary studies indicate that there may be adequate capacity in the Harquahala-Hassayampa 500kV line prior to 2015 to accommodate both the TS5 and DPV2 Project requirements. SCE is continuing discussions with APS on a possible joint arrangement. SCE will keep the CPUC informed of significant developments regarding these joint project discussions.

2.4 WEST OF DEVERS UPGRADES

2.4.1 230kV West of Devers Transmission Upgrades

For most of its alignment, the DPV2 500kV transmission line route would be located adjacent to the existing DPV1 500kV transmission line within an established transmission line corridor. DPV2 would become part of the EOR transmission system. The EOR System is a WECC–defined transmission path (Path 49) that consists of six 500kV transmission lines linking southern Nevada and western Arizona with southern California, The EOR system is presently

rated at 7,550 MW. The EOR rating is expected to increase to 8,055 MW in 2006 with the completion of the planned upgrades to DPV1 and the SWPL line (Path 49 Upgrade project).

The addition of the DPV2 500kV transmission line to the EOR system would increase the transfer capability on the EOR system by 1,200 MW, increasing the total rating of the EOR system to 9,255 MW. This increase in transfer capability would result in line-overloads on the four 230kV lines west of the Devers under line-out contingencies.

System planning criteria require that the lines provide sufficient capacity during normal and emergency conditions. The criteria are satisfied during emergency conditions if the remaining lines do not overload when another line (or 2 lines) "trips" out of service. Due to the increased power flows associated with the proposed DPV2 project, all four of the west of Devers 230kV lines load beyond their loading capability during an outage of the existing Devers- Valley 500kV transmission line. This condition is a violation of system planning criteria.

Therefore, the DPV2 project and specifically, operation of the proposed Devers to Harquahala 500kV transmission line, will require upgrades to SCE's existing 230kV transmission lines west of the Devers Substation in accordance with applicable system planning criteria.

The west of Devers 230kV system consists of two Devers-San Bernardino lines and two Devers-Vista lines. The Devers-San Bernardino No. 1 and the Devers-Vista No. 1 230kV lines would be upgraded. Those upgrades consist of the removal and replacement of approximately 40 miles of two single-circuit tower lines with a new double-circuit tower line, strung with double-bundled 1033 aluminum conductor steel-reinforced (ACSR) conductors. The single conductors on the existing double-circuit tower lines would be replaced with double-bundled 1033 ACSR conductors. These upgrades would result in four 230kV circuits with double-bundled conductors on two double-circuit tower lines. Minor modifications would be required to some of the towers. Replacing the existing conductors with higher capacity conductors will more than double the capacity of the four 230kV transmission lines west of Devers Substation.

The proposed 230kV upgrades are the most cost-effective and practicable means to resolving the potential system overload conditions by increasing the normal power carrying capacity of the four west of Devers 230kV circuits.

2.4.2 West of Devers Alternatives

Three other system modifications were evaluated as alternatives to the proposed 230kV transmission line upgrades west of Devers: (1) operating mitigation procedures, (2) constructing a new 500kV line, and (3) constructing a new and separate 230kV line (i.e., adding a fifth circuit). These options are described as below.

2.4.2.1 Operating Procedures

If the DPV2 project is constructed without upgrading the transmission system west of Devers, the existing 230kV transmission lines would overload under base case (all lines in-service) and for line out conditions. In the absence of the proposed upgrade project, planned overload mitigation would be required to reduce the loading on the existing lines to below their loading capability. Acceptable mitigation would consist of an operating procedure that would limit the transfer capability on the EOR system. This type of mitigation is not desirable both from the system operation viewpoint and economics because it would reduce the DPV2 power flow on EOR to its present 8055 MW rating; the schedules associated with the 1200 MW rating increase would be reduced to zero.

2.4.2.2 New Devers-Mira Loma 500kV Transmission Line

Adding a new 500kV transmission line between Devers and the Mira Loma substations would resolve the system overload problem identified on the 230kV system west of Devers. However,

building a new 500kV line to prevent the 230kV transmission line overloading would cost more than the proposed 230kV replacement and upgrade west of Devers. Additionally, adding a new 500kV line would not increase the overload capability on the west of Devers 230kV system because the small conductor line would still be there and it is the limiting element to achieve the full 1200 MW transfer capability for the Project. Therefore, for contingency of the new 500kV line, the 230kV lines would overload and an operating procedure would be required to reduce DPV2's 1200 MW import capability to zero.

2.4.2.3 New 230kV Transmission Line

Constructing a new and separate 230kV transmission line west of Devers would increase the base case load carrying capacity of the 230kV transmission system west of Devers. However, it would not increase the overload capability on the existing west of Devers 230kV transmission lines because the small conductor in the lines would still be there and the full 1200 MW transfer capability for the Project could not be achieved. Similar to the discussion in Section 2.4.2.2 above, for the contingency of the new 230kV line, the existing 230kV lines would overload and an operating procedure would be required to reduce DPV2's 1200 MW import capability to zero.

Also, a separate 230kV transmission line cannot be constructed in the existing west of Devers 230kV right-of-way without removal of an existing line, due to the lack of available space.

2.4.3 500kV Static VAR Compensators

A 388 MVAR 500kV Static VAR Compensator (SVC) would be installed and terminated at the 500kV switchyard inside the property line at Devers Substation and one 388 MVAR, 500kV SVC would be installed at SCE's existing Valley Substation. For Valley Substation, the western station fence would be relocated to the western edge of the existing property line. An area of approximately 2.0 acres within the substation property would be used for temporary lay down

and construction. Installing dynamic voltage support equipment is needed to mitigate violations of the voltage stability criteria of the WECC and North American Electric Reliability Council ("NERC") Planning Standards.

2.4.4 Special Protection System

A Special Protection System (SPS) is proposed to mitigate post-transient voltage violations of system planning criteria for the simultaneous loss of Devers-Palo Verde No. 1 and Devers-Harquahala, or Devers-Palo Verde No. 1 and Harquahala-Hassayampa 500kV lines. This SPS will be designed to drop approximately 900 MW of generation in the Palo Verde area and approximately 900MW of SCE load.

2.5 MIDPOINT SUBSTATION

SCE has received an interconnection request from Desert Southwest Power, LLC (DSWP) as the proponent of the Desert Southwest Transmission Project (DSWTP). The proposed DSWTP is a 500kV transmission line that would be constructed parallel to SCE's DPV1 line from Blythe, California to the Devers Substation. In an effort to minimize environmental impacts and project costs, SCE and DSWP have agreed to explore ways to integrate the two projects. Under a joint project proposal, only one, instead of two 500kV transmission lines, would be constructed between Blythe and Devers. The joint project would include the construction of a 500kV switchyard referred to as the Midpoint Substation in the Blythe area. The Midpoint Substation would allow the integration of the DSWTP and the DPV2 Projects. SCE will keep the CPUC informed of significant developments regarding these joint project discussions.

CHAPTER 3.0
DESCRIPTION OF THE PROPOSED PROJECT

3.1 PROJECT DEVELOPMENT PROCESS

3.1.1 Overview

This section describes the steps taken by SCE and the status of permitting actions previously taken by state and federal regulatory agencies in the development of the DPV2 transmission line project. Additional permits or actions required prior to construction of the proposed DPV2 project are listed in Section 3.1.4.

The proposed route for the Devers-Harquahala 500kV transmission line is located generally parallel to SCE's existing DPV1 500kV transmission line route (see Chapter 1, Map 1-1; and Maps 3-2a-c, end of Chapter 3). 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 PVNGS within a 6,000-square-mile area. Subalternate routes were evaluated in the DPV1 Draft Environmental Impact Statement (DEIS) prepared by the USDOI-BLM and 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 500kV transmission line using the proposed route between Devers Substation and PVNGS were submitted by SCE in 1985. The CPCN application and PEA included the proposed route and four subalternates from the DPV1 studies that were completed in 1978. Agency approvals and other actions pertaining to the DPV2 project are described as follows, and listed in Table 3-1.

TABLE 3-1 DPV2 AGENCY APPROVALS AND OTHER ACTIONS			
Document	**Date**	**Agency**	**Action**
CPCN Application including PEA	12/85	CPUC	Initial filing
Draft Environmental Impact Report	03/87	CPUC	State of California public and agency review
Supplemental Draft Environmental Impact Statement	05/87	USDOI/BLM	Review in compliance with NEPA
Final EIR	08/05/87	CPUC	Compliance with California Environmental Quality Act
Arizona Certificate of Environmental Compatibility Application filed (Case No. 76)	11/16/87	ACC	Filed application for state of Arizona review (withdrawn)
Amended CPCN Application/PEA filed (No. 85-12-012)	08/88	CPUC	Incorporated SCE/Division of Ratepayer Advocates cost/benefit study
Addendum to FEIR	09/88	CPUC	Review required for amended PEA
Final SEIS	10/88	USDOI/BLM	Proposed project and route adjacent to DPV1 approved
Interim Opinion (Decision No. 88-12-030)	12/09/88	CPUC	Interim Order Granting conditional approval for CPCN and route
Record of Decision	02/21/89	BLM	Approved project and preferred route in compliance with NEPA
Certificate of Right-of-Way Compatibility	03/01/89	USFWS	Certified compatibility of 500kV transmission line on KOFA NWR land
Right-of-Way Grant (CA-17905/AZ-23805)	08/11/89	BLM	Right-of-way permitted across federal land
SCE Ten-Year Plan filed	02/28/94	ACC	Notice of SCE's plan to construct in Arizona

SCE applied to the CPUC for a CPCN for DPV2 in 1985. Following reviews of SCE's PEA (1985) and the CPUC EIR (1987) and subsequent filing and review of SCE's 1988 Amended Application and PEA (SCE 1988), the CPUC issued a decision approving the then proposed route for DPV2. The Interim Order issued in December 1988 granted a CPCN to SCE that allowed construction of the project, conditioned upon compliance with an environmental mitigation program and other conditions as specified in the CPUC Final EIR (1987).

The USDOI – BLM approved the DPV2 project and the proposed route following completion of a FSEIS (BLM 1988) in compliance with NEPA, and issued a ROD in 1989. Later that year, the BLM issued a Right-of-Way Grant to SCE for the construction, operation, and maintenance of DPV2 across federal land, pursuant to Title V of the Federal Land Policy and Management Act

of 1976. In 1989, USFWS issued a CRC for the portion of the DPV2 route that crosses the KOFA NWR in Arizona.

The route that was proposed in the 1985 Application and PEA, and 1988 Amended Application and PEA, followed the existing DPV1 line and terminated at PVNGS. The termination point of the 500kV transmission line route that is proposed in the current application is the Harquahala Generating Station Switchyard, located approximately 16 miles directly northwest of PVNGS (see Map 1-1). The distance of the proposed route between Devers Substation and the Harquahala Generating Station is approximately 230 miles and follows the existing DPV1 line for a distance of 225 miles, approximately 8 miles shorter than the route proposed in the previous DPV2 applications.

The majority of the proposed Devers-Harquahala 500kV transmission line would be constructed within the 130-foot-wide right-of-way on public land granted in perpetuity to SCE for the DPV2 project by the BLM in 1989. The right-of-way was granted for a total of 149.9 linear miles of public land between Devers and PVNGS, 57.2 miles in California and 92.7 miles in Arizona, including land managed by the BLM, USFWS, U.S. Department of Defense (DOD), and U.S. Bureau of Reclamation (USBR). The proposed Devers-Harquahala 500kV transmission line route would require a total of 136.6 miles of public land, as shown in Table 3-2. The Devers-Harquahala 500kV route also is within utility corridors as designated in the BLM RMPs for each of the respective BLM planning areas in Arizona and California. Construction would proceed as authorized by the BLM, incorporating the mitigation measures identified in the final versions of the FEIR, FSEIS, ROD, Right-of-Way Grant, CEC, and CRC.

TABLE 3-2 DPV2 RIGHT-OF-WAY GRANT AND PROPOSED DEVERS-HARQUAHALA 500kV TRANSMISSION LINE RIGHT-OF-WAY		
Land Management Agency	**Total Miles of Right-of-Way**	
	DPV2 Right-of-Way Grant (BLM 1989)	**Proposed Devers-Harquahala 500kV Transmission Line**
BLM	123.8	110.5
USFWS	26.1	26.1
Total	**149.9**	**136.6**
Note: BLM land withdrawals include DOD, Yuma Proving Ground (0.1 mile); USBR, CAP Canal (0.1.mile). USFWS land includes the KOFA NWR (23.8 miles) and Coachella Valley NWR (2.3 miles).		

Additional right-of-way requirements include Arizona State Trust Land (10.8 miles), California State Land (0.6 mile), Agua Caliente Indian Reservation (0.1 mile), and private land (81.6 miles). Some portions of the right-of-way were previously acquired from private owners by SCE. The Devers-Harquahala 500kV right-of-way acquired on private land, adjacent to the DPV1 right-of-way, will be a minimum of 130 feet wide.

Reinforcement of the 230kV system west of Devers was planned for the proposed 1985 DPV2 project. The proposed DPV2 project, for which SCE is now requesting CPUC approval, also includes upgrades to SCE's 230kV system west of Devers. The proposed improvements would be constructed within SCE's existing right-of-way that consists of one set of double-circuit towers and two separate sets of single-circuit structures between Devers and San Bernardino Junction (40 miles). San Bernardino Junction is the intersection of 230kV transmission line corridors located 3.4 miles south of the San Bernardino Substation. The proposed 230kV system upgrade west of Devers would require the removal of an existing single-circuit 230kV transmission line on wood H-frame structures, and the removal of an existing single-circuit 230kV transmission line on lattice steel structures between Devers and San Bernardino Junction; replacement with a new double-circuit 230kV line; and reconductoring and modification of the existing double-circuit 230kV line. Also, the upgrade would require reconductoring both circuits on an existing double-circuit 230kV tower line between Vista Substation and San Bernardino Junction. In addition, one circuit on each of the two existing double-circuit 230kV tower lines

between the San Bernardino Junction and San Bernardino Substation (3.4 miles) would be reconductored.

The upgrade will result in four 230kV circuits, each with new 1033.5 thousand circular mil (kcmil) ACSR bundled (two) conductors.

3.1.2 Alternatives – Devers-Harquahala 500kV Segment

3.1.2.1 Alternative Routes

Alternative routes described in this chapter include subalternates considered and eliminated in the DPV1 EIS; the 1985 DPV2 PEA (amended in 1988); as well as alternatives considered in this PEA. Following is a description of the subalternate routes considered in the 1985 DPV2 PEA as amended in 1988, and a review conducted in 2002-2003 to update the subalternate route conditions. Alternatives to be considered in this PEA also are described in this chapter, with resource analysis following in Chapters 4 and 5.

Alternative Routes Considered and Eliminated

Studies were conducted to evaluate both electrical system alternatives and routing alternatives to the proposed DPV2 project. The electrical system alternatives are described in Chapter 2, Purpose and Need, of this document. Four subalternate routes for the portion of the line proposed between Devers and PVNGS were evaluated to address potential sensitivities in the Blythe and KOFA NWR areas. The subalternate route evaluation was documented at successive stages of project development for the 1985 PEA and amended 1988 PEA.

Following are summary descriptions of the subalternate routes considered in the 1988 amended PEA (SCE 1988) and impacts related to specific resources that potentially would result from the

construction and operation of the DPV2 project for each of the subalternate routes. (See Appendix D, Chapter 10, page references noted below are from the 1988 PEA.)

A comparison of the proposed and subalternate routes is provided in Table 3-3. The subalternate route segments range from 82.3 to 90.6 miles long, and include links that comprise the route segments between common points, as listed in the table and shown on Map 3-1. (Links 1 and 13 are common segments at the eastern and western ends of the network of subalternate routes.)

TABLE 3-3
DEVERS-HARQUAHALA 500KV TRANSMISSION LINE
PROPOSED AND SUBALTERNATE ROUTE COMPARISON

Description of Proposed and Subalternate Routes	Link Numbers	New 500kV Towers (number in segment)	Length of Route Segment		Ground Disturbance	
			Route (miles)	New Access and Spur Roads (miles)	Temporary Construction Areas (laydown areas, tensioning and pulling sites, in acres)	Permanent Area (access and structure footings, in acres)
Proposed Route	2, 6, 8, 10, 12	258	79.0	5.4	275	9
Subalternate 1	3, 4a, 4b, 4c, 6, 8, 10, 12	271	82.4	48.3	288	82
Subalternate 2	3, 5, 11,12	282	82.3	79.7	298	135
Subalternate 3	2, 6, 7, 9	296	90.6	36.7	314	62
Subalternate 4	3, 4a, 17, 4c, 6, 8, 10, 12	277	84.1	50.1	294	85

Subalternate Route 1 (Links 3, 4a, 4b, 4c, 6, 8, 10, and 12). This route was originally part of a subalternate route in Arizona that was evaluated in the BLM's EIS (1978) for the DPV1 transmission line. Subalternate Route 1 was selected for further evaluation for the 1985 DPV2 project 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. This route would cross BLM land located north of the KOFA NWR boundaries (as delineated at the time of the previous studies).

Map 3-1
SUBALTERNATE ROUTES CONSIDERED IN THE 1988 PEA

Devers - Palo Verde No. 2 Transmission Line Project

Sources

United States Geological Survey (USGS), Phoenix, AZ (1969), Salton Sea, AZ (1969), 1:250,000-scale topographic maps. Arizona land ownership, EPG, Inc. 2000. Arizona land jurisdiction, Town of Quartzsite, 2003. KOFA, U.S. Fish and Wildlife Service. U.S. Bureau of Land Management, California State Office, June 1998. U.S. Department of the Interior, Bureau of Land Management, BLM Arizona Access Guide (La Posa), October 1999. Devers to Palo Verde No.2 PEA (1988), SEIS (1988).

Prepared By: Environmental Planning Group, Inc. March 9, 2005

0 2.5 5 10 Miles

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

epg

m:/projects/sce/devers/arizona/mxds/1988PEA_subalts2.mxd

Land Ownership

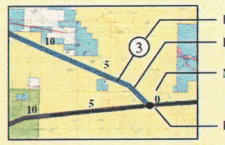
- Bureau of Land Management
- Bureau of Reclamation
- U.S. Fish and Wildlife Service
- Native American Tribe
- Yuma Proving Ground
- State
- Private

Land Jurisdiction

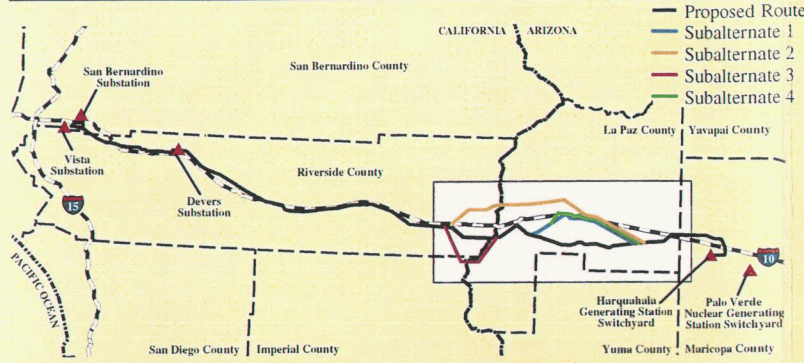
- Municipal Boundary

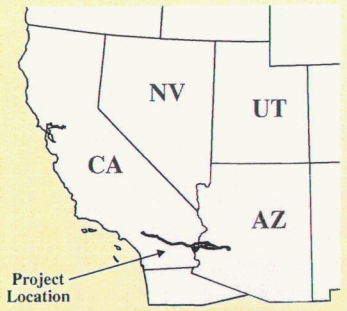
General Reference Features

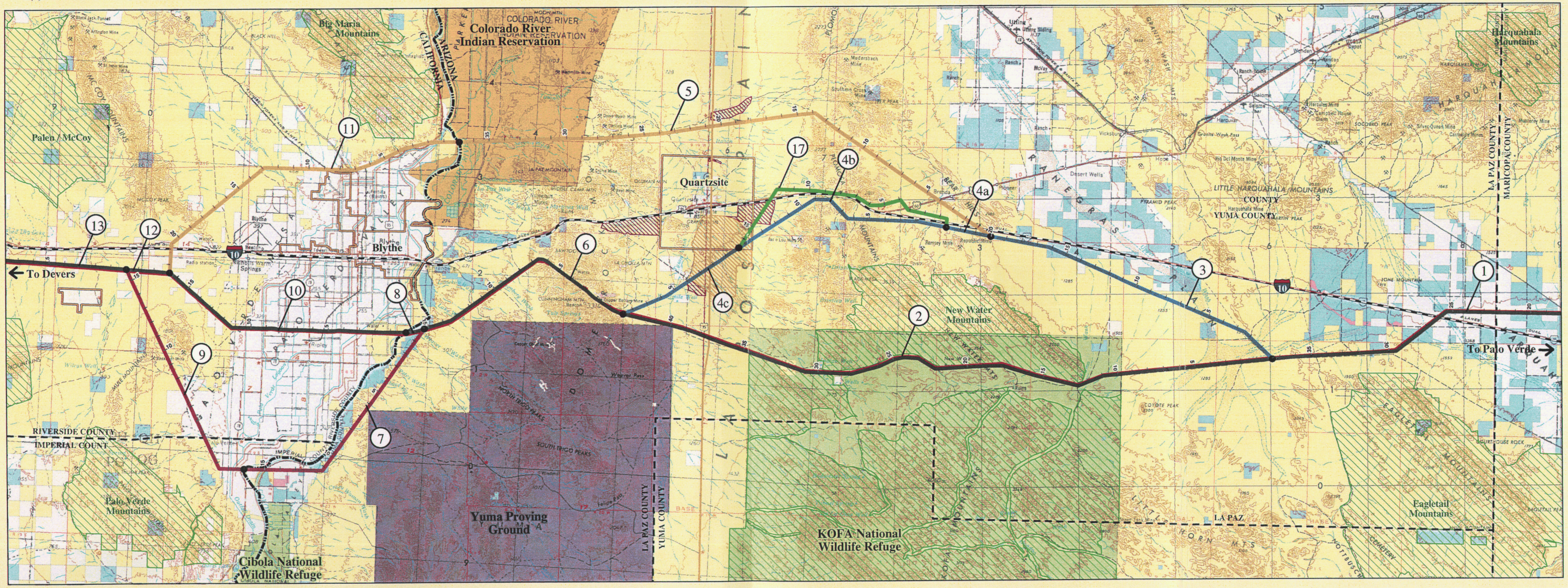
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- State Boundary
- County Boundary
- Substation/Switchyard
- Wilderness
- BLM La Posa Designated Camping Area
- BLM La Posa Long-Term Visitor Area



Panel Index Map







However, the route would have crossed the New Water Mountains Wilderness Study Area (WSA), on BLM land, as well as a contemplated expansion area of the KOFA NWR along the southern side of I-10. This subalternate route would be 3.4 miles longer than the proposed route (Link 2) and result in 82 acres of permanent ground disturbance, compared to 9 acres for the proposed route (see Table 3-2).

SCE's 1988 amended PEA concluded that the following impacts would result from Subalternate 1:

- Movement of wildlife species – The need for new construction access in a separate corridor would result in potentially greater adverse impact to bighorn sheep than the preferred route (1988 PEA, p. 10-75); potentially significant impact to an area of major sensitivity (within proposed KOFA NWR expansion area) (1988 PEA, p. 10-60); and impacts to Tyson Wash (Link 4c).

- Recreation use – Significant impacts to the BLM La Posa Recreation Site and Long-Term Visitor Center – (Link 4b-4c) and views from the site (1988 PEA, pp. 10-56 – 10-84).

- Visual resources – Significant impact from construction of the project in a new corridor in areas of Class A and Class B scenic quality (Link 4b); significant impact to scenic value of views from I-10, parallel to the transmission line in a new corridor with strong visual contrasts (Link 4a-4b), and crossing Highway 95 in the La Posa Plains (Link 4c); significant impact to views from residences (Link 4c) (1988 PEA, pp. 10-78 – 10-81).

Subalternate Route 2 (Links 3, 5, 11, and 12) – Subalternate 2 is a portion of Subalternate Route "P," that was evaluated in the DPV1 DEIS, in response to concerns regarding agricultural impacts in the Palo Verde Valley for the proposed route. Subalternate Route 2 would cross agricultural land on the Colorado River Indian Tribe (CRIT) Reservation, and would be 3.3 miles longer than the proposed route (Link 2). This route would result in approximately 135 acres of permanent ground disturbance compared to 9 acres for the proposed route.

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

Resource impacts that would occur if Subalternate Route 2 was selected include the following:

- Agricultural land – potentially significant impacts to prime farmland (Links 7 and 11) (1988 PEA p. 10-58).

- Visual resources – Significant impact from construction of the project in a new corridor in areas of Class A and Class B scenic quality in the northern portion of the Plomosa and Dome Rock mountains (Link 5), in the Colorado River riparian area (Link 5), and through agricultural land in the Palo Verde Valley of California (Link 11). Significant impact to scenic values for views from I-10 with strong contrasts south of Bear Hill and west of Blythe Airport (Link 11); State Route (SR) 95 in the La Posa Plains; US 60 west of Brenda, Poston Road, and Midland Road (Link 5); and US 95 north of Blythe (Link 11). Significant impact to residential views near Brenda (Link 5) and along the Colorado River (Link 11) (1988 PEA, p. 10-78 – 10-84).

- Movement of wildlife species – Significant impact to high-quality bighorn sheep habitat (Link 5) including a major movement corridor between Ibex Peak/Haystack Peak and Lazarus Tanks mountain block and nearby lambing areas in the north Plomosa Mountains.

Subalternate Route 3 (Links 2, 6, 7 and 9) - This subalternate route was not evaluated in studies conducted initially for the DPV1 line, but was considered in the studies for the 1985 DPV2 project (1985 PEA) in response to concerns regarding agricultural impacts in the Blythe area. This subalternate route crossed the Palo Verde Valley in California, about 10 miles south of the DPV1 crossing through a portion of Imperial County. Subalternate Route 3 would be 11.5 miles longer than the proposed route. The subalternate route would cross 3.8 miles of farmland (Links

7 and 9), which would be less than the 9.8 miles of farmland on the proposed route (Links 8, 10, 12). Because Subalternate Route 3 is 11.6 miles longer than the proposed Devers-Harquahala 500kV transmission line, the resultant area of permanent ground disturbance would be 62 acres, or 53 acres greater than the proposed route (see Table 3-3). Even though impact to agricultural land would be less, the overall impact to ground disturbance would be greater.

Construction on Subalternate Route 3 would result in significant impacts, as follows:

- Visual impacts – Significant impacts to scenic values and residences at the Colorado River crossing and riparian area, and Palo Verde Mesa (Links 7 and 9); significant impacts at CA 78 highway crossing (Link 9); significant impacts to the BLM Oxbow Recreation Site (Link 7) and Imperial County Palo Verde Park (Link 9) (1988 PEA, pp. 10-78 – 10-84).

- Cultural resources – Impact to significant archaeological sites including the Ripley Intaglio and two other major intaglio groups; potentially significant impacts to sensitive areas in the Colorado River terraces, Mule Mountain, and the Palo Verde Mesa would result from construction of new access (Links 7 and 9) (1988 PEA, pp. 10-60 – 10-62).

Subalternate Route 4 (Links 3, 4a, 17, 4c, 6, 8, 10, and 12) – Subalternate Route 4 is the same as Subalternate Route 1, except that Subalternate Route 4 would follow a portion of the All American Pipeline corridor north of I-10 in Arizona (Link 17 instead of Link 4b), crossing I-10 twice and U.S. Highway 60 once. Impacts would be comparable to Subalternate Route 1, with the addition of the following:

- Wildlife species – Potentially significant impact to the area north of I-10, between Ranges 16 and 18 West (Link 17), identified in the BLM's Lower Gila South RMP as bighorn sheep lambing grounds, unsuitable for overhead transmission lines (1988 PEA, pp. 10-55). Although Subalternate 4 would avoid crossing the KOFA NWR, it would

have potentially greater adverse impact to bighorn sheep than would the preferred route (1988 PEA, pp. 10-75).

- Visual impacts – Significant impacts to viewers of the line that would be constructed parallel to I-10 in a new corridor, at the two highway crossings east and west of the Plomosa Mountains (Link 17), and crossing US 60 southwest of Brenda (Link 17); significant impacts to residential viewers near Brenda and the BLM La Posa Recreation Site (Link 17) (1988 PEA, pp.10-80 – 10-84).

Construction of Subalternate Route 4 would disturb approximately 85 acres, or 76 more acres of permanent ground disturbance than the proposed route (see Table 3-3).

The USFWS agreed that the preferred DPV2 route through the KOFA NWR had less impact than Subalternate Route 1. As stated in the CRC issued by the USFWS for KOFA NWR, "the preferred alternative route [for the Devers-Palo Verde #2 500kV Transmission Line depicted in the SEIS]...is compatible with the purpose for which the land was acquired, subject to established mitigation measures and the stipulation that no further above-ground utility development of this corridor be permitted after construction of this [DPV2] transmission line" (USFWS 1989).

Results of the 2003 Review of Subalternate Routes and Proposed Route

In conjunction with the environmental studies conducted for this PEA in 2002-2004, SCE and Environmental Planning Group (EPG) conducted a review of the current conditions within the proposed and four subalternate corridors for the Devers-Harquahala segment in order to document changes that may have occurred during the period since the 1988 FEIR/Final SEIS. Reviews of agency land management plans and updates, aerial imagery, and ground and aerial field reconnaissance also were conducted. Results of the current review indicated that no

significant changes had occurred that would alter the selection of the proposed route for the DPV2 transmission line that received conditional approval in 1988.

The overriding factor in this evaluation is that existing access for construction and maintenance of the Devers-Harquahala 500kV line would be available along the DPV1 corridor. In general, consolidating transmission lines within common utility corridors is desirable because it minimizes: land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors. Constructing the project within a corridor separate from the designated utility corridor that includes DPV1 would be inconsistent with the BLM RMPs. Plan amendments would be needed in order for the BLM to grant alternative rights-of-way. The 3-mile portion of the DPV1 line through Copper Bottom Pass was constructed on double-circuit structures, including installation of conductor wires for the DPV2 circuit. Consequently, there is no need to build additional structures or acquire additional right-of-way, and no new impact would occur for this segment.

None of the subalternate routes that were evaluated in the studies would be preferable to the proposed route based on environmental, technical, or economic factors. The environmentally preferred route, approved in 1988 by the CPUC and in 1989 by the BLM, for the 1985 DPV2 500kV transmission line would therefore remain as the proposed route for the currently proposed Devers-Harquahala 500kV line, except that the Devers-Harquahala line would terminate at Harquahala and not the PVNGS switchyard.

The review of the proposed and subalternate routes identified no additional areas of significant impact. Also, specific areas of significant or potentially significant impact that were identified in the previous studies for the 1985 DPV2 and 1988 amended PEA were unchanged. In conclusion, the proposed route for the 1985 DPV2 500kV transmission line remains the environmentally preferred route for the proposed Devers-Harquahala 500kV transmission line.

The proposed Devers-Harquahala 500kV transmission line route would terminate at the Harquahala Switchyard instead of the PVNGS Switchyard, which was the original termination point in the 1988 amended PEA and 1988 FSEIS.

Alternative Routes Considered and Evaluated

Alternatives to the proposed action considered and evaluated in this PEA for the Devers-Harquahala transmission line route include two subalternate routes for the portion of the 500kV transmission line in Arizona—the Harquahala-West Subalternate Route and the Palo Verde Subalternate Route. The subalternate routes are described below, and are shown on Map 3-2a.

Harquahala-West Subalternate Route

This subalternate route would exit the Harquahala Switchyard directly to the west for 12 miles, then follow the El Paso Natural Gas pipeline corridor northwest for 9 miles to its intersection with the proposed Devers-Harquahala 500kV route. The route 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 Subalternate Route would be 14 miles shorter than the proposed route (a total distance of 216 miles), and would require about 48 fewer 500kV towers than the proposed route.

Steel lattice towers 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. The Harquahala-West Subalternate Route 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. 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.

Construction of the Harquahala-West Subalternate Route would result in a greater amount of adverse environmental impact than the proposed route, as indicated in Section 5.3.1. Because this subalternate route would not be parallel to an existing transmission line, visual impacts to residential viewers would occur. Also, construction of a new access road for a portion of the subalternate route would be required, causing about 10 acres more ground disturbance than the proposed Devers-Harquahala route.

Currently, Arizona Public Service Company (APS) is planning for the Palo Verde Hub to TS-5 500kV transmission line that may parallel DPV1 between the PVNGS interconnection area and the Central Arizona Project (CAP) Canal. If the Palo Verde Hub to TS-5 line is constructed in a manner that would preclude SCE from entering Harquahala switchyard from the east, then the Harquahala-West subalternate may become SCE's preferred route.

Palo Verde Subalternate Route

The proposed route for the Devers-Harquahala 500kV transmission line is generally parallel to SCE's existing 500kV DPV1, as shown on Map 1-1. Unlike the DPV2 route described in the 1988 PEA, the proposed project involves building a new 500kV transmission line from Devers to the Harquahala Generating Station switchyard terminus, and acquiring the existing Harquahala-Hassayampa 500kV transmission line.

As an alternative to the termination of DPV2 at Harquahala, and SCE's acquisition of the existing Harquahala-Hassayampa 500kV transmission line, the DPV2 line would terminate at the PVNGS Switchyard. This would require the construction of the Palo Verde Subalternate Route, a new 500kV transmission line parallel to the DPV1 transmission line for an additional 10 miles to the PVNGS switchyard. A diagram of the proposed and subalternate route construction

configurations is shown on Map 3-3 (end of Chapter 3). Although environmental impacts of construction and operation of the Palo Verde Subalternate Route would not be substantially more adverse than the environmental impacts resulting from the proposed Devers-Harquahala route, SCE's preference is to construct the proposed Devers-Harquahala route.

3.1.2.2 Midpoint Substation Alternatives – Joint DPV2 and Desert Southwest Transmission Project

In addition to the routing alternatives for the proposed 500kV line, the Midpoint Substation is considered as an alternative component that could be constructed in conjunction with the proposed DPV2 Project. This PEA includes the evaluation of one preferred site and two alternative sites for the substation that would be located south and west of Blythe, California, as shown on Maps 3-2a and 3-2b. Descriptions of the Midpoint Substation preferred site and alternative sites also are provided in Section 3.2.2.4.

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

The preferred location for the Midpoint Substation, as shown in Map 3-2a, is about 10 miles southwest of Blythe, California, adjacent to SCE's DPV1 right-of-way. The preferred site is located on BLM land immediately west of IID's Blythe-Niland 161kV transmission line and Western's Blythe-Knob 161kV transmission line. A preliminary block diagram for the Midpoint

Substation is presented in Figure 3-1. The Midpoint Substation would be constructed within a rectangular area approximately 1,000 feet by 1,900 feet, or 44 acres. The switching facilities would be constructed within the Midpoint Substation property.

The 500kV switching station would include buses, circuit breakers, and disconnect switches. The switchyard would be equipped with 108-foot-high dead-end structures.

A new telecommunications facility would be installed on site to provide microwave and fiber optic communications for protective relaying and special protection scheme requirements. Three new microwave paths and two fiber optic systems would be installed at the Midpoint Substation site. The proposed fiber optic systems are Midpoint-Buck Boulevard Substation and Midpoint-Devers-Harquahala. The telecommunications facilities are described in Section 3.4.2.4.

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

A review of several potential siting areas for the Midpoint Substation was conducted by SCE in February 2004. The review considered engineering, environmental, and land availability criteria. Based on this review, a preferred site and two alternative sites were identified that would be feasible for construction and operation of the substation. These sites are described in Section 3.2.2.4 and indicated on Maps 3-2a and b.

3.1.3 Alternatives – West of Devers 230kV Transmission System

Reinforcement of the 230kV system west of Devers was planned for the 1985 DPV2 project, and evaluated in the 1987 EIR. That proposal called for reconductoring and rearranging 230kV circuits, including replacement of some of the towers subject to final engineering. The proposed

DPV2 project now includes modifications to four existing 230kV circuits for the entire route between Devers and Vista substations, and into the San Bernardino Substation.

The proposed improvements would be constructed within SCE's existing utility right-of-way that now contains four 230kV circuits on three sets of structures. Portions of the right-of-way also contain one or more 115kV lines that would remain in place. A detailed description of the proposed 230kV upgrade is provided in Section 3.3.2.

System alternatives have been considered and, as described in Chapter 2, the results of those studies indicate that construction of a new 230kV transmission line in a separate location would not meet the project objectives. 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.

3.1.4 Permits or Other Actions Required Prior to Construction

The list of permits or approvals likely to be required to allow construction of the proposed DPV2 transmission line project is provided in Table 3-4. This list is not all-inclusive.

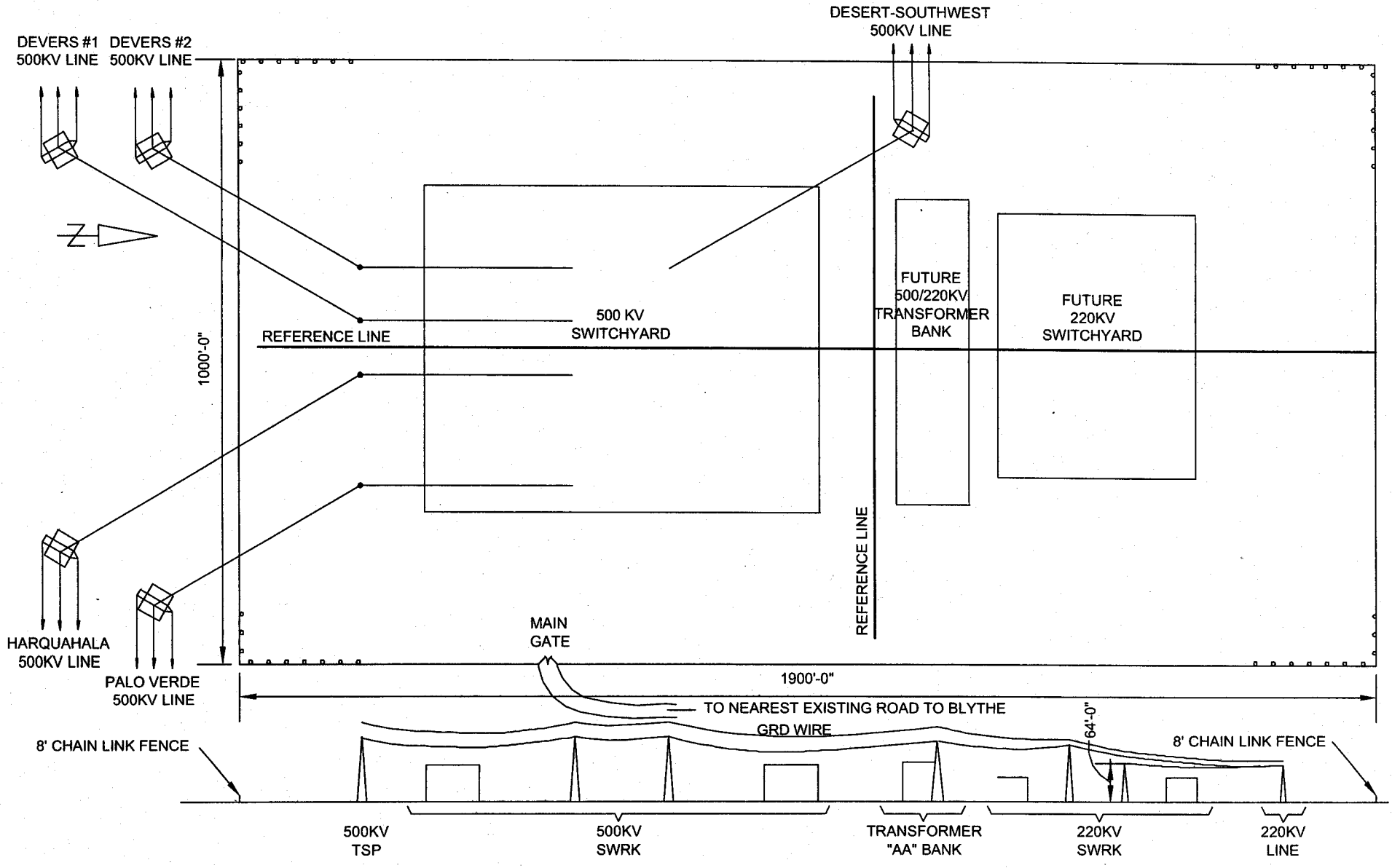


Figure 3-1
Midpoint Substation Block Diagram

Note: Not to Scale

TABLE 3-4
PERMITS OR OTHER ACTIONS REQUIRED PRIOR TO CONSTRUCTION OF THE DPV2 IN ARIZONA AND CALIFORNIA

FEDERAL

Bureau of Land Management
- Amended Right-of-Way Grant
- Notice to Proceed and Temporary Use Permits

U.S. Department of Defense - Army
- Right-of-Way Grant on Yuma Proving Ground-BLM land withdrawal

U.S. Fish and Wildlife Service
- Certificate of Environmental Compatibility for the KOFA NWR
- Right-of-Way Grant - crossing KOFA NWR and Coachella Valley NWR
- Consultation for Section 7 of the Endangered Species Act

U.S. Army Corps of Engineers
- Section 10 Permit – crossing Colorado River
- Section 401/404 Permit – streambed alteration/crossing

Federal Aviation Administration
- 7460(1) Permit
- Notice to Airmen

U.S. Bureau of Reclamation
- Right-of-Way Grant – crossing CAP Canal

Federal Communications Commission
- Licenses/permits related to Federal Communications Commission frequencies and paths

TRIBAL LAND/BUREAU OF INDIAN AFFAIRS

Agua Caliente Indian Reservation – Right-of-way/Easement

Morongo Band of Mission Indians – Right-of-way document

ARIZONA

State

Arizona Corporation Commission – Certificate of Environmental Compatibility

Arizona Department of Transportation – Encroachment/Crossing Permits

State Historic Preservation Office – Consultation for Section 106 of the National and Arizona State Historic Preservation Act

Arizona State Land Department – Right-of-Way Easement

Local and Regional

Maricopa County
- Road/Highway Encroachment/Crossing Permit
- Flood Control/Drainage Channel Encroachment/Crossing Permit

Harquahala Irrigation District
- Encroachment/Crossing Permit

La Paz County
- Road/Highway Encroachment/Crossing Permit
- Flood Control/Drainage Channel Encroachment/Crossing Permit

TABLE 3-4 PERMITS OR OTHER ACTIONS REQUIRED PRIOR TO CONSTRUCTION OF THE DPV2 IN ARIZONA AND CALIFORNIA
CALIFORNIA **State** **California Public Utilities Commission** – Certificate of Public Convenience and Necessity **State Lands Commission** - Right-of-Way Easement **California Department of Transportation** - Road/Highway Encroachment/Crossing Permit **Department of Water Resources** – Colorado Aqueduct Encroachment/Crossing Permit **State Historic Preservation Office** – Consultation for Section 106 of the National Historic Preservation Act
Local and Regional **Riverside County** Road/Highway Encroachment/Crossing Permit Flood Control/Drainage Channel Encroachment/Crossing Permit **Palo Verde Irrigation District** Encroachment/Crossing Permit **San Bernardino County** Road/Highway Encroachment/Crossing Permit Flood Control/Drainage Channel Encroachment/Crossing Permit **Cities** Road/Highway Encroachment/Crossing Permit Flood Control Channel Encroachment/Crossing Permit Temporary Use/Occupancy Permit - Material and Storage Yards Regional Water Quality Control Board - Storm Water Pollution Prevention Plan
OTHER UTILITIES **El Paso Natural Gas** – Pipeline Encroachment/Crossing Permit **Southern California Gas** – Pipeline Encroachment/Crossing Permit **AT&SF Railroad** – Encroachment/Crossing Permit

3.2 LOCATION

The proposed project would consist of the construction of a 500kV transmission line, approximately 230 miles long, from the high-voltage switchyard adjacent to the Harquahala Generating Station, west of Phoenix, Arizona, to SCE's Devers Substation near Palm Springs, California. Upgrades to SCE's existing 230kV transmission system west of Devers also would be required.

The proposed route between Harquahala and Devers, as shown on Maps 3-2a and 3-2b (end of Chapter 3), would generally parallel SCE's existing DPV1 500kV transmission line, of which approximately 102 miles are located in Arizona and approximately 128 miles are located in California. The proposed 230kV modifications west of Devers would be located within SCE's

existing rights-of-way between SCE's Devers and Vista substations, a distance of approximately 45 miles, and interconnecting with the San Bernardino Substation within an existing 3.4-mile-long right-of-way, as shown on Map 3-2c.

3.2.1 Termination Points

The Arizona segment of the proposed 500kV transmission line would terminate at the Harquahala Generation Station Switchyard, located in Maricopa County approximately 17 miles northwest of the PVNGS and 60 miles west of Phoenix. The Harquahala Switchyard is in Section 31, Township 2 North, Range 8 West; Gila and Salt River Base and Meridian.

While the proposed transmission line would physically terminate at the Harquahala Switchyard, SCE would utilize the existing Harquahala-Hassayampa 500kV transmission line and the existing Hassayampa to PVNGS 500kV interconnection to provide a path to the PVNGS Switchyard (see Map 3-2a).

An alternative termination point in Arizona would be the PVNGS Switchyard, which would be a direct Devers to PVNGS connection. This route is described in Section 3.1.2 as the Palo Verde subalternate route.

The California segment of the proposed Devers-Harquahala 500kV line would terminate at Devers Substation in Riverside County, north of Palm Springs, California. Devers Substation occupies portions of Sections 4 and 5 in Township 3 South, Range 4 East, San Bernardino Base and Meridian.

The 230kV system upgrade west of Devers would terminate where the existing 230kV lines currently terminate at Vista and San Bernardino substations. Vista Substation is located in the city of Grand Terrace, San Bernardino County, California in Section 32, Township 1 South,

Range 4 West. San Bernardino Substation is located in the city of Redlands in Section 18, Township 1 South, Range 3 West.

3.2.2 Description of the Proposed and Alternative Routes and Substation Sites

3.2.2.1 Proposed Devers-Harquahala 500kV Transmission Line Route

The total length of the proposed Devers-Harquahala 500kV transmission line route is approximately 230 miles. The proposed route parallels SCE's existing DPV1 single-circuit 500kV line for approximately 225 miles, and the existing Harquahala-Hassayampa 500kV line for approximately 5 miles. The proposed line would depart the Harquahala Switchyard and proceed in an easterly direction parallel to the Harquahala-Hassayampa 500kV line to a point where it would meet and parallel the existing DPV1 line. The route then turns north and proceeds approximately 2.7 miles to I-10, where it crosses I-10 and proceeds to a point 1 mile northwest of Burnt Mountain. The route then turns westerly and generally follows I-10 and the CAP Canal for approximately 20 miles through the Big Horn Mountains and across the Harquahala Plain to a point ½ mile north of I-10. From this point, the route turns southwest, crosses I-10, and proceeds approximately 5 miles where it meets the El Paso Natural Gas Company's existing pipeline just north of its Wenden Pump Station north of the Eagletail Mountains.

At this point, the route generally parallels the El Paso Natural Gas pipeline and DPV1 line for approximately 56 miles, crossing the Ranegras Plain, KOFA NWR, La Posa Plain, and Arizona State Highway 95, through the Dome Rock Mountains to the summit of Copper Bottom Pass. The route then turns southwesterly away from the pipeline, descends the western slope of the Dome Rock Mountains, and proceeds approximately 9 miles to a crossing of the Colorado River.

Upon crossing the Colorado River, the route leaves Arizona and passes into the Palo Verde Valley, 5 miles south of Blythe, California. The route proceeds westerly for approximately 10

miles to the top of the Palo Verde Mesa, then proceeds northwesterly approximately 4 miles to a point 2 miles south of I-10 and 5 miles southwest of the Blythe Airport.

At this point, the route proceeds westerly and generally parallel to I-10 and the DPV1 line for approximately 63 miles to a point in Shavers Valley where it turns northerly and crosses I-10 approximately 2 miles east of the Cactus City rest stop. After crossing I-10, the route parallels SCE's existing DPV1 and other transmission lines for the remaining 46 miles to Devers Substation.

3.2.2.2 Harquahala-West Subalternate Route

The Harquahala-West Subalternate Route would begin at the Harquahala Switchyard. Rather than departing the Harquahala Switchyard to the east paralleling the existing Harquahala-Hassayampa right-of-way, as described above for the proposed route, the Harquahala-West Subalternate Route departs the Harquahala Switchyard to the west and follows section lines due west for approximately 12 miles through private and state land to the El Paso Natural Gas pipeline corridor. This portion of the route parallels Courthouse Road approximately 1 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 9 miles to the intersection with the DPV1 transmission line, immediately north of the El Paso Wendon Pump Station. From this point, the proposed transmission line parallels the southern side of the existing DPV1 transmission line to the west as described in Section 3.1.2. The length of the Harquahala-West segment between the Harquahala Switchyard and the junction with the DPV1 line and the proposed route is 21 miles. The Harquahala-West Subalternate Route would be approximately 14 miles shorter than the proposed route.

3.2.2.3 Palo Verde Subalternate Route

The Palo Verde Subalternate Route would be considered if the proposed 500kV transmission line were to terminate at the PVNGS Switchyard, rather than terminate at the preferred Harquahala Switchyard (see Map 3-2a and Map 3-3). Rather than leave the existing DPV1 transmission corridor and follow the existing Harquahala-Hassayampa 500kV transmission line west to the Harquahala Switchyard, this subalternate route would cross from the western side of the DPV1 transmission line to the east, and continue south, parallel to the DPV1 and Harquahala-Hassayampa 500kV lines. The alternative crosses predominantly BLM land southeasterly past Saddle Mountain, and follows the DPV1 transmission line to the PVNGS Switchyard. The total length of this subalternate route is approximately 240 miles, which is 10 miles longer than the proposed Devers-Harquahala transmission line route.

3.2.2.4 Midpoint Substation Preferred and Alternative Sites

The preferred and alternative sites for the Midpoint Substation are located west of the Palo Verde Valley and Blythe, California. The locations of the substation sites are described below and shown on Map 3-2b.

Preferred Site – This site is located approximately 5 miles south of I-10 and the Blythe Municipal Airport on BLM land in the northwest ¼ of Section 26, Township 2 North, Range 21 East, near the eastern bluff of the Palo Verde Mesa at Gravel Pit Road. The substation site would be directly north of and adjacent to the DPV1 right-of–way, in the northwestern quadrant of the junction of the DPV1 and Devers-Harquahala 500kV lines, IID's Blythe-Nyland 161kV line, and WAPA's Blythe-Knob 161kV line.

Alternative Site 1, Mesa Verde – This site is located approximately 4.5 miles northwest of the preferred site, also north of and adjacent to the DPV1 right-of-way on private land in the northwest ¼ of Section 8, Township 3 North, Range 21 East, about 1.5 miles south of I-10.

Alternative Site 2, Wiley Well – This site is approximately 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 ½ mile east of Wiley Well Road on BLM land.

3.2.2.5 West of Devers 230kV Upgrade

This segment of the proposed project is located within existing SCE transmission line rights-of-way between Devers Substation, San Bernardino Substation, and Vista Substation. The right-of-way contains four existing 230kV circuits. The route between Devers and Vista substations is approximately 45 miles long. An additional 3.4 miles of right-of-way exists between San Bernardino Junction and the San Bernardino Substation.

The route departs from Devers Substation, located at the northern boundary of the city of Palm Springs, and proceeds westerly, parallel to the northern side of I-10 through the San Gorgonio Pass. It crosses portions of the Morongo Indian Reservation and the cities of Banning and Beaumont. Approximately 26 miles west of Devers, the proposed line crosses to the southern side of I-10 and proceeds west about 3 miles, across the southern portion of the city of Calimesa and into San Timoteo Canyon. The route proceeds through the San Timoteo Canyon in a northwesterly direction for approximately 7 miles, at which point it enters San Bernardino County, crossing the southwestern corner of the city of Redlands.

Exiting San Timoteo Canyon, the route enters the city of Loma Linda at San Bernardino Junction. It then proceeds north for 3.4 miles, across I-10 through a portion of the city of Redlands, and connects to the San Bernardino Substation, located in an unincorporated portion of San Bernardino County. From San Bernardino Junction, the route continues west for 5 miles through the city of Grand Terrace crossing I-215 and terminating at Vista Substation.

3.3 PROPOSED TRANSMISSION LINE FACILITIES

The proposed 500kV transmission line and upgraded 230kV transmission lines would consist of overhead wires (conductors), which form three electrical phases. The conductors would be supported by steel structures and steel poles and would be electrically isolated from the structures by insulators. In addition to the conductors, structures, and insulators, the proposed transmission lines would contain hardware and overhead optical fiber groundwires for telecommunications.

3.3.1 500kV Transmission Line Facilities (Devers-Harquahala)

The proposed 500kV transmission line is designed to operate at a nominal voltage of 525kV phase to phase and a maximum voltage of 550kV phase to phase. The transmission line capacity rating is limited to 2,700 amps under normal conditions and 3600 amps under emergency conditions.

A summary of the quantities for the proposed Devers-Harquahala 500kV transmission line is presented in Table 3-5.

TABLE 3-5 PROPOSED DEVERS-HARQUAHALA 500kV TRANSMISSION LINE SUMMARY	
Dimensions	
Length of line (miles, rounded to 1 mile)	230
Total right-of-way area (acres, rounded to 10 acres)	3,910
New Permanent Area Occupied (acres)	
Tower footings	7.4
Access roads	None (existing)
Spur roads	32.8
Substation	None (existing)
Series compensation	4.0
Telecommunications	0.2
Total	42.4
New Temporary Area Occupied (acres)	
Transmission line structures	694.0
Access roads	8.1
Construction yards, pulling/splicing and batch plant areas	129.2
Substation/switchyard (Harquahala and shunt reactor)	3.0
Series capacitor banks(2 sites)	6.0
Telecommunications (optical repeater)	1.2
Total	841.5
Number of Structures (approximate)	
New single-circuit lattice steel towers	709
Existing double-circuit lattice steel towers	13
New single-circuit H-frame structures	39
New single-circuit, tubular steel poles	23
Land Ownership (miles)	
State, California	0.6
State, Arizona	10.8
Federal (BLM, USFWS, USDOD, USBR)	136.5
Private	81.6
Indian Reservation (Agua Caliente)	0.1
Existing Utility Corridors (miles)	
Parallel to existing DPV1 500kV right-of-way	225
Parallel to existing Harquahala-Hassayampa 500kV right-of-way	5.0
Number of Crossings	
Primary highways	4
Secondary highways	15
Rivers and streams	1
Railroads	2
Notes: Affected area estimates are based on the following factors: 0.010 acre per lattice steel tower – permanent 0.005 acre per H-frame structure – permanent 0.002 acre per tubular steel pole – permanent 0.9 acre per tower pad – temporary 0.9 acre per pulling station, one every 3 miles – temporary 0.2 acre per splicing station, one every 3 miles – temporary 5.0 acres per construction yard, one every 40 miles – temporary 2.0 acres per batch plant, one every 30 miles – temporary Areas occupied by facilities installed within existing substation and communications site properties are not included in estimates.	

3.3.1.1 Structures

The proposed 500kV transmission line would utilize four types of structures:

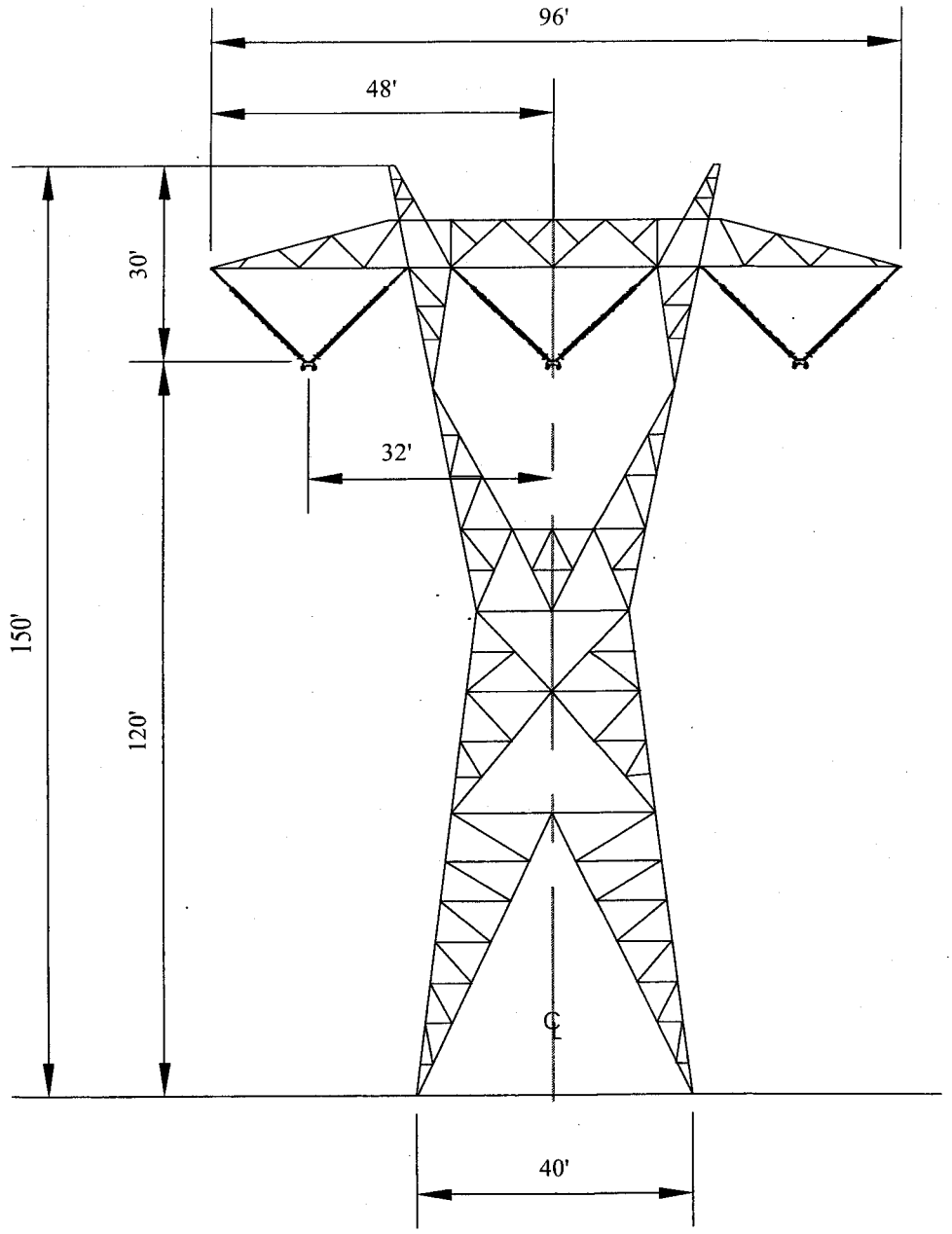
- four-legged single-circuit lattice steel towers
- four-legged double-circuit lattice steel towers (existing structures)
- two-legged (H-frame) single-circuit towers
- single-pole, tubular steel towers

The 709 new four-legged single-circuit lattice steel towers would be constructed of galvanized lattice steel angle members connected together by bolts. These towers would support one circuit consisting of three phases of conductors arranged in a horizontal (flat) configuration; the tower diagram is shown in Figure 3-2.

The 13 four-legged double-circuit towers are existing lattice steel towers which were constructed for the DPV1 line. They are located in the Copper Bottom Pass in the Dome Rock Mountains just east of the Colorado River in Arizona. These towers support two circuits, each consisting of three phases of conductors arranged in a vertical configuration. The DPV1 line is located in the first space and the proposed line would utilize the second space. The tower diagram is shown in Figure 3-3.

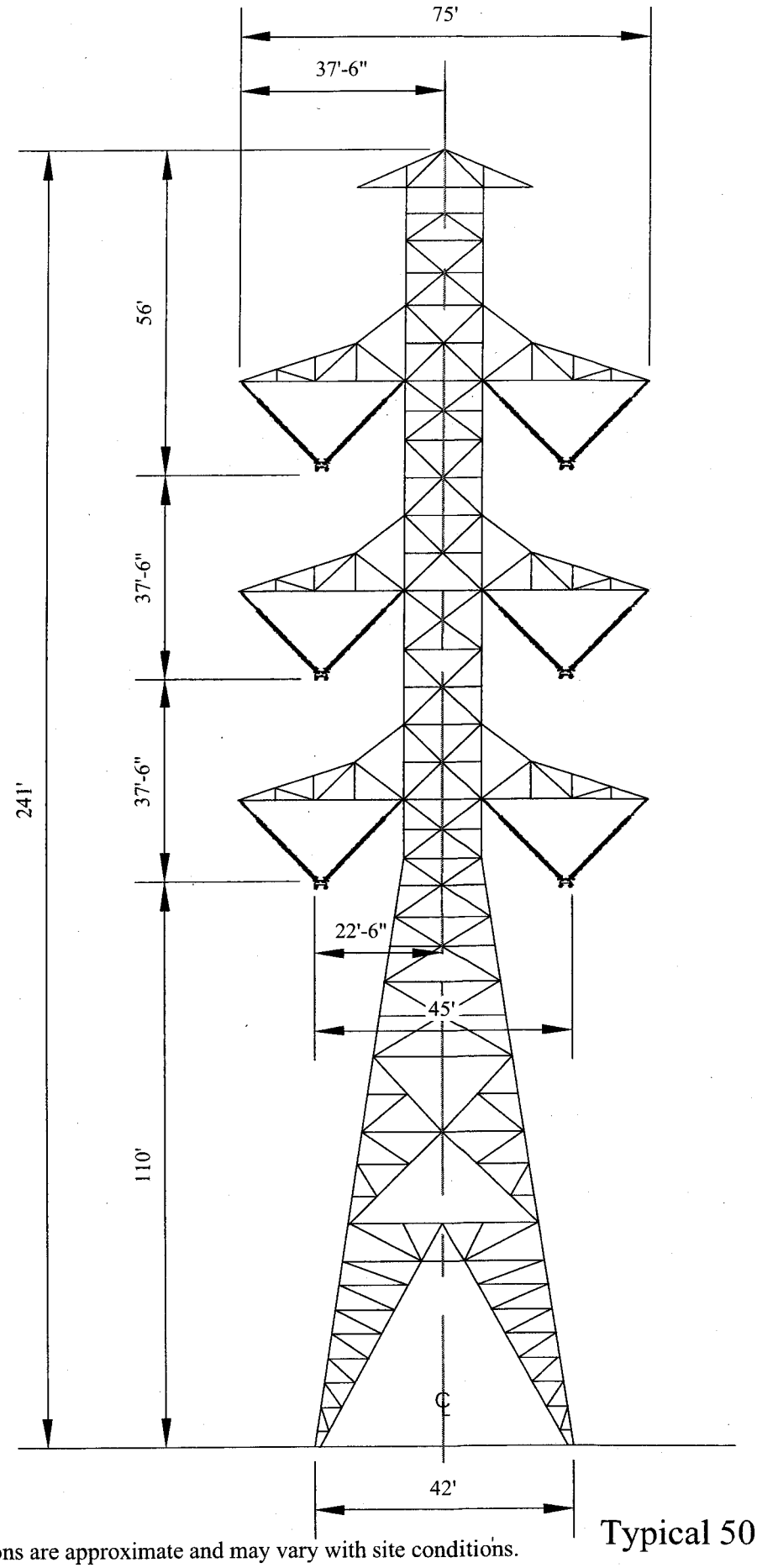
The 39 new two-legged single-circuit towers, also referred to as H-frames, would be used to cross farmland in the Palo Verde Valley to minimize impacts to farming operations. The towers would be constructed of galvanized lattice steel angle members connected together by bolts. These towers would support one circuit consisting of three phases of conductors arranged in a horizontal (flat) configuration. The tower diagram is shown in Figure 3-4.

The 23 new single-circuit tubular steel pole would be used to match the structure type along the 5-mile segment of the existing Harquahala-Hassayampa 500kV line. The pole diagram is illustrated in Figure 3-5.



Note:
Dimensions are approximate and may vary with site conditions.

Figure 3-2
Typical 500kV Single-Circuit
Lattice Steel Tower



Note:
Dimensions are approximate and may vary with site conditions.

Figure 3-3
Typical 500kV Double-Circuit
Lattice Steel Tower

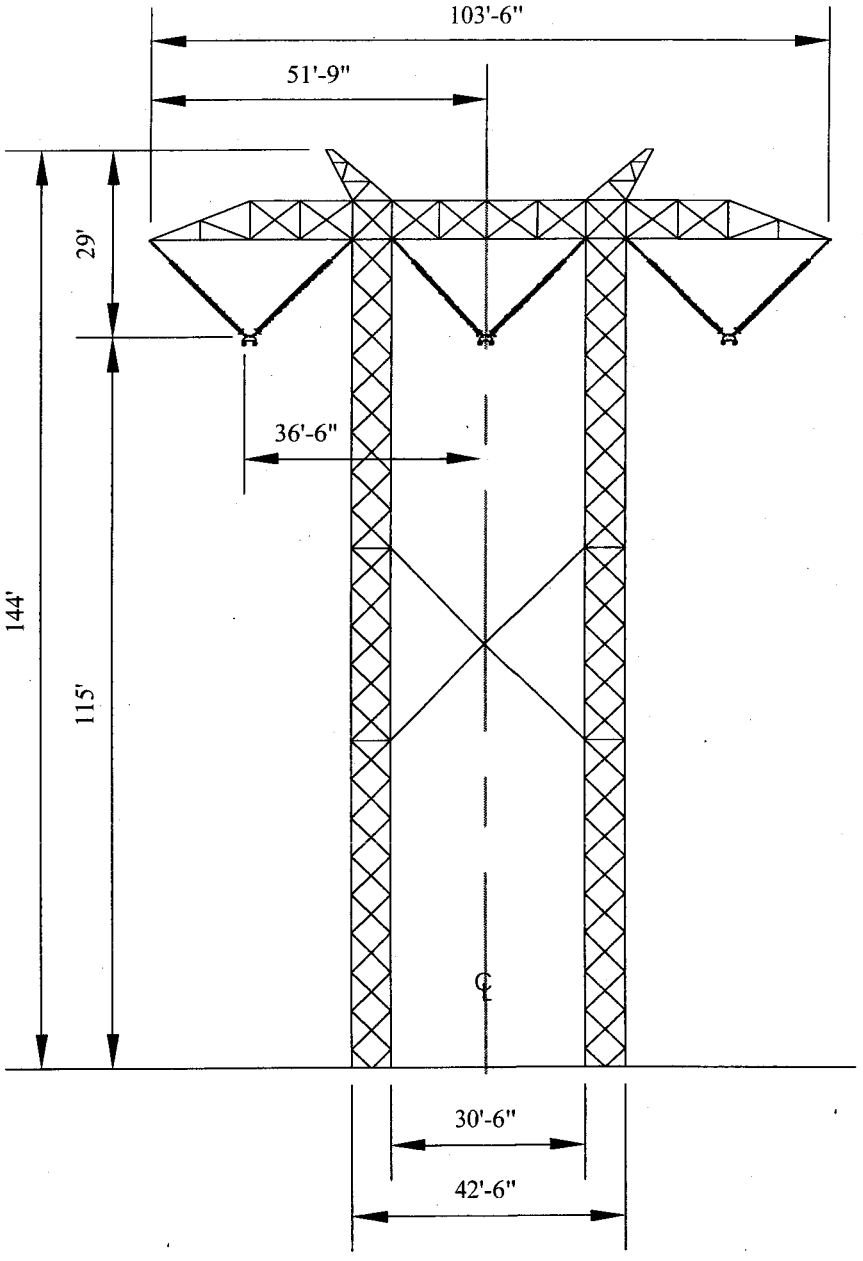
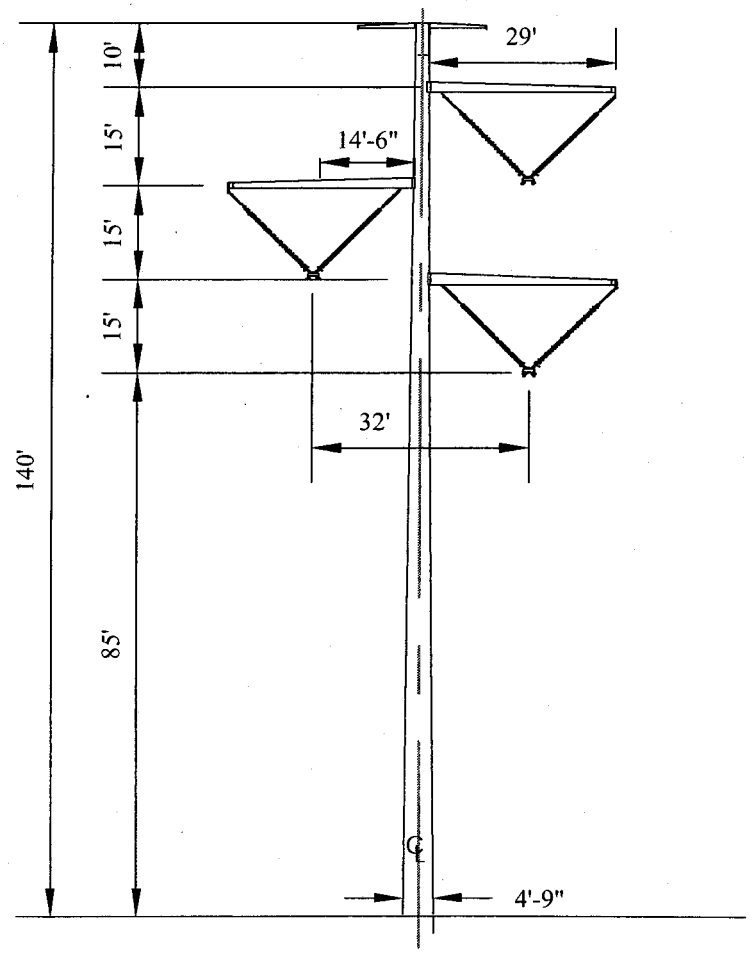


Figure 3-4
Typical 500kV Single-Circuit
"H - Frame" Tower

Note:
Dimensions are approximate and may vary with site conditions.



Note:
Dimensions are approximate and may vary with site conditions.

Figure 3-5
Typical 500kV Single-Circuit
Tubular Steel Pole

The transmission line would be composed primarily of tangent (suspension) type structures where the conductors approach and depart the structures in a straight line. The remaining towers would be heavier structures, which are either angle structures that suspend the conductor and allow a limited change in line direction, or dead-end structures, which are utilized for major changes in line direction. Although structure weights vary with height and specific load carrying capabilities, the approximate weight of each type of structure is as follows:

Structure Type	Weight (pounds)
Four-legged single-circuit tangent	32,000
Four-legged single-circuit angle	50,000
Four-legged single-circuit dead-end	80,000
Four-legged double-circuit tangent	125,000
Four-legged double-circuit dead-end	200,000
Two-legged single-circuit tangent	55,000
Tubular steel pole	38,000

The strength requirements for each structure location will be determined in final design with respect to projected weather data for various areas. Operational experience with the DPV1 line will be utilized to determine tower design parameters. Towers with higher wind resistance ability are anticipated to be utilized in Arizona.

The heights of the structures would vary depending upon the terrain, span length, and the presence of other facilities or features that the transmission line may cross such as rivers, roads, highways, railroads, telephone lines, and other power transmission and distribution lines. The typical overall structure height would be approximately 150 feet for the proposed four-legged, single-circuit lattice steel towers and approximately 144 feet for the proposed two-legged, H-frame towers. The existing four-legged double-circuit towers are approximately 241 feet in height.

Where feasible, the new Devers-Harquahala 500kV towers would be installed to match the overall height of the existing DPV1 towers, and new towers would be aligned horizontally with the existing DPV1 towers. However, the Independent System Operator has specified that the capacity of the line be 2700 amps under normal conditions and 3600 amps under emergency conditions, an increase from the 1988 DPV2 capacity rating. This capacity rating necessitates

that the heights of some of the proposed Devers-Harquahala towers be slightly taller than the adjacent DPV1 structures. In some locations, tower spacing may not correspond to the DPV1 structures, in order to provide adequate conductor ground clearance.

The conductor height also would vary, depending upon the same factors described above for the structures. The minimum conductor height above ground would be 35 feet between towers.

The typical structure foundations would require four to eight augured, cast-in-place concrete piles. The size and number of piles required would vary with the type of structure and soil conditions encountered at each tower site.

The average tower-to-tower spacing (span length) would be approximately 1,550 feet, or about 3.4 towers per mile of line for steel lattice towers. Span lengths generally range from a minimum of 400 feet to a maximum of 2,200 feet. The typical span length for tubular steel poles would be 1,320 feet, or four towers per mile. The exact quantity and placement of the structures is determined by the final detailed design of the transmission line, which is influenced by terrain, land use, environmental resource concerns, and economics.

Some tower locations and site installation conditions may require special tower placement according to government agency requirements. Special tower placements in these cases would be coordinated with the appropriate agency.

3.3.1.2 Conductors

Each 500kV phase would be a two-conductor bundle with a spacing of 18 inches between conductor centers. The typical conductor phase spacing for four-legged single-circuit towers is 32 feet as shown in Figure 3-2; for four-legged double-circuit towers it is 37.5 feet vertically and 45 feet horizontally as shown in Figure 3-3; for two-legged single-circuit towers it is 36.5 feet as shown in Figure 3-4; and for tubular steel poles it is 15 feet vertically and 32 feet horizontally as

shown in Figure 3-5. Each conductor is 1.762 inches in diameter, 2,156 kcmil, ACSR. With this type of conductor, the load current flows through the aluminum strands that are formed in a helix around the core of steel strands. The steel strands provide the mechanical strength to support the aluminum strands.

3.3.1.3 Insulators

The tangent and angle 500kV insulator assemblies would consist of two strings of insulators in the form of a "V." These strings are used to suspend each conductor bundle (phase) from the structure while maintaining the electrical clearance between these conductors, the ground, and the structure. The "V" string also restrains the conductor from swinging into the structure during winds. Each leg of the "V" assembly would contain one or two one-piece gray polymer insulators, depending on the conductor loads. On dead-end structures, the insulators are arranged in a barrel configuration consisting of four polymer insulators. The polymer insulators are visually similar to the porcelain type insulators used on the DPV1 line, but require less effort to install and less maintenance.

3.3.1.4 Hardware

Hardware required for the 500kV transmission line would include suspension clamps, dead-end assemblies, spacers, armor rods, vibration dampers, and other miscellaneous parts. All of the hardware used on the proposed line would be designed for corona-free operation throughout the maximum design voltages.

Conductor spacers would be installed along the lines to keep the two-phase subconductors from contacting each other. This avoids conductor damage due to impacts that would occur without these spacers. Armor rods would be installed at the points where the suspension clamps support the conductors. Armor rods increase the safety and reliability of the lines by minimizing the

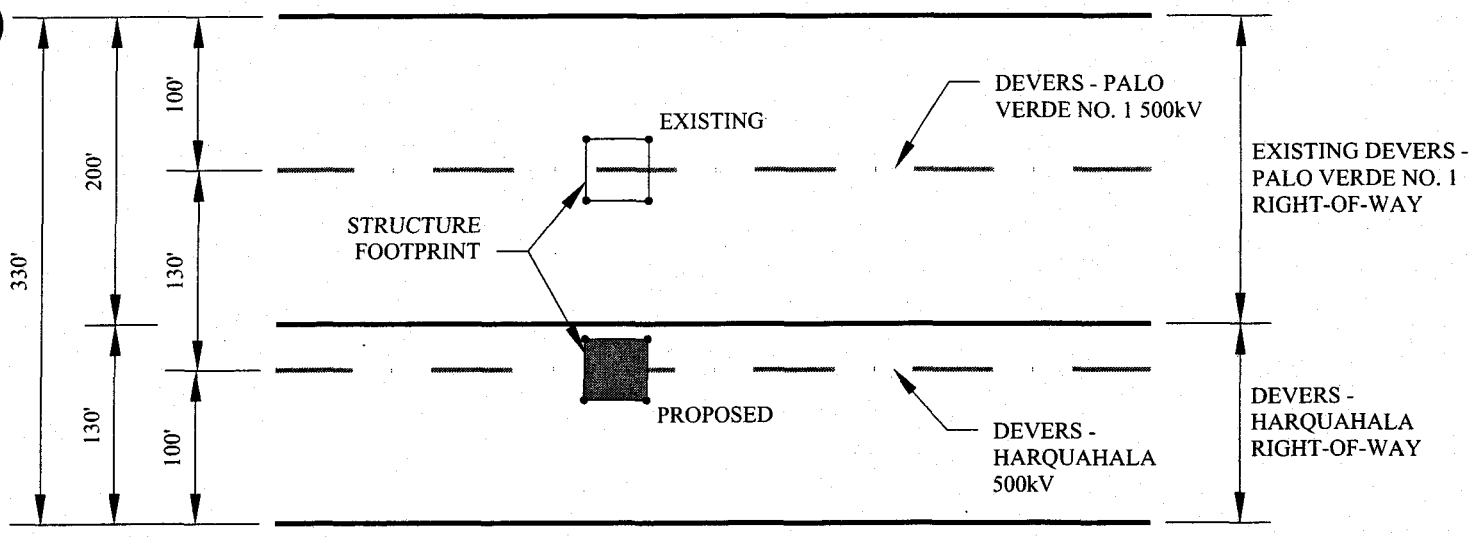
possibility of conductor damage resulting from flashovers of the insulator string and by protecting the conductor mechanically at the support point. Vibration dampers would be located on the conductor. This helps to prevent metal fatigue of the conductor strands by reducing the vibration caused by the wind.

3.3.1.5 Overhead Groundwires

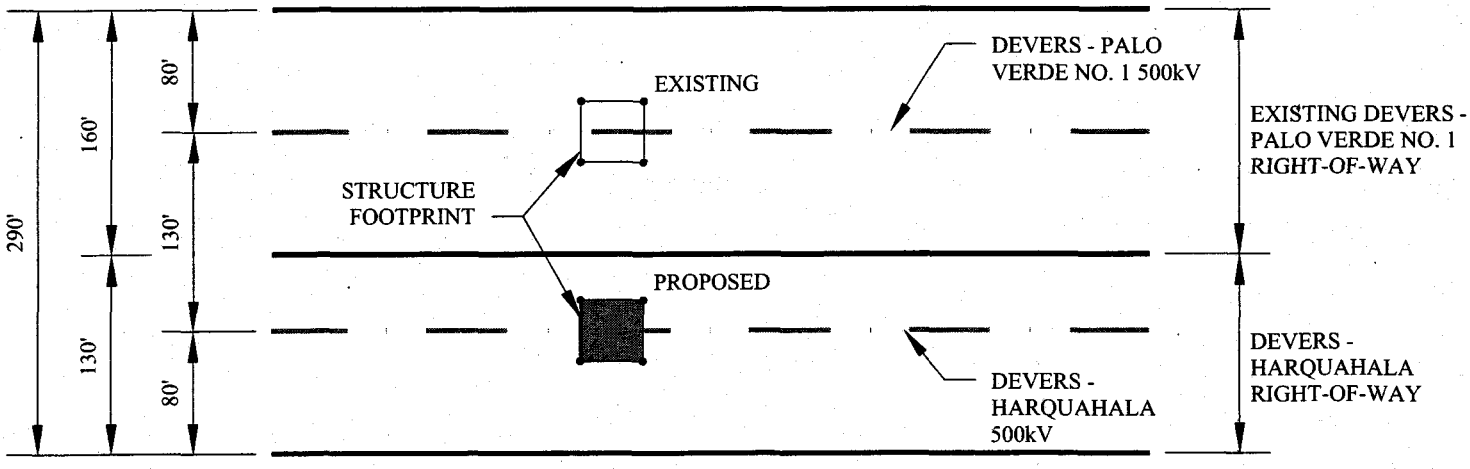
The overhead groundwires, located on the peaks of the transmission line structures, are used to intercept lightning that would otherwise strike the conductors. The 500kV structures would have two overhead groundwires, approximately 0.5 inch in diameter, supported on each of the two structure peaks. Any electric current from a lightning strike would be transferred to the ground through the groundwires and the structure. One of the overhead ground wires would contain optical fibers for communication and line protection purposes.

3.3.1.6 Right-of-Way

The majority of the right-of-way for the proposed Devers-Harquahala line is located adjacent to existing 500kV transmission line rights-of-way, including the DPV1 right-of-way for a distance of approximately 225 miles, and the Harquahala-Hassayampa 500kV transmission line right-of-way for a distance of 5 miles. The proposed 500kV transmission line would be constructed within a 130-foot-wide right-of-way on federal and state land, and within a minimum of 130-foot-wide right-of-way on private land and Indian Reservation land, where located adjacent to the existing DPV1 right-of-way (Figure 3-6). In 1989, the BLM granted a right-of-way to SCE for the DPV2 transmission line, which includes land managed by the BLM and USFWS as shown in Table 3-2. The proposed Devers-Harquahala 500kV line would be constructed within that right-of-way previously granted by the BLM.



TYPICAL RIGHT-OF-WAY ADJACENT TO DPV1 ON PRIVATE LAND, INDIAN RESERVATION, AND CALIFORNIA STATE LAND



TYPICAL RIGHT-OF-WAY ADJACENT TO DPV1 ON BLM AND ARIZONA STATE LAND

Figure 3-6
Typical Devers-Harquahala 500kV
Transmission Line Right-of-Way

The presence of utility or canal structures would require that the Devers-Harquahala 500kV right-of-way be separated from DPV1 or widened to accommodate those structures. In those locations where a separate right-of-way is required, the width would be 160 feet on federal or state land, and a minimum of 200 feet on private land. As shown on Figure 3-6, the centerline of the structures for the proposed Devers-Harquahala 500kV line would be separated by a minimum of 130 feet from the centerline of existing 500kV transmission line structures.

Exceptions to this configuration would be at the following locations:

- The edge of the DPV2 right-of-way would need to be expanded 75 feet by 320 feet for the construction of the series capacitor banks adjacent to the existing series capacitor banks in Arizona and California.

- The proposed Devers-Harquahala 500kV transmission line would be installed within the DPV1 right-of-way on existing double-circuit structures located in Copper Bottom Pass, a distance of approximately 3 miles, wherein no additional right-of-way would be required.

3.3.1.7 Access Roads

Construction of a new transmission line requires roads for construction crew, material, and equipment access to each tower site. After construction, these access roads are required to allow maintenance crews and repair vehicles access to each tower to inspect, maintain, and if necessary, repair or replace damaged towers, conductors, or insulators.

Existing streets and access roads would be used for construction access whenever possible. Existing access roads would be improved as required. No new main access roads are expected to be needed for the proposed route. Spur roads would be needed from the existing access roads to

the new tower sites. Some existing access roads deviate from the right-of-way in order to avoid environmentally sensitive areas or rough land terrain features, such as steep hillside slopes.

Access and spur roads are generally 14-foot-wide unimproved roads. The main access road follows the transmission line right-of-way with spur roads branching off to each tower site. Spur roads usually have turnabout areas near the tower sites. All access road and spur road improvements, whether on or off the right-of-way, would satisfy all applicable permits and regulations.

3.3.2 West of Devers 230kV Transmission System Facilities

The proposed DPV2 project would require upgrades to SCE's existing 230kV transmission system west of Devers. The existing 230kV system west of Devers includes two 230kV circuits connecting Devers and Vista substations and two circuits connecting Devers with the San Bernardino Substation located at the San Bernardino Generating Station (Figure 3-7a). San Bernardino Junction is the term used to identify the intersection of the 230kV transmission line corridors that meet 3.4 miles south of the San Bernardino Substation.

The existing 230kV transmission system upgrade segment from Devers to San Bernardino Junction is approximately 40 miles. The segment from Vista Substation to San Bernardino Junction is approximately 4.8 miles. The segment from San Bernardino Substation to San Bernardino Junction is approximately 3.4 miles. The upgrades required for the 230kV system include the following, as shown on Figure 3-7a:

- Removal of an existing 40-mile, single-circuit wood H-frame 230kV line between Devers and San Bernardino Junction.
- Removal of an existing 40-mile, single-circuit lattice steel 230kV line between Devers and San Bernardino Junction.

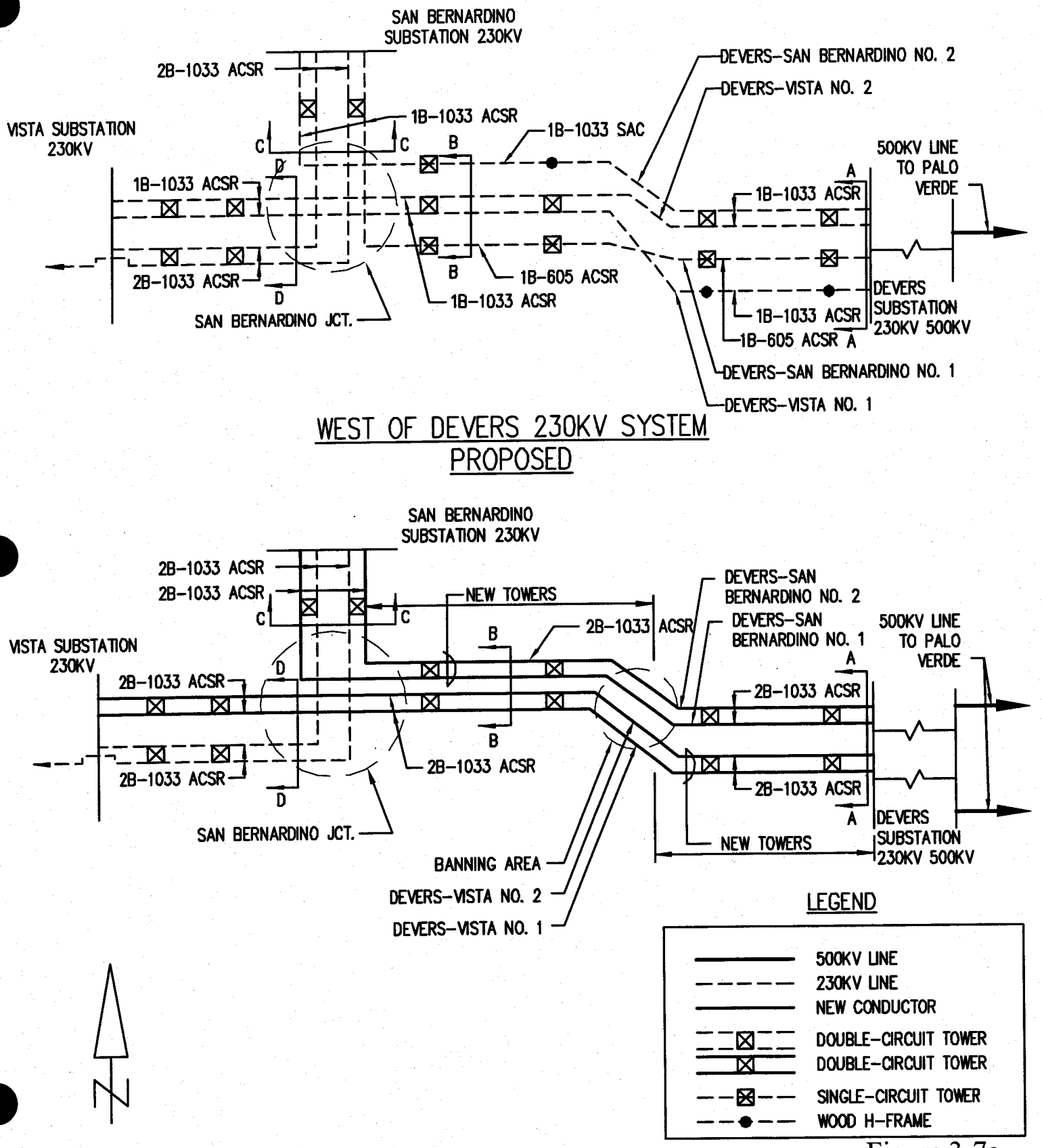


Figure 3-7a
West of Devers 230kV System, Existing and Proposed

- Construction of a new 40-mile, double-circuit 230kV line between Devers and San Bernardino Junction within the existing right-of-way.
- Reconductoring of and modification to the existing 40-mile, double-circuit 230kV lattice steel tower line between the Devers Substation and San Bernardino Junction.
- Reconductoring both circuits on an existing 4.8-mile, double-circuit 230kV lattice steel tower line between Vista Substation and San Bernardino Junction.
- Reconductoring one circuit on each of the two existing 3.4-mile, double-circuit 230kV lattice steel tower lines between San Bernardino Substation and San Bernardino Junction.

Each of the 230kV transmission lines is designed to operate at a nominal voltage of 230kV phase to phase. When the upgrades are completed, each 230kV circuit would be capable of transferring nominally 988 MW of power on a continual basis and 1,335 MW under emergency conditions.

A summary of the proposed west of Devers 230kV transmission facilities is provided in Table 3-6.

TABLE 3-6
PROPOSED WEST OF DEVERS 230kV UPGRADE SUMMARY

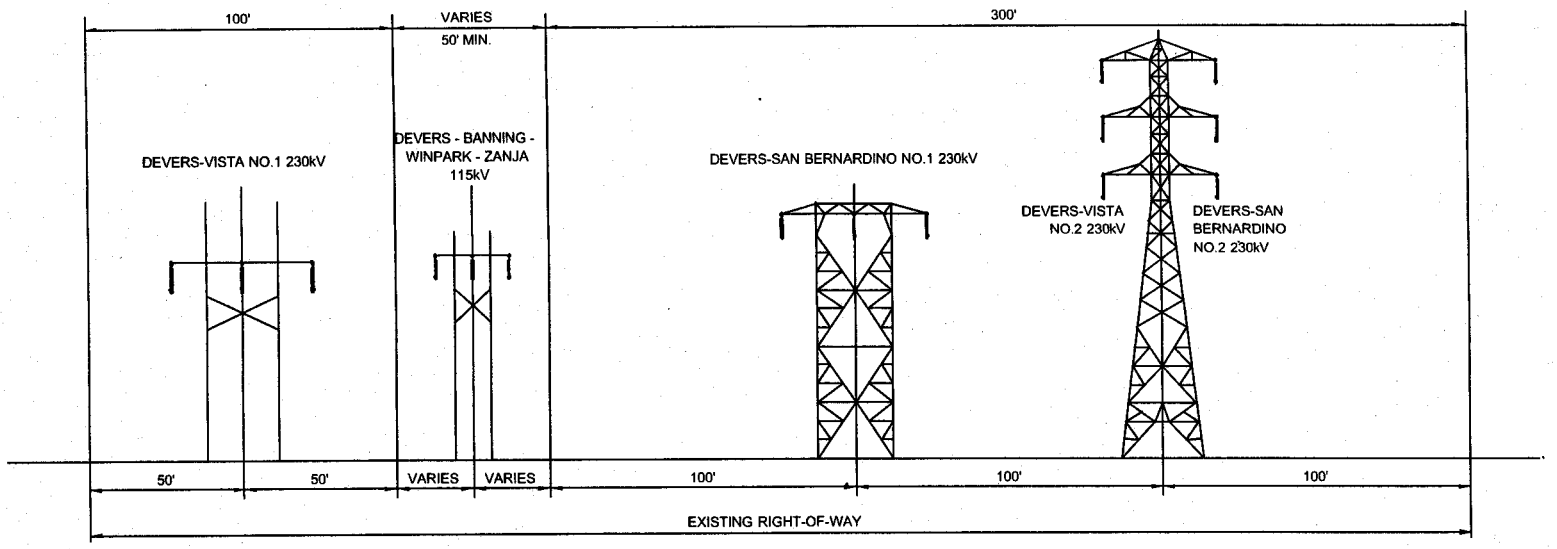
Length of segment from Devers Substation to San Bernardino Junction	40 miles
Length of segment from Vista Substation to San Bernardino Junction	4.8 miles
Length of segment from San Bernardino Substation to San Bernardino Junction	3.4 miles
Span length (spacing between towers)	1,400 to 1,500 feet 3.5 to 3.8 structures/mile (average)
Number of existing structures removed	398
Total number of new structures to be installed	161
Number of existing structures to be raised	23
Number of existing structures to be reinforced	37
Area affected by structure removal	9.7 acres
Area affected by new structure installation	46.7 acres
Area affected by pulling/splicing sites	27.5 acres
Affected area estimates based on the following factors: 0.06 acre per each structure removed - temporary 0.29 acre per new structure installed - permanent 14-foot-wide by 200 feet long spur roads at 25 percent of new tower sites - permanent 0.6 acre/mile pulling/splicing sites - temporary	

3.3.2.1 Structures

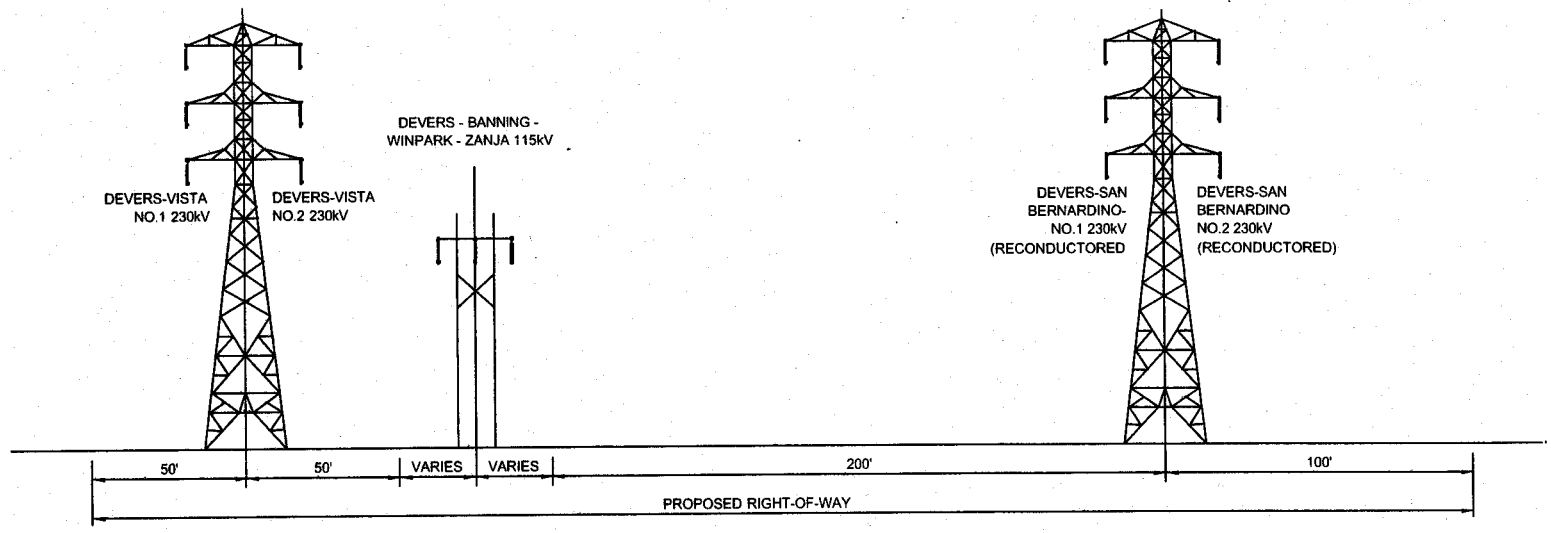
The proposed 230kV transmission system modifications include utilization of the existing double-circuit lattice steel towers between Devers and Vista substations, and between the San Bernardino Substation and San Bernardino Junction. The new double-circuit line between Devers and San Bernardino Junction would be constructed on lattice steel structures similar in size and appearance to the existing structures. It is estimated that 23 existing lattice steel towers may be raised with the use of a lattice steel extension set under the existing structures using new concrete foundations. Some new structures may be inter-set between existing towers, as required, to support new conductors.

The existing and proposed structure configuration and placements are shown on Figures 3-7b through 3-7e. Lattice towers, shown in Figure 3-8, would be constructed of galvanized steel angle members connected with bolts. Each tower would support two circuits consisting of three phases of conductors arranged in a vertical configuration.

The new double-circuit transmission line would be constructed using primarily tangent (suspension) type structures where the conductors approach and depart the structures in the same straight line. The remaining towers are heavier structures, which are either angle structures which permit limited changes in line direction, or deadend structures which are utilized for major changes in line direction. Although structure weights vary with their height and specific load carrying capabilities, the approximate weight of each type of structure is as follows:

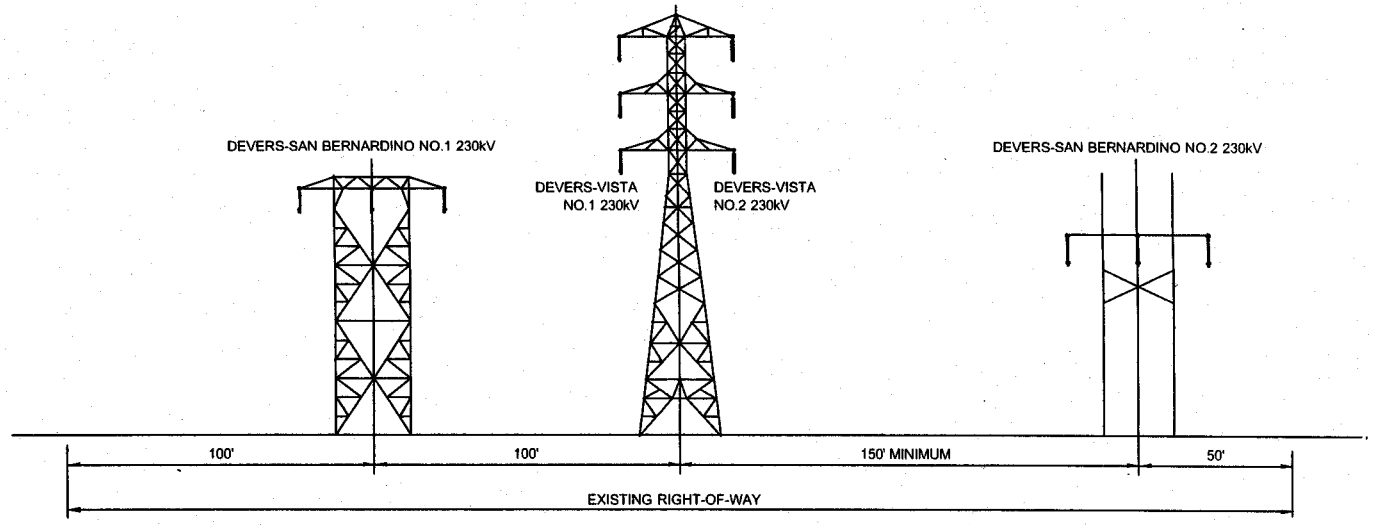


SECTION A-A
EXISTING RIGHT-OF-WAY LOOKING WEST
(Refer to Figure 3-7a)

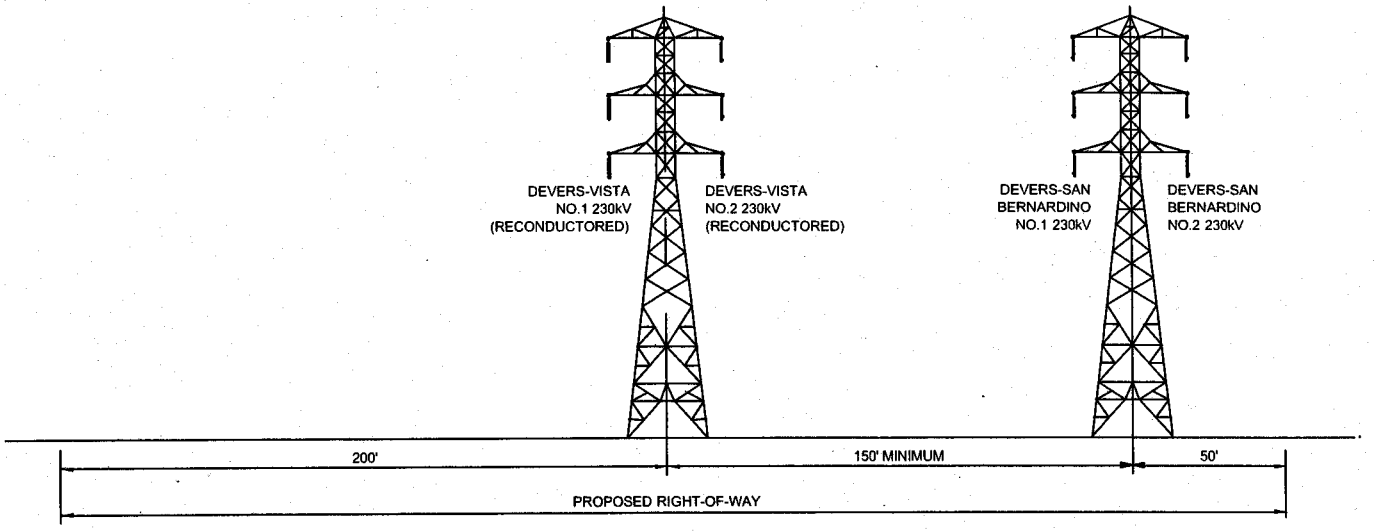


SECTION A-A
PROPOSED RIGHT-OF-WAY LOOKING WEST
(Refer to Figure 3-7a)

Figure 3-7b
Typical Sections

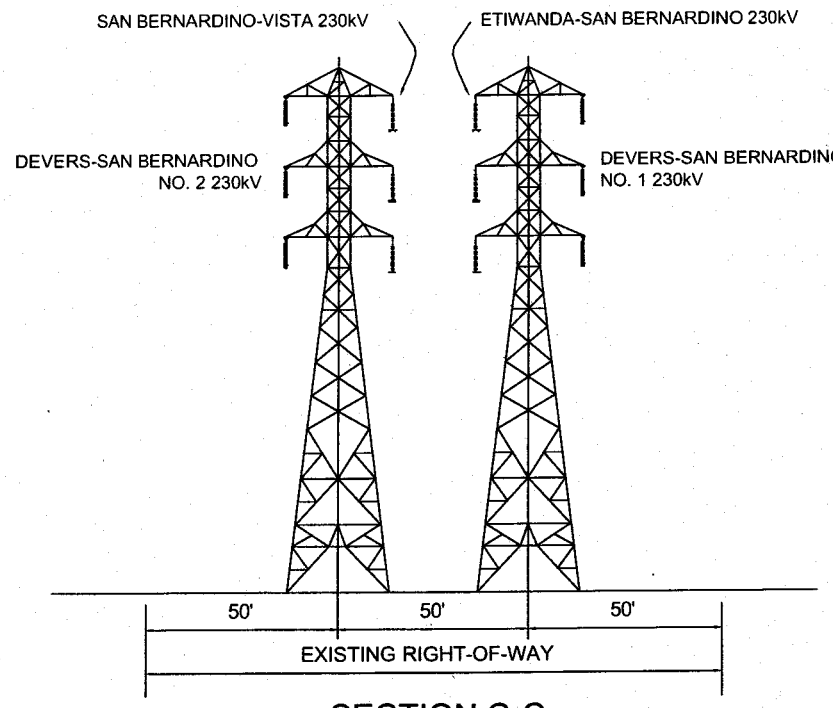


SECTION B-B
EXISTING RIGHT-OF-WAY LOOKING WEST
(Refer to Figure 3-7a)



SECTION B-B
PROPOSED RIGHT-OF-WAY LOOKING WEST
(Refer to Figure 3-7a)

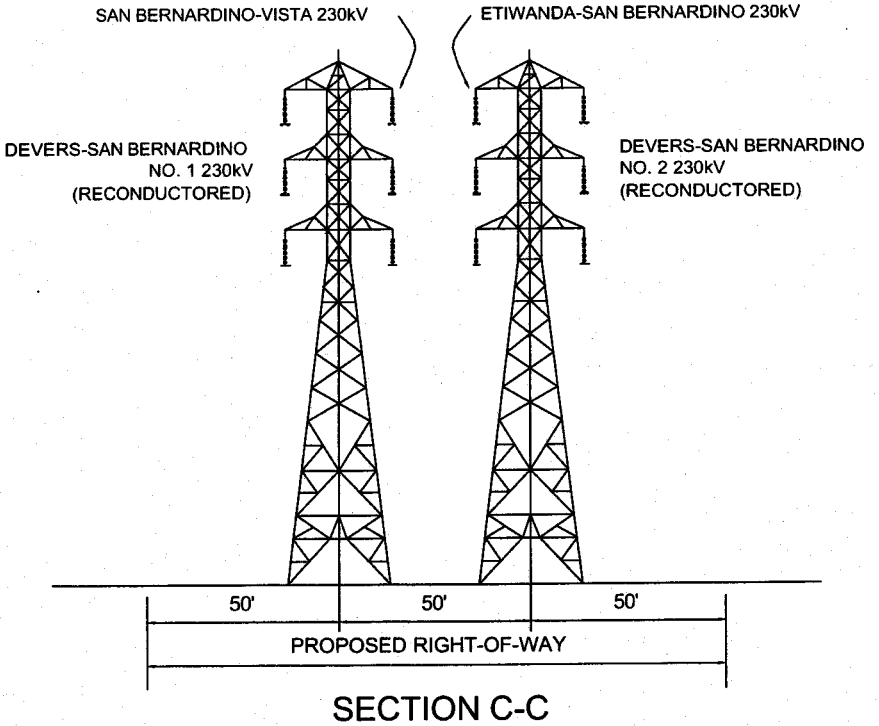
Figure 3-7c
Typical Sections



SECTION C-C

EXISTING RIGHT-OF-WAY LOOKING NORTH

(Refer to Figure 3-7a)

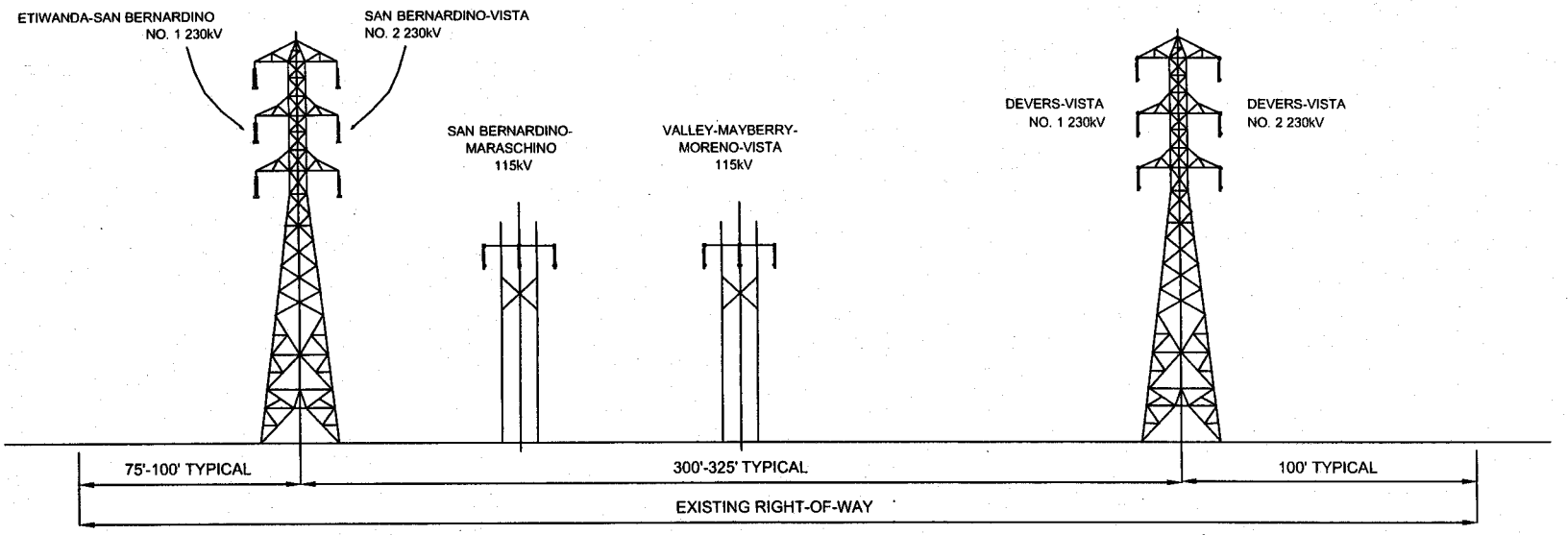


SECTION C-C

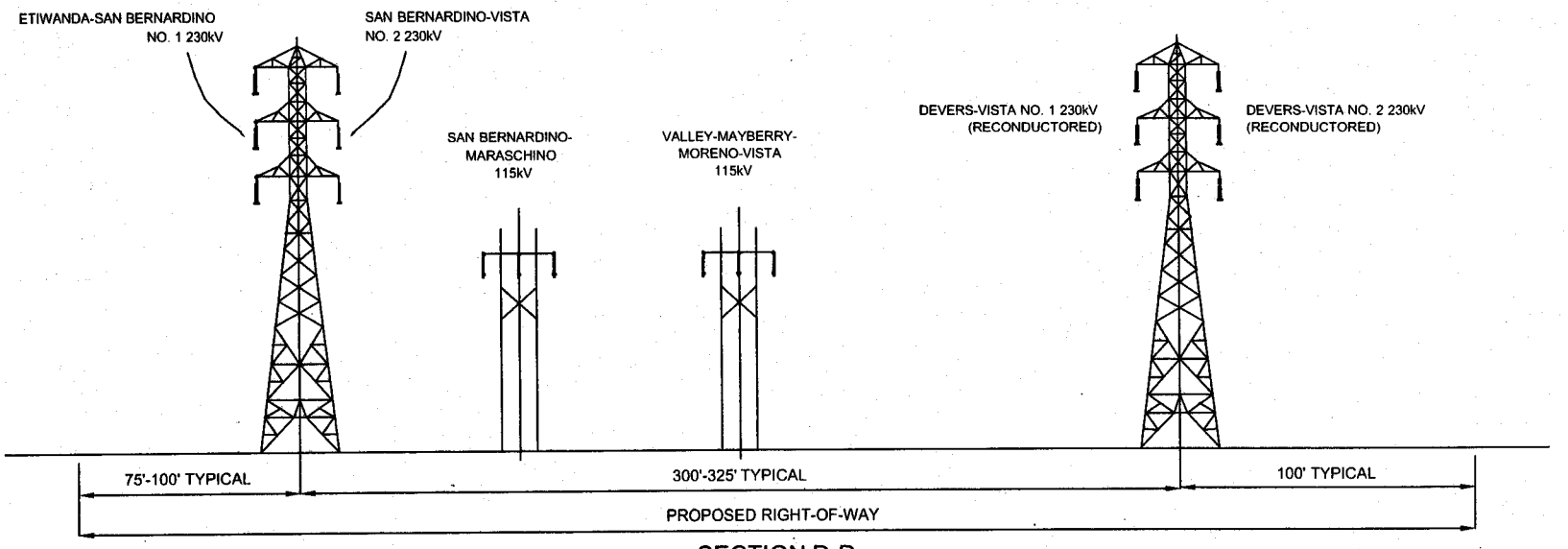
PROPOSED RIGHT-OF-WAY LOOKING NORTH

(Refer to Figure 3-7a)

Figure 3-7d
Typical Sections

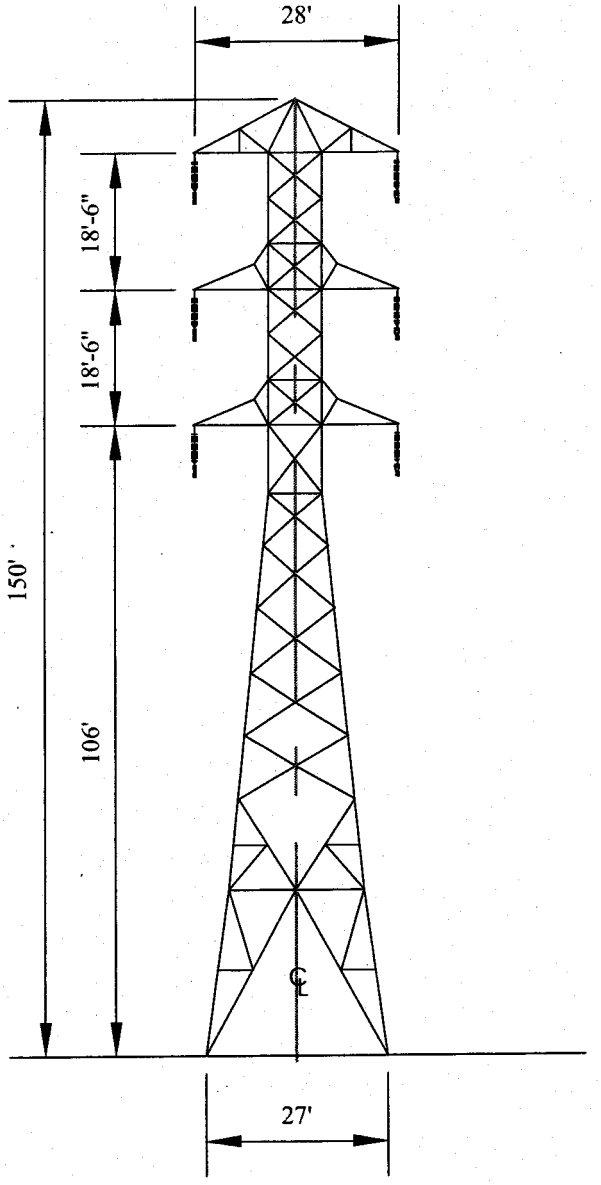


SECTION D-D
EXISTING RIGHT-OF-WAY LOOKING WEST
(Refer to Figure 3-7a)



SECTION D-D
PROPOSED RIGHT-OF-WAY LOOKING WEST
(Refer to Figure 3-7a)

Figure 3-7e
Typical Sections



Note:
Dimensions are approximate and may vary with site conditions.

Figure 3-8
Typical 230kV Double-Circuit
Lattice Steel Tower

Structure Type	Weight (pounds)
Four-legged double-circuit tangent	35,000
Four-legged double-circuit dead-end	65,000

The heights of the structures would vary depending upon the terrain, span length, and the presence of other facilities and features that the transmission line may cross, such as rivers, roads, highways, railroads, telephone lines, and other power transmission and distribution lines. The typical overall structure height would be approximately 150 feet. Where feasible, the new 230kV double-circuit towers would be aligned horizontally with existing 230kV towers.

The conductor height also would vary, depending upon the same factors described above for the structures. The minimum conductor height aboveground would be 30 feet between towers. The typical structure foundations would consist of four cast-in-place concrete piles. The size of piles required varies with the type of structure and soil conditions encountered at each tower site.

The average tower-to-tower spacing (span length) would be approximately 1,400 to 1,500 feet, or about 3.5 to 3.8 towers per mile of line. The exact quantity and placement of the structures depends upon the final detailed design of the transmission line, which is influenced by terrain, land use, environmental resource concerns, and economics.

3.3.2.2 Conductors

Each 230kV phase would be a two-conductor bundle with a spacing of 16 to 18 inches between centers. The typical conductor phase spacing for double-circuit towers is 18.5 feet vertically and 28 feet horizontally (see Figure 3-6). Each conductor is 1.244 inches in diameter, 1,033.5 kcmil ACSR. With this type of conductor, the load current flows through the aluminum strands that are formed in a helix around the core of steel strands. The steel strands provide the mechanical strength to support the aluminum strands.

3.3.2.3 Insulators

The tangent and angle insulator assemblies will consist of one or two, one-piece gray polymer insulators hung vertically from the tower crossarms in the form of an "I." These strings are used to suspend each conductor bundle (phase) from the structure while maintaining the electrical clearance between these conductors, ground, and the structure. The "I" string swings with the conductor during winds. Each insulator has an approximate height of 84 inches and a diameter of about 6 inches. On dead-end structures, the insulators are arranged in a barrel configuration consisting of two polymer insulators.

3.3.2.4 Hardware

Hardware required for the 230kV transmission lines would include suspension clamps, dead-end assemblies, spacers, armor rods, vibration dampers, and other miscellaneous parts. All of the hardware used on the proposed line would be designed for corona-free operation throughout the maximum design voltages.

Conductor spacers would be located along the lines to keep the two subconductors from contacting each other. This avoids conductor damage due to impacts that would occur without these spacers. Armor rods would be installed at the points where the suspension clamp supports the conductors. These armor rods increase the safety and reliability of the lines by minimizing the possibility of conductor damage resulting from flashovers of the insulator string and by protecting the conductor mechanically at the support point. Vibration dampers would be located on the conductor. This helps to prevent metal fatigue of the conductor strands by reducing the vibration caused by the wind.

3.3.2.5 Overhead Groundwires

Overhead groundwire, located on the peak of the transmission line structures, is used to intercept direct lightning strikes to the conductors. The 230kV structures would typically have a single groundwire at the top of the structure, approximately ½ inch in diameter. Any electric current from a lightning strike would be transferred to the ground through the groundwires and the structure. The overhead groundwire for the Devers-Vista No. 2 230kV line would contain optical fibers for communication and line protection purposes.

3.3.2.6 Right-of-Way

The new double-circuit 230kV line between Devers Substation and San Bernardino Junction would be constructed within the existing right-of-way along approximately the same centerline as the existing single-circuit H-frame 230kV transmission line and the existing single-circuit lattice steel 230kV transmission line, which are to be removed.

No additional right-of-way would be needed where reconductoring is proposed between San Bernardino Substation, Vista Substation, and San Bernardino Junction.

3.3.2.7 Access Roads

The west of Devers 230kV transmission system would utilize existing access roads wherever possible. Installation of new structures at some locations may require the construction of spur roads from existing roads to new tower sites.

3.4 RELATED FACILITIES

3.4.1 Substations and Compensation Banks

Substations may perform the following functions: (1) control, (2) electrical compensation, and/or (3) transformation. They may contain circuit breakers, disconnect switches, shunt reactors, series capacitors, transformers, and static VAR compensators, as well as related control, metering, and telecommunication facilities. These functions are established to optimize performance, reliability, and economics of the transmission system.

The control function consists of switching transmission lines, transformers, capacitors, reactors, static VAR compensators, or series reactors via circuit breakers in order to maintain system performance and reliability.

The compensation function is performed by shunt reactors and series capacitors. Shunt reactors limit the voltage rise along long transmission lines, thereby maintaining voltage regulation. Series capacitors compensate for the inherent inductance in long transmission lines and provide more electrical transmission capacity for a given line.

The transformation function consists of stepping down or up the voltage level so that power may either be transmitted or distributed.

3.4.1.1 Devers-Harquahala 500kV Transmission Line

The proposed 500kV transmission line would terminate at two existing facilities—Devers Substation in California and Harquahala Switchyard in Arizona. In addition, the line would connect to two new series capacitor banks and two new shunt reactor banks. The new series capacitor banks would be located adjacent to the existing DPV1 series capacitor banks located in

Arizona and California. One new shunt reactor bank would be located at Devers Substation. The second shunt reactor bank would be located on a new site located at the Harquahala Switchyard.

Devers Substation

This facility is a 500/230/115kV substation presently owned, operated, and maintained by SCE. The proposed modifications would be constructed within the existing fenced Devers Substation.

New equipment would be installed in the existing switchyard. This requires the installation of a new 133-foot-high by 90-foot-wide dead-end structure, circuit breakers and disconnect switches. Disconnect switches associated with the new Devers-Harquahala transmission line would be installed adjacent to and northwest of the existing DPV1 500kV shunt reactors, which would be assigned to the Devers-Harquahala 500kV line.

A 500kV shunt line reactor bank and associated disconnect switches would be installed within Devers Substation. A 500kV Static VAR Compensation (SVC) would be installed north of the 500kV switchyard within the existing Devers Substation. The SVC would terminate into the 500kV switchrack.

Approximately 2 acres would be required temporarily for laydown and construction purposes within the existing Devers Substation.

Series Capacitor Banks

Two new 500kV series capacitor banks would be installed for the proposed Devers-Harquahala transmission line. Each of the new series capacitor banks would be constructed adjacent to an existing DPV1 series capacitor bank, one in Arizona and one in California.

Each of the two series capacitor banks would consist of the following major components:

- Series capacitors
- Dead-end structures – transition structures located on either side of the series capacitor banks where the transmission line conductors enter the series capacitor sites
- Telecommunication equipment
- AC and DC power to operate facility equipment
- Grounding grid – placed beneath the surface of the facility as a safety measure
- Mechanical-electrical equipment room

Series Capacitor Bank – California Site

The proposed California series capacitor site would be located approximately 64 miles to the east of the Devers Substation in the Chuckwalla Valley on BLM land in Section 6, Township 6 South, Range 14 East (Map 3-2b). The new site would be north of and adjacent to the existing DPV1 series capacitor bank between towers M173-T2 and M173-T3. The site is approximately 0.4 mile south of I-10 and is accessed from the nearby Red Cloud Mine Road. The new series capacitor bank would occupy approximately 2 acres inside the fenced site. In addition, a 1-acre fenced material laydown area for storage and staging would be also required for temporary use.

Series Capacitor Bank – Arizona Site

The proposed Arizona series capacitor site would be located approximately 55 miles west of the Harquahala Switchyard on the Ranegras Plain on BLM land in Section 18, Township 2 North, Range 14 West (Map 3-2a). The new site would be south of and adjacent to the existing DPV1 series capacitor bank between towers M61-T3 and M61-T4. The site is approximately 7 miles south of I-10 and is accessed from the nearby El Paso Natural Gas Pipeline road. The new series

capacitor bank would occupy approximately 2 acres inside the fenced site. In addition, a 1-acre fenced material laydown area for storage and staging would be required for temporary use.

DPV1 Series Capacitor Interconnection Alternative

In order to comply with the CAISO directive dated June 2004 to increase the electrical current capability of the existing series capacitor banks on the DPV1 500kV transmission line, SCE may need to replace the existing DPV1 series capacitor banks by June 2006.

To expedite construction of the new DPV1 series capacitors, the CAISO recommended that each of the DPV1 series capacitor banks be installed in the proposed Devers-Harquahala 500kV transmission line right-of-way, adjacent to the existing DPV1 series capacitor banks. Construction of the new DPV1 series capacitors on the Devers-Harquahala right-of-way would allow for the existing power transfer capacity of the DPV1 line to continue during construction, as well as provide safer construction conditions.

During construction of the Devers-Harquahala line, the new DPV2 series capacitor banks would be constructed in the original DPV1 locations in Arizona and California. The new facilities would then be connected to the DPV1 transmission line, and the previously upgraded facilities would be connected to the Devers-Harquahala transmission line.

In the near future, SCE may file an application with the BLM to amend the right-of-way grant to allow SCE to construct the DPV1 series capacitor banks on the proposed Devers-Harquahala right-of-way. If this option is not pursued or if the application is not approved by BLM, SCE would construct the DPV2 series capacitor banks as described in the previous section.

Harquahala Switchyard

This existing facility is a 500kV switching station presently owned, operated, and maintained by the New Harquahala, LLC (HGC). SCE would purchase the 500kV switchyard as part of the DPV2 project.

There are presently four 500kV lines terminating in the Harquahala Switchyard—the Harquahala-Hassayampa 500kV transmission line and three lines to the generator transformers of each unit at Harquahala.

Equipment would be installed at Harquahala in a double-breaker configuration. A new 145-foot-high by 100-foot-wide line dead-end structure, circuit breakers, and disconnect switches would be installed in the existing switchyard. All equipment necessary to provide Supervisory Control and Data Acquisition (SCADA) would be installed. Most of the equipment required for this function would be contained in a new telecommunications room.

Approximately 2 acres adjacent to the eastern side of the Harquahala property would be required temporarily for laydown and construction purposes.

500kV Shunt Reactor

A 500kV shunt line reactor bank and associated disconnect switches would be installed for the proposed Devers-Harquahala 500kV transmission line. The preferred location for the shunt reactor is immediately adjacent and north of the Harquahala Switchyard within the Harquahala Generating Station property. An alternative location would be east of the switchyard. The shunt reactor would be installed on approximately two acres of property to be acquired for this purpose. Temporary laydown and construction would require approximately one acre.

Valley Substation

A 500kV SVC would be installed and terminate at the 500kV switchyard inside the existing Valley Substation property line. The western substation fence would be relocated to the edge of the western property line. An area of approximately 2 acres within the substation property would be used for temporary laydown and construction.

3.4.1.2 West of Devers 230kV Transmission System Upgrade – Other Modifications

Various equipment that would be needed for the 230kV upgrade project would be installed within the existing fenced areas at Devers, Vista, Lewis (Orange County), and San Bernardino substations. The SONGS Switchyard (San Diego County) would include conductor replacements, wave traps, disconnect switches, and line relays.

3.4.1.3 Special Protection Scheme

A Special Protection System (SPS) is proposed to mitigate post-transient voltage violations of system planning criteria for the simultaneous loss of DPV1 and Devers-Harquahala, or DPV1 and Harquahala-Hassayampa 500kV lines. This SPS will be designed to drop approximately 900 MW of generation in the PVNGS area and approximately 900 MW of SCE load.

Most of the relays needed to support the special protection scheme would be installed within the existing relay room or mechanical electrical equipment room at each substation site. These may include Devers, Padua, and Vista substations in California, and the PVNGS, Hassayampa, and Harquahala switchyards in Arizona. Other locations in Arizona may require new relays or relay upgrades and/or new circuit breakers or circuit breaker upgrades.

3.4.2 Telecommunications Systems

The proposed telecommunications system would consist of both existing and new SCE facilities. The new facilities are required to increase the reliability of the intertie of microwave systems between SCE and APS, as well as provide primary and backup telecommunications services for the new Devers-Harquahala 500kV transmission line. These services include protective relaying, special protection scheme, SCADA, system dispatching, data, and telephone.

3.4.2.1 Devers-Harquahala 500kV Segment

The primary telecommunications system for the proposed Devers-Harquahala 500kV segment would involve construction of a new telecommunications facility at Harquahala Mountain in Arizona. This new facility would be constructed adjacent to an existing facility owned and operated by CAWCD. Three new microwave systems would be installed at this site: (1) Harquahala Mountain-Smith Peak, (2) Harquahala Mountain-Arizona Series Capacitor Bank, and (3) Harquahala Mountain-Harquahala Substation. Upgrades to APS' existing microwave path between Black Peak and Smith Peak also would be required to increase system capacity. The overall telecommunication system capacity would be shared between SCE and APS through a contractual agreement.

The backup telecommunications system for the proposed Devers-Harquahala 500kV segment would involve installation of a new Optical Ground Wire (OPGW) on the Devers-Harquahala transmission line structures. A new Blythe Optical Repeater facility would be constructed approximately 3 miles west of Blythe within the right-of-way of the new Devers-Harquahala transmission line. Three existing SCE facilities also would be used as optical repeater sites: Mirage Substation, California Series Capacitor Bank, and Arizona Series Capacitor Bank. In addition, approximately 3 miles of existing ground/static wire would be replaced with OPGW on the double-circuit tower line at Copper Bottom Pass.

Harquahala Mountain – A new telecommunications facility would be constructed at Harquahala Mountain. Harquahala Mountain is located on BLM land, 1 mile northwest of Salome in La Paz County, Arizona, in Section 31, Township 6 North, Range 10 West. There is an existing telecommunications facility owned, maintained, and operated by the CAP at this site. This facility was built in the early 1980s by the USBR and is surrounded by a wilderness area. This site is powered by solar since there is no available commercial power. The new telecommunications facility would be constructed adjacent to the existing CAP facility. The new facility would include:

- one 12-foot by 36-foot prefabricated building
- one 110-foot self-supporting tubular steel tower
- one emergency generator installed within the prefab building
- two 500-gallon fuel tanks
- one 30 kilowatt solar panel system
- two air conditioning systems
- one direct current power system
- three microwave systems
- one fence

The site would be unmanned during operation. A typical telecommunications facility is shown in Figure 3-9.

There is an existing 10-mile dirt road leading to Harquahala Mountain. A temporary construction area adjacent to the new facility would be established prior to the actual construction for vehicle parking and material storage. This area will be fenced and gate locked. It is estimated that the temporary construction area would occupy approximately 1 acre and the permanent site would occupy approximately ½ acre.

Blythe Optical Repeater Site – The new Blythe Optical Repeater facility would be constructed within the proposed Devers-Harquahala 500kV right-of-way approximately 3 miles southwest of

Blythe adjacent to SCE's DPV1 right-of-way and CA 78 (Neighbours Boulevard). The site is located in Section 30, Township 7 South, Range 23 East, near Ripley, California. The new facility would include:

- one 12-foot by 36-foot prefabricated building
- one emergency generator installed within the prefab building
- one 500-gallon fuel tank
- 120/240-volt alternating current service
- conduits to the OPGW termination
- two air conditioning systems
- one direct current power system
- one Synchronous Optical Network (SONET) system
- one fence

The site would be unmanned during operation.

A temporary construction area adjacent to the new facility would be established prior to the actual construction for vehicle parking and material storage. This area would be fenced and gate locked. It is estimated that the temporary disturbed area would be 1 acre, and the permanent site would occupy approximately ¼ acre.

Devers Substation – Installation of SONET and channel equipment would be required within the existing Devers Substation to support the primary and backup protection circuits. In addition, a 5-inch conduit would be installed from the telecommunications room to the OPGW termination point on the Devers-Harquahala 500kV transmission tower.

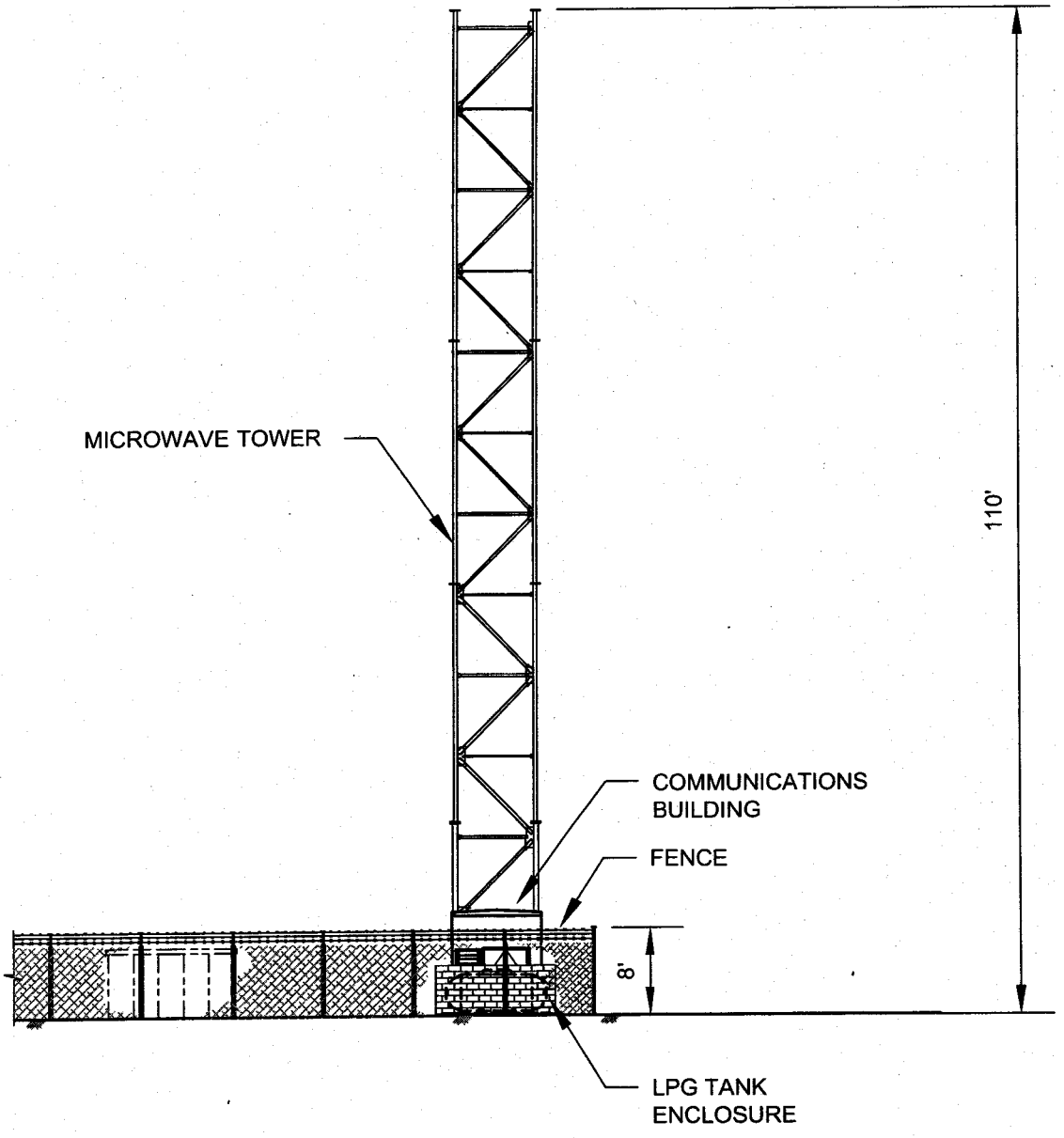


Figure 3-9
Typical Telecommunications Facility

Mirage Substation – Installation of SONET and channel equipment would be required within the existing Mirage Substation to support the backup protection circuits. In addition, a 5-inch conduit would be installed from the telecommunications room to the substation fence. A new fiber optic cable would be installed between the substation and the Devers-Harquahala transmission tower where the OPGW splices would take place.

California Series Capacitor Bank – Installation of SONET and channel equipment would be required within the existing California Series Capacitor Bank to support the backup protection circuits. In addition, a 5-inch conduit would be installed from the telecommunications room to the OPGW termination point on the Devers-Harquahala 500kV transmission tower.

Black Peak Communication Site (APS) – An upgrade to APS' existing microwave equipment and antenna would be required with the existing Black Peak Communication Site to provide additional bandwidth to support the primary protection circuits. The overall system capacity would be shared between SCE and APS through a contractual agreement.

Smith Peak Communication Site (APS) – An upgrade to APS' existing microwave equipment and antenna would be required within the existing Smith Peak Communication Site to provide additional bandwidth to support the primary protection circuits. The overall system capacity would be shared between SCE and APS through a contractual agreement.

Arizona Series Capacitor Bank – Installation of microwave and SONET equipment would be required within the existing Arizona Series Capacitor Bank to support the backup protection circuits. A 5-inch conduit would be installed from the telecommunications room to the OPGW termination point on the Devers-Harquahala 500kV transmission tower. In addition, an upgrade to the existing microwave antenna tower would be required to support two new 10-foot-high performance microwave antennas.

Harquahala Substation – A new telecommunications facility and microwave tower would be constructed within the existing Harquahala Switchyard. Installation of microwave, SONET, and

channel equipment would be required to support the primary and backup protection circuits. One new 5-inch conduit would be installed from the new telecommunications room to the OPGW termination point on the Devers-Harquahala 500kV transmission tower. In addition, the existing conduit containing the fiber cable leading to the Harquahala-Hassayampa 500kV tower would be extended from the existing 500kV mechanical-electrical equipment room to the new telecommunications room.

3.4.2.2 Harquahala-West Subalternate Route

The proposed telecommunications systems for the Harquahala-West Subalternate Route would be identical to the proposed Devers-Harquahala 500kV route.

3.4.2.3 Palo Verde Subalternate Route

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

3.4.2.4 Midpoint Substation Preferred and Alternative Sites

For the Midpoint Substation, a new telecommunications facility would be constructed within the substation to provide microwave and fiber optic communications for protective relaying and special protection scheme requirements. One 12-foot by 36-foot prefabricated building and one 110-foot self-supporting tubular steel tower would be installed. Three new microwave paths and two fiber optic systems also would be installed at this site. The proposed microwave paths are Midpoint-Buck Boulevard Substation (Blythe Energy), Midpoint-Chuckwalla Communication

Site, and Midpoint-Cunningham Communication Site. The proposed fiber optic systems are Midpoint-Buck Boulevard Substation (Blythe Energy) and Midpoint-Devers-Harquahala.

Preferred Site – Installation of microwave, SONET, and channel equipment would be required at this site to provide the primary and backup protection circuits. Conduits would be required between the telecommunications room and the 230kV mechanical electrical equipment room , 500kV mechanical electrical equipment room, OPGW termination point on the Devers-Harquahala 500kV transmission tower, and OPGW termination point on the Buck Boulevard-Midpoint 230kV transmission tower.

Chuckwalla Communication Site – Installation of microwave equipment would be required within the existing Chuckwalla Communication Site to support the primary protection circuits. In addition, two new 10-foot-high performance microwave antennas would be installed on the existing microwave tower pointing towards Midpoint Substation.

Cunningham Communication Site (APS) – Installation of microwave equipment would be required within the existing APS Cunningham Communication Site to support the primary protection circuits. In addition, two new 10-foot-high performance microwave antennas would be installed on the existing microwave tower pointing towards Midpoint Substation.

McCoy Communication Site – If Midpoint Substation is constructed in an area where microwave line-of-sight cannot be achieved between Midpoint-Chuckwalla Communication Site, McCoy Mountain Communication Site would be used as an intermediate microwave relay station.

Alternative Site 1, Mesa Verde – Installation of microwave, SONET, and channel equipment would be required at this site to provide the primary and backup protection circuits. Conduits would be required between the telecommunications room and the following: 500kV and 230kV mechanical electrical equipment rooms, OPGW termination point on the Devers-Harquahala 500kV transmission tower, and OPGW termination point on the Buck Boulevard-Midpoint 230kV transmission tower.

Chuckwalla Communication Site – Installation of microwave equipment would be required within the existing Chuckwalla Communication Site to support the primary protection circuits. In addition, two new 10-foot-high performance microwave antennas would be installed on the existing microwave tower pointing to Midpoint Substation.

Cunningham Communication Site (APS) – Installation of microwave equipment would be required within the existing APS Cunningham Communication Site to support the primary protection circuits. In addition, two new 10-foot-high performance microwave antennas would be installed on the existing microwave tower pointing to Midpoint Substation.

Alternative Site 2, Wiley Well – Installation of microwave, SONET, and channel equipment would be required at this site to provide the primary and backup protection circuits. Conduits would be required between the telecommunications room and the following: 500kV and 230kV mechanical electrical equipment rooms, OPGW termination point on the Devers-Harquahala 500kV transmission tower, and the Buck Boulevard-Midpoint 230kV transmission tower.

Chuckwalla Communication Site – Installation of microwave equipment would be required within the existing Chuckwalla Communication Site to support the primary protection circuits. In addition, two new 10-foot-high performance microwave antennas would be installed on the existing microwave tower pointing to Midpoint Substation.

Cunningham Communication Site (APS) – Installation of microwave equipment would be required within the existing APS Cunningham Communication Site to support the primary protection circuits. In addition, two new 10-foot-high performance microwave antennas would be installed on the existing microwave tower pointing to Midpoint Substation.

3.4.2.5 West of Devers 230kV Upgrade

Currently, the fiber optic cable carrying SONET System 47 is wrapped around the ground wire of the existing Devers-Vista No. 2 230kV transmission towers. The proposed upgrade to the double-circuit 230kV transmission line between Devers and Vista would require replacement of the existing fiber wrap cable with a new OPGW on the proposed double-circuit towers. This would require installation of a temporary fiber cable on the Valley-Mayberry-Moreno-Vista 115kV towers between Vista Substation and San Bernardino Junction. This temporary fiber cable is required to re-route existing traffic on the fiber-wrap cable while the line is being reconductored between Vista Substation and San Bernardino Junction. New fiber optic splice cases at San Bernardino Junction also would be installed for splicing purposes.

In order to provide redundant protective relaying circuits for the Devers-San Bernardino 230kV line, a new OPGW would be installed on the Devers-San Bernardino double-circuit towers between San Bernardino Substation and San Bernardino Junction. The primary protection circuits would be carried via existing microwave systems and the backup protection circuits would be carried via SONET System 47.

3.5 CONSTRUCTION

3.5.1 Schedule

The proposed operational date for the DPV2 transmission line project is June 2009. Work activities will commence upon approval by the CPUC and other permitting agencies. Construction on the Devers-Harquahala 500kV line segment would commence March 2007 and take approximately 24 to 28 months to complete. Construction within the 230kV segment west of Devers would commence after June 2006 and be completed in June 2009. The time between completion of construction and the operation date would be used to complete inspection and testing of the project.

3.5.2 Labor Force Requirements

3.5.2.1 Devers-Harquahala 500kV Segment

The construction of the proposed 500kV line is presently planned to be performed by contract personnel with SCE responsible for administration and inspection. The estimated number of personnel and amount of equipment required for each construction phase is shown in Table 3-7. It is estimated that a total of 205 workers (full-time equivalent personnel) will be needed to construct the proposed 500kV line.

TABLE 3-7
PROPOSED DEVERS-HARQUAHALA 500kV TRANSMISSION LINE LABOR FORCE AND EQUIPMENT REQUIREMENTS

Construction Element	Personnel	Equipment	Duration (months)
Management/Office	9	6 – office trailers 9 – pickup trucks	24
Inspection and Environmental	14	14 – pickup trucks	24
Support	9	6 – mechanic trucks 2 – lube service trucks 6 – tool trailers 2 – fire suppression trucks	24
Material Processing	12	8 – forklifts 8 – tractor trucks with trailers	24
Road Crew	12	3 – road graders 3 – dozers 2 – grad-all excavators 3 – water trucks 2 – 10-yard dump trucks 6 – pickup trucks 1- boring rig	24
Foundation Crews	20	5 – pickup trucks 4 – 2½ ton flatbed trucks 4 – backhoes 4 – drill rigs 4 – boom trucks 2 – off-road loaders 2 – tractor truck with trailers 4 – water trucks 1 – trencher	24
Tower Assembly/Erection	75	9 – pickup trucks 9 – 2½ ton flatbed trucks 9 – truck cranes 9 – crew cab pickup trucks 9 – air compressors 4 – large RT cranes	18

TABLE 3-7 PROPOSED DEVERS-HARQUAHALA 500kV TRANSMISSION LINE LABOR FORCE AND EQUIPMENT REQUIREMENTS			
Construction Element	**Personnel**	**Equipment**	**Duration (months)**
Conductor Operations	54	8 – pickups 8 – crew cab pickup trucks 2 – pole truck and trailers 12 – truck cranes 6 – bucket trucks 6 – line trucks 4 – conductor tensioners 2 – static tensioners 2 – sockline pullers 2 – conductor pullers 6 – sagging units (skidder)s 18 – reel stand trailers 9 – 6x6 truck tractors 2 – helicopters 10 – water trucks	18
TOTAL	**205**		**24**

3.5.2.2 West of Devers 230kV Upgrade

The majority of the 230kV system construction west of Devers Substation is presently planned to be performed by contract personnel with SCE responsible for administration and inspection. Certain portions of the work may be reserved for SCE's construction personnel. The number of personnel and amount of equipment required for each construction phase is shown in Table 3-8. It is estimated that a total of 177 workers would be required for the west of Devers upgrade.

TABLE 3-8 WEST OF DEVERS 230kV UPGRADE LABOR FORCE AND EQUIPMENT REQUIREMENTS			
Construction Element	**Personnel**	**Equipment**	**Duration (month)**
Management	3	2 – office trailers 3 – pickup trucks	17
Inspection and Environmental	3	3 – pickup trucks	16
Support	3	2 – mechanic trucks 1 – lube service truck 2 – tool trailers 1 – fire suppression truck	16
Material Processing	6	2 – forklifts 2 – tractor trucks with trailers	16

TABLE 3-8
WEST OF DEVERS 230kV UPGRADE LABOR FORCE AND EQUIPMENT REQUIREMENTS

Construction Element	Personnel	Equipment	Duration (month)
Road Crew	4	1 – road grader 1 – dozer 1 – grade-all excavator 3 – water trucks 2 – 10-yard dump trucks 2 – pickup trucks 1 – boring rig 1 – backhoe	16
Foundation Crews	23	5 – pickup trucks 4 – 2½ ton flatbed trucks 2 – backhoes 2 – drill rigs 4 – boom trucks 1 – off-road loader 1 – tractor truck with trailer 2 – water trucks	12
Tower Assembly/Erection	64	9 – pickup trucks 9 – 2½ ton flatbed trucks 9 – truck cranes 9 – crew cab pickup trucks 9 – air compressors 1 – large crane	9
Conductor Operations	71	12 – pickups 10 – crew cab pickup trucks 2 – pole trucks and trailers 3 – truck cranes 2 – bucket trucks 2 – line trucks 1 – conductor tensioner 1 – static tensioner 1 – sockline puller 1 – conductor puller 1 – bullwheel puller 2 – sagging units 6 – reel stand trailers 3 – 6x6 truck tractors 1 – helicopter 1 – water truck	16
TOTAL	**177**		**24**
NOTE: Equipment required for line dismantle tasks are embedded within each construction element.			

3.5.3 Facility Siting

3.5.3.1 Devers-Harquahala 500kV Segment

Once the proposed 500kV transmission line route has been approved, a detailed survey would be conducted, additional right-of-way would be acquired, and detailed engineering designs, based on this survey, would be started.

A control centerline would be established first, based on field survey measurements. Control monuments, consisting of 2-inch-diameter iron pipes sealed with a stamped brass cap would be set at maximum intervals of approximately 2 miles. Visual reference points, located both parallel and perpendicular to the control line, would be established so that photogrammetric profiles of the area's topography could be compiled. Upon completion, approximate tower locations would be spotted on the profiles according to engineering design criteria.

Once approximate tower locations have been selected, exact positions would be field surveyed and staked, and a small pipe would be placed at the center of each proposed tower site. The top of the pipe would become the centerline hub elevation, which would be used as the basis for all calculations involving structure height.

Survey crews would locate spur road centerlines and grades. Final determinations of road location curvature, cuts and fills, grades and drainage, and necessary erosion controls would be made in accordance with design standards and practices and/or landowner requirements.

All proposed tower sites and access road sites would be field inspected by qualified SCE personnel to ensure correctness and to address and resolve any land use or environmental considerations.

3.5.3.2 West of Devers 230kV Upgrade

Tower siting for the west of Devers 230kV system would be similar to that for the new 500kV line, except that existing survey monuments established for the existing tower lines would be utilized for locating new structures.

3.5.4 Construction Yards

Construction yards would be used as reporting locations for the workers, vehicle and equipment parking, and as storage locations for material. The construction yards would have office facilities for supervisory and clerical personnel. Normal maintenance for construction equipment would be conducted at these locations. The maximum number of workers reporting to any one-yard area is not expected to exceed 144 at any one time; typically, there would be a maximum of 12 workers.

3.5.4.1 Devers-Harquahala 500kV Segment

Construction of the proposed 500kV transmission line would begin with the establishment of approximately seven temporary construction yards located at strategic points along the route—four in California and three in Arizona. The size of each yard would be 3 to 10 acres depending on land availability and intended use.

3.5.4.2 West of Devers 230kV Upgrade

Construction of the 230kV system west of Devers would not take place sequentially along the right-of-way, but would most likely be done in several stages. Since existing lines and structures must be removed, the construction sequence would be highly influenced by circuit outage availability. Construction yards would likely be set up at existing facilities such as Devers, Vista,

and San Bernardino substations, with up to two additional yards set up between Devers and San Bernardino Junction. Each yard would require approximately 3 acres and be located on previously disturbed land parcels.

3.5.4.3 Midpoint Substation Alternatives

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.

3.5.5 Access Roads and Right-of-Way Clearing

3.5.5.1 Devers-Harquahala 500kV Segment

No new main access roads are expected to be required for the proposed 500kV route, with the exception of the approximately 5-mile segment east of the Harquahala Switchyard. Where overland vehicle travel is not possible, upgrades to main access roads and extensions to existing spur roads would be needed to allow passage of construction vehicles. Such upgrades may require vegetation clearing and grading based on site conditions. There are approximately 260 miles of existing main access roads. The total area of potential disturbance for 19.3 miles of new spur roads would be approximately 32.8 acres. The spur roads would be a minimum of 14 feet wide. During grading operations, care would be exercised to minimize side casting. No earth would be removed below final elevations, and no cuts would be made deeper than necessary for clearing and road construction.

Upon completion of construction, any drainage deficiencies would be corrected to prevent future erosion. Trees and brush would be cleared only when necessary to provide electrical clearance, line reliability, or suitable access for maintenance and construction.

3.5.5.2 West of Devers 230kV Upgrade

Construction access is available within the existing right-of-way for the existing 230kV system upgrade. New spur roads would be required for new structures that are not at or adjacent to existing towers. Since no new tower construction is planned, and existing access is available, no new access roads would be required between the San Bernardino Substation, San Bernardino Junction, and Vista Substation. Trees and brush would be cleared only when necessary to provide electrical clearance, line reliability, or suitable access for maintenance and construction.

3.5.5.3 Midpoint Substation Alternatives

A permanent, 24-foot-wide, two-lane access road will be constructed from the existing paved road to the substation site. For the preferred site, the new road would be constructed for a distance of approximately 3 miles from the existing road.

Alternative Site 1, Mesa Verde, would require a 5-mile access road. Alternative site 2, Wiley Well, is located adjacent to the existing paved road and would therefore require only a 100-foot long access road.

3.5.6 Foundation Installation

3.5.6.1 Devers-Harquahala 500kV Segment

The proposed 500kV line from Devers to Harquahala Switchyard would require the construction of approximately 709 new lattice steel towers, 39 H-frames, and 23 tubular steel poles. Each structure would require augured cast-in-place concrete piles. Existing concrete supply facilities would be utilized wherever feasible. If no such facilities exist in certain areas, temporary concrete batch plants would be set up in areas approved by the authorizing agency. Concrete

would be hauled to the structure site from the concrete supply facilities in standard concrete trucks. Care would be taken to minimize damage to the existing landscape and natural vegetation. Disposal of unused concrete would be restricted to methods detailed in the stormwater pollution prevention plan.

Counterpoise may need to be installed if the local soil conditions indicate that the soil has a resistance above 30 ohms. This is accomplished by attaching a 0.375-inch cable to the tower steel. The cable is installed 1-foot underground and extends approximately 100 feet (within the right-of-way) from two or more footings.

3.5.6.2 West of Devers 230kV Upgrade

The proposed 230kV modifications for the west of Devers system would require the construction of foundations for approximately 161 structures. Foundation installation for the 230kV upgrade would be similar to that of the 500kV segment as described above.

3.5.7 Structure Assembly and Erection

3.5.7.1 Devers-Harquahala 500kV Segment and West of Devers 230kV Upgrade

At the structure fabrication plant, structural members would be assembled into bundles, shipped by rail or truck to the construction yards, and then trucked to the individual sites. After being assembled into subassemblies, the subassemblies would be put together with the aid of a crane.

Assembly and erection of the structures required for the proposed transmission line would consist of three main activities: (1) assembly of main sections, (2) erection of the sections, and (3) final cleanup. Sections would be joined together with the aid of a crane and erected on

foundations. Installation of insulators and travelers and final checkout and cleanup would then conclude structure assembly and erection.

3.5.8 Conductor and Overhead Groundwire Stringing

3.5.8.1 Devers-Harquahala 500kV Segment and West of Devers 230kV Upgrade

The stringing of conductor and overhead groundwire on new transmission lines would normally commence once a suitable number of structures had been erected and inspected. Setup locations for stringing equipment located between suspension towers would be temporary 150-foot by 300-foot areas located adjacent to the access roads approximately every 5,000 to 15,000 feet along the line. Smaller setup areas, 100 feet by 200 feet, are possible near either side of dead-end structures. Geographic, environmental, and cultural factors will determine the final locations of setup locations. Other considerations include specific line design issues such as locations of dead-end structures or line direction changes.

To shield underlying activities and facilities, temporary 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, prior to stringing operations. 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.

Conductor is usually supplied on 96-inch reels in lengths of up to 7,500-foot reels. Groundwire is usually supplied on reels in 15,000-foot lengths. For new transmission lines, stringing initially would consist of flying in pilot lines (small and lightweight) through the stringing travelers by helicopter, subsequently pulling larger steel cable. The conductor or groundwire would then be pulled from the established setup points by wire stringing equipment. For reconductor of existing lines and overhead groundwire west of Devers Substation, stringing would initially consist of replacing insulators, installing travelers, then transferring the existing conductor to the installed

travelers. The existing conductor or groundwire would then be pulled out from the established setup points. The new conductor or groundwire would be pulled in. The conductor or groundwire would then be transferred into suspension hardware.

3.5.9 Removal of Facilities, West of Devers 230kV Upgrade

Two existing single-circuit transmission lines would be removed between Devers Substation and San Bernardino Junction. Guard structures would be erected for the conductor removal activities. In accordance with prearranged outages, facilities would be taken off line, conductor would be removed, and structures disassembled and hauled to staging yards for disposal. Guard structures would then be disassembled and removed. Removal would be coordinated with new line construction, structure rearrangement, and reconductor work. Materials would be recycled where feasible.

3.5.10 Telecommunications Facilities

3.5.10.1 Harquahala Mountain

Contractors and subcontractors would be used to construct the new building and antenna tower. A medium duty crane would be required for the construction of the antenna tower. SCE's telecommunications construction crews will be used for telecommunications equipment installation.

Three trucks and six men would be needed during peak construction periods. Construction of the new facility and antenna tower will take approximately 12 to 16 weeks to complete and would consist of the following steps:

- site preparation
- erect temporary fencing area
- set the foundations
- install prefab building, fuel tanks, and emergency generator
- install photovoltaic (solar) system
- erect the antenna tower
- install antennas and telecommunications equipment
- erect permanent fencing
- site cleanup

The prefabricated building would be pre-assembled at the manufacturing plant and delivered to the Harquahala Mountain. The building would be set on a concrete pad using a crane. The antenna tower will be assembled and erected on site. Each tower section would be erected using a crane.

3.5.10.2 Blythe Optical Repeater

Contractors and subcontractors would be used to construct the new building. SCE's telecommunications construction crews will be used for telecommunications equipment installation.

Three trucks and six men would be needed during peak construction periods. Construction of the new facility and antenna tower will take approximately 10 to 12 weeks to complete and would consist of the following steps:

- site preparation
- erect temporary fencing area
- set the foundations
- install prefab building, fuel tanks, and emergency generator

- install telecommunications equipment
- erect permanent fencing
- site cleanup

The prefabricated building would be pre-assembled at the manufacturing plant and delivered to the job site. The building would be set on a concrete pad using a crane.

3.5.11 Post-Construction Cleanup

During construction, all excess materials would be removed from the right-of-way. After construction, all debris would be disposed of in a manner such that the area would be returned as near as practicable to its pre-construction appearance. This would include removal of surplus buildings and equipment, lumber, refuse, fencing, and all other items not at the sites prior to construction.

3.6 OPERATION AND MAINTENANCE

3.6.1 Schedule

Following completion of project construction, operation and maintenance of the new lines would commence. Inspection and maintenance activities would include the following:

- routine line patrols by both aircraft and truck
- routine, patrol identified, tower and wire maintenance
- routine line washing
- routine, patrol identified, earth and sand abatement from footings
- routine right-of-way road maintenance

The frequency of inspection and maintenance would depend on various conditions including length of the line and weather effects. Schedules by line are summarized in Table 3-9.

3.6.2 Labor Force Requirements

Inspection and maintenance activities typically include senior patrolman, foreman, lead lineman, journeyman lineman, apprentices, groundmen, helicopter pilots, equipment operators, and laborers. If the magnitude of repairs identified by routine patrols is substantial, other specialized employees such as surveyors, engineers, clerical personnel, and technicians would be attached to maintenance crews as required to address any unique problem that may arise due to such variables as substantial storm damage or vandalism. Labor force requirements by line are summarized in Table 3-9.

For the Devers-Harquahala 500kV line, it is expected that there would be a minor increase in operation and maintenance activity compared to the existing operation and maintenance activity along the existing corridor. No significant increase in patrols or grading would be required.

For the west of Devers upgrade, it is expected that there will be a small decrease in operation and maintenance activity because there would be a reduced number of structures to patrol or maintain and the use of polymer insulators would significantly reduce or nearly eliminate the need for insulator washing.

TABLE 3-9
OPERATION AND MAINTENANCE LABOR FORCE

Activity	Frequency	Duration	Personnel Required	Note
Devers-Harquahala 500kV Transmission Line				
Routine Patrol, Aircraft	Every two years	8 hours	Pilot x 1	Lines are patrolled annually; patrol alternates yearly between helicopter and truck.
			Senior Patrolman x 1	
			Lineman x 1	
Routine Patrol, Truck	Every two years	3 weeks	Senior Patrolman x 1	
			Lineman x 2	
Routine repairs identified by Senior Patrolman	Every year	10 days	Foreman x 3	Repair unique items identified by senior patrolman during annual patrols, varies year to year. As many as three 8-man crews plus operators.
			Senior Lineman x 3	
			Lead Lineman x 3	
			Journeyman Lineman x 6	
			Apprentice x 6	
			Groundmen x 3	
			Equipment Operator x 3	
			Laborer x 3	
Remove Windblown Sand from Tower Footings	Every two years	1 week	Foreman x 1	Windblown sand and earth removed from LST steel by contract crew under direction of senior patrolman.
			Equipment Operator x 1	
			Laborer x 1	
Routine Right-of-Way Grading	Every three years	2 months	Foreman x 1	Grade all approved areas only.
			Equipment Operator x 1	
			Laborer x 1	
Routine Washing	N/A	N/A	N/A	Wash insulators as required.
West of Devers 230kV Transmission System				
Routine Patrol, Aircraft	Seldom	8 hours	Pilot x 1	Lines are patrolled annually; patrol alternates yearly between helicopter and truck.
			Senior Patrolman x 1	
			Lineman x 1	
Routine Patrol, Truck	Every year	1 week	Senior Patrolman x 1	
			Lineman x 1	
Routine repairs identified by Senior Patrolman	Every year	3 days	Foreman x 1	Repair unique items identified by senior patrolman during annual patrols, varies year to year. One 8-man crew plus operators.
			Senior Lineman x 1	
			Lead Lineman x 1	
			Journeyman Lineman x 2	
			Apprentice x 2	
			Groundmen x 1	
			Equipment Operator x 1	
			Laborer x 1	
Routine Right-of-Way Grading	Every year	2 months	Foreman x 1	Grade all approved areas only.
			Equipment Operator x 1	
			Laborer x 1	
Washing	NA	NA	NA	Wash insulators as required.
			NA	

3.6.3 System Operation and Maintenance Procedures

Maintenance of the proposed transmission lines would consist of periodic patrols by ground and air to locate any damage that might adversely affect the integrity and reliability of the line. Other non-emergency maintenance would involve the occasional replacement of insulators damaged by lightning or gunfire, the replacement of tower steel members due to gunfire or wind, and the repair of access and stub roads due to erosion or landslides. Crews would wash insulators, as necessary, using a specialized truck for the 230kV lines west of Devers. In the future, if levels of air pollution increase, the 500kV lines east of Devers Substation would require washing as well. Crews also would remove windblown sand and dirt from footings in areas where it has a tendency to accumulate.

3.7 SAFETY CONSIDERATIONS

3.7.1 Design

Safety is one of the primary considerations in the design of the proposed transmission line project. The proposed DPV2 transmission lines would be protected at the substations with circuit breakers that are connected to the protective relay system to minimize the possibility of electrical shock or fire in the event of either a single or multiple conductor breakage. Lightning protection would be provided by overhead groundwires along the lines.

In accordance with good safety practice, all fences and metal gates, either within or crossing the right-of-way, would be grounded.

3.7.2 Construction

Safety-related measures proposed as part of the construction phase activities are listed below:

- Construction operations would be conducted in a manner to avoid closing or obstructing railroads, roads, or other property until the appropriate permits have been obtained from landowners, governmental agencies, or other authorities having jurisdiction.

- Vehicular construction traffic would be limited to approved access roads, construction yards, and construction sites. No off-road travel would be permitted.

- Construction foremen and personnel would be well informed as to where construction equipment and vehicles would be permitted.

- Fences that cross the proposed transmission system access roads would be gated or modified per agreements with the landowner.

- No work would be performed that would affect any existing pipeline, telephone, telegraph or electric line, irrigation ditch, or other structure until proper authorization has been obtained.

- All applicable fire laws and regulations of the land-management agency with jurisdiction over land crossed by the proposed project would be fully complied with, and all fire plans would be followed.

- Construction-related areas would be maintained in a neat, clean, and sanitary condition at all times.

- Each tower site would be kept free from accumulation of waste materials and rubbish as required for safety, appearance, and prevention of fire hazards.

3.7.3 Operation and Maintenance

In case of single or multiple conductor failure, power would be automatically and rapidly removed from the lines to minimize the possibility of electrical shock or fire.

3.8 PROJECT ECONOMICS

3.8.1 Construction Costs

The estimated nominal cost for the construction of the proposed DPV2 transmission line project including right-of-way and related facilities, substation and series capacitors, voltage support, and telecommunication facilities is approximately $591 million. The estimated cost breakdown by individual project elements is summarized in Table 3-10.

TABLE 3-10
SUMMARY OF ESTIMATED CONSTRUCTION COSTS
FOR THE DEVERS-PALO VERDE 2 PROJECT
(2005 dollars)

Elements	Total Element Costs (x $1,000)
TRANSMISSION LINE	
500kV Transmission Line	$ 246,000
230kV Transmission Line	$ 97,000
Series Capacitors	$ 31,000
Subtotal Transmission Line	$ 374,000
SUBSTATION AND RELATED FACILITIES	
Substation Construction	$ 116,000
Voltage Support	$ 72,000
Special Protection Scheme	$ 3,000
Telecommunications	$ 14,000
Subtotal Substation and Related Facilities	$ 205,000
LAND	$ 12,000
TOTAL PROJECT COST	**$ 591,000**

NOTE: This estimate includes pension, benefits, and administrative and general overhead, but does not include Allowance for Funds Used During Construction (AFUDC).

3.9 DECOMMISSIONING

It is expected that the proposed transmission line would have a useful life of at least 50 years. Decommissioning plans, therefore, have not been developed at this time.

Sources

United States Geological Survey (USGS), Phoenix, AZ (1969), Salton Sea, AZ (1969), 1:250,000-scale topographic maps. Devers to Palo Verde No.2 PEA (1988), SEIS (1988).

Prepared By: Environmental Planning Group, Inc. March 9, 2005

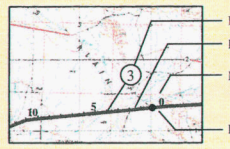
0 5 10 Miles

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

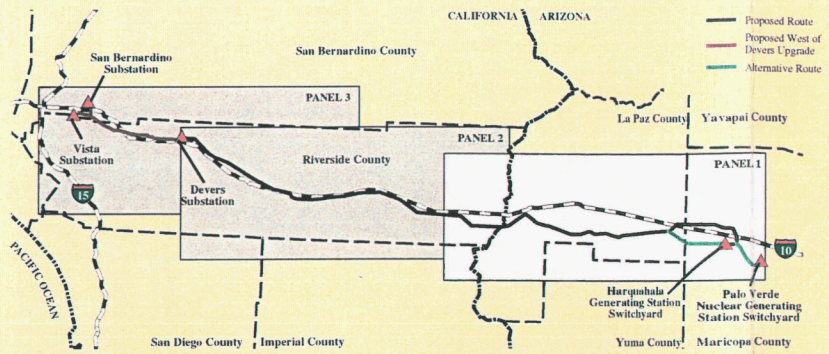
m:/projects/sce/devers/arizona/mxds/prop_route.mxd

General Reference Features

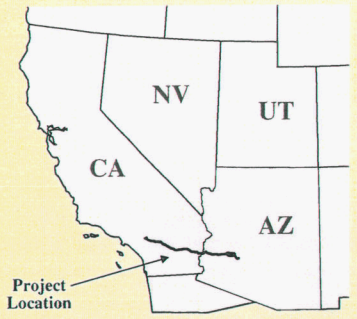
- Proposed 500kV Transmission Line Route
- Alternative 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- State Boundary
- County Boundary
- Substation/Switchyard
- KOFA National Wildlife Refuge
- Midpoint Switching Station Alternative Sites
- Fiber Optic Repeater Site/ Series Capacitor/ Telecommunications Site

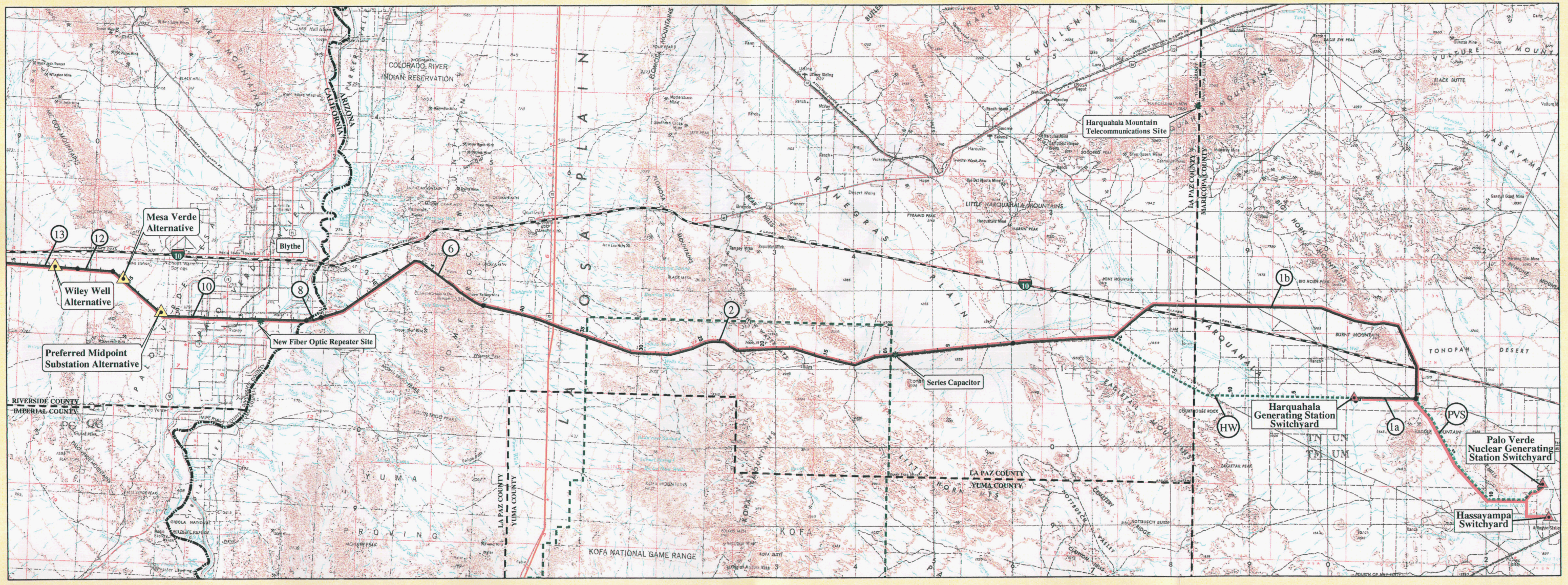


Panel Index Map



Map 3-2a
PROPOSED AND SUBALTERNATE ROUTES
Devers - Palo Verde No. 2 Transmission Line Project
Panel 1 of 3





Map 3-2b
PROPOSED AND SUBALTERNATE ROUTES

Devers - Palo Verde No. 2
Transmission Line Project
Panel 2 of 3

Sources

United States Geological Survey (USGS). Santa Ana, CA (1979), Needles, CA/AZ, (1969), Salton Sea, AZ (1969), 1:250,000-scale topographic maps. Devers to Palo Verde No.2 PEA (1988), SEIS (1988).

Prepared By: Environmental Planning Group, Inc. March 9, 2005

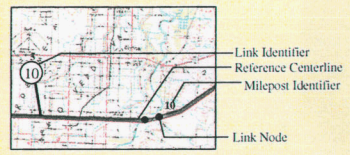
0 5 10 Miles

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

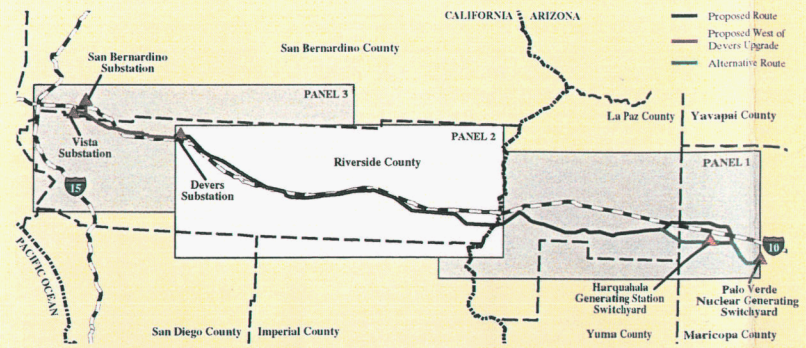
mt/projects/sce/devers/california/mxds/prop_route.mxd

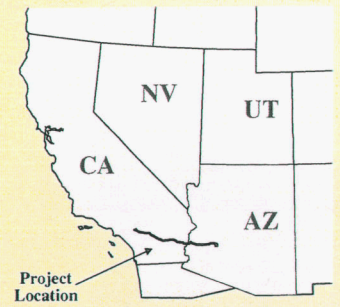
General Reference Features

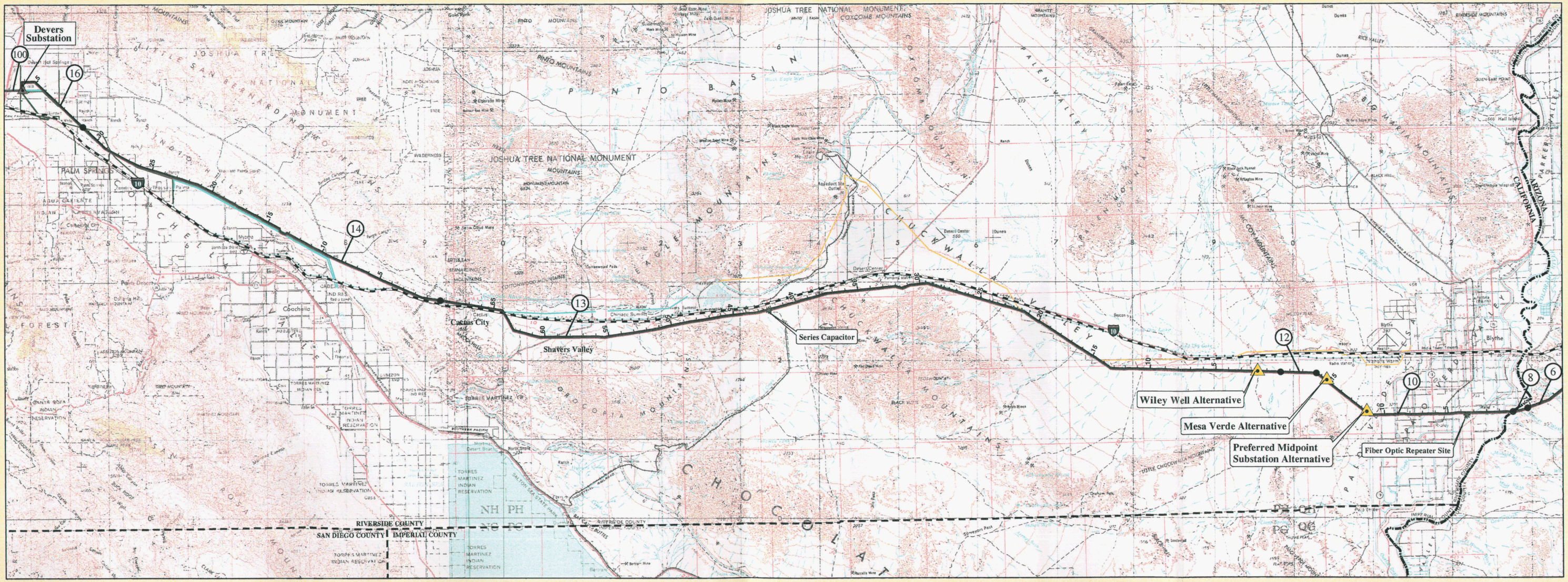
- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Substation/Switchyard
- Midpoint Substation Alternative
- Fiber Optic Repeater Site/Series Capacitor



Panel Index Map







Map 3-2c
PROPOSED AND SUBALTERNATE ROUTES
Devers - Palo Verde No. 2 Transmission Line Project
Panel 3 of 3

Sources

United States Geological Survey (USGS), Santa Ana, CA (1979), Needles, CA/AZ, (1969), Salton Sea, AZ (1969), 1:250,000-scale topographic maps. Devers to Palo Verde No.2 PEA (1988), SEIS (1988).

Prepared By: Environmental Planning Group, Inc. March 9, 2005

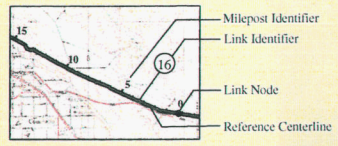
0 5 10 Miles

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

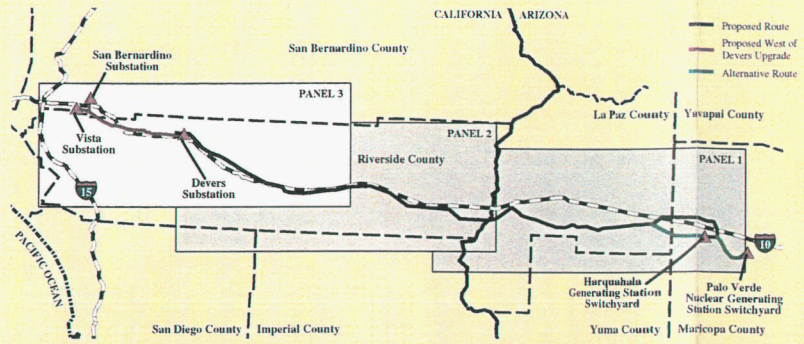
epg

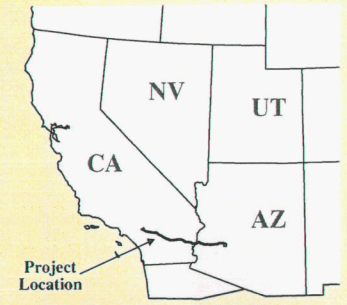
General Reference Features

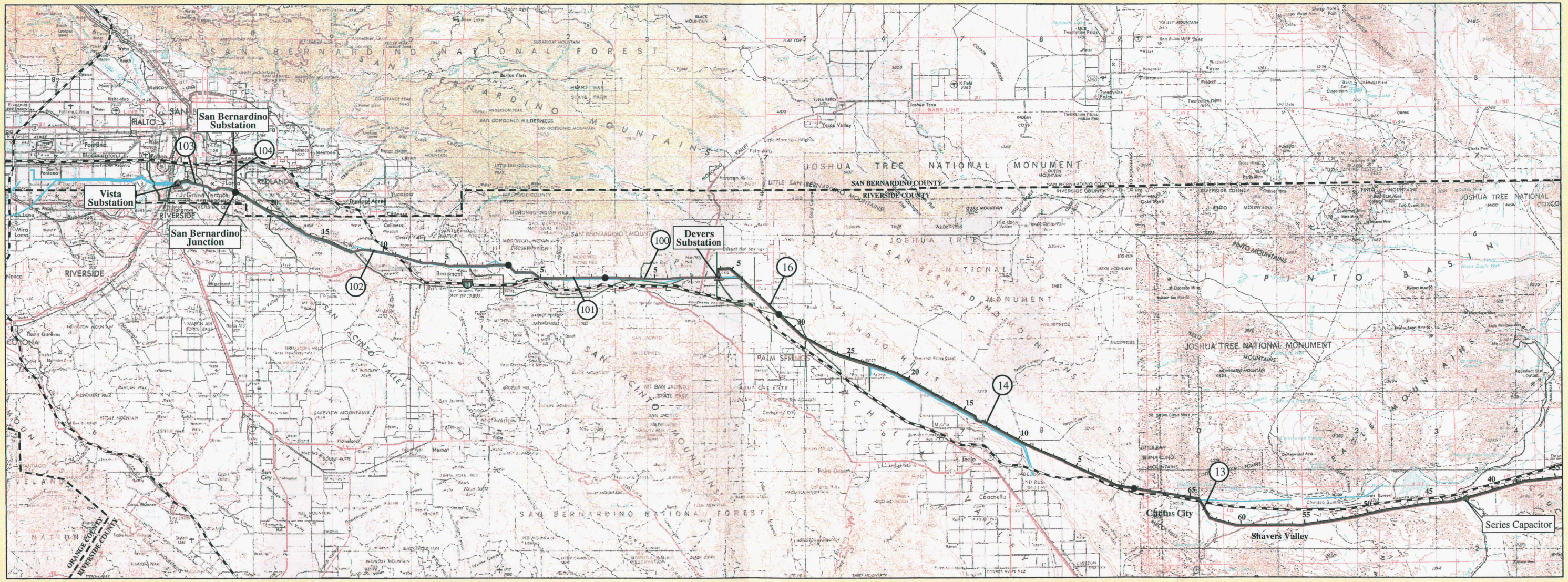
- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 115kV Transmission Line
- County Boundary
- Substation/Switchyard
- Series Capacitor

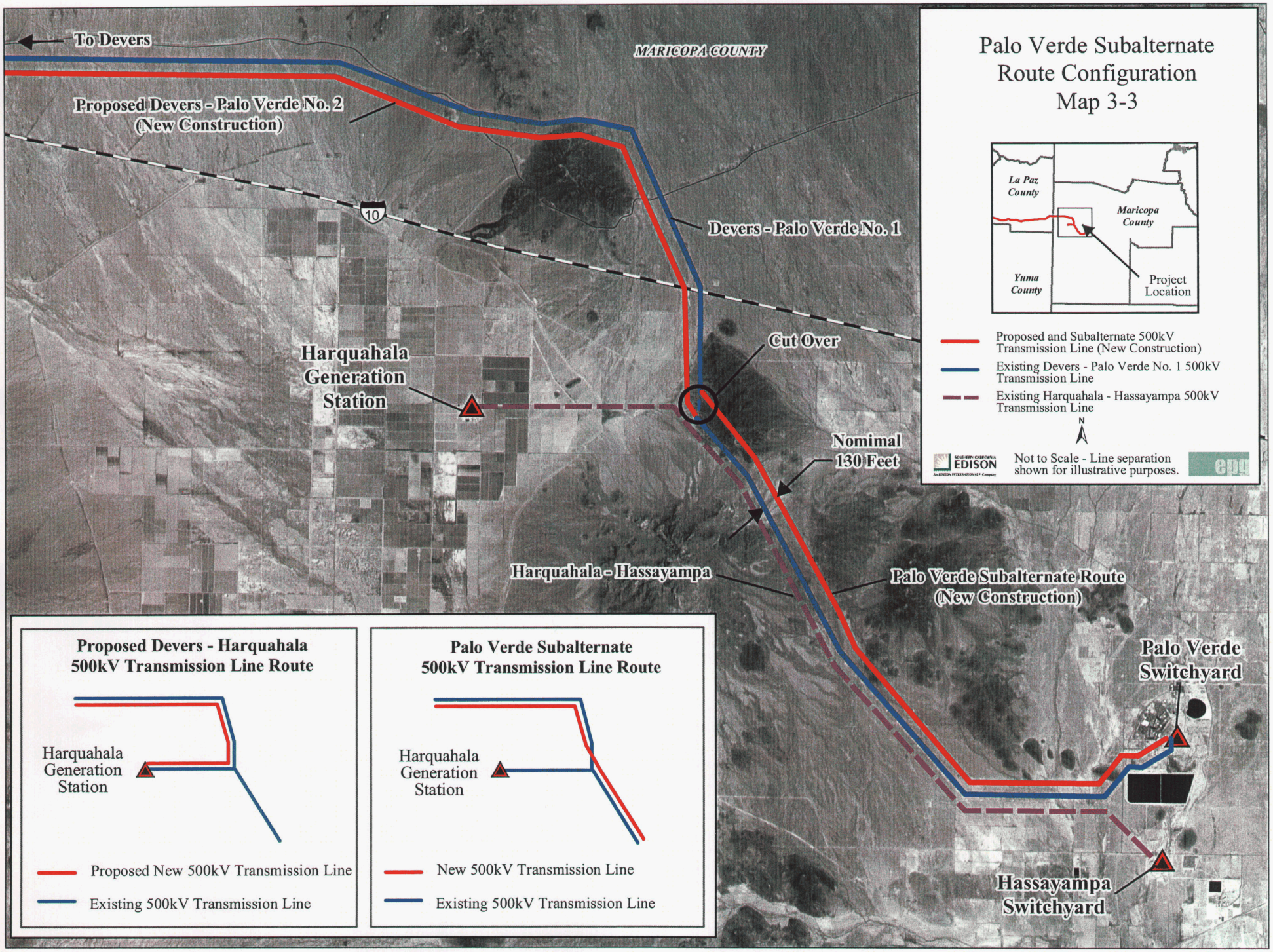


Panel Index Map








To Devers
MARICOPA COUNTY
Proposed Devers - Palo Verde No. 2
(New Construction)
10
Devers - Palo Verde No. 1
Harquahala
Generation
Station
Cut Over
Nomimal
130 Feet
Harquahala - Hassayampa
Palo Verde Subalternate Route
(New Construction)
Palo Verde
Switchyard
Hassayampa
Switchyard
Palo Verde Subalternate
Route Configuration
Map 3-3
La Paz
County
Maricopa
County
Yuma
County
Project
Location
Proposed and Subalternate 500kV
Transmission Line (New Construction)
Existing Devers - Palo Verde No. 1 500kV
Transmission Line
Existing Harquahala - Hassayampa 500kV
Transmission Line
N
SOUTHERN CALIFORNIA
EDISON
Not to Scale - Line separation
shown for illustrative purposes.
epg
Proposed Devers - Harquahala
500kV Transmission Line Route
Harquahala
Generation
Station
Proposed New 500kV Transmission Line
Existing 500kV Transmission Line
Palo Verde Subalternate
500kV Transmission Line Route
Harquahala
Generation
Station
New 500kV Transmission Line
Existing 500kV Transmission Line

CHAPTER 4.0
EXISTING ENVIRONMENTAL SETTING

4.1 DEVERS-HARQUAHALA 500kV TRANSMISSION LINE

4.1.1 Introduction

This proposed 500kV transmission line route is approximately 230 miles long and located between the Harquahala Generating Station in western Maricopa County, Arizona and the Devers Substation to the north of Palm Springs, California. The following sections include an inventory of land use, recreation, socioeconomics, population and housing, geology and soils, hydrology, air quality, traffic and transportation, biology, noise, mineral resources/energy, hazards and hazardous materials, public services and utilities, visual resources, cultural resources, and public health and safety. Each of these sections is separated into discussions of the Arizona and California portions of the Devers-Harquahala study corridor.

4.1.2 Land Use

The study corridor for the California portion of the proposed Devers-Harquahala route is 2 miles wide, or 1 mile on either side of the route, an appropriate distance within which potential impacts can be assessed. A 4-mile-wide study corridor is delineated for the Arizona portion of the proposed Devers-Harquahala route to include 2 miles on either side of the proposed transmission line route as required for the Arizona CEC.

Federal land and associated uses dominate the study corridor. Private land can be found primarily on the Harquahala Plain in Arizona, the Coachella Valley north of Palm Springs, and south of Blythe in California. The Agua Caliente Indian Reservation is the only Native American land in the study corridor located near the proposed Devers-Harquahala transmission line route.

Areas designated by federal agencies for preservation, conservation, and/or recreation occur within the study corridor. These areas include wilderness areas (WAs), areas of critical environmental concern (ACECs), the KOFA NWR, and the Coachella Valley NWR/Preserve.

Incorporated cities within or adjacent to the study corridor include Coachella, Indio, Cathedral City, Desert Hot Springs, and Palm Springs, which are all located in Riverside County, California. Other nearby population centers include unincorporated rural communities (e.g., Ripley, Desert Center, Chiriaco Summit, Cactus City, Thousand Palms, and North Palm Springs), small settlements along major transportation routes, trailer/mobile home parks, and large-lot rural residential tracts.

Other land uses within the study corridor include energy facilities, military reservations (Yuma Proving Ground), mines, farms, ranches, rural residences, communications sites, air facilities, and agriculture. A detailed description of land uses found in the study corridor follows.

The inventory was compiled by updating the land use data used for SCE's 1988 Amended PEA for the DPV2 transmission line and existing data from previous studies occurring within the study corridor. Next, existing maps and aerial photographs within and adjacent to the proposed route segment were interpreted. The mapped information was then field verified by air and ground reconnaissance. In addition, key federal, state, county, and local land resource agencies were contacted to update official information and identify planned land uses.

Land use inventory results are described in the following sections and displayed on the following maps, at the end of Chapter 4:

- Map 4-1 a-c: Land Ownership
- Map 4-2 a-e: Land Jurisdiction
- Map 4-3 a-e: Land Use – Existing
- Map 4-4 a-e: Land Use – Future

4.1.2.1 Arizona

Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped within the Arizona portion of the Devers-Harquahala study corridor based on available secondary data sources. Descriptions of the major categories follow, and the information is listed in Tables 4-1 and 4-2 and shown on Maps 4-1a, 4-2a, and 4-2b (end of Chapter 4).

TABLE 4-1
LAND OWNERSHIP CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Ownership Category	Total Miles Crossed
U.S. Fish and Wildlife Service	23.8
Bureau of Land Management	55.4
Bureau of Reclamation (Central Arizona Project)	0.1
Department of Defense	0.1
Arizona State Trust Land	10.8
Private Land	12.1
Total	**102.2**
Note: Totals may not check due to rounding.	

TABLE 4-2
LAND JURISDICTION CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Jurisdiction Category	Total Miles Crossed
Unincorporated Maricopa County	27.2
Unincorporated La Paz County	75.0
Total	**102.2**
Note: Totals may not check due to rounding.	

U.S. Fish and Wildlife Service

Land managed by the USFWS within the Arizona portion of the Devers-Harquahala study corridor includes the KOFA NWR. The KOFA NWR is located east of SR 95 between the town of Quartzsite and the city of Yuma, and is 1,040 square miles in size. The study corridor would cross approximately 24 miles of the KOFA NWR along Link 2 parallel to the existing DPV1 transmission line.

Bureau of Land Management

Public land is nearly continuous in the La Paz and Maricopa County portions of the Devers-Harquahala study corridor. The BLM Phoenix Field Office and Yuma Field Office administer this land. BLM WAs within or adjacent to the study corridor include the Big Horn Mountains, Hummingbird Springs, Eagletail Mountains, New Water Mountains, and KOFA NWR WA. The Big Horn Mountains WA is 21,000 acres in size, Hummingbird Springs WA is 31,200 acres, Eagletail Mountains WA is 100,600 acres, New Water Mountains WA is 24,600 acres in size and the KOFA NWR WA is 510,900 acres in size.

Department of Defense

The U.S. Army Yuma Proving Ground is the only military reservation within the Arizona portion of the Devers-Harquahala study corridor, and is located west of Arizona SR 95 between the town of Quartzsite and the city of Yuma. The Yuma Proving Ground is 1,272 square miles in size and is crossed by Link 2 near Milepost 40 for 0.1 mile.

Bureau of Reclamation

The USBR administers land used for the CAP Canal. The CAP Canal transports water from the Colorado River to the Phoenix and Tucson metropolitan areas. The proposed Devers-Harquahala route crosses the canal at two locations north of I-10 at Mileposts 4.5 and 9.0 along Link 1B.

Arizona State Trust Land

Arizona State Trust Land is located primarily in the Harquahala and Ranegras plains and near the Colorado River. They occupy the bulk of the land not managed by the BLM, USFWS, and the DOD (Yuma Proving Ground).

Private Land

Private land is found scattered throughout the Arizona portion of the Devers-Harquahala study corridor interspersed between federal and state lands.

Native American Land

The proposed transmission line would not cross any Indian reservation land in Arizona. The Colorado River Indian Reservation boundary is located approximately 6 miles north of the DPV1 and proposed DPV2 transmission line corridor.

On February 14, 2005, Arizona Representative Raul Grijalva introduced House Bill H.R. 794, which would change the boundary of the Colorado River Indian Reservation to the boundaries delineated by the Robbins Survey of 1875 and affirmed by the Harrington Resurvey of 1912, including approximately 16,000 acres. A companion bill in the Senate, S.536, was introduced by

Arizona Senator McCain on March 7, 2005. The proposed legislation would extend the reservation boundary south, across I-10 and immediately north of the existing DPV1 and proposed DPV2 rights-of-way in the Dome Rock Mountains. However, some DPV1/DPV2 access roads are located within the proposed new boundary.

Existing Land Use

The following categories of existing land uses within the Arizona portion of the Devers to Harquahala study corridor were identified and mapped based on aerial photography, existing maps, public documents, and field reconnaissance. Results are shown on Maps 4-3a and 4-3b. A general description of land uses is presented in Table 4-3, which summarizes land uses crossed by the study corridor.

TABLE 4-3
EXISTING LAND USES CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Land Use Category	Link	Milepost	Miles Crossed
Agriculture	1a	0.5 – 2.5	2
Yuma Proving Ground	2	40	0.1

Residential

Residential land uses are dispersed and somewhat limited in the Arizona portion of the Devers-Harquahala study corridor because of the large amount of federal and state land present. The residential uses include trailer/mobile home parks, large-lot residential subdivisions, and small settlements along major transportation routes.

Rural agricultural residential living can be found in the vicinity of Link 1a on the Harquahala Plain from Milepost 0 to 2.5. A small grouping of trailer homes is located north of Link 1b from Milepost 23 to 25.

Commercial and Industrial

Commercial and industrial uses are somewhat limited and dispersed within the Arizona portion of the Devers-Harquahala study corridor. Sand and gravel operations are found along with mining sites and mineral extraction locations. Most of the mining sites identified are abandoned or inactive. The Copper Bottom Mine is located north of Milepost 2 of Link 6 in the Copper Bottom Pass. Communication sites primarily consist of microwave, radio, and cellular towers and are usually located atop mountain peaks.

Agriculture

Agricultural areas within the Arizona portion of the Devers-Harquahala study corridor are located close to Harquahala Generating Station, generally in the Harquahala Plain. Link 1a crosses approximately 1 mile of agricultural land. Agricultural production by type includes field crops (cotton, alfalfa, and grains).

The Department of Agriculture (Natural Resource Conservation Service) has established a classification of importance for agricultural land. The classifications are Prime Farmland and Farmland of Unique Importance based on criteria for soil characteristics, climatic conditions, and water supply. The criteria include soil type, moisture content, water supply, soil temperature, acidity, salinity, depth, drainage, water table, flooding, slope, erodibility, permeability, rock content, rooting depth, growing season, crop type and value, and other economic factors. In Maricopa County, the agricultural land within the study corridor has been classified as Prime Farmland and Farmland of Unique Importance. There is no agricultural land within the study corridor in La Paz County.

Air Facilities

Air facilities in the study corridor with Federal Aviation Administration (FAA) recognized airspace were identified. Other facilities exist in the vicinity of the study corridor as agricultural operations, and utilize sparsely traveled roads as take-off and landing strips. The FAA establishes airport interference or clear zones. Interference zones were identified around existing airports and airstrips, although the proposed transmission line would not be located within any of these zones.

There are two private and one emergency (abandoned) airstrip in or near the Arizona portion of the study corridor. The Mauldin private airstrip is located approximately 1.6 miles east of the proposed transmission line (Link 1b, near Milepost 1). The Tonopah private airstrip is located approximately 4 miles east of Link 1b near Milepost 10. The abandoned Salome Civil Aeronautic Administration Emergency Air Strip is located near the Link 1 and Link 2 junction. The airport is approximately 3 miles to the north of the study corridor.

Military

Link 2 crosses the Yuma Proving Ground for 0.1 mile near Milepost 40. The proving ground is used by the U.S. Army to test artillery, aircraft target acquisition equipment and armament, and vehicle performance.

Vacant/Undeveloped and Grazing Land

The vacant/undeveloped land use category includes all of the land within the Arizona portion of the Devers to Harquahala study corridor that does not contain an inventoried land use. The vacant/undeveloped land administered by the BLM and Arizona State Land Department (ASLD)

are predominantly open range and are largely used by ranchers who have BLM and state land grazing permits and/or leases for livestock grazing.

Linear Features

Numerous utilities cross the study corridor including pipelines, transmission lines, aqueducts, canals, transportation routes, and railroads.

The major pipelines within the Arizona portion of the Devers-Harquahala study corridor include El Paso Natural Gas lines passing through Wenden Pump Station 4126 and the Castle Dome Pump Station. The Wenden Station is located south of Milepost 30 on Link 1b and the pipelines that pass through it include lines 1600, 1103, 1100, and the All American Pipeline (Line 2000). The All American Pipeline passes from the south, through the station, north to I-10 and parallels the I-10 into California. Pipelines 1600, 1103, and 1100 parallel the proposed transmission line through the KOFA NWR. Line 1110 begins near the eastern boundary of the KOFA NWR, crosses the KOFA NWR, and proceeds north out of the study corridor near Milepost 32 of Link 2, paralleling Lines 1103 and 1100. Line 1600 continues west within the study corridor through Copper Bottom Pass, and moves out of the study corridor to the north near Milepost 6 of Link 6.

The major high voltage electrical transmission lines within the study corridor include the DPV1 500kV, Harquahala-Hassayampa 500kV, and WAPA Gila-Parker 115kV transmission line. The proposed Devers-Harquahala route parallels the existing DPV1 500kV line, at a distance of 130 feet, beginning at Milepost 0 of Link 1b. The lines are in parallel rights-of-way throughout the Arizona portion of the Devers-Harquahala study corridor, with the exception of the Copper Bottom Pass where they are placed on double-circuit towers in the existing right-of-way. The Harquahala-Hassayampa 500kV transmission line parallels the proposed route along Link 1a for 5 miles. The WAPA Gila-Parker 115kV line crosses the proposed transmission line near Milepost 38 of Link 2.

Water is distributed by canal and aqueduct systems throughout the Arizona portion of the Devers-Harquahala study corridor. The CAP Canal provides supplemental water for established agricultural areas, including Native American communities in Maricopa, Pinal, and Pima counties, as well as municipal and industrial water for the rapidly expanding Phoenix and Tucson metropolitan areas. The CAP Canal is near Link 16 from Milepost 4 to 30 and is crossed at Mileposts 4.5 and 10.

Major transportation routes in the Arizona portion of the study corridor include I-10 and SR 95. Secondary roads of varying quality provide access throughout the study corridor. The proposed Devers-Harquahala transmission line route crosses I-10 twice at Mileposts 2.5 and 26 of Link 1b. The route crosses SR 95 at Milepost 38 of Link 2.

Future Land Use

General Comprehensive and Land Management Plans

General comprehensive and land-management planning documents were reviewed to identify future land uses in Arizona. Table 4-4 lists these documents by jurisdiction with their adoption status. The future land uses identified in the Arizona portion of the Devers-Harquahala study corridor are shown on Maps 4-4a and 4-4b.

TABLE 4-4 LAND MANAGEMENT AND GENERAL PLANS FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA			
Agency	**Plan Title**	**Managing Jurisdiction**	**Date of Adoption**
BLM	Final Amendment and Environmental Assessment to the Lower Gila North Management Framework Plan and the Lower Gila South Resource Management Plan	Phoenix District	Feb 2000
	Lower Gila North Management Framework Plan	Phoenix District	May 1985
	Lower Gila South Resource Management Plan	Phoenix District	Aug 1985
	Lower Gila South Final Wilderness Environmental Impact Statement	Phoenix District	Apr 1987
	Yuma District Resource Management Plan	Yuma District	Aug 1985
	Yuma District Resource Management Plan Amendment	Yuma District	Jan 1992
	Proposed Yuma District (Havasu) Resource Management Plan Amendment and Final Environmental Assessment	Yuma District	Sept 1994
	Final Yuma District (Lands) Resource Management Plan Amendment	Yuma District	Mar 1996
	Final Ehrenberg-Cibola Recreation Area Management Plan	Yuma District	Jan 1994
Maricopa County	Maricopa County 2020 Comprehensive Plan	Maricopa County	Oct 1997
	Maricopa County 2020 Tonopah/Arlington Area Plan	Maricopa County	Sept 2000

Bureau of Land Management

The Lower Gila North Management Framework Plan (MFP) became effective May 1985. The amended versions of the MFP have included updates to the land exchange decisions for state, minor estate, and for special legislation. The Lower Gila South RMP adopted August 1985 and the Lower Gila South Final Wilderness Environmental Impact Statement adopted April 1987 (RMP/EIS) provide a comprehensive framework for managing and allocating public land and resources in BLM's Lower Gila South Resource Area in southwestern Arizona. The BLM Phoenix Field Office is currently preparing a new RMP for the Agua Fria National Monument and an Amendment to the Phoenix RMP and Lower Gila North MFP. The Yuma District RMP (1985) and amendments (1992, 1994, and 1996) likewise provide a comprehensive framework for managing public land and resources in the Yuma District over the next 10 to 20 years.

The BLM has planned for utility corridors within its jurisdiction. The proposed Devers-Harquahala 500kV transmission line would be located within a 130-foot-wide right-of-way in the BLM designated 1-mile-wide Palo Verde-Devers utility corridor. The corridor is identified as Utility Corridor 2 (UC-2) within the Phoenix District, and UC-8 within the Yuma District.

Maricopa County

The Maricopa County Comprehensive Plan, along with the Tonopah/Arlington Specific Plan, were updated in 2000. The comprehensive plan includes a collection and analysis of existing data specifying goals and policies to guide general land development. It also indicates the intended future function, density, and characteristic use of land for the different parts of the Maricopa planning area. Land use definitions designated by the Maricopa County Comprehensive Plan within the study corridor include open space and low-density residential.

La Paz County

La Paz County does not have an adopted general plan. According to a representative at the La Paz County Planning Department, the proposed Devers-Harquahala transmission line would not conflict with future land use plans in the county, and would follow a designated utility corridor (Brad Weekley, June 2003).

Other

There is a possibility of private land development along I-10 as a result of potential BLM and ASLD land exchanges. The ASLD, upon exchange, would most likely sell or lease the land for private development purposes.

Park, Recreation, and Preservation Land Uses

Park, recreation, and preservation land uses in the Arizona portion of the Devers-Harquahala study corridor are presented on the Land Use Map (Map 4-4a and 4-4b). Table 4-5 summarizes recreational land uses crossed by the proposed project.

TABLE 4-5
SUMMARY OF PARKS, RECREATION, AND PRESERVATION AREAS CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Land Use Category	Link	Milepost	Miles Crossed
KOFA National Wildlife Refuge	2	10 – 35	23.8
Colorado River	8	1	0.1

National Wildlife Refuge

The KOFA NWR encompasses 665,400 acres and is under USFWS jurisdiction. The KOFA NWR is composed of desert environment inhabited by the desert bighorn sheep and the California palm, the only native palm in Arizona. Presently, recreational uses that include hiking, photography, hunting, and wildlife observation are encouraged. Other activities such as camping and rock hounding are permitted.

Wilderness Areas

There are several BLM WAs located within or near the Arizona portion of the Devers-Harquahala study corridor. The WAs include Hummingbird Springs, Big Horn Mountains, Eagletail Mountains, and New Water Mountains. The KOFA NWR also contains wilderness areas within its boundaries. The Hummingbird Springs WA is near Milepost 6.5 of Link 1b. Big Horn Mountains WA is near Link 1b from Mileposts 8 to 14. Eagletail Mountains WA is within

the study corridor near Link 1b from Mileposts 30 to 32. The KOFA NWR WA is near Link 2 from Mileposts 10 to 34.

Scenic Roads

There are no roads designated as scenic in the Arizona portion of the Devers-Harquahala study corridor.

Recreation Areas

Hiking and Riding Trails

No established hiking and riding trails are located within the Arizona portion of the Devers-Harquahala study corridor. Currently, the Arizona State Parks Department is supporting the Arizona Hiking and Equestrian Trails Committee in its effort to develop a trail system adjacent to the CAP Canal.

Campgrounds

There are no designated campgrounds within the Arizona portion of the Devers-Harquahala study corridor. The Crystal Hill campground is located within the KOFA NWR and is managed by the USFWS.

Water-Oriented Use Areas

The Lower Colorado River provides many water-based recreational opportunities, primarily fishing, swimming, boating, and water skiing. Activity is concentrated around the population centers of Lake Havasu City, Parker Strip, Blythe, and Yuma.

Recreation on public land along the Lower Colorado River can be found in developed and undeveloped BLM recreation sites, developed concessions, and areas leased for state, county, and city parks. There are no developed park or recreation sites within the Arizona portion of the Devers-Harquahala study corridor.

Roadside Rest Areas

An Arizona Department of Transportation (ADOT) roadside rest area was identified within the study corridor. The Burnt Well rest stop is located approximately 8 miles west of Tonopah, and is 2 miles west of Link 1b at Milepost 2.5.

Other

Various recreational activities and opportunities are available on public land in the Arizona portion of the Devers-Harquahala study corridor. The desert provides open-space opportunities for activities such as soaring, target shooting, hang gliding, model rocket and airplane flying, and land sailing. Camping, off-road vehicle use, hunting, rock collecting, recreational mining, driving for pleasure, hiking, photography, nature study, sightseeing, and other dispersed recreational activities also occur on public land in the study corridor.

4.1.2.2 California

Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped within the California portion of the Devers-Harquahala study corridor, based on secondary data sources. Descriptions of the major categories follow, and a summary of the information is listed in Tables 4-6 and 4-7 and shown on Maps 4-1b, 4-1c, 4-2c, 4-2d, and 4-2e.

TABLE 4-6
LAND OWNERSHIP CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Ownership Category	Total Miles Crossed
U.S. Fish and Wildlife Service (Nature Conservancy)	2.3
Bureau of Land Management	54.9
Bureau of Indian Affairs (Agua Caliente)	0.1
California State Land	0.6
Private Land	69.5
Total	**127.4**
Note: Totals may not check due to rounding.	

TABLE 4-7
LAND JURISDICTION CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Jurisdiction Category	Total Miles Crossed
Unincorporated Riverside County	120.9
City of Coachella	3.1
Cathedral City	3.3
Total	**127.4**
Note: Totals may not check due to rounding.	

U.S. Fish and Wildlife Service

Land managed by the USFWS within the California portion of the Devers-Harquahala study corridor includes portions of the Coachella Valley NWR. The wildlife refuge also is known as

the Coachella Valley Preserve and is managed jointly by the BLM, the Nature Conservancy, California Department of Fish and Game (CDFG), USFWS, and the California Department of Parks and Recreation. The preserve is 20,000 square acres in size and is located approximately 5 miles northwest of Indio between I-10 and Dillon Road. The study corridor would cross 2.3 miles of the preserve along Link 14 starting at Milepost 19.

Bureau of Land Management

The California portion of the proposed Devers-Harquahala route crosses approximately 54.9 miles of public land managed by the BLM. Public land is nearly continuous for the California portion, with the exception of an area between Indio and Palm Springs, and the Palo Verde Valley area southwest of Blythe. BLM WAs within or adjacent to the study corridor include the Chuckwalla Mountains WA, Orocopia Mountains WA, and Mecca Hills WA. The Chuckwalla Mountains WA is 80,770 acres, the Orocopia Mountains WA is 40,735 acres, and the Mecca Hills WA is 24,200 acres in size. The BLM also administers five ACECs within the study corridor.

National Park Service

The proposed Devers-Harquahala route passes within 1 mile of the Joshua Tree National Park. The 1,590-square-mile park is located between I-10 and Highway 62, covering portions of both the Mojave and Colorado deserts.

Native American Land

The Aqua Caliente Indian Reservation is located east of Palm Springs. The proposed Devers-Harquahala route crosses about 0.1 mile of the reservation along Link 14 between Mileposts 25 and 26.

Department of Defense

Section 6 of Township 5 South, Range 8 East, located north of Indio, is under the jurisdiction/ownership of the federal military. The section is north of Link 14 at Milepost 12.

California State School Land

Isolated parcels of California State School Land are scattered throughout the California portion of the Devers-Harquahala study corridor. The proposed Devers-Harquahala route crosses approximately 0.6 mile of State School Land along Link 13 at Milepost 31.

Incorporated Areas

Five incorporated areas—Coachella, Indio, Cathedral City, Desert Hot Springs, and Palm Springs—are located within or adjacent to the Devers-Harquahala study corridor. The study corridor crosses within the Cathedral City and Coachella city limits. Link 14 crosses Coachella from Milepost 4 to 7.5 and Cathedral City from Milepost 28 to 31.

Private Land

Private land is found throughout the California portion of the Devers-Harquahala study corridor interspersed between federal and state land. The study corridor crosses approximately 69.5 miles of private land.

Existing Land Use

The following categories of existing land uses within the California portion of the Devers-Harquahala study corridor were identified and mapped based on aerial photographs, existing maps, public documents, and field reconnaissance. Results are shown in Maps 4-3c, 4-3d, and 4-3e. Following the general description of land uses is Table 4-9, which summarizes the land uses potentially affected by the study corridor.

Residential

Residential land uses are primarily associated with developed communities located within and adjacent to the California portion of the Devers-Harquahala study corridor. Developed areas include the incorporated cities of Palm Springs, Desert Hot Springs, Cathedral City, Indio, and Coachella, and the unincorporated rural communities of North Palm Springs, Thousand Palms, Chiriaco Summit, Desert Center, and Ripley. In addition, smaller settlements along major transportation routes, trailer/mobile home parks, and large-lot residential subdivisions have been classified as residential use.

Along Link 10 from Milepost 0 to 11 are low-density residential land uses associated with agriculture. An abandoned single-family dwelling unit is located north of Link 10 at Milepost 5.3. The residence is located ½ mile between 22nd Avenue and 24th Avenue and ⅛ mile east of Arrowhead Boulevard. Two single-family dwelling units and a mobile home are located on a

single parcel north of Link 10 at Milepost 6.2. The existing corridor contains the DPV1 centerline, a canal, and the proposed Devers-Harquahala centerline. The DPV1 line is located approximately 500 feet south of the residences. The Palo Verde Irrigation District maintains a canal located approximately 200 feet north of the existing DPV1 line. The proposed Devers-Harquahala centerline would be located 100 feet south of the residences. The residences are located ½ mile between 22nd Avenue and 24th Avenue adjacent to CA 78. An area of medium-density residential is located south of Link 14 at Milepost 18, and an area of low-density residential at Milepost 24 is associated with Thousand Palms. Link 16 crosses an area of low-density residential along Mileposts 4 and 5 associated with the unincorporated community of North Palm Springs.

Commercial and Industrial

Commercial uses correlate with developed areas and are associated with the major transportation routes found in the rural areas of the California portion of the Devers-Harquahala study corridor. Commercial centers can be found in Ripley (Link 10, Milepost 6), Indio (Link 14, Milepost 10), Thousand Palms (Link 14, Milepost 24), and North Palm Springs (Link 16, Milepost 3.5).

Light and heavy industrial uses are situated throughout the study corridor. Heavy industrial operations can be found in the urbanized areas. Large-scale commercial wind energy facilities are located in the vicinity of and southeast of Devers (Link 16, Milepost 6). Sand and gravel operations occur throughout the study corridor, along with mining sites and mineral extraction locations such as Link 13, Milepost 38, and Link 14 at Milepost 26. Link 14 crosses approximately 1 mile of the Granite Construction Company's property at Milepost 15. The vast majority of mining sites are abandoned or inactive. Communication sites within the study corridor mainly consist of microwave, radio, and cellular towers and are usually located atop mountain peaks and hillsides.

Agriculture

Agriculture within the California portion of the Devers-Harquahala study corridor is located in the Chuckwalla, Coachella, and Palo Verde valleys. Agricultural production includes field crops (cotton, alfalfa, grains) in most agricultural areas, with citrus, deciduous, and truck crops in the Coachella and Palo Verde valleys.

Agricultural land located in southern California consists of the following four classifications of farmland, as established by federal and state agencies: Prime Irrigated, Statewide Important, Unique, and Local Important. Agricultural land is located within the Palo Verde Valley, along Link 10 from Milepost 0 to 10.5 and within the Coachella Valley along Link 14 at Milepost 8. Within Palo Verde Valley, the agricultural land that is crossed by Link 10 contains farmland that is classified as Prime Irrigated, Statewide Important, and Local Important. Within Coachella Valley, land that is crossed by Link 14 contains farmland that is Prime Irrigated and Unique. Other areas that are not traditional agricultural areas have not been surveyed and therefore do not receive a designation.

Air Facilities

Air facilities with FAA recognized airspace were identified. Other such facilities may exist in the vicinity of the study corridor as agricultural operations, and may utilize sparsely traveled roads as take-off and landing strips. The FAA establishes airport interference or clear zones around all airports and airstrips, although the proposed transmission line would not be located within any of these zones.

One airport is located in the California portion of the Devers-Harquahala study corridor. The Chiriaco Summit Airport is a public use airport situated approximately 25 miles east of Coachella, north of Milepost 51 of Link 13. An additional five airports are located near the study corridor. The Blythe Airport is located 5 miles north of Link 10 near Milepost 10. Desert Center

Airport is located 3 miles north of Link 13 near Milepost 29. The Julian Hinds Private Airstrip is located 2 miles north of Link 13 near Milepost 47. The Bermuda Dunes Airport is located 3 miles south of Link 14 near Milepost 15. Palm Springs International Airport is located 3.5 miles southwest of Link 14 near Milepost 29.

Vacant/Undeveloped and Grazing Land

The vacant/undeveloped land use category includes all of the land within the California portion of the Devers-Harquahala study corridor that is not contained within the inventoried land uses. The vacant/undeveloped land administered by the BLM is open to limited grazing leases.

Linear Features

Numerous utilities cross the California portion of the Devers-Harquahala study corridor, including pipelines, transmission lines, aqueducts, canals, transportation routes, and railroads. The proposed transmission line parallels the existing DPV1 500kV transmission line throughout the California portion of the proposed Devers-Harquahala study corridor. Other existing utility linear features (i.e., pipelines and transmission lines) either parallel and/or cross the study corridor, as shown in Table 4-8.

TABLE 4-8
EXISTING PIPELINES AND TRANSMISSION LINES THAT PARALLEL OR CROSS THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Pipeline/Transmission Line Name	Link	Parallels Proposed Project	Crosses Proposed Project
Sohio Pipeline	12, 13	x	-
Southern California Gas Company H.P. Pipelines (3)	13	x	-
EPNG Pipeline 2051	13	-	x
EPNG Pipeline 2001	13, 14	x	x
EPNG Pipeline 2000	13, 14	x	x
Devers-Mirage #1 230kV	14, 16	x	-
Devers-Mirage #2 230kV	14, 16	x	-
Devers-Santa Rosa 115kV	14, 16	x	x
Garnet-Santa Rosa 115kV	14, 16	x	-
Devers-Eisenhower 115kV	14, 16	x	-
Devers-Hi Desert 115kV	16	x	x
Devers-Palo Verde #1 500kV	10, 12, 13, 14, and 16	x	-
Blythe-Niland 161kV	10	-	x
Blythe-Knob 161kV	10	-	x
Eagle Mountain-Dunes 161kV	13	x	-
Devers-Eagle Mountain Control Line	13, 14	x	x
Devers-Hayfield 230kV	14, 16	x	-
Devers-Julian Hinds 230kV	13, 14, 16	x	x

Water is distributed by canal and aqueduct systems throughout the California portion of the Devers-Harquahala study corridor. The All American Canal and its main branch, the Coachella Canal, provide supplemental water for the Coachella and Imperial valleys of southern California. The Coachella Canal traverses the study corridor along the western side of the Mecca Hills and the Chocolate Mountains to the Coachella Valley. In the Palo Verde Valley, the Palo Verde Irrigation District maintains irrigation canals that transport water for irrigation purposes from the Palo Verde Diversion Dam.

Major transportation routes in the California portion of the Devers-Harquahala study corridor include I-10; CA 62, 78, and 177; Box Canyon Road; and Dillon Road. Secondary roads of varying quality provide access throughout the study area. Link 13 crosses the I-10 at Milepost

64. CA 62 is located west of Link 16 near Milepost 6.5. Link 10 crosses CA 78 at Milepost 6. CA 177 is located north of Link 13 near Milepost 33. Link 13 crosses Box Canyon Road at Milepost 60. Link 14 crosses Dillon Road at Milepost 10.

TABLE 4-9
EXISTING LAND USES CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Land Use Catergory	Link	Milepost	Miles Crossed
Agriculture	10	0 – 10.5	10.5
House (abandoned)	10	5.3	-
Rural Residences (2 single family homes and 1 mobile home)	10	6.2	-
Mobile Home	10	6.2	-
House	10	6.2	-
Extraction Mining	14	14.5 – 15.5	1
Corral	16	3.4	-

Future Land Use

General Comprehensive and Land Management Plans

General comprehensive and land-management planning documents were reviewed to identify future land uses within the California portion of the Devers-Harquahala study corridor. Table 4-10 lists these documents by jurisdiction with their adoption status. The future land uses identified in the California portion of the corridor are shown on Maps 4-4c, 4-4d, and 4-4e.

TABLE 4-10 LAND MANAGEMENT AND GENERAL PLANS FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA			
Agency	**General Plan Title/Location of Information**	**Managing Jurisdiction**	**Date of Adoption**
BLM	California Desert Conservation Area Plan	California Desert District	1980 (as amended 1999)
	Proposed California Desert Conservation Plan Amendment for the Coachella Valley and Final Environmental Impact Statement	Palm Springs/South Coast Field Office	Oct 2002
	Northern and Eastern Colorado Desert Coordination Management Plan	California Desert District	Dec 2002
	Record of Decision, California Desert Conservation Area Plan Amendment for the Coachella Valley	California Desert District	Dec 2002
National Park Service	General Management Plan	Joshua Tree National Park	1995
County	Riverside County Comprehensive General Plan	Riverside County	Oct 2003
Local	City of Coachella General Plan 2020	City of Coachella	Oct 1998
	City of Indio General Plan 2020	City of Indio	Oct 1993
	City of Cathedral City Comprehensive Plan	Cathedral City	Jul 2002
	Desert Hot Springs Comprehensive General Plan	City of Desert Hot Springs	Sept 2000
	City of Palm Springs General Plan	City of Palm Springs	Mar 2003

Bureau of Land Management

The California Desert Conservation Area Plan of 1980 (CDCA) is a comprehensive long-range plan for BLM land in eastern California, and was designed to direct the future development of BLM land. The CDCA has been amended six times. One amending document is the Proposed Northern and Eastern Colorado Desert Coordination Management Plan and Final Environmental Impact Statement (NECO) (see Table 4-10). NECO was adopted in December 2002 and provides additional guidance for the land within the study corridor. Additional plans reviewed include the Proposed California Desert Conservation Plan Amendment for the Coachella Valley and Final Environmental Impact Statement (October 2002), and the Record of Decision for CDCA Plan Amendment for the Coachella Valley (December 2002). The collection of plans provides general, regional guidance for management of the CDCA over a minimum time period of 20

years. All of the public land in the CDCA is under BLM management, except for a few small and scattered parcels.

The BLM has identified utility or planning corridors within the California portion of the Devers-Harquahala study corridor as part of the Energy Production and Utility Corridors Element of the CDCA plan. These planning corridors are used to guide the necessary detailed planning and environmental assessment work that is to be required when a right-of-way is requested. The proposed Devers-Harquahala 500kV transmission line falls within the designated utility corridor K according to Map 16 (Energy Production and Utility Corridors) of the CDCA plan. A right-of-way has been granted by the BLM for the proposed line located within the Palo Verde-Devers Utility Corridor, UC-K, in the California Desert District. Generally, the corridors set aside for utility development are designated as joint-use and are from 2 to 5 miles wide. The UC-K is described as being 2 miles wide, which generally provides sufficient flexibility in selecting alternative routes to be located near an existing right-of-way according to the BLM. The 5-mile standard is selected where there is no existing facility and, therefore, little or no engineering and environmental data are available to define a narrower corridor alignment. It also is selected in those cases where there are so many facilities or merging corridors that a 5-mile width is needed to ensure sufficient space for system integrity and flexibility.

The line will pass through Class M and Class L multiple land use classes along Links 10, 12, 13, and 14. Class M (Moderate Use) is centered on controlling the balance between higher intensity use and protection of public land. Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Class L is managed to provide for lower-intensity controlled multiple uses while protecting sensitive values.

Desert Southwest Power plans to construct either a 230kV or 500kV transmission line to provide increased transmission line capabilities from a proposed substation/switching station near Blythe to the Devers Substation. The project would include the construction and operation of a new substation/switching station and an approximately 118-mile transmission line. The project would

be located along existing transmission line rights-of-way (UC-K) for much of its alignment, and would use existing access roads.

California State Land Commission

The California State Land Commission has designated rights-of-way granted on state land as property that can be leased. The proposed transmission line crosses a small portion of state land along Link 13 at Milepost 31.

Riverside County

The Riverside County Comprehensive General Plan policy format provides a means for meeting State General Plan requirements and county needs for long-range direction, while allowing Riverside County sufficient flexibility to respond to future changes.

Riverside County has established land use categories that define the intensities and extent of future land uses. These categories are agricultural, rural, open space, and community development. Each of these is subdivided into more detailed land use designations at the area plan level. Riverside County has been divided into 19 Land Use Planning Areas, and 4 of the 19 areas encompass the proposed Devers-Harquahala transmission line corridor: Palo Verde Area, Desert Center, Eastern Coachella Valley, and Western Coachella Valley. The study corridor generally crosses rural residential, agriculture, open space, and conservation areas.

In June 2004, the Riverside County Planning Department provided data for specific development plans along the proposed DPV2 project route right-of-way. Three planned developments were identified within the study corridor right-of-way in Riverside County. An approved commercial development, including a gas station, two restaurants, and a self-storage, is located on the northern side of the study corridor at Milepost 23 of Link 14. Two approved residential

developments occur on the southern side of the study corridor. The proposed Paradise Valley Residential Development is approximately 215 acres and is located along Link 13 at Milepost 65, south of I-10. An approved tract map of 33 residential lots is located along the southern side of Link 14 at Milepost 22.

Coachella

The proposed transmission line crosses within the city limits of Coachella. The line passes through the northeastern portion of the city, which is designated as planned open space, public, and low-density residential.

Indio

The city of Indio's sphere of influence falls within the study corridor. In addition to the general plan, a specific region plan called the Shadow Hills Interim Policy Plan, prepared in 1992, was developed to guide city decision makers with respect to projects north of I-10. The Shadow Hills Interim Policy Plan covers the portion of Indio through which the proposed line crosses at Link 14. The existing land use designation for the area calls out a utility easement through which the proposed transmission line would cross. The future land use designation for this area is predominantly low residential land use.

Cathedral City

The proposed transmission line crosses within the city limits of Cathedral City. The general plan has given an open space designation to the corridor through which the proposed line would cross. The other land uses that fall within the study corridor include low-density residential, general commercial, industrial, business park industrial, public open space, and watercourse open space.

Desert Hot Springs

The southeastern corner of the city of Desert Hot Springs falls within the study corridor and is planned for industrial use. Additionally, the line will cross through a large portion of the city's sphere of influence. The land use designations that would be crossed by the proposed line include low and medium-density residential, energy related industrial, and general commercial.

Palm Springs

The proposed transmission line would end at Devers, north of the city limits of Palm Springs. The line would cross through the Palm Springs sphere of influence. The land use designations within the sphere of influence include low-density residential, general commercial, industrial, energy related industrial, and open space.

Park, Recreation, and Preservation Land Uses

Park, recreation, and preservation land uses in the California portion of the Devers-Harquahala study corridor are presented on the land use maps (Maps 4-3c, 4-3d, and 4-3e) and are summarized in Table 4-11.

TABLE 4-11
SUMMARY OF PARKS, RECREATION, AND PRESERVATION AREAS CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Name	Link	Milepost	Miles Crossed
Chuckwalla Dune Thicket ACEC	13	13	1
Alligator Rock ACEC	13	28.5	7.5
Coachella Valley Fringe-toed Lizard ACEC	14	20	1
Coachella Valley Preserve and Nature Conservancy	14	19	2.3

National Wildlife Refuge/National Park

The Coachella National Wildlife Refuge is located near Palm Springs, and has been developed for the preservation of the Coachella Valley fringe-toed lizard (*Uma inornata*), a federally designated threatened species. The refuge is 12,000 acres in size and is contained within the Coachella Valley Nature Conservancy. The study corridor would cross approximately 2.3 miles of the preserve along Link 14 starting at Milepost 19.

The Joshua Tree National Park also is located within the study corridor north of Link 13 from Milepost 64 to 69. The park was elevated from national monument to national park status in 1994. In 1976, Congress designated 420,000 acres as wilderness. Currently, of the 794,000 acres, 585,000 acres are designated as wilderness. Joshua Tree National Park provides habitat for numerous plant and animal species unique to the Southwest deserts.

Wilderness Areas

Three BLM WAs are located within the California portion of the Devers-Harquahala study corridor: Chuckwalla Mountains WA, Orocopia Mountains WA, and Mecca Hills WA. The Chuckwalla Mountains WA is south of Link 13 along Mileposts 17 to 40. The Orocopia Mountains WA is south of Link 13 along Mileposts 49 to 52. The Mecca Hills WA is south of Link 13 Milepost 68.

BLM Areas of Critical Environmental Concern

Existing BLM ACECs are situated in the California portion of the Devers-Harquahala study corridor. The names of these areas are intended to represent a well-known feature in or near the area. The ACECs include Mule Mountains, Chuckwalla Valley Dune Thicket, Alligator Rock, Chuckwalla Bench, and the Coachella Valley Fringe-toed Lizard. The Mule Mountains ACEC is

4,100 acres and is located approximately 1 mile south of Link 10 near Milepost 14. It was designated in September 1980 for its cultural value. The Chuckwalla Valley Dune Thicket ACEC is 2,275 acres in size and is crossed by Link 13 near Milepost 5. It was designated in September 1980 for its fish, wildlife, and botanical value. The Alligator Rock ACEC is 7,740 acres and is crossed by Link 13 from Milepost 29 to Milepost 36. It was designated in May 1984 for its cultural value. Link 13 passes within 1 mile to the north of the Chuckwalla Bench ACEC from Milepost 40 to 43. It was designated in September 1980 for its fish, wildlife, and botanical values. The Coachella Valley Fringe-toed Lizard ACEC is 11,630 acres and is crossed by Link 14 near Milepost 20. It was designated in April 1993 for its biological value.

California Department of Fish and Game Wildlife Areas

CDFG holdings in the study corridor consist of three small areas that provide protection for the Coachella Valley fringed-toed lizard. These areas are contiguous with the California Department of Parks and Recreation Indio Hills Palms State Park, Coachella Valley National Wildlife Refuge, and Nature Conservancy preserves.

State and County Parks

One state park is located within the California portion of the Devers-Harquahala study corridor. Indio Hills Palms State Park is north of Indio, approximately 3 miles north of I-10, in Township 4 South, Range 6 and 7 East. Link 14 passes south of the park at Milepost 25.

There are two county parks that are found in or near the study corridor. These include Goose Flats Wildlife Area and McIntyre Park. Goose Flats Wildlife Area is located 3.5 miles southeast of Blythe on the Colorado River, north of Link 10 Milepost 0. McIntyre Park is located about 7 miles southeast of Blythe on the Colorado River and accommodates camping, river access, and picnic areas. Link 10 passes north of McIntyre Park at Milepost 0.

Nature Conservancy Preserves

The Edmund C. Jaeger and Coachella Valley Nature Conservancy preserves are situated within the California portion of the Devers-Harquahala study corridor. The Edmund C. Jaeger Nature Conservancy Preserve is approximately 80 acres and is south of Link 13, Milepost 35. The Coachella Valley Preserve is 20,000 acres in size and is crossed by Link 14 from Milepost 19 to 21. The Coachella Valley Preserve contains the Coachella Valley NWR within its boundaries.

Scenic Roads

The State of California Department of Transportation (Caltrans) has designated scenic highways and highways eligible for scenic designation. The officially designated scenic highway within the study corridor is CA 62 between I-10 and the San Bernardino county line, which is west of Milepost 5 of Link 16. In addition to the officially designated scenic highway, there is a highway eligible for scenic designation. CA 111 between CA 74 near Palm Desert and I-10 near Whitewater is eligible for scenic designation and has a view of the study corridor. CA 111 is located south of Devers and Link 16.

Recreational Areas

Hiking and Riding Trails

The California Desert Trail corridor was proposed for establishment in the 2002 California Recreational Trails Plan developed by California State Parks. The California Desert Trail connects Mexico to Nevada through the Colorado and Mojave deserts. The trail corridor crosses 650 miles of California desert and continues north to Canada, aligning with the National Desert Trail. The California Desert Trail corridor crosses the California portion of the Devers-Harquahala study corridor through Link 13.

Campgrounds

McIntyre Park is located about 7 miles southeast of Blythe on the Colorado River and accommodates camping, river access, and picnic areas.

Golf Courses

Three golf courses are situated in the California portion of the Devers-Harquahala study corridor: Indio Municipal (south of Link 14 near Milepost 11), Rancho Casa Blanca (south of Link 14 near Milepost 12), and Sun City Palm Desert (south of Link 14 at Milepost 18.5).

Roadside Rest Areas

Two California roadside rest areas were identified within the study corridor: Wiley's Well, located approximately 15 miles west of Blythe, and Cactus City, approximately 15 miles east of Indio. Wiley's Well is north of Link 13 at Milepost 2, and Cactus City is south of Link 13 at Milepost 67.

Other

Various recreational activities and opportunities are available on public land in the California portion of the Devers-Harquahala study corridor. The desert provides open-space opportunities for activities such as soaring, target shooting, hang gliding, model rocket and airplane flying, and land sailing. Camping, off-road vehicle use, hunting, rock collecting, recreational mining, driving for pleasure, hiking, photography, nature study, sightseeing, and other dispersed recreational activities also occur on public land in the study area.

4.1.3 Socioeconomics, Population, and Housing

4.1.3.1 Arizona

The proposed transmission line passes through largely rural, undeveloped areas of Maricopa and La Paz counties in Arizona. Maricopa County is located in central Arizona and encompasses 9,203 square miles with a population density of about 333.8 persons per square mile. The majority of the population is located in a large metropolitan area that includes 22 different municipalities separated only by jurisdictional lines. The aggregate household income in 1999 was $67.6 billion, comprising almost 66 percent of the state aggregate household income of $102.5 billion. The nearest Maricopa County communities in the project study area are the town of Buckeye, roughly 25 miles east of Harquahala, and the unincorporated community of Tonopah, located about 10 miles east of the project with a population of approximately 1,900. These communities historically have been agriculturally based. However, the town of Buckeye has numerous communities planned for development. The town of Buckeye Municipal Planning Area (MPA) contains over 500 square miles, of which approximately 160 square miles are currently annexed into the town. Population projections provided by the Department of Economic Security (DES) for the Buckeye MPA indicate a population of 28,144 by the year 2010 (DES 1997). The 2000 population for the town of Buckeye was 8,497 (corrected count, DES 2001), and 11,955 in 2002 according to the Department of Commerce (DOC 2003). Tonopah contains one hotel and three RV parks. Buckeye contains three hotels, four RV parks, and several apartment complexes.

La Paz County was formed in 1983 when Yuma County was separated into two jurisdictions. The proposed transmission line would pass through an undeveloped area of the 4,500-square-mile county, which is sparsely populated with a density of 4.4 persons per square mile. The aggregate household income in 1999 was $288 million, comprising less than one percent of the state aggregate household income of $102.5 billion. The town of Quartzsite is the only incorporated La Paz County community near the study corridor and is located approximately 8 miles to the north. Quartzsite has a population of 3,354 (Census 2000) and is projected to reach

3,668 in 2010 (DES 1997). Although the population is small, the Quartzsite Chamber of Commerce states that the town receives over 1 million visitors per year, and tourism is a major contributor to the local economy. The town has three motels and 70 mobile home and recreational vehicle parks with over 6,117 total spaces (Town of Quartzsite 2003).

Tables 4-12 through 4-15 demonstrate current and future population, housing data, and employment statistics for Maricopa and La Paz counties. As shown, Maricopa County experienced a 44.8 percent growth rate between 1990 and 2000, and a 7.3 percent growth rate between 2000 and 2002. La Paz County experienced a 42 percent growth rate between 1990 and 2000, and 3.3 percent growth between 2000 and 2002. The state of Arizona experienced 40 percent growth between 1990 and 2000 (Census 2000). Tables 4-16 and 4-17 include population and housing data for the town of Quartzsite.

TABLE 4-12
YEAR 2000 POPULATION AND DEMOGRAPHICS

	La Paz County	Maricopa County
Total Population	19,715	3,072,149
Gender:		
Male	10,123	1,536,473
Female	9,592	1,535,676
Race:		
White	74.2%	77.4%
African American	.8%	3.7%
Native American	12.5%	1.8%
Asian or Pacific Islander	.5%	2.3%
Other	12.0%	14.8%
Total	**100%**	**100%**
Hispanic Heritage	22.4%	24.8%
Source: U.S. Census Bureau, 2000 Census; Arizona DOC		

TABLE 4-13 HISTORIC AND ESTIMATED FUTURE POPULATION GROWTH		
Year	Population	
	La Paz County	Maricopa County
1980	12,557	1,509,175
1990	13,844	2,122,101
2000	19,715	3,072,149
2002	20,365	3,296,250
2005	22,799	3,329,561
2010	25,096	3,709,566
2015	27,193	4,101,784
2025	30,656	4,948,423
Source: Arizona DES, Research Administration, Population Statistics Unit Feb. 1997		

TABLE 4-14 YEAR 2000 HOUSING DATA		
	La Paz County	Maricopa County
Total Housing Units	15,133	1,250,231
Occupied	8,362	1,132,886
Owner occupied	6,521	764,547
Rented	1,841	368,339
Vacant	6,771	117,345
Single unit	4,773	821,198
Multiple unit	517	332,061
Mobile	9,843	96,972
Median Value	$86,500	$129,200
Source: U.S. Census Bureau, 2000 Census		

TABLE 4-15 YEAR 2000 EMPLOYMENT BY OCCUPATION		
	La Paz County	Maricopa County
Total Civilian Labor Force	7,139	1,498,223
Total Unemployment	572 8%	70,931 4.7%
Total Employment	6,567	1,427,292
Management, professional, and related	1,565	483,582
Service	1,537	208,498
Sales and office	1,562	423,504
Farming, fishing, forestry	349	5,327
Construction, extraction, maintenance	726	149,539
Production, transportation, material moving	828	156,842
Median Household Income	$25,839	$45,358
Source: U.S. Census Bureau, 2000 Census		

TABLE 4-16 YEAR 2000 POPULATION AND DEMOGRAPHICS	
Town of Quartzsite	
Population	3,354
White	94.5%
African American	.2%
Native American	1.2%
Asian or Pacific Islander	.3%
Other	3.8%
Total	**100%**
Hispanic Heritage	5%
Source: U.S. Census Bureau, 2000 Census	

TABLE 4-17 YEAR 2000 HOUSING DATA	
Town of Quartzsite	
Total Housing Units	3,193
Occupied	1,850
Owner occupied	303
Rented	186
Vacant	1,336
Single unit	570
Multiple unit	30
Mobile	2,593
Median Value	$84,500
Source: U.S. Census Bureau, 2000 Census Note: Numbers of occupied and rented units indicated in Census data as "specified" and do not match total number of units.	

4.1.3.2 California

In California, the study corridor is located entirely in Riverside County, which encompasses 7,207 square miles with a population density of 214 persons per square mile. Between 1990 and 2000, Riverside County experienced the fifth highest California county growth rate at 32 percent. West of the Arizona/California state border, the study corridor passes near the small town of Blythe and through the Coachella Valley municipalities of Coachella, Indio, Cathedral City, Palm Springs, and Desert Hot Springs. The upper Coachella Valley surrounding Palm Springs is a rapidly growing resort area. The lower Coachella Valley including Indio, the Palo Verde Valley, and the town of Blythe to the east, are primarily agricultural. The ethnic heritage of these areas is primarily Hispanic, as shown on Table 4-18. Tables 4-19 through 4-21 demonstrate historic and future population projections, housing, and employment statistics for Riverside County and the municipalities through which the study corridor would pass.

TABLE 4-18
YEAR 2000 POPULATION AND DEMOGRAPHICS
RIVERSIDE COUNTY

	Riverside County	Coachella	Indio	Cathedral City	Palm Springs	Desert Hot Springs
Total Population	1,545,387	22,724	49,116	42,647	42,807	16,582
Gender:						
Male	769,384	11,365	24,710	21,608	22,208	8,155
Female	776,003	11,359	24,406	21,039	20,599	8,427
Race:						
White	65.6%	38.8%	48.7%	65.3%	78.3%	68.2%
African American	6.2%	.5%	2.8%	2.7%	3.9%	6.1%
Native American	1.2%	.8%	1.0%	1.0%	1.0%	1.4%
Asian or Pacific Islander	4%	.3%	1.6%	3.8%	4.0%	2.1%
Other	23%	59.6%	45.9%	27.2%	12.8%	22.2%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Hispanic Heritage	36.2%	97.4%	75.4%	50%	23.7%	40.4%

Source: U.S. Census Bureau, 2000 Census; SCAG 2000

TABLE 4-19
HISTORIC AND ESTIMATED FUTURE POPULATION GROWTH

Year	Population					
	Riverside County	Coachella	Indio	Cathedral City	Palm Springs	Desert Hot Springs
1980	663,172	9,129	21,611	8,910	34,666	5,941
1990	1,170,413	16,896	36,793	30,085	40,181	11,668
2000	1,545,387	22,724	49,116	42,647	42,807	16,582
2002	1,645,300	24,300	52,200	45,450	43,750	16,900
2005	1,864,700	22,996	52,140	41,953	50,464	17,566
2010	2,159,700	24,894	56,330	45,219	51,514	19,180
2015	2,459,600	26,577	59,949	48,166	52,467	20,635
2020	2,817,600	29,283	65,797	52,373	53,825	22,714

Source: California Dept. of Finance 2000, 2002, 2003; SCAG 2001

Note: Table shows actual population figures through 2002. The projections obtained for the years 2005-2020 were obtained from the SCAG 2001 Regional Transportation Plan Growth Forecast. However, discrepancies are present as forecasted population in some instances is lower than the actual population counts in 2000 or 2002. This is attributed to the fact that SCAG completed the forecast in 1998, but due to agency and public review and approval, the study was not deemed complete until 2001.

TABLE 4-20 YEAR 2000 HOUSING DATA – RIVERSIDE COUNTY						
	Riverside County	**Coachella**	**Indio**	**Cathedral City**	**Palm Springs**	**Desert Hot Springs**
Total Housing Units	584,674	5,024	16,909	17,893	30,823	7,034
Occupied	506,218	4,807	13,871	14,027	20,516	5,859
Owner occupied	348,532	2,508*	6,097*	6,837*	9,265*	2,357*
Rented	157,686	1,881*	6,045*	4,901*	8,055*	3,052*
Vacant	78,456	217	3,038	3,866	10,307	1,175
Single unit	398,747	3,419	8,540	11,411	16,272	3,960
Multiple unit	103,066	1,150	5,199	3,846	12,316	2,506
Mobile	82,861	455	3,170	2,636	2,235	568
Median Value	$146,500	$83,700	$99,000	$125,500	$157,000	$81,400
Source: California Dept. of Finance 2003; U.S. Census Bureau, 2000 Census *these figures are noted as "specified" and do not total full number of occupied units						

TABLE 4-21 YEAR 2000 EMPLOYMENT BY OCCUPATION						
	Riverside County	**Coachella**	**Indio**	**Cathedral City**	**Palm Springs**	**Desert Hot Springs**
Total Civilian Labor Force	651,952	8,391	19,382	18,626	19,017	6,571
Total Unemployment	49,096 7.5%	979 11.7%	1,581 8.2%	1,326 7.1%	1,176 6.2%	674 10.3%
Total Employment	602,856	7,412	17,801	17,300	17,841	5,897
Management, professional, and related	167,739	669	3,064	3,800	5,625	983
Service	105,446	2,292	5,226	5,278	4,459	1,719
Sales and office	163,095	1,252	4,043	4,391	5,210	1,550
Farming, fishing, forestry	9,499	1,425	832	57	32	7
Construction, extraction, maintenance	70,974	1,010	2,760	2,264	1,432	906
Production, transportation, material moving	86,103	764	1,876	1,510	1,083	732
Median Household Income	$42,887	$28,590	$34,624	$38,887	$35,973	$25,987
Source: SCAG 2001; U.S. Census Bureau, 2000 Census; Coachella Valley Association of Governments (CVAG) 2000						

The city of Blythe is approximately 5 miles north of the study corridor, just west of the California/Arizona border. Although the area is primarily agricultural, Blythe also enjoys a tourism industry due to the presence of the Colorado River and the associated recreation opportunities. Blythe's year 2000 population was 12,155 (Southern California Association of Governments [SCAG] 2000); the city estimates that the area's population triples during the winter months (City of Blythe 2003). In 2000, available labor force was 5,165, with an

unemployment rate of 4.7 percent (SCAG 2000). There are 23 motels, 7 recreational vehicle parks, and more than 20 mobile home and trailer parks in the Blythe area.

The cities of Coachella, Indio, Cathedral City, Palm Springs, and Desert Hot Springs are part of the Coachella Valley, which is 50 miles long and runs from Palm Springs to the Salton Sea. The Coachella Valley is known as both a desert resort and a major agricultural area. Actual population growth in these cities exceeded population projections prepared by the SCAG in 1998 (see Table 4-19). There are numerous hotels and recreational vehicle resorts in each community, as well as several small airports and the Palm Springs International Airport. The Coachella Valley and Blythe areas have adequate public services and housing accommodations. Public services, however, are limited along the central portion of the study corridor that traverses sparsely populated desert land.

The study corridor would also passes through a small portion of the Agua Caliente Indian Reservation, which has a population of 21,357 and a median household income (1999) of $37,560 for the 11,780 households (Census 2000). The median household income is about $13,000 lower than the average for Riverside County (see Table 4-21). However, the median value of homes on the reservation is $157,200, nearly $11,000 higher than the median home value for Riverside County (Census 2000). The unemployment rate in 2000 was about 5.7 percent, nearly 2 percent lower than the unemployment rate for Riverside County.

4.1.4 Geology and Soils

4.1.4.1 Arizona

Physiographic Setting

The study corridor for the Arizona portion of the proposed Devers-Harquahala transmission line lies within a broad continental physiographic division called the Intermontane Division. Within

that division, five physiographic provinces have been established: Salton Trough, Transverse Ranges, Western Mojave Desert, Eastern Mojave Desert, and Sonoran Desert. Within Arizona, the proposed Devers-Harquahala study corridor crosses the Eastern Mojave and Sonoran Desert. The relationship of these provinces to the study area is shown on Plate 4 in Section 2.1.2 Physiography of SCE's 1977 Environmental Report (hereinafter referred to as 1977 Environmental Report) for the existing DPV1 500kV transmission line. The boundaries for the physiographic provinces were modified from Jenkins (1943) and Wilson (1962) during investigations by SCE in 1974 in the Eastern Mojave Desert, and they remain applicable to this study.

The description of the Eastern Mojave Desert Province is provided in Section 4.1.4.2 with the California portion of this study.

The Sonoran Desert Province, which includes the eastern portion of the study area, lies to the south and east of the Eastern Mojave Desert Province and extends into Mexico (refer to Plate 4 in the 1977 Environmental Report). Approximately 85 miles of the proposed Devers-Harquahala study corridor is located within the Sonoran Desert, which is characterized by discontinuous, subdued mountain ranges that trend northwest to northeast. The Granite Wash, Eagletail, Harquahala, and KOFA NWR mountains rise above alluviated desert plains within the Sonoran Desert Province. In general, the mountains have subdued topography, suggesting advanced stages of the erosion cycle. The plains form approximately 70 percent of the total area. Mountain peaks are generally less than 4,000 feet in elevation with most valleys below 3,000 feet in elevation. Elevations generally decrease southward toward the Gulf of California.

Regional Geology

The generalized geology of the study corridor is based on the 1977 Environmental Report for the DPV1 transmission line and remains applicable to this study. The delineations are shown on Plate 7 of the Environmental Report. Detailed descriptions of the geologic conditions

characterizing each of the physiographic provinces along the existing DPV1 transmission line also were presented in Section A-1 of Appendix A in the 1977 report.

The geological formations exposed within the study corridor were grouped into five basic categories: alluvium, non-indurated sedimentary deposits, indurated sedimentary rocks, igneous rocks, and igneous/metamorphic rocks. All Holocene surficial deposits were mapped as alluvium. Older alluvial fan deposits (of predominantly Plio-Pleistocene age) and all other deposits exhibiting little or no cementation were mapped as non-indurated sedimentary formations. The indurated sedimentary rock category in the 1977 DPV1 Environmental Report Generalized Geologic Map included all bedded and massive sedimentary rocks, such as shale, sandstone, and conglomerate. Granitic and volcanic rocks comprised the igneous rock category. Complexes of igneous and metamorphic rocks were combined to form the last rock category. No attempt was made to designate the age of the rock types.

A major portion of the study corridor is underlain by Holocene alluvial sand and gravel deposits and Pleistocene fan deposits (mapped as non-indurated sedimentary deposits in the 1977 Environmental Report). Igneous and metamorphic rock underlie a small percentage (estimated to be less than 5 percent) of the total length of the proposed alignment. These crystalline rocks occur primarily where the alignments cross mountain passes, such as in the Dome Rock and Plomosa mountains, or where the alignments cross small inselbergs (outlying hills that protrude above the surrounding alluvium).

From the Harquahala Switchyard, the study corridor crosses non-indurated sedimentary rock as it leaves the Harquahala Switchyard, crosses I-10, and goes west, paralleling I-10 through Quaternary alluvium to the KOFA NWR. Within the refuge, the study corridor crosses rock of an igneous and metamorphic complex as it goes through the New Water Mountains. From the New Water Mountains, the study corridor continues through alluvium to the Dome Rock Mountains, an igneous and metamorphic rock complex. The study corridor then crosses through the Dome Rock Mountains and through non-indurated sedimentary rock to the Arizona/California state border.

Seismic Activity

The Arizona portion of the proposed study corridor falls in the Sonoran Zone, a relatively stable tectonic region that is found is southwestern Arizona, southern California, southern Nevada, and northern Mexico. Seismic activity that could affect the proposed project is described under the California Section 4.1.4.2.

Economic Geology

Metallic and non-metallic mineral deposits occur within the study corridor. These resources are summarized in Table 4-22. Metallic mineral deposits are restricted primarily to the areas of exposed bedrock in mountain areas. The metallic deposits identified in Arizona include copper, manganese, gold, silver, and iron. Metallic ore deposits tend to dominate Arizona's mineral resources. However, within the study area, non-metallic deposits including barite, bentonite, sand, and gravel are the most plentiful.

TABLE 4-22
MINERAL LOCALITIES IN ARIZONA

Mineral Resource	Locality
Sand, gravel, rock products	Alluvial apron of the Dome Rock Mountains, La Posa Plain, Plomosa Mountains, Harquahala Mountains
Barite and Bentonite	Ranegras Plain, McMullen Valley, Harquahala Plain
Gold and Silver	Dome Rock Mountains, Plomosa Mountains, Harquahala Mountains, New Water Mountains
Copper	Dome Rock Mountains, Plomosa Mountains, Little Harquahala Mountains
Iron	Big Maria Mountains, Plomosa Mountains
Manganese	Little Maria Mountains, Dome Rock Mountains, Plomosa Mountains, Ranegras Plain, Harquahala Mountains, Granite Wash Mountains
Source of Data: McCrory and O'Hare 1965; Saul, et al. 1968; SCE 1977 Environmental Report; Stipp, et al. 1967	

There are no known economic deposits of oil, gas, or coal within the study corridor.

Soils

Desert soils can be sensitive to man-induced activities. However, the impact of transmission lines on soils, when compared with other types of facilities (such as highways, canals, or pipelines), is minimal and is primarily associated with access roads. In preparing the 1977 Environmental Report for the existing line, SCE mapped the various types of soils in the study area (Plate 9) and ranked the relative sensitivity to erosion and other soil impacts (Plate 23).

Scope and Investigative Procedures

In order to evaluate the potential impacts the proposed new transmission line may have on soils, SCE reviewed soil erosion sensitivities previously estimated for the existing DPV1 line, and observed in the field the actual impacts of the existing line over the first five years after its construction and reported this information in the 1988 Amended DPV2 PEA. Based on this information, a determination was made as to how the proposed transmission line, that parallels the existing DPV1 line, might affect the soils.

The following two sections present a review of the soils characteristics and the results of the soils sensitivity analysis for the proposed line within the Arizona portion of the Devers-Harquahala study corridor.

Soil Associations

Detailed discussions on the characteristics of desert soils in the study area were provided in Section 2 and Appendix A of SCE's 1977 Environmental Report. These discussions remain applicable to the proposed project. Table 4-23, which has been reproduced from the 1977 report, provides descriptions of each of the classes of soils found in the study area. The soil classes are presented in order of relative age and degree of potential sensitivity.

TABLE 4-23
CLASSES OF RELATIVE SOIL EROSION SENSITIVITY

Sensitivity Class	Soil Order (Suborder)	Representative Terrain Characteristics
1	Entisols (Psamments)	Sand dunes and shifting sand sheets; low water-holding capacity; subject to deflation if disturbed; low bearing strength. Sand accumulation downwind from playa lakes; e.g., Palen and Ford dry lakes, in California; Rice Valley, Bouse and Tyson washes, in Arizona.
1	Entisols (Fluvents)	Silts and clays in playa lakes; high shrink-swell potential; e.g., Ford and Palen dry lakes in California; local deflation upon disturbance. Includes some Vertisols.
2	Entisols (Fluvents)	Medium to fine-grained fluvial sediments, typically in Colorado River floodplain, Parker and Palo Verde valleys, in Arizona. Medium shear strength; subject to local, man-induced (irrigation) high groundwater.
2	Entisols (Fluvents and Psamments)	Generally medium to fine-grained alluvial sediments on Pleistocene and Holocene age alluvial fans; typically merge into basins of interior drainage. Low to moderate bearing strength; subject to local hydrocompaction and collapse. Extensive areas in Butler and McMullen valleys in California, and Ranegras and Harquahala plains, in Arizona.
3	Entisols (Orthents)	Primary soils of mountain areas; recent erosional surfaces, usually steep slopes. Not differentiated from rockland, bare surfaces (lithosols, regosols) or from numerous small, linear valleys with alluvial fill giving rise to Orthids or Argids. Includes all upland areas except badland topography of Mecca Hills, in California, and Bouse Hills, in Arizona, designated as sensitivity class 3.
4	Aridisol (Orthid)	Low- and some intermediate-level alluvial fans; usually calcareous and characterized by cambic but not argillic or petrocalcic horizons. Merges imperceptibly and often frequently underlies, as buried soils, younger Fluvents on Holocene-age fans. Typically about 20,000 to 50,000 years old. Moderately extensive on piedmont fans flanking the Orocopia, Chuckwalla mountains in California; Dome Rock, Plomosa, and Harquahala mountains, in Arizona.
5	Aridisol (Orthid)	Intermediate-level and locally higher geomorphic surfaces; local desert pavement common, especially in volcanic and metamorphic rock terrane. Cambic horizon pronounced. Mapped area includes some Argids in the Southern Coxcomb, Palen, Maria and Riverside mountains, in California.
6	Aridisol (Argid)	High-level fan remnants; calcareous with multiple carbonate horizons common, probably indicative of Quaternary climatic change. Argillic horizon present; desert pavement pronounced. Only slight temporary erosion hazard owing to loading and collapse of stonefree eluvial (A_2) horizon. Locally preserved at apex of inset fan systems. Typical of Palen, McCoy, Palo Verde, Maria and Riverside mountains, in California and Dome Rock Mountains, in Arizona.
7	Aridisol (Argid)	Highest level fan remnants preserved only on drainage divides. Stable surfaces; typified by argillic and duripal (usually petrocalcic) horizons. Desert pavement well preserved; eluvial horizon (A_2) to 6 inches thick. Identified on north flanks of Chocolate Mountains, in California and in Dome Rock Mountains, in Arizona. Numerous inclusions mapped within sensitivity classes 5 and 6.

Soils Sensitivity

There are three major areas of soil sensitivity that pertain to desert soils within the study corridor: soil collapse or consolidation, wind erosion, and fluvial erosion. SCE's 1977 Environmental Report provided discussions of each of the conditions in relation to the various soils found within the study area.

The following sections review the characteristics of each of these sensitivities, along with the observed effects of the existing DPV1 transmission line on the soils.

Soil Collapse and Consolidation

Soil collapse and consolidation result from hydrocompaction and loading of the surface. Hydrocompaction is a condition that occurs when water is introduced into some moisture deficient fine-grained soils (typically silts and clay) of arid environments. The introduction of the water causes a collapse of the soils intergranular structure, which consolidates the soil and in turn results in a depression of the ground surface. Within the study area, the soils that are most likely to be susceptible to hydrocompaction are the fine-grained Fluvents and young Orthids found along the basin margins of alluvial fans and adjacent to playa lakes. Hydrocompaction is most commonly associated with projects that introduce large volumes of water to moisture deficient soils, such as canals, irrigation associated with agriculture, or landscaping of development projects.

The potential degree of hydrocompaction resulting from a transmission line is far less than the potential soil compaction resulting from the loading and consolidation of loose surface soil horizons by construction traffic. Such consolidation from vehicular traffic commonly produces a permanent rut or depression in the road surface. If water is channeled into the rut, and there is sufficient gradient to develop surface flow, the rut also may become a location for erosion.

Soil compaction resulting from vehicular traffic also occurs on older alluvial surfaces that have well-developed desert pavements, but to a lesser degree. As previously discussed, these older Argid or Orthid soils typically have a soft, vesicular, silty A_2 horizon immediately below the desert pavement. Loading of this silty A_2 horizon by vehicular traffic compacts the silt, leaving a permanent, slight depression in the pavement surface.

Based on observations made during the reconnaissance of the existing DPV1 transmission line and associated access road, the relative ranking of sensitivity previously presented in SCE's 1977 Environmental Report (Plate 23) appears to represent the sensitivity of the soils present in the study area with respect to soil collapse or consolidation. Areas of revision include the mountainous bedrock areas, which appear to have a low to negligible susceptibility to soil collapse. The apparent impacts due to soil collapse along the existing transmission line are minor, even in soils rated as having the highest sensitivity.

Wind Erosion

Deflation or erosion of soils by wind is a common natural phenomenon in deserts and is governed by the characteristics of the soil and the velocity of the wind. Fine-grained silt and clay particles are picked up by the wind and blown away as dust. Heavier sand particles usually do not become airborne but move in short leaps, referred to as saltation. The most susceptible soils to wind erosion are fine-grained, young Fluvent soils typical of the basin margins of alluvial fans and sediments in washes and playas, such as Ford Lake or the Bouse and Centennial washes. These soils are most susceptible to wind erosion when recently disturbed by activities such as vehicular traffic. In some of the fine-grained soils, raindrops produce a thin film of clay to coat the surface. This crust, referred to as a carapace crust, provides a fragile shield against wind erosion until it is broken again by vehicular traffic or other activities. As a result, most of the wind erosion associated with the existing DPV1 transmission line occurred during its construction. The sensitivity maps presented in Plate 23 of SCE's 1977 Environmental Report can be used to estimate the sensitivity of the various soils within the study area to wind erosion

during the construction phase of the proposed project. However, observation of the existing transmission line suggests that neither the access road nor the tower sites have experienced any appreciable wind erosion since the construction period.

Surface Water Erosion

The sensitivity of a particular site to erosion by surface runoff is a function of the soil type, among other factors. Fluvent and Orthents of the Entisol soil order appear to be more susceptible to erosion than the Orthid and Argid soils of the Aridisol soil order. Another important variable that contributes to surface water erosion sensitivity of a particular site is the degree of topographic relief, which governs the velocity of the surface water runoff.

Erosion due to surface water runoff was the most apparent soil impact observed during the reconnaissance of the existing DPV1 transmission line. However, this erosion was relatively minor and localized. Typical erosional features consist of shallow gulleys and rills along localized areas of access road courses. Favorable factors that appear to have contributed to low erosion rates include the limited grading used along the existing transmission line, the general conformance of access roads to topography, and the utilization of existing roads where possible. Also, the majority of the existing line crosses terrain of low topographic relief.

In Arizona, the highest sensitivity to surface water erosion along the existing transmission line was observed along the river terraces bordering the Colorado River floodplain. These locations are characterized by relatively high topographic relief where access roads cross ephemeral washes. Construction of the access roads has disrupted erodible Entisols on the slopes that border the washes; these slopes also are underlain by soft, erodible fine sands and silt river deposits. Fill slopes built from these materials also appear to be relatively highly erodible. Based on these observed conditions, it is anticipated that any new access roads sited within similar topographic and soil conditions may experience a similar degree of surface water erosion.

The medium category of sensitivity to surface water erosion was observed in the mountains or hills that are underlain by indurated bedrock. Roads graded in this setting commonly have sections with steep gradients. In these areas, gulleys and rills typically develop along the road course. Erosion was usually negligible in mountainous bedrock terrain where the roads had flat or shallow gradients. Surface run-off erosion also was found associated with the loose fills, which were pushed to the edges of the road during construction. Also included under the medium category are terrains underlain by desert pavement and Orthid and Argid soils where relatively high topographic relief exists due to deep incision of drainage channels. The slopes along the incised drainage channels typically have young Entisols. In order to construct a road gradient suitable to cross these drainage channels, the access road has to be cut into these slopes and into the edges of the desert pavement surfaces. Minor erosion was typically found on the road where it descends into the drainage channels. Headward erosion also typically progresses up the road and onto the pavement surfaces. In addition to the erosion of the road, small fills, which were commonly left in the drainage channels following grading of the roads, were sources of soil erosion.

The lowest category of sensitivity to surface water erosion was observed in areas of low relief across surfaces underlain by desert pavements and Orthid and Argid soils. Minimal erosion also was observed in Entisols on low relief terrain where access roads crossed the drainages at nearly right angles. In these areas, minor gulleys and rills have developed where small ephemeral drainages reestablished their channels through the graded path of the road or the small berms left on the sides of the road. In a few cases, somewhat accelerated erosion appears to have developed where the small roadside berm resulted in the convergence of two small ephemeral drainage channels.

4.1.4.2 California

Physiographic Setting

The study corridor for the proposed Devers-Harquahala transmission line lies within a broad continental physiographic division called the Intermontane Division. This division may be further classified into five physiographic provinces: Salton Trough, Transverse Ranges, Western Mojave Desert, Eastern Mojave Desert, and Sonoran Desert. All but the Sonoran Desert occur within California. The boundaries for the physiographic provinces, as shown in SCE's 1977 Environmental Report for the existing DPV1 500kV transmission line, are based on the work of Jenkins (1943) for California and Wilson (1962) for Arizona. The relationship of these provinces to the study area is shown on Plate 4 in Section 2.1.2 Physiography of the 1977 Environmental Report.

The following sections provide a general discussion of the characteristics for each of the physiographic provinces through which the proposed transmission line will pass.

Salton Trough

Approximately 35 miles of the study corridor (between Devers Substation and the Mecca Hills) are located within the Salton Trough Province. This province is characterized by low relief and elevations and is bounded by relatively high linear mountain ranges on the east and west. These ranges converge at San Gorgonio Pass, marking the northern end of the Salton Trough. The province encompasses the Coachella Valley, Salton Sea, and Imperial Valley, and is separated from the Gulf of California by the delta of the Colorado River.

The typical landforms that characterize the province are broad, coalescing alluvial fans (bajadas), which flank mountain ranges, isolated low hills, and extensive sand dune areas.

Transverse Ranges

The western portion of the proposed Devers-Harquahala study corridor (approximately 37 miles) extends into the southwestern margin of the Transverse Ranges Physiographic Province. This province is characterized by a complex chain of mountains and valleys trending east-west across southern California. The San Bernardino, Little San Bernardino, and Eagle mountains are located north of the corridor between Devers Substation and Desert Center. The Orocopia Mountains and Mecca Hills lie to the south of the preferred route in this same area. Elevations within this portion of the province generally range from 2,000 to 4,000 feet; rugged terrain is common in the mountains with local relief exceeding 2,000 feet. The study corridor crosses the Transverse Ranges Province in an east-west trending valley between the Eagle and Orocopia mountains; the high point of this valley is Shaver's Summit at an elevation of 1,710 feet (refer to Plate 5, Land Elevations in SCE's 1977 Environmental Report).

Western Mojave Desert and Eastern Mojave Desert (California and Arizona)

There are marked differences between the Western Mojave Desert and Eastern Mojave Desert physiographic provinces. In the western province, the terrain is influenced by major northwest trending fault zones. This influence is well-expressed by northwest-southeast trending mountain ranges; the principal ranges are the Coxcomb, Chuckwalla, and Chocolate mountains. Elevations generally vary between 2,000 to 3,000 feet; a few peaks and ridges exceed 4,000 feet (refer to Plates 4 and 5 in the 1977 Environmental Report).

The mountains of the Eastern Mojave Desert Province are extremely variable in shape, size, trend, and elevation. Most ranges are less than 4,000 feet in elevation. Major north-trending ranges in the Eastern Mojave Desert Province include the Riverside, West Riverside, Plomosa, and Dome Rock mountains. Northwest-trending ranges in the Eastern Mojave Desert Province include the Little Maria, Granite, and McCoy mountains. The Palen Mountains trend to the northeast. Major valleys vary in elevation from 250 feet in the Palo Verde Valley south of

Blythe, to 400 feet in the Chuckwalla Valley, and 800 feet in the Vidal Valley. All mountains, from isolated small hills to large mountain blocks, are greatly eroded and irregular in outline, indicative of more advanced stages in the erosion cycle. This contrasts with the youthful-appearing ranges in the Western Mojave Province.

Broad alluvial basins or valleys within both the Western Mojave Desert and the Eastern Mojave Desert are underlain by alluvial fans, stream wash deposits, sand dunes, playas, and locally large floodplains such as that bordering the Colorado River. Closer to mountain fronts, dissected alluvial piedmont slopes and pediments are active erosional surfaces. Pediments are less common in the Western Mojave Desert than in the Eastern Mojave Desert.

Regional Geology

The generalized geology of the study area shown on Plate 7 of the 1977 Environmental Report remains applicable to this study for the proposed transmission line project. Detailed descriptions of the geologic conditions characterizing each of the physiographic provinces along the existing DPV1 transmission line were also presented in Section A-1 of Appendix A in the 1977 report.

West of the Colorado River, the study corridor crosses through Quaternary alluvium as it goes through the Palo Verde Valley and non-indurated sedimentary as it crosses the Palo Verde Mesa. It continues through Quaternary alluvium to the Chuckwalla Mountains, where it crosses non-indurated sedimentary and granitic and volcanic igneous rock. Portions of the corridor cross granitic and volcanic igneous rock as it passes the Orocopia Mountains and indurated sedimentary rock as it passes the Mecca and Indio hills. The proposed alignment is underlain by soft, non-indurated sediments of the Indio Hills, in California. Soft sands and silts also underlie a thin cap of Pleistocene alluvium in the bluffs bordering the Colorado River and locally in the walls of gullies and washes near the Mule Mountains. The study corridor continues through Quaternary alluvium to Devers Substation.

Structure

Active and potentially active faults and earthquake epicenters within the study area are shown in Plate 8, Selected Faults and Seismicity, of SCE's 1977 Environmental Report. Since that report, the general distribution and rate of seismic activity apparently has not changed nor has the general geologic setting of active faults. In the following sections, the faults located within the study corridor are identified and reported. Discussions are provided as to the general level of seismic activity along the study corridor.

Quaternary Faults and Seismicity

Seismic activity is normally associated with active quaternary faults. All the known faults that might impact the proposed project are located in California and all but one of these are located in the Coachella Valley along the western portion of the study area. Portions of six faults occur within the study area. From the western end of the study area, these include: the Garnet Hill fault (which lies a few miles west of Devers Substation), the Banning Fault (to the southeast of Devers Substation), and the Mission Creek Fault (located to the east of Desert Hot Springs). These three faults are branches of the San Andreas Fault, which parallels CA 111 south of Indio to Bombay Beach on the northeastern shore of the Salton Sea. The Blue Cut Fault follows the Little San Bernadino Mountains in the northwest portion of the study area before heading east across the midsection of Joshua Tree National Park, and the Mecca Hills Fault zone crisscrosses the Mecca Hills. Finally, the Blythe Graben Fault parallels the southwest portion of the Big Maria Mountains, north of the town of Blythe. Each of these faults is described in greater detail in Section A-2 of Appendix A in the 1977 report.

The length of the southern segment of the San Andreas Fault, which includes the Banning and Mission Creek faults, is about 120 miles, and the total length of the fault is longer than 700 miles. In the Coachella Valley, the study corridor crosses the Banning Fault at a location southeast of Devers and northwest of the Indio Hills and crosses the Mission Creek Fault at a

location southwest of the Indio Hills (near the town of Indio). Numerous earthquakes have occurred in this area. The San Andreas Fault is the longest active fault in California. It is a right-lateral, strike-slip fault that represents the boundary between the Pacific and North American lithospheric plates. Historically, the San Andreas Fault has produced earthquakes in excess of Richter magnitude 8. The most recent earthquake of this magnitude in southern California was the 1857 Fort Tejon earthquake, which was centered northwest of Cajon Pass. Work by Sieh (1978) provides evidence of a large earthquake occurring approximately every 145 years on this segment.

The southern segment of the San Andreas Fault does not appear to be as recently active as the segment that is associated with the 1857 Fort Tejon earthquake. Sieh (1978) studied the southern segment of the fault, which has been dormant seismically in historic time (at least since 1769). His work suggests that the average interval between major recurrent earthquakes on the southern segment is probably on the same order as the south-central segment.

Most of the geologically rapid slip that is occurring on the San Andreas Fault north of San Bernardino appears to have been taken up by the San Jacinto and Imperial-Brawley faults. The San Jacinto Fault's closest approach to the study area is 20 to 30 miles to the southwest and is the source of several earthquakes with magnitudes of greater than six during this century.

The study corridor crosses the Mecca Hills Fault just southeast of the Indio Hills. The Mecca Hills Fault is located about 2 miles northeast of and parallel to the San Andreas Fault through most of the Mecca Hills. The level of recent or Holocene activity of the fault is not known, but late quaternary activity is suggested by fault scarps, linear valleys, and apparent offsets of late Pleistocene alluvial fans. Evidence of displacement along the fault indicates the fault has a right-lateral, southwest-side upward mode of displacement.

The only known fault outside the Coachella Valley within the study corridor is the Blythe Graben, which is located along the southwestern flank of the Big Maria Mountains about 5 miles north of Blythe, California (SCE 1974; SDG&E 1974). This fault strikes northwest, parallel to

the mountain front and is slightly arcuate with a mappable length of 3.5 miles and a width of 300 feet. Exploratory trenches across the graben revealed displaced older alluvial deposits covered by unbroken young alluvium. Based on estimated ages of the alluvial surfaces, the last displacement probably occurred within the last 30,000 years. No historic or recorded epicenters are associated with the Blythe Graben.

Seismicity levels decrease across the middle and eastern portions of the study area. The level of seismic activity in the Transverse Ranges Province may be characterized as moderate to high. Seismicity declines sharply across the Mojave Desert. The Western Mojave Desert contains numerous northwest-trending, right-lateral faults with some evidence of vertical displacement (1977 Environmental Report). This area is seismically active, but with only one major historic event (a magnitude 6.2 quake in 1947, outside of the study corridor). In contrast, the Eastern Mojave Desert has low seismic activity, little geological evidence of strike-slip faulting or breakage, and does not contain parallel northwest-trending linear mountain ranges and basins. The portion of the Mojave Desert that extends into Arizona and the Sonoran Desert has very low levels of seismic activity. Thus, the study area can be divided into two distinct tectonic zones. The western zone, which includes the Salton Trough, the Transverse Ranges, and the Western Mojave Desert, may be characterized as a strain-adjustment area associated with an active fault system (the San Andreas). The eastern zone, beginning approximately at the Colorado River, includes the Eastern Mojave Desert and the Sonoran Desert and lies outside of the strain adjustment area, and thus is relatively free of seismic activity.

Plate 8 of the 1977 Environmental Report shows the locations of 64 earthquakes with a Richter magnitude range of 4.0 to 8.0 that occurred within the Devers to Palo Verde portion of the study area from 1901 to 1975. Of these events, 56 were of magnitude 4.0 to 4.9; 7 were of magnitude 5.0 to 5.9; and 1 was of magnitude 6.0 to 6.9. Several significant earthquakes have been recorded within the study area since 1977. North Palm Springs experienced a magnitude 5.9 earthquake on July 8, 1986. A magnitude 6.1 earthquake shook Joshua Tree National Park on April 22, 1992 (SCEC 2004). A magnitude 4.0 earthquake was recorded 9.3 miles east of Indio July 13, 2004 (Riverside County 2004). The largest earthquake recorded within the study area occurred near

Desert Hot Springs on the Mission Creek Fault December 4, 1948. This event reached a magnitude of 6.5 on the Richter scale (1977 Environmental Report).

For the time period 1901 to 1975, a total of 1,812 events in the magnitude range of 2.0 to 3.9 were reported for the Devers-Harquahala portion of the study area; all of which were west of the Desert Center area (1977 Environmental Report). These small magnitude earthquake events were not included in Plate 8 of the 1977 Environmental Report because they conformed to the general distribution of seismic activity delineated by the larger magnitude earthquake events.

As seen on Plate 8 of the 1977 Environmental Report, the Salton Trough is one of the most seismically active regions within the study area. Ten events with magnitudes ranging from 6.0 to 7.1 were recorded in the Salton Trough between 1933 and 1977 (1977 Environmental Report).

No earthquakes have been reported for the seismically less active portion of the study area east of the Palen Mountains and including Arizona.

Economic Geology

Metallic and non-metallic mineral deposits occur within the study area. These resources are summarized in Table 4-24. Metallic mineral deposits are restricted primarily to the areas of exposed bedrock in mountain areas. Gold, copper, and iron are the predominant metallic minerals mined in California. Most of the metallic-mineral deposits in the California desert are no longer economically feasible to operate and have been abandoned (California Geology 1973). Sand, gravel, and rock products are the most important mineral resources in California and are still activity mined. Approximately five million short tons per year of sand and gravel have been mined from Riverside County alone.

There are no known economic deposits of oil, gas, or coal within the study area.

TABLE 4-24 MINERAL LOCALITIES IN CALIFORNIA	
Mineral Resource	**Locality**
Sand, gravel, rock products	Indio Hills, Coachella Valley
Barite and Bentotite	Mecca Hills, Palen Valley
Gold and Silver	Dome Rock Mountains, Plomosa Mountains, Harquahala Mountains, and New Water Mountains
Copper	Dome Rock Mountains, Plomosa Mountains, Little Harquahala Mountains
Iron	Big Maria Mountains, Plomosa Mountains
Manganese	Little Maria Mountains, Dome Rock Mountains, Plomosa Mountains, Ranegras Plain, Harquahala Mountains, Granite Wash Mountains
Source of Data: McCrory and O'Hare 1965; Saul, et al. 1968; SCE 1977 Environmental Report; Stipp, et al. 1967	

Soils

Soils for the California portion of the Devers-Harquahala study corridor are described under Section 4.1.4.1 with the Arizona portion of this study.

4.1.5 Hydrology

Hydrology for the study corridor is based on the 1977 Environmental Report for the DPV1 transmission line and remains applicable to this study.

4.1.5.1 Proposed Devers-Harquahala Study Corridor in Arizona and California

Surface Water

The study area is characterized by an arid climate with limited rainfall. With the exception of the Colorado River, all active drainages in the study area are intermittent or ephemeral, and flow only after a localized summer thunderstorm or, more commonly, during a strong winter storm. The flow in these ephemeral streams usually subsides rapidly following the passage of the storm.

Except for the gauging stations on the Colorado River, there are little or no data for surface run-off in the study area.

The study area is characterized by mountain ranges separated by broad valleys with coalescing alluvial fans. The valleys within the study area are normally drained by a main wash along the axis of the valley. On valley flanks, channels are entrenched within the older fans; their distributaries spread across younger fans toward basin centers. In some valleys, the main central drainage may be as much as 1 mile wide.

The names and locations of all major valleys within the study area, their main drainage, direction of flow, and termination points were discussed in SCE's 1977 Environmental Report for the existing DPV1 transmission line. Table 4-25, which has been modified from that report, provides a list of the major valleys and drainages within the study area. Generally, the drainage courses west of the Eagle Mountains in California drain toward the Salton Sea. East of the Eagle Mountains and west of the McCoy Mountains, the drainages empty into closed basins, the centers of which are formed by Palen Playa and Ford Dry lake in the Chuckwalla Valley. East of the McCoy Mountains and west of the Dome Rock Mountains in Arizona, the drainages flow directly to the Colorado River. East of the Dome Rock Mountains, all drainages flow toward the Colorado River via Tyson, Bouse, and Centennial washes. The latter wash flows toward the Gila River, which in turn flows to the Colorado River.

TABLE 4-25 DRAINAGES			
Valley	**Main Drainage**	**Direction of Flow**	**Termination**
Coachella, California	Whitewater River	SE	Salton Sea
Orocopia Valley, California	Box Canyon Wash	W	Salton Sea
Palen, California	Unnamed	S	Palen Dry Lake
Chuckwalla, California	Unnamed	SE-E	Ford Dry Lake and Colorado River
Palo Verde Mesa, California	Unnamed McCoy Wash	E SE	Colorado River Colorado River
Palo Verde Valley, California and Arizona	Colorado River	S	Gulf of California
La Posa Plain, Arizona	Tyson Wash	N-NW	Colorado River
Ranegras Plain, Arizona	Bouse Wash and Upper Bouse Wash	NW-W	Colorado River
Harquahala Plain, Arizona	Centennial Wash	SE	Gila River
Note: The Colorado River is the only permanent drainage; all others are ephemeral rivers, washes, and lakes. Source: Modified from Table 2.11-6, SCE Environmental Report for DPV1 Transmission Line, 1977.			

Groundwater

Groundwater within the study area is typically found in the sand and gravel layers within the thick sequence of sediments that underlie the alluvial valleys or basins. These alluvial basins generally are within structural troughs bounded by less permeable crystalline bedrock. These troughs can be several thousand feet deep. Depending on the geological conditions, the groundwater can range from a phreatic water table to confined artesian conditions. Wells drilled near the central portions of the basins typically encounter water at shallower depths than those near the mountain fronts where the water table is typically relatively deep.

Groundwater is a potential resource in most desert basins and valleys. However, recharge rates to these groundwater basins is typically low. Many desert groundwater basins have experienced a lowering of water levels. Typical of such areas is the Harquahala Plain of western Arizona, where pumping for irrigation purposes in the southern portion of the plain has caused a decline in the water level.

A summary of the groundwater characteristics of the major alluvial basins within the Arizona and California portions of the study area is presented in Table 4-26. The data contained in this table were largely generated from the California Department of Water Resources (1975) and U.S. Geological Survey (Denis 1976; Wilkens and Webb 1976) and was originally presented in SCE's 1977 Environmental Report for the existing DPV1 transmission line.

4.1.6 Air Quality

The proposed Devers-Harquahala study corridor is located in the southwestern United States, specifically extending from south-central Arizona to southern California. The meteorology for this region can be described as a typical desert climate and can be characterized by high daytime temperatures, low humidity, and low amounts of precipitation. The study area receives approximately 90 percent of the available annual sunshine. The seasons of the region are marked by hot dry summers and cool dry winters.

Temperature information has been collected from representative data stations throughout the project area. The data collection locations for the Devers-Harquahala transmission line study area are Buckeye, Blythe, and Palm Springs. The average maximum temperature for the study area in July is 108 degrees Fahrenheit, and in January is 68 degrees Fahrenheit. The average minimum temperature in July is 75 degrees Fahrenheit, and in January is 38 degrees Fahrenheit. The absolute maximum temperature found in the region was 125 degrees Fahrenheit, and the absolute minimum temperature was 11 degrees Fahrenheit (Western Regional Climate Center 2003).

TABLE 4-26
BASIN GROUNDWATER DATA FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Basin Name County	Basin Description: Size, Major Stream, Water Bearing Material	Well Yields in gpm		Depth Zone in Feet	Storage Capacity in Acre-Feet	Usable Capacity in Acre-Feet	Development	Problems
		Maximum	Average					
Coachella Valley Imperial and Riverside Counties	A 690-square-mile basin drained by the Whitewater River; younger and older alluvium	3,000+	300	100-1,000	39,000,000	3,600,000	Moderate to high for municipal and irrigation use. Limited for domestic use. Natural recharge estimated at about 80,000 acre-feet per year. A potential for limited additional development.	Locally fluoride, sulfate and total dissolved solids (TDS) high for domestic use, boron high for irrigation. Poor quality semi-perched water.
Orcopia Valley Riverside County	A 140-square-mile basin drained by Box Canyon Wash	210	165	200-400	1,500,000	Unknown	Limited for domestic and irrigation use. Natural recharge estimated at about 500 acre-feet per year. A potential for moderate additional development.	Locally fluoride and TDS high for domestic use.
Chuckwalla Valley Imperial and Riverside Counties	A 870-square-mile basin; drainage internal under low surface water flows; younger alluvium	3,900	1,800	20-220	9,100,000	900,000 400-foot pumplift; 100-feet of saturated sediments	Limited for agricultural and domestic use. A potential for limited to moderate additional development.	Locally sulfate, chloride, fluoride, and TDS high for domestic use; boron, TDS, and percent sodium for irrigation use.
Palo Verde Valley, and Riverside Counties	A 200-square-mile basin with drainage to the Colorado River	2,180	670	0-300	4,960,000	Unknown	Moderate for domestic and irrigation use. Natural recharge est. at about 500 acre-feet per year. A potential for limited additional development.	Locally fluoride, chloride, TDS and sulfate high for domestic use, chloride and TDS high for irrigation use. Failing septic tank and leach field

TABLE 4-26
BASIN GROUNDWATER DATA FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Basin Name County	Basin Description: Size, Major Stream, Water Bearing Material	Well Yields in gpm		Depth Zone in Feet	Storage Capacity in Acre-Feet	Usable Capacity in Acre-Feet	Development	Problems
		Maximum	Average					
								system.
Palo Verde Mesa Imperial and Riverside Counties	A 200-square-mile mesa drained by unnamed streams; younger alluvium	2,750	1,659	0-300	6,840,000	Unknown	Limited for domestic and irrigation use. National recharge est. at about 800 AFY. A potential for mod.	Locally arsenic, selenium fluoride, chloride, sulfate, and TDS high for domestic use chloride, buron, and TDS high for irrigation use. Overdraft.
Ranegras Plain and Butler Valley, Yuma County	A 575-square-mile basin drained by Bouse Wash to the Colorado River; younger alluvium	2,000	25 per foot of draw down	0-300	11,060,000	Unknown	Moderate for domestic and irrigation use.	Fluoride high for domestic use. Locally TDS high, only good for salt-tolerant crops.
Harquahala Plain Yuma and Maricopa Counties	A 520-square-mile basin drained by Centennial Wash	Unknown	Unknown	300-400	11,000,000	Unknown	Moderate for domestic and irrigation use.	Fluoride high for domestic use overdraft.

Precipitation data also were collected from the same three stations. Precipitation fluxes follow a general seasonal pattern. The annual average rainfall for the project area is 5.7 inches. A majority of the rain comes in the winter months, with additional localized heavy rain in the summer during the monsoon. Generally, the summer monsoon produces strong dust and electrical storms occasionally accompanied by precipitation in the form of rain. The monsoon is marked by high humidity, over 55 percent, during the summer months. Normally, the region has low humidity the rest of the year.

Finally, wind data were collected from the same three stations. The wind will dictate the amount of ventilation the area receives. A combination of wind speed and mixing depth will determine the amount of lateral and vertical air movement. For the Arizona portion of the study area, there are strong lateral and vertical winds developed from the storms associated with the monsoon. Near the Palm Springs area, the coastal effect forces air through the San Gorgonio Pass, causing sustained winds during the afternoon and evening hours. The average annual wind data are 8, 7.8, and 8.7 miles per hour for the Buckeye, Blythe and Palm Springs data stations, respectively. A summary of the climatology for the study corridor is presented in Table 4-27.

The proposed Devers-Harquahala study corridor is composed of numerous air basins and air quality regulation entities. The Arizona portion is governed by the Arizona Department of Environmental Quality (ADEQ) and contains two primary air quality districts—Maricopa County, governed jointly by ADEQ and Maricopa County, and La Paz County governed by ADEQ. The California portion of the Devers-Harquahala study corridor also crosses two major air basins in California—the Mojave Desert and Salton Sea air basins. The Mojave Desert air basin is governed by the Mojave Desert Air Quality Management District (MDAQMD), which has authority over most of San Bernardino County and an eastern portion of Riverside County. The Salton Sea air basin portion is governed by the South Coast Air Quality Management District (SCAQMD), which has authority over portions of Los Angeles, Riverside, San Bernardino and all of Orange counties.

TABLE 4-27 PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR - CLIMATOLOGY SUMMARY				
Temperature		**Buckeye, AZ**	**Blythe, CA**	**Palm Springs, CA**
Annual Average	max (F)	87.7	82.2	88.7
	min (F)	35.0	55.6	56.8
January	max (F)	67.8	67.6	69.5
	min (F)	34.6	38.2	42.0
July	max (F)	107.1	108.4	108.3
	min (F)	74.4	76.2	74.6
Absolute	max (F)	125.0	122.0	123.0
	min (F)	11.0	18.0	19.0
Precipitation				
Annual Average (inch)		7.6	3.8	5.6
Summer Average (inch)		2.1	0.9	0.6
Winter Average (inch)		2.4	1.5	3.0
Wind				
Annual Average (mph)		8.0	7.8	8.7
Source: Western Regional Climate Center, web page (accessed July 11, 2003).				

The Federal Clean Air Act of 1970 required the Environmental Protection Agency (EPA) to implement ambient air quality standards. The EPA developed a list of standards known as the National Ambient Air Quality Standards (NAAQS). The standards are a list of the maximum levels, given a margin of safety, of background pollution that is considered safe for the health and welfare of the public. The standards are divided into two categories—primary standards, which were developed to protect the health of humans, and secondary standards, which were developed to protect property and agriculture. States have been given the choice to enact air quality standards that are at least as strict as those developed at the federal level. The governing entities for the Arizona portion of the study area have adopted the standards set forth by the EPA. However, the California Air Resources Board (CARB) has implemented standards that are more stringent. A summary of the standards can be found in Table 4-28.

TABLE 4-28
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Air Pollutant	Averaging Time	California Standard	National and Arizona Primary	National and Arizona Secondary
Ozone (O_3)	1 hour	0.09 ppm (180 $\mu g/m^3$)	0.12 ppm (235 $\mu g/m^3$)	0.12 ppm (235 $\mu g/m^3$)
	8 hours		0.08 ppm (157 $\mu g/m^3$)	0.08 ppm (157 $\mu g/m^3$)
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	-
	8 hours	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	-
Nitrogen Dioxide (NO_x)	1 hour	0.25 ppm (470 $\mu g/m^3$)	-	-
	AAM	-	0.053 ppm (100 $\mu g/m^3$))	0.053 ppm (100 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (655 $\mu g/m^3$)	-	-
	3 hours	-	-	0.5 ppm (1300 $\mu g/m^3$)
	24 hours	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$)	-
	AAM	-	0.03 ppm (80 $\mu g/m^3$)	-
Particulate Matter (PM_{10})	24 hours	50 $\mu g/m^3$	150 $\mu g/m^3$	65 $\mu g/m^3$
	AAM	20 $\mu g/m^3$	50 $\mu g/m^3$	15 $\mu g/m^3$
Fine Particulate Matter ($PM_{2.5}$)	24 hours	-	65 $\mu g/m^3$	65 $\mu g/m^3$
	AAM	12 $\mu g/m^3$	15 $\mu g/m^3$	15 $\mu g/m^3$
Lead (Pb)	30 day average	1.5 $\mu g/m^3$	-	-
	calendar quarter	-	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 $\mu g/m^3$)	-	-
Visibility-Reducing Particles	8 hours	Extinction coefficient of 0.23 per kilometer, visibility of 10 miles	-	-

NOTE:
ppm – parts per million by volume
AAM – annual arithmetic mean
$\mu g/m^3$ – micrograms per cubic meter
Source: Arizona Department of Environmental Quality 2003; California Air Resources Board 2003; Environmental Protection Agency 2003

The EPA is required to specially designate areas that fail to meet the standards listed in Table 4-28. The areas that fail to meet the standards are classified as non-attainment. When an area is classified as non-attainment, the regional air quality management agency is required to develop detailed plans to reduce the pollution in that area.

As of June 2003, two of the three counties crossed by the study corridor were listed as non-attainment. Maricopa and Riverside counties were both listed as non-attainment for ozone, carbon monoxide, and particulate matter. All three non-attainment definitions for Maricopa

County were redefined to the Phoenix metropolitan area. The non-attainment status for Riverside County was also redefined. Non-attainment for carbon monoxide is limited to the Los Angeles portion of the South Coast Air Basin (SCAB), and is out of the study area for the proposed Devers-Harquahala transmission line. Non-attainment for ozone was limited to the Los Angeles portion of SCAB and Southeast Desert Modified AQMD. Finally, the particulate matter non-attainment status was limited to SCAB and the Coachella Valley portions of Riverside County according to the EPA (2003); however, all of Riverside County exceeded the standards developed by the state of California (CARB 2003).

4.1.7 Traffic and Transportation

The proposed Devers-Harquahala transmission line route generally parallels I-10 for its entire length, from the Harquahala Switchyard in Arizona, to Devers in California. The proposed transmission line would cross I-10 and other highways and arterials, as described below.

4.1.7.1 Arizona

In Arizona, the proposed Devers-Harquahala study corridor would cross I-10 twice— once in Maricopa County about 5 miles west of Tonopah Road, and once in La Paz County about 4 miles west of the Maricopa County line. The study corridor also would cross SR 95 about 8.5 miles south of the Quartzsite and I-10 interchange. Traffic counts below (Table 4-29) demonstrate average annual daily traffic volume in the areas where the study corridor crosses state and interstate highways. Traffic counts also have been provided along key points of these major travel arterials near the study corridor.

TABLE 4-29 ARIZONA 2003 AVERAGE ANNUAL DAILY TRAFFIC (AADT)		
Road Name/Section	**Distance (in miles)**	**AADT**
SR 95		
County 53rd St. to I-10 frontage road*	5.5	1,700
I-10		
Exit 19 – Quartzsite to Exit 26 – Gold Nugget Road	6.9	21,600
Exit 26 – Gold Nugget Road to Exit 31 – US 60	4.5	25,800
Exit 31 – US 60 to Exit 45 – Vicksburg Road	14.2	26,400
Exit 45 – Vicksburg Road to Exit 81 – Salome Hwy.	35.9	25,400
Exit 81 – Salome Hwy. to Exit 94 – Tonopah*	13.0	25,800
Source: ADOT Transportation Planning Division (2003) *Indicates locations where proposed Devers-Harquahala study corridor crosses state or interstate highways		

4.1.7.2 California

In California, the study corridor passes just south of the town of Blythe, crossing CA 78 about 3 miles west of the Arizona border and generally paralleling the I-10 along the existing DPV1 500kV transmission line. About 7 miles west of the Cottonwood Springs Road exit, the study corridor crosses to the north side of I-10. The route closely parallels the northern side of I-10 before angling slightly north to continue following the existing DPV1 500kV transmission line into Devers. Table 4-30 provides traffic counts in the areas where the corridor crosses I-10 and CA 78, as well as traffic counts along key points of major travel arterials near the study corridor.

4.1.8 Biology

This section summarizes the results of the sensitive plant and wildlife surveys and lists the special status species that could be present within the proposed Devers-Harquahala 500kV transmission line study corridor in Arizona and California. It also describes existing biological conditions of plant and wildlife resources present within the study corridor.

TABLE 4-30 CALIFORNIA 2003 AVERAGE DAILY TRAFFIC (ADT)						
	South or West of Intersection			North or East of Intersection		
Location	Peak Hour	Peak Month ADT	Annual ADT	Peak Hour	Peak Month ADT	Annual ADT
Blythe Area						
US Highway 95 –Palo Verde Diversion Dam exit	200	2,150	1,800	220	2,150	1,800
CA 78 – 28th Avenue to Neighbors Boulevard*	180	1,800	1,600	190	2,250	2,000
CA 78 – Palo Verde Road to 4th/Main Street	500	2,600	1,950	210	2,050	1,750
I-10 at Mesa Drive	2,400	25,000	21,700	2,300	25,000	21,700
I-10 at Wileys Well Rest Area	2,200	23,000	20,000	2,400	25,000	21,700
Coachella Valley						
I-10 at Dillon Road exit	2,700	29,000	25,000	2,400	25,000	22,000
I-10 at Cottonwood Springs Road exit (Box Canyon Road)	2,400	25,000	22,000	2,400	26,000	22,200
Dillon Road south of Landfill Road*	3,642 (daily average, 6/13/01)	NA	NA	NA	NA	NA
Source: CDOT Division of Traffic Operations 2003; Riverside County DOT, Engineering/Planning Division 2004 *Indicates locations where proposed Devers-Harquahalas study corridor crosses state or interstate highways						

Methods

Field surveys for sensitive species in Arizona and California conducted in 2002 and 2003 were performed in a manner similar to that employed in previous surveys in 1987 and 1994 (Smith 1987 and EPG 2003). The survey method called for biologists to visit each tower site, laydown site, access road, and spur road along the proposed Devers-Harquahala transmission line corridor, and record observations of sensitive species. Sensitive species occurrences were plotted on field data sheets that depict tower locations on a grid in which each grid cell represents a distance of 6 feet. Surveys were conducted for a 10,000-square-foot (100 foot by 100 foot) area centered on the center survey stake for each proposed tower. In addition to recording data at road and tower sites, field biologists recorded pertinent wildlife observations. In Arizona, the primary concern along the route is protected native plant species including various species of cacti, ocotillo (*Fouquieria splendens*), ironwood (*Olneya tesota*), paloverde (*Parkinsonia* spp.), and

mesquite (*Prosopis* spp). Potential habitat for cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) in Arizona was noted. Sonoran population desert tortoise (*Gopherus agassizii*) sign also was noted when observed. The route also passes through desert bighorn sheep habitat in the New Water Pass area and the Dome Rock Mountains.

The Sonoran population of desert tortoise in Arizona is considered sensitive by the BLM. The BLM has designated three categories of desert tortoise habitat on BLM land. The following four criteria are used to group tortoise habitat into the three categories: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) desert tortoise density, and (4) population status (stable, increasing, or decreasing). BLM aims to maintain viable desert tortoise populations in Category 1 and 2 habitats, and limit population declines in Category 3 habitats (Arizona Interagency Desert Tortoise Team 1996). BLM designated desert tortoise habitat that falls within the study area is depicted in Maps 4-5a-c (end of Chapter 4).

In California, there are numerous species of state and federally listed plants and animals that could potentially be affected by construction of the proposed transmission line between the Colorado River and Devers. In California these include Mojave population desert tortoise and the Coachella Valley fringe-toed lizard (*Uma inornata*). USFWS has designated critical habitat for both of these species. Additionally, BLM has created ACECs for the management and protection of these two species. These areas of critical habitat and the ACECs within the study corridor are depicted in Maps 4-5c-e (end of Chapter 4).

An assessment of habitat conditions was also undertaken at the Valley Substation. The facilities would be installed within the existing substation property. The substation property has been previously disturbed, and no endangered or threatened wildlife or plant species, or otherwise sensitive species are present or would be expected to occur at the site.

New telecommunications system facilities (described in Section 3.4.2) would be installed at, or adjacent to, existing telecommunications sites. Facilities would be installed on existing properties at the Black Peak, Smith Peak, and Harquahala Mountain communication sites and

within existing properties at Devers, Mirage, and Harquahala Generating Station substations. The new Blythe Optical Repeater facility would be constructed within the proposed Devers-Harquahala 500kV right-of-way in California.

The new series capacitor bank sites in Arizona and California would be located adjacent to the existing DPV1 capacitor banks. Descriptions provided in Sections 4.1.8.1 and 4.1.8.2 of existing vegetation and wildlife resources within the Devers-Harquahala study corridor includes the telecommunication and series capacitor sites.

4.1.8.1 Arizona

Vegetation

The project study area lies within the Lower Colorado River Valley Subdivision of the Sonoran Desert and is frequently referred to as the "Colorado Desert" (Jaeger 1941; Raven and Axelrod 1978; Turner and Brown 1982). The Lower Colorado River Valley Subdivision characteristically covers broad alluvial valley floors and is usually dominated by creosote bush (*Larrea tridentata*) in association with white bursage (*Ambrosia dumosa*) on gravelly soils, and with big galleta grass (*Pleuraphis rigida*) on finer textured soils. Washes that dissect valley bottoms of creosote bush scrub may support woodland-like communities of blue paloverde (*Parkinsonia florida*), ironwood, and several species of shrubs where soils are coarse and rocky. Where soils are finer textured, mesquite may occur as a dominant. Washes may be dominated by more shrubby species such as white burrobrush (*Hymenoclea salsola*), smoketree (*Psorothamnus spinosus*), and sweetbush (*Bebbia juncea*).

In the western portions of the Sonoran Desert (i.e., western Arizona and eastern California), floral elements that are characteristic of the Lower Colorado River Valley Subdivision (e.g., creosote bush) are frequently the dominant species on rocky mountain slopes and bajadas as well

as in the alluvial valleys. This dominance is particularly true on hills derived from young, volcanic rock (Turner and Brown 1982).

In western Arizona, in the vicinity of mountain ranges (e.g., Dome Rock, New Water, Plomosa, and Eagletail mountains and associated uplands), elements of the Arizona Upland Subdivision of the Sonoran Desert become an integral part of the flora as mixed paloverde-cacti communities. Desert mountain ranges in western Arizona (i.e., west of a line drawn between Buckeye and Gila Bend and south of I-10) are largely ecotonal between the Lower Colorado River Valley and Arizona Uplands subdivisions of the Sonoran Desert. In these mountains, characteristic Arizona Upland community types (i.e., mixed paloverde-cacti) are rather strongly restricted to drainageways, with Lower Colorado River Valley Subdivision communities (i.e., creosote bush communities) dominating on interfluvial areas.

This distinction is clearly visible on the bajadas on the west side of the Dome Rock and Plomosa mountains, on the north side of the New Water Mountains, and on the east side of the Eagletail Mountains. In each of these ranges, there tends to be well-developed communities of foothill paloverde (*Parkinsonia microphylla*), ironwood, and a variety of cacti, including saguaro (*Carnegiea gigantea*), on the bajadas. Examination of the situation, however, reveals that these communities are almost wholly restricted to drainages, including the smallest runnels, rather than being evenly distributed. Between the drainageways, the landscape is dominated by Lower Colorado River Valley Subdivision communities of creosote bush and bursage, with several species of cholla (*Opuntia* spp.), small columnar cacti, and prickly pear cacti. The arborescent communities tend to follow drainages upslope, frequently giving hillsides the appearance of being true mixed paloverde-cacti communities, when in fact the interstitial landscape is dominated by creosote bush, bursage, and white brittlebush (*Encelia farinosa*). Perhaps the finest example of this situation in the study area occurs on the west slope of the southern Plomosa Mountains (west New Water Mountains), between Gold Nugget Road and Quartzsite, where one has the distinct impression that lands south of I-10 are wholly dominated by woodlands of paloverde, ironwood, and saguaro. Viewed from the air, however, it is clear that these species are totally riparian and do not occur on interwash sites.

Creosote bush communities in the Arizona study area strongly dominate alluvial valley bottoms and are often the dominant vegetation type on mountain slopes. In the western part of the Arizona study area, west from approximately the central Plomosa/New Water Mountain complex, creosote bush communities are found on highly varnished desert pavement, while in the eastern part of the study area (e.g., the Harquahala and Ranegras plains), they occur on fine textured to gravelly soils.

Wash communities in the Arizona study area vary in species dominance depending on soil type. Washes that traverse broad creosote bush flats on fine soils (e.g., Centennial Wash) tend to be dominated by mesquite. Washes traversing rockier soil types support communities of ironwood, paloverde, saguaro, and a variety of shrubs. Smoketree, white burrobrush, and sweetbush are common in larger washes away from major mountain masses. For example, the large washes that drain the west side of the Dome Rock Mountains are dominated by smoketree and burrobrush at their lower ends.

Cacti are a common feature within the Arizona study area. Most species are restricted to rockier, upland conditions, although at least one, the night-blooming cereus, is rather strongly restricted to creosote bush flats with fine soils. Mountain slopes, hills, and rocky outcrops provide habitat for several species of cholla, prickly pear , and columnar cacti. The saguaro tends to become less common from east to west in the study area, and it probably does not occur at all in the study area west of the Colorado River. This obvious decrease in saguaro density is probably related to the diminution of summer rainfall from east to west in Arizona.

Special Status Plant Species – Arizona

The federal government uses the following definitions in its current or proposed listings of plants and animals (Endangered Species Act 1973).

Endangered: A species that is in danger of extinction throughout all or a significant portion of its range.

Threatened: A species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Proposed: A species that has been proposed for listing as threatened or endangered, but the status has not been finalized.

Species of Concern: Species that are believed to be declining in population, but insufficient data exist for classification as threatened or endangered (includes most species that were listed as candidates under the former classification system).

The State of Arizona has four categories for special status plants as follows.

Highly Safeguarded: Species of native plants whose prospects for survival in Arizona are in jeopardy or those that are in danger of extinction.

Salvage Restricted: Species of native plants that are not included in the highly safeguarded category but are subject to damage by theft or vandalism. All species in the families Agavaceae, Cactaceae, Liliaceae, and Orchidaceae are salvage restricted protected native plants, unless listed as highly safeguarded.

Salvage Assessed: Species of native plants that are not included in either the highly safeguarded or salvage restricted categories but have a sufficient value if salvaged to support the cost of salvage.

Harvest Restricted: Species of native plants that are not included in the highly safeguarded category but are subject to excessive harvesting or overcutting because of their intrinsic value.

The ANPL extends protection to nearly 200 species of plants, including all Liliaceae (including *Yucca*, *Nolina*, *Hesperocallis*, and *Allium*) and all plants within the families Agavaceae, Crassulaceae, Cactaceae and Orchidaceae. Also protected by the ANPL are ocotillo, desert holly (*Atriplex hymenelytra*), smoketree (*Psorothamnus spinosus*), crucifixion thorn (*Castela emoryi*), Mexican jumping bean (*Sebastiana bilocularis*), mesquite, paloverde, ironwood, and elephant tree (*Bursera microphylla*).

The ANPL does not prevent the clearing of land for a project such as the proposed transmission line, provided the Arizona Department of Agriculture is notified at least 60 days prior to the clearing of land so that affected plants may be salvaged.

Following literature review and consultation with the BLM and Arizona Game and Fish Department (AGFD), initial field surveys for sensitive plant species were conducted in 1985 within the Arizona portions of the preferred and alternate transmission line corridors. Five species considered sensitive at that time were found during field surveys along the preferred corridor in Arizona. These species were California snake bush (*Colubrina californica*), woollyheads (*Nemacaulis denudata*), Wiggins cholla (*Opuntia wigginsii*), night-blooming cereus (*Peniocereus greggii*), and Hall shrub spurge (*Tetracoccus hallii*). None of these species is currently included on the sensitive species lists for Maricopa or La Paz counties in Arizona (AGFD 2003).

Plant species currently listed as threatened, endangered, or sensitive and known to occur in Maricopa or La Paz counties are listed in Table 4-31 (AGFD 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This list includes numerous species that were not considered sensitive in 1985. Several species from that time are no longer listed as sensitive, and are not included in Table 4-31. Species for which pre-construction surveys are recommended, or may be required, are noted.

TABLE 4-31
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Abutilon parishii	Pima Indian mallow	FSC, BLM, SR	None	No
Agave arizonica	Arizona agave	FE, HS	None	No
Agave delamateri	Tonto Basin agave	FSC, HS	None	No
Agave murpheyi	Hohokam agave	FSC, BLM, HS	None	No
Agave toumeyana var. *bella*	Toumey agave	SR	None	No
Allium bigelovii	Bigelow onion	SR	None	No
Berberis harrisoniana	KOFA barberry	BLM	Low	No
Cirsium mohavense	Mojave thistle	BLM	Low	No
Ephedra funerea	Death Valley Mormon tea	BLM	Moderate	Yes
Erigeron piscaticus	Fish Creek fleabane	FSC, BLM, SR	None	No
Eriogonum ripleyi	Ripley wild buckwheat	FSC, SR	None	No
Fremontodendron californicum	Flannel bush	BLM, SR	Low	No
Mammillaria viridiflora	Varied fishhook cactus	SR	None	No
Opuntia echinocarpa	Straw-top cholla	SR	High	No
Opuntia engelmannii var. *flavispina*	Engelmann prickly pear	SR	Low	No
Peniocereus greggii var. *transmontanus*	Night-blooming cereus	SR	High	No
Perityle saxicola	Fish Creek rock daisy	FSC	None	No
Pholisma arenarium	Scaly sandplant	BLM, HS	Low	No
Purshia subintegra	Arizona cliffrose	FE, HS	None	No
Tumamoca macdougalii	Tumamoc globeberry	BLM, SR	None	No
Vauquelinia californica ssp. *Sonorensis*	Arizona rosewood	BLM	Low	No

Status Codes:
BLM - BLM (Arizona) Sensitive species.
FE – Federally Endangered
FSC – Federal Species of Concern
HS - Highly Safeguarded (ANPL, 1993)
SR - Salvage Restricted (ANPL, 1993)

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution.

Survey Results of the 2003 Special Status Plant Survey within the Proposed Devers-Harquahala Study Corridor in Arizona

In Arizona, 19 plant species that receive protection under the Arizona Native Plant Law (ANPL) were found on tower sites and access roads within the proposed DPV2 corridor. These species were recorded during field surveys in 2002 and 2003 (see Table 4-32 for the total number of individuals of each species found). It is quite likely that many of these individuals could be avoided during construction of the proposed transmission line.

TABLE 4-32
TOTAL NUMBER OF ANPL-LISTED PLANTS, BY SPECIES, FOUND ALONG THE ARIZONA PORTION OF THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Number of Individuals
Agave deserti	Desert agave	10
Carnegiea gigantea	Saguaro	360
Castela emoryi	Crucifixion thorn	1
Coryphantha sp.	Beehive cactus	12
Echinocereus engelmannii	Engelmann's hedgehog cactus	51
Ferocactus cylindraceus	California barrel cactus	47
Fouquieria splendens	Ocotillo	1,044
Hesperocallis undulata	Desert lily	5
Mammillaria grahamii var. *grahamii*	Fishhook pincushion	27
Olneya tesota	Ironwood	529
Opuntia basilaris	Beavertail prickly pear	14
Opuntia bigelovii	Teddy bear cholla	1,289
Opuntia echinocarpa	Straw-top cholla	1,544
Opuntia leptocaulis	Christmas cactus	30
Opuntia ramosissima	Diamond cholla	342
Opuntia sp.	Cholla	2
Parkinsonia florida	Blue paloverde	11
Parkinsonia microphylla	Foothill paloverde	853
Prosopis velutina	Velvet mesquite	1,122

Source: EPG 2003

In addition to the special status plant species, other significant resources were also recorded. Existing DPV1 towers were noted when either raptors or ravens (*Corvuscorax*) had built stick nests in them. If any additional detail was observed, such as which species of bird was nesting or

the number of individuals present, this was recorded as well. Sonoran desert tortoise sign was also noted when found.

Wildlife

Vertebrate wildlife that is present within the Devers-Harquahla study corridor in Arizona consists of mammals, birds, amphibians, and reptiles that are characteristic of arid Sonoran Desert lowland and low mountain range plant communities and soil types.

Mammals

The mammalian fauna of the Devers-Harquahala study corridor in Arizona is composed primarily of small, nocturnal species of bats and rodents, including the highly desert-adapted Heteromyid pocket mice (*Perognathus* sp. and *Chaetodipus* sp.) and kangaroo rats (*Dipodomys* sp.). Owing to the presence of many mine shafts, adits, other prospects, natural caves, cliffs, and clefts in rock walls, it is likely that several species of bats are residents of portions of the study corridor. Bats certainly forage throughout the length of the corridor in Arizona. Diurnal species present include black-tailed jack rabbit (*Lepus californicus*), Harris antelope ground squirrel (*Ammospermophilus harrisii*) and rock squirrel (*Spermophilus variegatus*). Desert mule deer (*Odocoileus hemionus*) are present sparingly in foothills and along major washes. Desert bighorn sheep (*Ovis canadensis mexicana*) are fairly common in the KOFA, New Water, and Plomosa Mountains. Smaller populations occupy the Livingston Hills and the Dome Rock Mountains. The ubiquitous coyote (*Canis latrans*) is likely to be encountered almost anywhere within the Arizona portion of the study corridor.

Birds

It is likely that more than 75 species of birds could be found in the Sonoran Desert portions of the study corridor over the course of a year's time including vultures, hawks, quail, doves, roadrunner, owls, goatsuckers, swifts, hummingbirds, woodpeckers, and a fairly diverse array of songbirds (flycatchers, larks, swallows, wrens, gnatcatchers, mockingbird, thrashers, shrike, vireos, warblers, orioles, tanagers, grosbeaks, finches, and sparrows). The presence of the Colorado River with its associated aquatic, wetland, and riparian habitats adds tremendously to the overall diversity of the avifauna of the Arizona portion of the study corridor. Many species of waterfowl, shorebirds, wading birds, and piscivores are present because of the river.

Amphibians

Away from the Colorado River, the only amphibians likely to be present in the Devers-Harquahala study corridor are the highly adapted toads and spadefoot toads that appear on the desert floor in response to summer monsoon rainfall. These species spend most of the year sequestered in rodent burrows or well dug into the soil awaiting the summer rains. When rainfall is sufficient, the toads emerge to breed in temporary rainfall pools and stock tanks. Species likely to be present include Couch's spadefoot (*Scaphiopus couchii*), Great Plains toad (*Bufo cognatus*), Sonoran Desert toad (*B. alvarius*), and red-spotted toad (*B. punctatus*). Owing to the presence of the Colorado River, very aquatic species such as the introduced bullfrog (*Rana catesbiana*) occur in the project area.

Reptiles

Depending on substrate, a fairly diverse group of lizards and snakes may be found in habitats traversed by the Devers-Harquahala study corridor. Fine, sandy soils are likely to host such species as banded sand snake (*Chilomeniscus cinctus*), sidewinder (*Crotalus cerastes*), and

desert iguana (*Dipsosaurus dorsalis*). Rocky slopes, outcrops, and washes support a different herpetofauna that includes such species as long-tailed brush lizard (*Urosaurus graciosus*), chuckwalla (*Sauromalus obsesus*), desert spiny lizard (*Sceloporus magister*), desert horned lizard (*Phrynosoma platyrhinos*), western whiptail (*Cnemidophorus tigris*), desert glossy snake (*Arizona elegans*), and many more. The aquatic habitats associated with the Colorado River make possible the presence of introduced aquatic species such as the spiny softshell (*Trionyx spinifera*).

Special Status Wildlife – Arizona

A number of wildlife species that have been accorded special status, highlighting concern for their continued existence in the state and/or nation, are known to occur within the Arizona portion of the Devers-Harquahala study corridor. In addition to the federal lists of threatened, endangered, and status review species, the AGFD maintains a list of threatened native wildlife in Arizona. Formerly, this list included several different categories reflecting varying degrees of concern, but the current list recognizes only a single category, wildlife of special concern.

Wildlife species currently listed as threatened, endangered, or sensitive and known to occur in Maricopa or La Paz counties are listed in Table 4-33 (AGFD 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This list includes numerous species that were not listed in 1985, and several species from that time are no longer listed. Species accounts for wildlife that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted in the table.

TABLE 4-33
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
INVERTEBRATES				
Sonorella allynsmithi	Squaw peak talussnail	FSC	None	No
Cicindela oregona maricopa	Maricopa tiger beetle	FSC, BLM	None	No
FISH				
Gila robusta	Roundtail chub	FSC, WSC	None	No
Gila elegans	Bonytail chub	FE, WSC	Low	No
Agosia chrysogaster	Longfin dace	FSC, BLM	None	No
Rhinichthys osculus	Speckled dace	FSC, BLM	None	No
Catostomus insignis	Sonora sucker	FSC, BLM	None	No
Catostomus clarki	Desert sucker	FSC, BLM	None	No
Xyrauchen texanus	Razorback sucker	FE, WSC	Low	No
Poeciliopsis occidentalis occidentalis	Gila topminnow	FE, WSC	None	No
AMPHIBIANS				
Bufo microscaphus microscaphus	Arizona toad	FSC	None	No
Pternohyla fodiens	Lowland burrowing treefrog	WSC	None	No
Rana yavapaiensis	Lowland leopard frog	FSC, WSC	Low	No
Gastrophryne olivacea	Great Plains narrowmouth toad	WSC	None	No
REPTILES				
Gopherus agassizii	Desert tortoise (Sonoran population)	FSC, WSC	High	No[1]
Sauromalus ater	Arizona chuckwalla	FSC, BLM	Moderate	No
Uma scoparia	Mojave fringe-toed lizard	WSC	Moderate	No
Eumeces gilberti arizonensis	Arizona skink	FSC, WSC, BLM	Low	No
Cnemidophorus xanthonotus	Red-backed whiptail	FSC, BLM	Low	No
Heloderma suspectum cinctum	Banded Gila monster	FSC, P	Moderate	No
Charina trivirgata gracia	Desert rosy boa	FSC, BLM	Moderate	No
Thamnophis eques megalops	Mexican garter snake	FSC, WSC	None	No
BIRDS				
Ixobrychus exilis hesperis	Western least bittern	FSC, WSC	Moderate	No
Ardea alba	Great egret	WSC	High	No
Egretta thula	Snowy egret	FSC, WSC	Moderate	No
Plegadis chihi	White-faced ibis	FSC	Moderate	No

TABLE 4-33
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Dendrocygna autumnalis	Black-bellied whistling duck	WSC	None	No
Ictinia mississippiensis	Mississippi kite	WSC	None	No
Haliaeetus leucocephalus	Bald eagle	FT, WSC	Moderate	No
Buteogallus anthracinus	Common black hawk	WSC	None	No
Falco peregrinus anatum	Peregrine falcon	FSC, WSC	Low	No
Laterallus jamaicensis coturniculus	California black rail	FSC, WSC	None	No
Rallus longirostris yumanensis	Yuma clapper rail	FE, WSC	Low	No
Charadrius alexandrinus nivosus	Western snowy plover	FT, WSC	Low	No
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, WSC	Low	No
Glaucidium brasilianum cactorum	Cactus ferruginous pygmy-owl	FE, WSC	Low	Yes
Athene cunicularia hypugaea	Western burrowing owl	FSC, BLM	Low	No
Strix occidentalis lucida	Mexican spotted owl	FT, WSC	None	No
Empidonax traillii extimus	Southwestern willow flycatcher	FE, WSC	Low	No
Lanius ludovicianus	Loggerhead shrike	FSC, BLM	Moderate	No
MAMMALS				
Macrotus californicus	California leaf-nosed bat	FSC, WSC, BLM	Moderate	No
Leptonycteris curasoae yerbabuenae	Lesser long-nosed bat	FE, WSC	None	No
Myotis yumanensis	Yuma myotis	FSC	Low	No
Myotis velifer	Cave myotis	FSC, BLM	Low	No
Myotis lucifugus occultus	Occult little brown bat	FSC, BLM	Low	No
Lasiurus borealis	Red bat	WSC	Low	No
Lasiurus xanthinus	Western yellow bat	WSC	Moderate	No
Euderma maculatum	Spotted Bat	FSC, WSC, BLM	Low	No
Plecotus townsendii pallescens	Pale big-eared bat	FSC, BLM	Moderate	No
Nyctinomops femorosaccus	Pocketed free-tailed bat	BLM	Low	No
Eumops perotis californicus	Greater western mastiff bat	FSC, BLM	None	No
Lontra canadensis sonora	Southwestern river otter	FSC, WSC	Low	No
Puma concolor browni	Yuma puma	FSC, WSC	Low	No
Antilocapra americana sonoriensis	Sonoran pronghorn	FE, WSC	None	No

TABLE 4-33
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Ovis canadensis mexicana	Desert bighorn sheep	None	High	No[2]

Status Codes:
BLM - BLM Sensitive Species
FE – Federally Endangered
FT – Federally Threatened
FSC – Federal Species of Concern
WSC – Wildlife of Special Concern in Arizona
P – Proposed BLM Sensitive Species

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable or potential habitat, or far from known distribution.
[1] Pre-construction surveys for tortoises would not be required since tortoises are known to be present along the corridor, and a biological monitor will be present during construction within tortoise habitat. All project personnel will attend a pre-construction tortoise training class.
[2]Bighorn currently have no listed status in Arizona, but are a managed big game animal species.

4.1.8.2 California

Vegetation

Within the California study area, the primary native vegetation type is creosote bush scrub, which is present along the entire length of the preferred route. On rocky hills and mountain slopes, creosote bush is also a dominant species, but it is frequently replaced by aspect-dominant species such as white brittlebush on south-facing slopes and white bursage on north-facing slopes. Common associates of creosote bush are white bursage on coarse soils and big galleta grass on finer soils.

Ocotillo is common on stony bajadas, which are present from the Little San Bernardino Mountains eastward through the Chuckwalla Mountains. On the finer soils of the Coachella Valley, desert croton (*Croton californicus*), Palmer coldenia (*Tiquilia palmeri*), plicate coldenia (*Tiquilia plicata*), indigo bush (*Psorothamnus schottii*), and Emory dalea (*Psorothamnus emoryi*)

are co-dominants with creosote bush. Tall dunes of windblown sand, dominated by mesquite, occur locally southeast and northwest of the Indio Hills and just west of Myoma.

Washes that dissect creosote bush scrub habitat in the western part of the California study area, (e.g., west of Cactus City) are dominated by white burrobrush and desert lavender (*Hyptis emoryi*) on rocky soils and by white burrobrush and smoketree on finer soils. In the eastern portions of the California study area, the same species occur in washes, but there tends to be a much greater presence of arborescent species (blue paloverde, ironwood, and some mesquite). This setting often creates the impression that valley bottoms are wholly dominated by woodlands of such species as at Shavers Valley near Chiriaco Summit, Desert Center turnoff at I-10, and in the eastern Chuckwalla Valley north of the Little Chuckwalla Mountains. However, examination of such woodlands shows that the trees are largely restricted to washes, including the numerous, anastomosing minor washes and runnels that drain into larger washes. Creosote bush and its associates generally dominate interwash portions of these areas. In areas where washes are particularly abundant, such as portions of the eastern Chuckwalla Valley, major wash complexes dominated by paloverde and ironwood are present.

In the Palo Verde Valley, where the proposed route crosses the Colorado River, riparian habitats dominated by salt cedar (*Tamarix ramosissima*) and honey mesquite (*Prosopis glandulosa*) are present in areas that have not been developed for agricultural uses. Saltbush (*Atriplex* spp.) communities also occur locally in the Palo Verde Valley, but most of these have been removed as the land was converted to agricultural use. Local wetlands, mostly created by irrigation water and other agriculturally related activities, also exist in the Palo Verde Valley. Such wetlands often take the form of small ponds, sloughs, and ditches, and they often support stands of southern cattail (*Typha domingensis*) and/or bulrush (*Scirpus* spp.).

Vegetation along the Colorado River at the crossing of the proposed route is generally dominated either by mesquite or salt cedar. There are local occurrences of Fremont cottonwood (*Populus fremontii*) and willow (*Salix* sp.) along the river in the general vicinity. Honey mesquite is the most common mesquite along the river, but screwbean mesquite (*Prosopis pubescens*) is present

locally. Common associates of salt cedar and mesquite are arrowweed (*Pluchea sericea*) and saltbush.

Accompanying the short tree to shrub-dominated salt cedar and mesquite communities, there are some local occurrences of emergent plant communities associated with sloughs, ponds, and isolated oxbows of the Colorado River. These emergent communities are dominated by cattail (*Typha* sp.) and bulrush. There are no major emergent or marshland communities within 1 mile of the proposed Devers-Harquahala 500kV transmission line crossing of the Colorado River.

In addition to perennial plant species, both the California and Arizona portions of the study area are hosts to a large number of annual or ephemeral species of plants. Most of these species appear in the late winter and early spring following periods of suitable rainfall. Shreve and Wiggins (1964) list 109 ephemeral species that occur in the Arizona Upland Subdivision of the Sonoran Desert and 44 that are characteristic of the Lower Colorado River Valley Subdivision. There is some overlap in these two lists, which include members of the families Poaceae, Polygonaceae, Papaveraceae, Crassulaceae, Fabaceae, Onagraceae, Polemoniaceae, Hydrophyllaceae, Boraginaceae, and Asteraceae. During particularly favorable years, spectacular blooms of ephemeral species may occur locally in the study area. In years of little rainfall, the bloom may not occur at all.

Special Status Plant Species – California

Special status plant species in the California portion of the Devers-Harquahala study corridor fall into the following categories:

- species listed by the federal government as threatened, endangered, or under review for inclusion on lists as threatened or endangered species

- species listed by the State of California as rare, threatened, or endangered under the California Endangered Species Act

- species considered species of concern by the CDFG

- species included on one or more of the lists published by the CNPS and CDFG

- species included for protection under the CDNPA

In addition to state and federal listings of sensitive plant species, the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) includes five species of plants all of which are included in Table 3-34. Of these plants, only the Mecca aster has status under the CVMSHCP only; all others have state and/or federal status as well. The Western Riverside County MSHCP addresses nearly 120 species of plants many of which also appear in Table 3-34.

The CNPS maintains lists of extant plant species of different degrees of sensitivity. List 1B includes plant species that are rare and endangered in California, and they also are rare elsewhere. Plant species in List 2 are rare or endangered in California, but they are more common elsewhere. Plants species for which more information is needed are included in List 3. List 4 includes those plant species with limited distribution.

The CDNPA was enacted in 1981 with the intent of protecting native desert plants from unlawful harvesting on both public and private land, and to provide the people of California with the necessary information to legally harvest native plants so as to ultimately transplant such plants with the greatest possibility of success. The CDNPA specifically extends protection to ironwood, mesquite, and paloverde trees, most Cactaceae, all Burseraceae, Agavaceae, Fouquieriaceae, and the following species not included in one of the preceding families: crucifixion thorn, Panamint dudleya (*Dudleya saxosa*), fan palm (*Washingtonia filifera*), catclaw acacia (*Acacia greggii*), desert holly, and smoketree.

As with the ANPL, the CDNPA is aimed primarily at preventing the commercial exploitation of native plants. It is expressly stated that the provisions of the CDNPA are not intended to prevent public or private utility companies from acting in the performance of their obligations to provide services to the public (California State Food and Agriculture Code, Division 23, Chapters 1-8).

Following literature reviews and consultation with the BLM, USFWS, National Park Service, and Rancho Santa Ana Botanical Gardens, initial field surveys for sensitive plants were conducted in 1985 within the California portions of the proposed and alternate transmission line corridors. Five of the species considered sensitive at that time were found during field surveys conducted in 1985 within 500 feet on either side of the centerline of the existing DPV1 transmission line in California. These species were cushion foxtail cactus, California barrel cactus (*Ferocactus cylindraceus*), Coachella Valley milkvetch (*Astragalus lentiginosus coachellae*), California silverbush (*Argythamnia californica*), and desert unicorn plant (*Proboscidea althaeifolia*). Of these species, only the Coachella Valley milkvetch is on the current list of sensitive species in Riverside County (CDFG 2003).

Plant species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-34 (CDFG 2003). This table includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This table includes numerous species that were not listed as sensitive in 1985. Species accounts for plants that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted on the table.

TABLE 4-34
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Allium munzii	Munz's onion	FE, CT, WR	None	No
Ambrosia pumila	San Diego ambrosia	FE, BLM, WR	None	No
Arenaria paludicola	Marsh sandwort	FE, CE,	None	No
Astragalus lentiginosus var. *coachellae*	Coachella Valley milk-vetch	FE, CEQA, CV	High	Yes
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	CEQA, WR	None	No
Astragalus tricarinatus	Triple-ribbed milk-vetch	FE, CEQA, CV	Low	Yes
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	FE, WR	None	No
Brodiaea filifolia	Thread-leaved brodiaea	FT, CE	None	No
Brodiaea orcuttii	Orcutt's brodiaea	BLM, WR	None	No
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	FSC, WR	None	No
Calochortus plummerae	Plummer's mariposa	CEQA, WR	None	No
Ceanothus ophiochilus	Vail Lake ceanothus	FT, CE, WR	None	No
Chamaesyce platysperma	Flat-seed sandmat	BLM	Low	No
Chorizanthe parryi var. *parryi*	Parry's spineflower	CEQA, WR	None	No
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CEQA, WR	None	No
Chorzanthe xantii var. *leucotheca*	White-bracted spineflower	CEQA, WR	Low	No
Delphinium hesperium ssp. *cuyamacae*	Cuyamaca larkspur	CR	None	No
Dodecahema leptoceras	Slender-horned spineflower	FE, CE, WR	None	No
Dudleya multicaulis	Many stem live-forever	CEQA, BLM, WR	None	No
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	FE, CE, WR	None	No
Erigeron parishii	Parish's daisy	FT, WR	None	No
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE, CE, WR	None	No
Escobaria alversonii	Cushion foxtail cactus	FSC	High	Yes[1]
Euphorbia misera	Cliff spurge	CEQA, WR	None	No
Galium californicum ssp. *primum*	California bedstraw	BLM, WR	None	No
Gilia maculata	Little San Bernardino Mts. linanthus	CEQA, BLM, CV	Low	Yes
Hemizonia mohavensis	Mojave tarplant	FSC, CE, WR	None	No
Ivesia callida	Tahquitz ivesia	CR, WR	None	No
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CEQA, WR	None	no
Limnanthes gracilis ssp. *parishii*	Parish's meadowfoam	FSC, CE, WR	None	No
Linanthus orcuttii	Orcutt's linanthus	BLM, WR	None	No
Mahonia nevinii	Nevin's barberry	FE, CE, WR	None	No
Mondardella pringlei	Pringle's coyote-mint	CEQA, WR	None (Extinct?)	No
Monardella robisonii	Robison monardella	BLM	None	No

TABLE 4-34
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Myosurus minimus ssp. *apus*	Little mousetail	FSC, WR	None	No
Navarretia fossalis	Spreading navarretia	FT, WR	None	No
Navarretia prostrata	Prostrate navarretia	FSC	None	No
Nemacaulis denudata var. *gracilis*	Slender woollyheads	CEQA	None	No
Opuntia munzii	Munz cholla	BLM	None	No
Orcuttia californica	California Orcutt grass	FE, CE, WR	None	No
Salvia greatae	Orocopia sage	CEQA, CV	None	No
Sidalcea neomexicana	Salt-spring checkerbloom	CEQA, WR	None	No
Tetracoccus dioicus	Parry's tetracoccus	BLM, WR	None	No
Trichocoronis wrightii var. *wrightii*	Wright's button	CEQA, WR	None	No
Trichostema austromontanum ssp. *Compactum*	Hidden Lake bluecurls	FT, WR	None	No
Xylorhiza cognata	Mecca Aster	CVMSHCP	None	No

Status Codes:
FE – Federally Endangered
FT – Federally Threatened
FSC – Federal Species of Concern
CE – California Endangered
CT – California Threatened
CR – California Rare
CVMSHCP – Coachella Valley Multiple Species Habitat Conservation Plan listing only
CV – Coachella Valley Multiple Species Habitat Conservation Plan
WR – Western Riverside County Multiple Species Habitat Conservation Plan

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution.

[1]A pre-construction survey for this species is recommended since its presence along the corridor is known, and locating individual plants would allow for adjustment of tower foundations to avoid the plants. Alternatively, plants could be moved.

Survey Results of 2003 Special Status Plant Survey within the Proposed Devers-Harquahala Study Corridor in California

In California, 14 species of plants protected under the California Desert Native Plant Act (CDNPA) were found in surveys of tower sites and access roads along the proposed Devers-

Harquahala study corridor in 2002 and 2003. See Table 4-35 for the total number of individuals of each species found.

TABLE 4-35
TOTAL NUMBER OF CDNPA-LISTED PLANTS, BY SPECIES, FOUND ALONG THE CALIFORNIA PORTION OF THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Number of Individuals
Acacia greggii	Catclaw acacia	97
Echinocereus engelmannii	Engelmann's hedgehog cactus	10
Echinocactus polycephalus	Cottontop barrel cactus	4
Ferocactus cylindraceus	California barrel cactus	40
Fouquieria splendens	Ocotillo	128
Mammillaria grahamii var. *grahamii*	Fishhook pincushion	2
Olneya tesota	Ironwood	230
Opuntia basilaris	Beavertail prickly pear	103
Opuntia bigelovii	Teddybear cholla	81
Opuntia echinocarpa	Straw-top cholla	279
Opuntia ramosissima	Diamond cholla	547
Opuntia wigginsii	Wiggins' cholla	66
Parkinsonia florida	Blue paloverde	394
Psorothamnus spinosus	Smoketree	127

In addition to CDNPA-listed plants, the survey also included a search for federal and state protected plant species. Four individuals of Coachella Valley milkvetch, a federally listed endangered species, were found in areas of aeolian sands in Coachella Valley. Twenty-nine individuals of the cushion foxtail cactus (*Escobaria alversonii*), a federal species of concern, were found in cobbly rocky areas near the Cottonwood and Chuckwalla mountains. Burrows, sign, and live sightings of Mojave desert tortoise were recorded as well. Also, all existing DPV1 towers were noted when either raptors or ravens had built stick nests in them. When the status of the nest could be determined, this information was collected as well.

Wildlife

The California portion of the Devers-Harquahala study corridor begins on the west bank of the Colorado River. The wildlife of this portion of the study corridor is composed of mammals, birds, amphibians, and reptiles that are adapted to life in the harsh, arid deserts that characterize eastern and southern California.

Mammals

The mammalian fauna of the California portion of the Devers-Harquahala study corridor is dominated by small, nocturnal species of rodents and bats. As in the Arizona portion of the corridor, the Heteromyid pocket mice and kangaroo rats are the most common rodents. Owing to an absence of caves, mines, or other structures that would provide nursery or roost sites within the study corridor, it is likely that most bats occurring there would be foraging individuals. Black-tailed jack rabbit, desert cottontail (*Sylvilagus auduboni*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), and round-tailed ground squirrel (*Spermophilus tereticaudus*) are the most common, small, diurnal species. Mule deer (*Odocoileus hemionus*) occur sparingly in larger wash woodland complexes. There is no suitable habitat for desert bighorn along the corridor in California. As in Arizona, the coyote is a common predator, but it is probably outnumbered in California by kit foxes (*Vulpes macrotis*).

Birds

The avifauna of the California portion of the study corridor is likely dominated by small, diurnal songbirds including classic desert species such as black-tailed gnatcatcher (*Polioptila melanura*), cactus wren (*Campylorhynchus brunniecapillus*), LeConte's thrasher (*Toxoxtome lecontei*), verdin (*Auriparus flaviceps*), and black-throated sparrow (*Amphispiza bilineata*). Larger, more conspicuous species are turkey vulture (*Cathartes aura*) and red-tailed hawk (*Buteo jamaicensis*).

Reptiles

The reptile fauna of the California portion of the study corridor is quite diverse and varies locally depending on substrate. Ammophilus species such as western shovel-nosed snake (*Chionactis occipitalis*), sidewinder, Mohave fringe-toed lizard (*Uma scoparia*), and Coachella Valley

fringe-toed lizard are found in areas of Aeolian or semi-consolidated sand dunes. Species like chuckwalla, collared lizard (*Crotaphytus collaris*), lyre snake (*Trimorphodon biscutatus*), and speckled rattlesnake (*Crotalus mitchellii*) are more likely to be found in rocky areas. Species that are more habitat generalists and likely to be found nearly anywhere in the study corridor include side-blotched lizard (*Uta stansburiana*), desert spiny lizard (*Sceloporus magister*), western whiptail (*Cnemidophorus tigris*), gopher snake (*Pituophis catenifer*), and western diamond-backed rattlesnake (*Crotalus atrox*).

Amphibians

The amphibian fauna of the California portion of the study corridor is very limited owing to the extreme aridity of the area. Summer monsoon rains only occasionally reach eastern and southern California and this is reflected in the paucity of amphibian species. The red-spotted toad is probably the most common amphibian in rocky canyons and arroyos. The Sonoran Desert toad barely extends into California. Couch's spadefoot and Great Plains toad also reach eastern and southern California, but just barely.

Special Status Wildlife – California

In addition to the special status categories previously defined for federally listed species and species listed by the California Natural Diversity Database (CNDDB), the State of California and the CDFG declare wildlife species to be endangered under the following sets of criteria.

Endangered

- when mortality rates consistently exceed birth rates
- when the species is incapable of adapting to environmental change
- when habitat is threatened by destruction or serious disturbance
- when the survival of a species is threatened by the unwanted introduction of other species through predation, competition, or disease
- when environmental pollution threatens the survival of a species

Threatened

- when a species is confined to a relatively small and specialized habitat and is incapable of adapting to different environmental conditions
- when a species is nowhere abundant, although it may be found in other parts of the world
- when a species is so limited that any appreciable reduction in range, numbers, or habitat could cause it to become endangered
- when a species may become endangered if current management and protection programs were diminished in any degree

Wildlife species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-36 (CDFG 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. Species afforded status under the CVMSHCP are also included in this table. Many of the 120 wildife

species included in the Western Riverside County MSHCP are also included in Table 4-36. This list includes numerous species that were not listed as sensitive species in 1985. Species for which pre-construction surveys are recommended, or may be required, are noted in the table.

TABLE 4-36
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
INVERTEBRATES				
Macrobaenetes valgum	Coachella giant sand treader cricket	FSC, CV	High	No
Stenopelmatus cahuilaensis	Coachella Valley jerusalem cricket	FSC, CV	High	No
Branchinecta lynchi	Vernal pool fairy shrimp	FT, WR	None	No
Streptocephalus woottoni	Riverside fairy shrimp	FE, WR	None	No
Euphydryas editha quino	Quino checkerspot butterfly	FE, WR	None	No
Raphiomidas terminatus abdominalis	Delhi sands flower-loving fly	FE, WR	None	No
FISH				
Oncorhynchus mykiss irideus	Coastal rainbow trout	FE, CSC	None	No
Catostomus santaanae	Santa Ana sucker	FT, CSC	None	No
Xyrauchen texanus	Razorback sucker	FE, CE	Low	No
Cyprinodon macularius	Desert pupfish	FE, CE, CV	None	No
AMPHIBIANS				
Ambystoma californiense	California tiger salamander	FE, CSC	None	No
Batrachoseps aridus	Desert slender salamander	FE, CE, CV	None	No
Spea hammondii	Western spadefoot	FSC, CSC, WR BLM	Low	No
Scaphiopus couchii	Couch's spadefoot	CSC, BLM	Low	No
Bufo californicus	Arroyo toad	FE,CSC, WR	None	No
Rana aurora draytonii	California red-legged frog	FT, CSC, WR	None	No
Rana muscosa (DPS)	Mountain yellow-legged frog	FE, CSC, WR	None	No
REPTILES				
Clemmys marmorata pallida	Southwestern pond turtle	FSC, CSC, BLM, WR	None	No
Gopherus agassizii	Desert tortoise (Mojave population)	FT, CT, CV	High	Yes[1]
Sauromalus ater	Chuckwalla	BLM	Moderate	No
Uma inornata	Coachella Valley fringe-toed lizard	FT, CE, CV	High	Yes[2]
Uma scoparia	Mojave fringe-toed lizard	BLM	Moderate	No
Phrynosoma coronatum blainvillei	San Diego horned lizard	CSC	None	No

TABLE 4-36
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Phrynosoma mcallii	Flat-tailed horned lizard	FPT, CSC, BLM, CV	Low	Yes
Eumeces skiltonianus interparietalis	Coronado skink	CSC, BLM	None	No
Anniella pulchra pulchra	Silvery legless lizard	FSC, CSC	None	No
Charina bottae umbratica	Southern rubber boa	FSC, CT, WR	None	No
Charina trivirgata	Desert rosy boa	FSC, BLM	Moderate	No
Thamnophis hammondii	Two-striped garter snake	CSC, BLM, WR	None	No
BIRDS				
Ixobrychus exilis hesperis	Western least bittern	FSC, CSC, WR	Moderate	No
Egretta thula	Snowy egret	FSC	Moderate	No
Plegadis chihi	White-faced ibis	FSC, CSC, WR	Moderate	No
Elanus leucurus	White-tailed kite	FSC, WR	None	No
Haliaeetus leucocephalus	Bald eagle	FT, CE, WR	Moderate	No
Buteo regalis	Ferruginous hawk	FSC, CSC, WR	Moderate	No
Buteo swainsonii	Swainson's hawk	FSC, WR	Moderate	No
Laterallus jamaicensis coturniculus	California black rail	FSC, CT, WR	Moderate	Yes[2]
Rallus longirostris yumanensis	Yuma clapper rail	FE, CT, CV	Moderate	No
Charadrius alexandrinus nivosus	Western snowy plover	FT, CSC	Low	No
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, CE, WR	Low	No
Micrathene whitneyi	Elf owl	CE	Low	No
Athene cunicularia hypugaea	Western burrowing owl	FSC, CSC, BLM, WR, CV	High	No
Cypseloides niger	Black swift	FSC, CSC	None	No
Melanerpes uropygialis	Gila woodpecker	CE	Moderate	No
Colaptes chrysoides	Gilded flicker	CE	Low	No
Empidonax traillii extimus	Southwestern willow flycatcher	FE, CE, WR, CV	Low	No
Lanius ludovicianus	Loggerhead shrike	FSC, CSC	Moderate	No
Vireo bellii pusillus	Least Bell's vireo	FE, CE, WR, CV	None	No
Vireo bellii arizonae	Arizona Bell's vireo	CE	Low	No
Vireo vicinior	Gray vireo	CSC, CV	Low	No
Polioptila californica californica	Coastal California gnatcatcher	FT, CSC	None	No

TABLE 4-36
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Toxostoma lecontei	LeConte's thrasher	FSC, CSC, BLM, WR, CV	Moderate	No
Toxostoma crissale	Crissal thrasher	CSC, CV	Low	No
Icteria virens	Yellow-breasted chat	CSC, CV, WR	Moderate	No
Dendroica petechia brewsteri	Yellow warbler	CSC, CV, WR	Moderate	No
Piranga rubra cooperi	Summer tanager	CSC, CV	Low	No
Amphispiza belli belli	Bell's sage sparrow	FSC, CSC, WR	None	No
Agelaius tricolor	Tricolored blackbird	FSC, CSC, S, WR	None	No
MAMMALS				
Macrotus californicus	California leaf-nosed bat	FSC, CSC, BLM, WR	Moderate	No
Myotis velifer	Cave myotis	FSC, CSC, BLM	Low	No
Myotis thysanodes	Fringed myotis	FSC, BLM, WR	Low	No
Myotis leibii (ciliolabrum)	Western small-footed bat	FSC, BLM, WR	Low	No
Lasiurus ega	Southern yellow bat	SCS, CV	Low	No
Euderma maculatum	Spotted bat	FSC, CSC, BLM, WR	Low	No
Plecotus townsendii pallescens	Pale big-eared bat	FSC, CSC, BLM	Moderate	No
Antrozous pallidus	Pallid bat	CSC, BLM, WR	Moderate	No
Eumops perotis californicus	Greater western mastiff bat	FSC, CSC, BLM	None	No
Spermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel	FC, CSC, CV	High	Yes
Perognathus longimembris bangsi	Palm Springs pocket mouse	CSC, CV	High	No
Dipodomys merriami parvus	San Bernardino kangaroo Rat	FE, CSC, WR	None	No
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT, WR	None	No
Ovis canadensis nelsoni (DPS)	Peninsular bighorn sheep	FE, CT, BLM, WR	None	No

TABLE 4-36
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended

Status Codes:

FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate
FSC – Federal Species of Concern
FPT – Federally Proposed for Listing as Threatened

BLM - BLM (California) Sensitive species

CE – California Endangered
CT – California Threatened
CSC – CDFG Species of Concern
WR – Western Riverside County MSHCP
CV – Coachella Valley MSHCP

[1] Pre-construction surveys for tortoises will be performed, but protocol surveys would not be required in the general area of the transmission line since tortoises are known to be present along the corridor, and a biological monitor will be present during construction within tortoise habitat. All project personnel will attend a pre-construction tortoise training class.

[2] Surveys for this species should be conducted in areas of suitable habitat.

4.1.8.2 California

Existing Biological Conditions

Flora

Within California, the primary native vegetation type is creosote bush scrub, which is present along the entire length of the study corridor. On rocky hills and mountain slopes, creosote bush is also a dominant species, but it is frequently replaced by aspect-dominant species such as white brittlebush on south-facing slopes and white bursage on north-facing slopes. Common associates of creosote bush are white bursage on coarse soils and big galleta grass on finer soils.

Ocotillo is common on stony bajadas, which are present from the Little San Bernardino Mountains eastward through the Chuckwalla Mountains. On the finer soils of the Coachella Valley, desert croton (*Croton californicus*), Palmer coldenia (*Tiquilia palmeri*), plicate coldenia (*Tiquilia plicata*), indigo bush (*Psorothamnus schottii*), and Emory dalea (*Psorothamnus emoryi*) are co-dominants with creosote bush. Tall dunes of windblown sand, dominated by mesquite, occur locally southeast and northwest of the Indio Hills and just west of Myoma.

Washes that dissect creosote bush scrub habitat in the western part of the California study area, (e.g., west of Cactus City) are dominated by white burrobrush and desert lavender (*Hyptis emoryi*) on rocky soils and by white burrobrush and smoketree on finer soils. In the eastern portions of the California study area, the same species occur in washes, but there tends to be a much greater presence of arborescent species (blue paloverde, ironwood, and some mesquite). This setting often creates the impression that valley bottoms are wholly dominated by woodlands of such species as at Shavers Valley near Chiriaco Summit, Desert Center turnoff at I-10, and in the eastern Chuckwalla Valley north of the Little Chuckwalla Mountains. However, examination of such woodlands shows that the trees are largely restricted to washes, including the numerous, anastomosing minor washes and runnels that drain into larger washes. Creosote bush and its associates generally dominate interwash portions of these areas. In areas where washes are particularly abundant, such as portions of the eastern Chuckwalla Valley, major wash complexes dominated by paloverde and ironwood are present.

In the Palo Verde Valley, where the study corridor crosses the Colorado River, riparian habitats dominated by salt cedar (*Tamarix ramosissima*) and honey mesquite (*Prosopis glandulosa*) are present in areas that have not been developed for agricultural uses. Saltbush (*Atriplex* spp.) communities also occur locally in the Palo Verde Valley, but most of these have been removed as the land was converted to agricultural use. Local wetlands, mostly created by irrigation water and other agriculturally related activities, also exist in the Palo Verde Valley. Such wetlands often take the form of small ponds, sloughs, and ditches, and they often support stands of southern cattail (*Typha domingensis*) and/or bulrush (*Scirpus* spp.).

Vegetation along the Colorado River at the crossing of the study corridor is generally dominated either by mesquite or salt cedar. There are local occurrences of Fremont cottonwood (*Populus fremontii*) and willow (*Salix* sp.) along the river in the general vicinity. Honey mesquite is the most common mesquite along the river, but screwbean mesquite (*Prosopis pubescens*) is present locally. Common associates of salt cedar and mesquite are arrowweed (*Pluchea sericea*) and saltbush.

Accompanying the short tree to shrub-dominated salt cedar and mesquite communities, there are some local occurrences of emergent plant communities associated with sloughs, ponds, and isolated oxbows of the Colorado River. These emergent communities are dominated by cattail (*Typha* sp.) and bulrush. There are no major emergent or marshland communities within 1 mile of the proposed Devers-Harquahala 500kV transmission line crossing of the Colorado River.

In addition to perennial plant species, both the California and Arizona portions of the study corridor are hosts to a large number of annual or ephemeral species of plants. Most of these species appear in the late winter and early spring following periods of suitable rainfall. Shreve and Wiggins (1964) list 109 ephemeral species that occur in the Arizona Upland Subdivision of the Sonoran Desert and 44 that are characteristic of the Lower Colorado River Valley Subdivision. There is some overlap in these two lists, which include members of the families Poaceae, Polygonaceae, Papaveraceae, Crassulaceae, Fabaceae, Onagraceae, Polemoniaceae, Hydrophyllaceae, Boraginaceae, and Asteraceae. During particularly favorable years, spectacular blooms of ephemeral species may occur locally in the study area. In years of little rainfall, the bloom may not occur at all.

Special Status Plant Species – California

Special status plant species in the California portion of the Devers-Harquahala study corridor fall into the following categories:

- species listed by the federal government as threatened, endangered, or under review for inclusion on lists as threatened or endangered species

- species listed by the State of California as rare, threatened, or endangered under the California Endangered Species Act

- species considered species of concern by the CDFG

- species included on one or more of the lists published by the California Native Plant Society (CNPS) and CDFG

- species included for protection under the California Desert Native Plant Act (CDNPA)

In addition to state and federal listings of sensitive plant species, the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) includes five species of plants, all of which are included in Table 3-37. Of these plants, only the Mecca aster has status under the CVMSHCP alone; all others have state and/or federal status as well. The Western Riverside County MSHCP addresses nearly 120 species of plants, many of which also appear in Table 3-34.

The CNPS maintains lists of extant plant species of different degrees of sensitivity. List 1B includes plant species that are rare and endangered in California, and they also are rare elsewhere. Plant species in List 2 are rare or endangered in California, but they are more common elsewhere. Plants species for which more information is needed are included in List 3. List 4 includes those plant species with limited distribution.

The CDNPA was enacted in 1981 with the intent of protecting native desert plants from unlawful harvesting on both public and private land, and to provide the people of California with the necessary information to legally harvest native plants so as to ultimately transplant such plants with the greatest possibility of success. The CDNPA specifically extends protection to ironwood, mesquite, and paloverde trees, most Cactaceae, all Burseraceae, Agavaceae, Fouquieriaceae, and

the following species not included in one of the preceding families: crucifixion thorn, Panamint dudleya (*Dudleya saxosa*), fan palm (*Washingtonia filifera*), catclaw acacia (*Acacia greggii*), desert holly, and smoketree.

As with the ANPL, the CDNPA is aimed primarily at preventing the commercial exploitation of native plants. It is expressly stated that the provisions of the CDNPA are not intended to prevent public or private utility companies from acting in the performance of their obligations to provide services to the public (California State Food and Agriculture Code, Division 23, Chapters 1-8).

Following literature reviews and consultation with the BLM, USFWS, National Park Service, and Rancho Santa Ana Botanical Gardens, initial field surveys for sensitive plants were conducted in 1985 within the California portions of the proposed Devers-Harquahala study corridor. Five of the species considered sensitive at that time were found during field surveys conducted in 1985 within 500 feet on either side of the centerline of the existing DPV1 transmission line in California. These species were cushion foxtail cactus, California barrel cactus (*Ferocactus cylindraceus*), Coachella Valley milkvetch (*Astragalus lentiginosus coachellae*), California silverbush (*Argythamnia californica*), and desert unicorn plant (*Proboscidea althaeifolia*). Of these species, only the Coachella Valley milkvetch is on the current list of sensitive species in Riverside County (CDFG 2003).

Plant species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-37 (CDFG 2003). This table includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This table includes numerous species that were not listed as sensitive in 1985. Species accounts for plants that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted on the table.

TABLE 4-37
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Allium munzii	Munz's onion	FE, CT, WR	None	No
Ambrosia pumila	San Diego ambrosia	FE, BLM, WR	None	No
Arenaria paludicola	Marsh sandwort	FE, CE,	None	No
Astragalus lentiginosus var. *coachellae*	Coachella Valley milk-vetch	FE, CEQA, CV	High	Yes
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	CEQA, WR	None	No
Astragalus tricarinatus	Triple-ribbed milk-vetch	FE, CEQA, CV	Low	Yes
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	FE, WR	None	No
Brodiaea filifolia	Thread-leaved brodiaea	FT, CE	None	No
Brodiaea orcuttii	Orcutt's brodiaea	BLM, WR	None	No
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	FSC, WR	None	No
Calochortus plummerae	Plummer's mariposa	CEQA, WR	None	No
Ceanothus ophiochilus	Vail Lake ceanothus	FT, CE, WR	None	No
Chamaesyce platysperma	Flat-seed sandmat	BLM	Low	No
Chorizanthe parryi var. *parryi*	Parry's spineflower	CEQA, WR	None	No
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CEQA, WR	None	No
Chorzanthe xantii var. *leucotheca*	White-bracted spineflower	CEQA, WR	Low	No
Delphinium hesperium ssp. *cuyamacae*	Cuyamaca larkspur	CR	None	No
Dodecahema leptoceras	Slender-horned spineflower	FE, CE, WR	None	No
Dudleya multicaulis	Many stem live-forever	CEQA, BLM, WR	None	No
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	FE, CE, WR	None	No
Erigeron parishii	Parish's daisy	FT, WR	None	No
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE, CE, WR	None	No
Escobaria alversonii	Cushion foxtail cactus	FSC	High	Yes[1]
Euphorbia misera	Cliff spurge	CEQA, WR	None	No
Galium californicum ssp. *primum*	California bedstraw	BLM, WR	None	No
Gilia maculata	Little San Bernardino Mts. linanthus	CEQA, BLM, CV	Low	Yes
Hemizonia mohavensis	Mojave tarplant	FSC, CE, WR	None	No
Ivesia callida	Tahquitz ivesia	CR, WR	None	No
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CEQA, WR	None	no
Limnanthes gracilis ssp. *parishii*	Parish's meadowfoam	FSC, CE, WR	None	No
Linanthus orcuttii	Orcutt's linanthus	BLM, WR	None	No
Mahonia nevinii	Nevin's barberry	FE, CE, WR	None	No
Mondardella pringlei	Pringle's coyote-mint	CEQA, WR	None (Extinct?)	No
Monardella robisonii	Robison monardella	BLM	None	No

TABLE 4-37
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Myosurus minimus ssp. *apus*	Little mousetail	FSC, WR	None	No
Navarretia fossalis	Spreading navarretia	FT, WR	None	No
Navarretia prostrata	Prostrate navarretia	FSC	None	No
Nemacaulis denudata var. *gracilis*	Slender woollyheads	CEQA	None	No
Opuntia munzii	Munz cholla	BLM	None	No
Orcuttia californica	California Orcutt grass	FE, CE, WR	None	No
Salvia greatae	Orocopia sage	CEQA, CV	None	No
Sidalcea neomexicana	Salt-spring checkerbloom	CEQA, WR	None	No
Tetracoccus dioicus	Parry's tetracoccus	BLM, WR	None	No
Trichocoronis wrightii var. *wrightii*	Wright's button	CEQA, WR	None	No
Trichostema austromontanum ssp. *Compactum*	Hidden Lake bluecurls	FT, WR	None	No
Xylorhiza cognata	Mecca Aster	CVMSHCP	None	No

Status Codes:
FE – Federally Endangered
FT – Federally Threatened
FSC – Federal Species of Concern
CE – California Endangered
CT – California Threatened
CR – California Rare
CVMSHCP – Coachella Valley Multiple Species Habitat Conservation Plan listing only
CV – Coachella Valley Multiple Species Habitat Conservation Plan
WR – Western Riverside County Multiple Species Habitat Conservation Plan

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution.

[1]A pre-construction survey for this species is recommended since its presence along the corridor is known, and locating individual plants would allow for adjustment of tower foundations to avoid the plants. Alternatively, plants could be moved.

Survey Results of 2003 Special Status Plant Survey within the Proposed Devers-Harquahala Study Corridor in California

In California, 14 species of plants protected under the California Desert Native Plant Act (CDNPA) were found in surveys of tower sites and access roads along the proposed Devers-

Harquahala study corridor in 2002 and 2003. See Table 4-38 for the total number of individuals of each species found.

TABLE 4-38
TOTAL NUMBER OF CDNPA-LISTED PLANTS, BY SPECIES, FOUND WITHIN THE CALIFORNIA PORTION OF THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Number of Individuals
Acacia greggii	Catclaw acacia	97
Echinocereus engelmannii	Engelmann's hedgehog cactus	10
Echinocactus polycephalus	Cottontop barrel cactus	4
Ferocactus cylindraceus	California barrel cactus	40
Fouquieria splendens	Ocotillo	128
Mammillaria grahamii var. *grahamii*	Fishhook pincushion	2
Olneya tesota	Ironwood	230
Opuntia basilaris	Beavertail prickly pear	103
Opuntia bigelovii	Teddybear cholla	81
Opuntia echinocarpa	Straw-top cholla	279
Opuntia ramosissima	Diamond cholla	547
Opuntia wigginsii	Wiggins' cholla	66
Parkinsonia florida	Blue paloverde	394
Psorothamnus spinosus	Smoketree	127

In addition to CDNPA-listed plants, the survey also included a search for federal and state protected plant species. Four individuals of Coachella Valley milkvetch (*Astragalus lentiginosus* var. *coachellae*), a federally listed endangered species, were found in areas of aeolian sands in Coachella Valley. Twenty-nine individuals of the cushion foxtail cactus (*Escobaria alversonii*), a federal species of concern, were found in cobbly rocky areas near the Cottonwood and Chuckwalla mountains. Burrows, sign, and live sightings of Mojave desert tortoise were recorded as well. Also, all existing DPV1 towers were noted when either raptors or ravens had built stick nests in them. When the status of the nest could be determined, this information was collected as well.

Wildlife

Special Status Wildlife – California

In addition to the special status categories previously defined for federally listed species and species listed by the California Natural Diversity Database (CNDDB), the State of California and the CDFG declare wildlife species to be endangered under the following sets of criteria.

Endangered

- when mortality rates consistently exceed birth rates
- when the species is incapable of adapting to environmental change
- when habitat is threatened by destruction or serious disturbance
- when the survival of a species is threatened by the unwanted introduction of other species through predation, competition, or disease
- when environmental pollution threatens the survival of a species

Threatened

- when a species is confined to a relatively small and specialized habitat and is incapable of adapting to different environmental conditions
- when a species is nowhere abundant, although it may be found in other parts of the world
- when a species is so limited that any appreciable reduction in range, numbers, or habitat could cause it to become endangered

- when a species may become endangered if current management and protection programs were diminished in any degree

Wildlife species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-39 (CDFG 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. Species afforded status under the CVMSHCP are also included in this table. Many of the 120 wildife species included in the Western Riverside County MSHCP are also included in Table 4-39. This list includes numerous species that were not listed as sensitive species in 1985. Species accounts for wildlife that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted in the table.

TABLE 4-39
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
INVERTEBRATES				
Macrobaenetes valgum	Coachella giant sand treader cricket	FSC, CV	High	No
Stenopelmatus cahuilaensis	Coachella Valley jerusalem cricket	FSC, CV	High	No
Branchinecta lynchi	Vernal pool fairy shrimp	FT, WR	None	No
Streptocephalus woottoni	Riverside fairy shrimp	FE, WR	None	No
Euphydryas editha quino	Quino checkerspot butterfly	FE, WR	None	No
Raphiomidas terminatus abdominalis	Delhi sands flower-loving fly	FE, WR	None	No
FISH				
Oncorhynchus mykiss irideus	Coastal rainbow trout	FE, CSC	None	No
Catostomus santaanae	Santa Ana sucker	FT, CSC	None	No
Xyrauchen texanus	Razorback sucker	FE, CE	Low	No
Cyprinodon macularius	Desert pupfish	FE, CE, CV	None	No
AMPHIBIANS				
Ambystoma californiense	California tiger salamander	FE, CSC	None	No
Batrachoseps aridus	Desert slender salamander	FE, CE, CV	None	No
Spea hammondii	Western spadefoot	FSC, CSC, WR BLM	Low	No

TABLE 4-39
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Scaphiopus couchii	Couch's spadefoot	CSC, BLM	Low	No
Bufo californicus	Arroyo toad	FE,CSC, WR	None	No
Rana aurora draytonii	California red-legged frog	FT, CSC, WR	None	No
Rana muscosa (DPS)	Mountain yellow-legged frog	FE, CSC, WR	None	No
REPTILES				
Clemmys marmorata pallida	Southwestern pond turtle	FSC, CSC, BLM, WR	None	No
Gopherus agassizii	Desert tortoise (Mojave population)	FT, CT, CV	High	Yes[1]
Sauromalus ater	Chuckwalla	BLM	Moderate	No
Uma inornata	Coachella Valley fringe-toed lizard	FT, CE, CV	High	Yes[2]
Uma scoparia	Mojave fringe-toed lizard	BLM	Moderate	No
Phrynosoma coronatum blainvillei	San Diego horned lizard	CSC	None	No
Phrynosoma mcallii	Flat-tailed horned lizard	FPT, CSC, BLM, CV	Low	Yes
Eumeces skiltonianus interparietalis	Coronado skink	CSC, BLM	None	No
Anniella pulchra pulchra	Silvery legless lizard	FSC, CSC	None	No
Charina bottae umbratica	Southern rubber boa	FSC, CT, WR	None	No
Charina trivirgata	Desert rosy boa	FSC, BLM	Moderate	No
Thamnophis hammondii	Two-striped garter snake	CSC, BLM, WR	None	No
BIRDS				
Ixobrychus exilis hesperis	Western least bittern	FSC, CSC, WR	Moderate	No
Egretta thula	Snowy egret	FSC	Moderate	No
Plegadis chihi	White-faced ibis	FSC, CSC, WR	Moderate	No
Elanus leucurus	White-tailed kite	FSC, WR	None	No
Haliaeetus leucocephalus	Bald eagle	FT, CE, WR	Moderate	No
Buteo regalis	Ferruginous hawk	FSC, CSC, WR	Moderate	No
Buteo swainsonii	Swainson's hawk	FSC, WR	Moderate	No
Laterallus jamaicensis coturniculus	California black rail	FSC, CT, WR	Moderate	Yes[2]
Rallus longirostris yumanensis	Yuma clapper rail	FE, CT, CV	Moderate	No
Charadrius alexandrinus nivosus	Western snowy plover	FT, CSC	Low	No
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, CE, WR	Low	No

TABLE 4-39
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Micrathene whitneyi	Elf owl	CE	Low	No
Athene cunicularia hypugaea	Western burrowing owl	FSC, CSC, BLM, WR, CV	High	No
Cypseloides niger	Black swift	FSC, CSC	None	No
Melanerpes uropygialis	Gila woodpecker	CE	Moderate	No
Colaptes chrysoides	Gilded flicker	CE	Low	No
Empidonax traillii extimus	Southwestern willow flycatcher	FE, CE, WR, CV	Low	No
Lanius ludovicianus	Loggerhead shrike	FSC, CSC	Moderate	No
Vireo bellii pusillus	Least Bell's vireo	FE, CE, WR, CV	None	No
Vireo bellii arizonae	Arizona Bell's vireo	CE	Low	No
Vireo vicinior	Gray vireo	CSC, CV	Low	No
Polioptila californica californica	Coastal California gnatcatcher	FT, CSC	None	No
Toxostoma lecontei	LeConte's thrasher	FSC, CSC, BLM, WR, CV	Moderate	No
Toxostoma crissale	Crissal thrasher	CSC, CV	Low	No
Icteria virens	Yellow-breasted chat	CSC, CV, WR	Moderate	No
Dendroica petechia brewsteri	Yellow warbler	CSC, CV, WR	Moderate	No
Piranga rubra cooperi	Summer tanager	CSC, CV	Low	No
Amphispiza belli belli	Bell's sage sparrow	FSC, CSC, WR	None	No
Agelaius tricolor	Tricolored blackbird	FSC, CSC, S, WR	None	No
MAMMALS				
Macrotus californicus	California leaf-nosed bat	FSC, CSC, BLM, WR	Moderate	No
Myotis velifer	Cave myotis	FSC, CSC, BLM	Low	No
Myotis thysanodes	Fringed myotis	FSC, BLM, WR	Low	No
Myotis leibii (ciliolabrum)	Western small-footed bat	FSC, BLM, WR	Low	No
Lasiurus ega	Southern yellow bat	SCS, CV	Low	No
Euderma maculatum	Spotted bat	FSC, CSC, BLM, WR	Low	No
Plecotus townsendii pallescens	Pale big-eared bat	FSC, CSC, BLM	Moderate	No
Antrozous pallidus	Pallid bat	CSC, BLM, WR	Moderate	No

TABLE 4-39
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Eumops perotis californicus	Greater western mastiff bat	FSC, CSC, BLM	None	No
Spermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel	FC, CSC, CV	High	Yes
Perognathus longimembris bangsi	Palm Springs pocket mouse	CSC, CV	High	No
Dipodomys merriami parvus	San Bernardino kangaroo Rat	FE, CSC, WR	None	No
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT, WR	None	No
Ovis canadensis nelsoni (DPS)	Peninsular bighorn sheep	FE, CT, BLM, WR	None	No

Status Codes:

FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate
FSC – Federal Species of Concern
FPT – Federally Proposed for Listing as Threatened

BLM - BLM (California) Sensitive species

CE – California Endangered
CT – California Threatened
CSC – CDFG Species of Concern
WR – Western Riverside County MSHCP
CV – Coachella Valley MSHCP

[1] Pre-construction surveys for tortoises will be performed, but protocol surveys would not be required in the general area of the transmission line since tortoises are known to be present along the corridor, and a biological monitor will be present during construction within tortoise habitat. All project personnel will attend a pre-construction tortoise training class.

[2] Surveys for this species should be conducted in areas of suitable habitat.

4.1.9 Noise

Noise can be interpreted as an unwanted or disagreeable sound. Sound travels as waves of slight fluctuations in air pressure. Generally, sound waves travel in a spherical pattern and diminish in intensity in a logarithmic fashion away from the source. Noise, therefore, decreases as the distance from the source increases.

An electrical field is produced in the air surrounding conductors as electricity flows through them. As the electrical field increases, the air surrounding the conductors becomes ionized. The dielectric breakdown point of air is 15 kilovolts per centimeter (kV/cm). In other words, when a conductor is charged with more than 15kV/cm a high-voltage phenomenon known as corona discharge occurs. Corona formation factors depend on both the surrounding environment and the electrical components themselves. The breakdown strength of air is dependent on air pressure, electrode material, presence of water vapor, incident photoionization, and voltage level. The intensity of the electric field also depends on conductor surface conditions, the number of conductors and spacing per phase, and the shape of the hardware. The presence of dust particles or water on conductors also will cause corona discharge. Corona discharge is the main cause of audible noise associated with transmission and substation operation.

The audible noise consists mainly of two components. The first component is broadband or random noise that has a crackling characteristic. The second component is pure-tone or noise found at frequencies of 120-hertz intervals. The combination of the broadband and pure-tone produces the audible noise with the most noticeable tone being the 120-hertz hum. Varying weather conditions produce different audible results.

When studying the effects of audible noise on humans, it is important to consider the range of response of the human ear. The human ear does not respond equally to all sound frequencies. Sound is measured in decibels (dB) and is a measure of sound pressure on a logarithmic scale. When measuring sound and the effects on humans the frequency scale is A-weighted. A-weighting is intended to duplicate the human response by reducing low-frequency sounds and slightly increasing high-frequency sounds. When a study is done using A-weighted decibels the measurements are expressed as dBA. Table 4-40 shows noise sources along with corresponding sound levels.

Weather also plays a role in the audible noise that conductors produce. Inclement weather such as rain, fog, or snow will all substantially increase audible noise levels. However, during heavy rain the actual audible noise from conductors is masked by the ambient noise produced by the

wind and rain. Ambient noise produced during heavy rain is generally 6 dBA above that produced during fog, drizzling rain, or snow. The lower production of weather-induced ambient noise in combination with the wet-conductor conditions produces a more noticeable audible level due to corona discharge. Under foggy conditions, the maximum levels of audible noises are not attained for a number of hours as water accumulates on the conductors.

TABLE 4-40
WEIGHTED SOUND LEVELS OF COMMON SOURCES

dB(A)	Overall Level	dB(A)	Relative Level
140	Threshold of pain	140	Jet engine (50 ft)
120	Uncomfortably loud	120	Jet take off (200 ft)
		114	Rock concert
100	Very loud		
		96	Power mower
		88	Heavy truck (40 mph at 50 ft)
		80	Garbage disposal
		75	Freeway traffic (50 ft)
70	Moderately loud		
		65	Business office
		60	Normal conversation
50	Quiet		
		43	Bird calls
		32	Library
20	Almost silent		
0	Threshold of hearing		

Source: Federal Interagency Committee on Noise, August 1992

4.1.9.1 Proposed Devers-Harquahala Study Corridor in Arizona and California

The proposed Devers-Harquahala study corridor crosses sparsely populated desert land; however, occasional residential area crossings do occur. It is anticipated that construction activities will comply with local noise ordinances. Typical municipal ordinances stipulate that activities should not produce ambient noise exceeding 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at receiving residential property lines or sensitive areas.

Major sources of ambient noise at and near the existing corridor include I-10, which would parallel the proposed Devers-Harquahala transmission line, within 2 miles, for most of its length. The area has a desert climate and is subject to inclement weather only 9 percent of the time.

4.1.10 Public Services and Utilities

4.1.10.1 Arizona

Within Maricopa County, the unincorporated community of Tonopah is nearest to the proposed Devers-Harquahala study corridor. Tonopah has a fire station, the Harquahala Valley Fire District, located within 10 miles of the route at 51501 W. Tonto Street. Police presence in the area is provided by the Maricopa County Sheriff's Office through a District II substation located in the town of Buckeye at 100 North Apache Road. Tonopah is served by medical facilities in the town of Buckeye (two clinics are available) and the city of Goodyear, which has numerous medical facilities.

In La Paz County, the nearest community to the transmission line would be the town of Quartzsite, located about 8 miles north of the study corridor. The town of Quartzsite has three medical centers, two with seasonal staff and one with a year-round staff of four. Full medical facilities are available in Blythe, California and Parker, Arizona. Year-round ambulance, medivac heliport, and emergency medical technician service is available through the local fire department. Quartzsite also has a city police department with 10 full-time police officers.

4.1.10.2 California

The Coachella Valley and Blythe areas are large enough to provide adequate public services and housing accommodations. However, public services are limited along the central portion of the proposed route, which traverses sparsely populated desert land. The easternmost California city

near the study corridor is the city of Blythe, situated on the California/Arizona border. The cities of Coachella, Indio, Cathedral City, Palm Springs, and Desert Hot Springs are located at the western end of the proposed Devers-Harquahala study corridor, and are part of the Coachella Valley, which is 50 miles long and runs from Desert Hot Springs to the Salton Sea. There are numerous hotels and recreational vehicle resorts in each community, as well as several small airports and the Palm Springs International Airport. Available public services in these communities are described below.

Blythe – Blythe has one hospital with a 55 total bed capacity and a 24-hour-a-day staffed emergency room. The police department has 28 sworn personnel and 12 non-sworn personnel, with support service available from Riverside County Sheriff's Department. The fire department has a part-time chief, 33 trained paid volunteers, 1 full-time fire marshal, and a mutual aid agreement with the Riverside County Fire Department.

Coachella – Coachella is served by hospitals in the nearby communities of Rancho Mirage, Indio, La Quinta, and Palm Springs. The police department operates out of a single facility staffed by 25 sworn officers. The Riverside County Sheriff's Department provides limited services to local unincorporated areas out of its Indio Station. The city contracts with the Riverside County Fire Department for fire protection and emergency medical services. Fire Station #79 is located within the city of Coachella, and is staffed by about six firefighters (General Plan 1997).

Indio – Indio's fire department has three fire stations staffed by 30 professional firefighters and 22 volunteer firefighters. The project would likely be served by North Indio Fire Station #87, located about 4 miles south of the study corridor. The police department has more than 50 officers available, not including the community service and animal control officers. The John F. Kennedy Memorial Hospital is located in Indio and contains 162 beds.

Cathedral City – Cathedral City's fire station has 33 full-time firefighters and 2 medical ambulances. The Police Department has 47 full-time officers. The city is served by two general hospitals, which have a total of 659 beds.

Palm Springs – The Palm Springs police department consists of one police station and one substation, which are staffed by more than 125 full-time personnel. Both police stations are roughly the same distance (approximately 5 miles) from the study corridor. The fire department contains five stations. The project would likely be served by Station # 445, located about 1 mile north of CA 111. Medical services are provided by the Desert Regional Medical Center, a full-service hospital with 393 beds.

Desert Hot Springs – Police service is provided by the local city police department. Fire protection services are provided by the Riverside County Fire Department, Station # 37, located in the city and about 2 miles north of the study corridor. Medical services are provided in the adjacent cities of Palm Springs and Indio.

4.1.11 Visual Resources Inventory

This section describes the visual resource inventory for the proposed Devers-Harquahala 500kV transmission line. The methodology used to inventory visual resources and analyze visual impacts in response to CEQA environmental criteria for aesthetics is consistent with the BLM Visual Resources Management (VRM) 8400 Series Manual (BLM 1986). This study also tiers off of previous environmental studies including the 1988 DPV2 PEA (SCE) and Final SEIS (BLM 1988). The visual resource studies were conducted by reviewing aerial photographs, maps, and planning documents; contacting agencies; and conducting field reconnaissance within the proposed study corridor. The visual resource inventory includes the consideration of visual quality, scenic vistas, and agency management objectives as described below.

4.1.11.1 Inventory Elements

Visual Quality

Landscape Setting

The Devers-Harquahala study corridor is located primarily in the Basin and Range Province, including sections of the Sonoran Desert and Salton Trough (Fennemen 1951). This area is characterized by widely separated short mountain ranges in desert plains, often consisting of desert alluvial slopes, locally known as bajadas. Vegetation varies depending on landforms, ranging from creosote flats to saguaro forests. The Colorado River, the only perennial river crossed by the proposed Devers-Harquahala study corridor, separates the states of Arizona and California.

The landscape in Arizona is primarily natural, with areas of agricultural use near the eastern terminus of the study corridor at Harquahala. In California, similar to Arizona, a majority of the study area is natural; however, there also are areas of agricultural use associated with the Colorado River near Blythe. Mixed use (including a large windmill farm) and residential developments have modified the natural landscape in the Desert Hot Springs and Palm Springs areas.

The inventory of visual quality within a natural setting was based on the premise that each landscape character type (e.g., desert mountains, foothills, bajadas) exhibits its own type of scenic quality and encompasses a variety of sensitive viewers. Within rural and suburban settings visual quality is based primarily on the image of the built environment and associated sensitive viewers. The inventory includes landscape settings that are both natural and developed (built). Existing conditions (e.g., the presence of existing transmission lines) that may affect the scenic quality or visual image of an area also were considered in the evaluation of landscape scenery.

Natural Setting - Scenic Quality

In a natural setting, landscape character types are defined by areas of land that have similar characteristics of landform, water related features, vegetative communities, and patterns of these landscape elements. In the natural setting, scenic quality was determined by evaluating landscape character type based upon the uniqueness and diversity of landform, water, vegetation, cultural features, and influence of adjacent scenery. Landscapes with greater diversity of features are typically considered to have higher scenic value. For purposes of this study, landscape character types were assigned one of the following scenic quality classifications:

Class A – lands of outstanding or distinctive diversity or interest
Class B – lands of common or average diversity or interest
Class C – lands of minimal diversity or interest

Developed Settings – Visual Image Types

The purpose of characterizing existing and planned visual image types within the study corridor was to determine potential visual quality impacts. This is especially important in portions of the area crossed by the study corridor that include suburban and rural community development.

In developed rural and suburban settings, landscape scenery consists of the visual features of the built environment and is defined by visual image types. Visual image types consist of development patterns that are defined by existing and planned land use, planning concepts (circulation and building types) and visual character (landscape design and architecture). Three major image types were identified in the study area: (1) residential, (2) industrial, and (3) agricultural areas.

Existing Visual Conditions

The scenic quality of natural settings and the visual image of rural and suburban settings may be modified locally by the presence of facilities including transmission lines, distribution lines, overhead lighting, signs, pipelines, highways, railroads, canals, and other features that affect visual quality. The existing condition within the study corridor was evaluated through mapping and field review in order to determine those locations where modifications would influence scenery and views. In this regard, the presence of the existing DPV1 500kV transmission line, parallel to the proposed Devers-Harquahala 500kV line, has created an existing utility corridor that has modified the local landscape setting along the entire length of the study corridor.

Visual Quality

Views

The inventory of views included three components: (1) the identification of key viewpoints and visual sensitivity, (2) distance zones, and (3) viewing conditions.

Key Viewpoints and Sensitive Viewers

Numerous key viewpoints associated with sensitive viewers were identified including individual residential, community, recreation area, and travelway viewpoints. Of particular importance are those locations where viewers have undisturbed open, permanent views.

Visual sensitivity reflects the degree of concern for change in the scenic quality of the natural landscape, or to the visual image of the rural (agricultural areas) and suburban setting (residential, commercial, and industrial areas). Visual sensitivity levels (high, moderate, or low) reflect the type of viewpoint/viewer (residential, recreational, or travel) and viewer concern for

change, volume of use, public and agency concerns, influence of adjacent land use, and viewing duration.

Distance Zones

The distance from the viewer to the proposed transmission line also was considered in the analysis. Typically, individual objects are seen in greater detail in the foreground (0 to 0.5 mile) , whereas the middleground (0.5 to 1 mile) is an area where objects are typically viewed in relationship to patterns rather than an emphasis on individual features. In background areas (3 to 15 miles) landscapes are viewed as horizon lines and tones where atmospheric conditions often dominate.

Viewing Conditions

Viewing conditions address viewer orientation (parallel, perpendicular, elevated, or depressed), the potential for screening from sensitive view locations, and the potential for skylining of facilities. Three levels of screening were identified during the inventory including open viewing conditions that exhibit minimal to no screening; partially screened views including areas where viewing opportunities are intermittent; and screened views including areas where terrain, vegetation, buildings, or other built elements (walls and fences) obscure views. Skyline conditions may range from fully or partially skylined to back-dropped by adjacent terrain, vegetation, or structures.

Scenic Vistas

Scenic vistas are designated viewpoints associated with scenic views that typically occur along highways or other travel routes.

Agency Management Objectives

There are no formal guidelines for managing visual resources on state, county, city or private land within the study corridor. Visual resources on land administered by the BLM are managed based on established RMPs, including VRM classes. In this regard, the RMP establishes acceptable uses, and the VRM classes assist in defining the acceptable degree of visual change in the natural landscape on public land. There are four VRM classes (I, II, III, and IV). Class I areas are afforded the highest level of protection and Class IV the lowest.

4.1.11.2 Arizona

This section describes the results of the visual resource inventory for the proposed project in Arizona including visual quality, scenic vistas, and agency management objectives.

Visual Quality

For purposes of this study, visual quality is a term used to describe the setting and the viewers that may be affected by the proposed project.

Landscape Character Types – Natural Setting

The study area in Arizona predominantly consists of a natural setting represented by five distinct landscape character types: desert mountains, desert foothills, bajadas, desert plains, and riparian areas. For examples of these landscape types refer to Figure 4-1.

Desert Mountain Character Type

Desert Foothill Character Type

Bajada Character Type

Figure 4-1
Proposed Devers-Harquahala Study Corridor in Arizona
Landscape Character and Image Types

Desert Plain Character Type

Riparian Character Type

Agriculture Image Type

Figure 4-1 (cont.)
Proposed Devers-Harquahala Study Corridor in Arizona
Landscape Character and Image Types

Desert mountains are generally north and northwest trending ridges that are steep, rugged, rocky, and surrounded by alluvial fans at their base. These alluvial fans coalesce to form the bajada, a gentle rolling terrain dissected by arroyos with a rocky soil including a greater diversity in vegetation as opposed to the sparsely vegetated desert plains. Foothills typically occur adjacent to or within the bajada, exhibiting rolling forms and a variety of vegetation and color.

Between the mountain ridges and foothills lies the contrasting landscape of the broad, relatively flat alluvial basins. Ephemeral streams or arroyos with their xeroriparian vegetation often traverse these plains, providing texture, color, and interest in the sparsely vegetated plain.

The Colorado River, located on the Arizona/California border, is a unique and distinct visual feature in the desert landscape, exhibiting a diversity of associated riparian vegetation in an otherwise arid setting.

Scenic Quality - Scenic quality was inventoried within a 2-mile-wide study corridor centered on the proposed Devers-Harquahala transmission line, as shown on Map 4-6a-b (end of Chapter 4). Scenic Quality Rating Forms were developed for the landscape types previously described, consistent with BLM methods, and used to determine levels of scenic quality within the corridor as described below.

The majority of land crossed by the proposed Devers-Harquahala 500kV transmission line have been designated as Class C landscapes. These areas are generally associated with low, isolated desert hills and desert plains (typically with a low diversity of vegetation). Examples of Class C scenery include the Ranegras, Harquahala, and La Posa plains.

Class B scenery is associated with landscapes having average visual variety (e.g., portions of the New Water, Eagletail, Big Horn, and Saddle mountains), and the foothills of the KOFA NWR, where terrain features are more subtle; however, special vegetation features such as saguaros are present.

Areas designated as Class A scenery, while limited, include mountainous terrain containing a variety of distinctive rock formations including Burnt Mountain, and the Dome Rock Mountains. The Colorado River with its flowing waters, associated riparian vegetation, and tamarisk flora also received an A ranking.

Visual Image Types – Developed Settings

In Arizona, only a limited amount of the area has been developed within or adjacent to the study corridor. In general, these changes are associated with rural agricultural land that is located within the study corridor, primarily in the Harquahala Valley. Landscapes characterized by agricultural image types have been modified for crop production and display patterns that are organized and predominantly based on a grid. Variations in landform are extremely limited and vegetation is seasonal, consisting primarily of cultivated crops. Cultural modifications, especially irrigation canals, have introduced water to the landscape in these areas. An example of the agricultural image type is shown on Figure 4-1, and the location of these image types within the study area are illustrated on Map 4-6a.

Existing Conditions

All land adjacent to the proposed Devers-Harquahala study corridor, in Arizona, exhibit visual conditions that have been locally modified by the presence of the existing DPV1 and Harquahala-Hassayampa 500kV transmission lines, access roads, and other forms of disturbance associated with the existing transmission line. The existing transmission lines would be adjacent to the proposed Devers-Harquahala 500kV line as it crosses Arizona, from the Harquahala switchyard to the Colorado River.

Views

The following discussion addresses viewer sensitivity and viewing conditions specific to sensitive viewpoints including residential, recreational, and travelway viewers within the Devers-Harquahala study corridor.

Residential Viewers - Isolated dispersed residences are limited and located along Links 1a, 1b, and 2 (Map 4-3a). Views from these residences to the proposed Devers-Harquahala study corridor would have mostly middleground to background views that are primarily open, with conditions that range from skylined to views that are partially skylined and backdropped by adjacent or intermediate terrain.

Recreational Viewers - In Arizona, high sensitivity recreational viewers include dispersed views that occur in wilderness areas including Hummingbird Springs (Link 1b), Big Horn Mountains (Link 1b), Eagletail Mountains (Link 1b), KOFA National Wildlife Refuge (Link 2), and New Water Mountains (Link 2). Additionally, the La Posa Recreation Area (Link 2) and Colorado River (Link 8) are identified as high sensitivity areas. Views from these locations range from foreground to background and may be open to screened and skylined, to backdropped, depending upon specific viewer location. Views from recreational users on the Colorado River are primarily limited to the foreground to middleground area and range from open and partially skylined, at the transmission line crossing of the river, to partially and fully screened from more distant views. Viewers on the proposed recreation trail along the CAP (Link 1b) would have foreground and open views.

Travelway Viewers - Areas of moderate sensitivity include I-10, where views range from foreground to background. In many cases, these views to the proposed and existing 500kV transmission line, while open, are often either back-dropped or partially backdropped by distant terrain (e.g., areas located within the Harquahala, Rangeras, and La Posa plains). In areas where the proposed Devers-Harquahala study corridor crosses the New Water and Dome Rock mountains, views may often be partially, if not wholly screened from I-10.

Scenic Vistas

There are no designated scenic vistas within the Devers-Harquahala study corridor in Arizona.

Agency Management Objectives

The majority of the proposed Devers-Harquahala transmission line is located within designated BLM utility corridors in the Lower Gila Resource Management Plan and the Yuma District RMP areas. Within these corridors, the majority of BLM land has been designated as either Class II, Class III, or Class IV areas. The proposed Devers-Harquahala study corridor does not cross any Class I lands (i.e., WAs). The KOFA WA, New Water Mountains WA, Eagletail Mountains WA, Big Horn Mountains WA, and Hummingbird Springs WA were identified as Class I. Areas designated as Class II include the KOFA Mountains and the Colorado River.

The majority of land crossed by the study corridor has been designated as Class III including portions of the La Posa, Ranegras, and Harquahala plains; Tonopah Desert; Dome Rock and Plomosa mountains; and Plomosa Pass. In addition, Class III areas are interspersed among the agricultural plains near Harquahala, Plomosa and Saddle mountains, and in a small portion of the Dome Rock Mountains. The remainder of the study corridor crosses land designated as Class IV.

4.1.11.3 California

This section describes the results of the visual resource inventory for the proposed Devers-Harquahala 500kV transmission line study corridor in California including visual quality, scenic vistas, and agency management objectives.

Visual Quality

Landscape Character Types – Natural Setting

The study area in California is characterized by seven landscape types: desert mountains, desert foothills, bajadas, desert plains, riparian areas, playas, and sand dunes. For examples of these landscape character types, refer to Figure 4-2.

Desert mountains are generally north and northwest trending ridges that are steep, rugged, rocky, with alluvial fans and/or foothills located at their base and at lower elevations. The alluvial fans coalesce to form the bajada, which is gentle rolling terrain dissected by arroyos with rocky soil and greater diversity in vegetation, as opposed to the sparsely vegetated mountains at lower elevations, with gentle slopes and finer soil texture. These foothills are generally associated with adjacent mountains, although the Indio Hills occur as a separate landscape feature.

Between the mountain ridges and foothills lies the landscape of the broad, relatively flat, alluvial basins. Ephemeral streams or arroyos traverse the plains, providing texture, color, and interest in the sparsely vegetated plain. Many of the basins are closed drainage systems that contain broad, flat, dry lakebeds or playas, often identified by colorful alkali soil. These playas are normally dry, becoming large shallow lakes during brief, wet periods. Sand dunes are a rare physiographic feature located in the Chuckwalla Valley. Their light color provides contrast to the predominantly dark olive colored desert plains.

The Colorado River, located on the Arizona/California border, provides a unique and distinct visual feature in the desert landscape. Associated with the river are the vegetated riparian zones and the barren, light-colored bluffs bordering the floodplain to the west. The area west of the Colorado River has been developed for agriculture.

Scenic Quality - Scenic quality was inventoried for the study area within a 2-mile-wide study corridor centered on the proposed Devers-Harquahala transmission line as shown on Map 4-6 c-e

(end of Chapter 4). Scenic Quality Rating Forms were developed for the landscape types described above, consistent with BLM methods, and used to characterize scenic quality within the corridor as desribed below.

The only Class A landscape occurring in the study corridor is associated with the Colorado River, its flowing waters and associated vegetation making it a distinctive feature in the otherwise arid landscape.

Mountain ranges in the study area identified as Class B scenery include the Little San Bernardino, Cottonwood, Orocopia, and Chuckwalla mountains. Other areas identified as Class B scenery include sand dunes and the Indio and Mecca hills. The characteristics of these areas exhibit diversity in color, contributing to the scenic quality. Native palm oases located on the San Andreas fault, both north and south of the Indio Hills, also were considered Class B scenery.

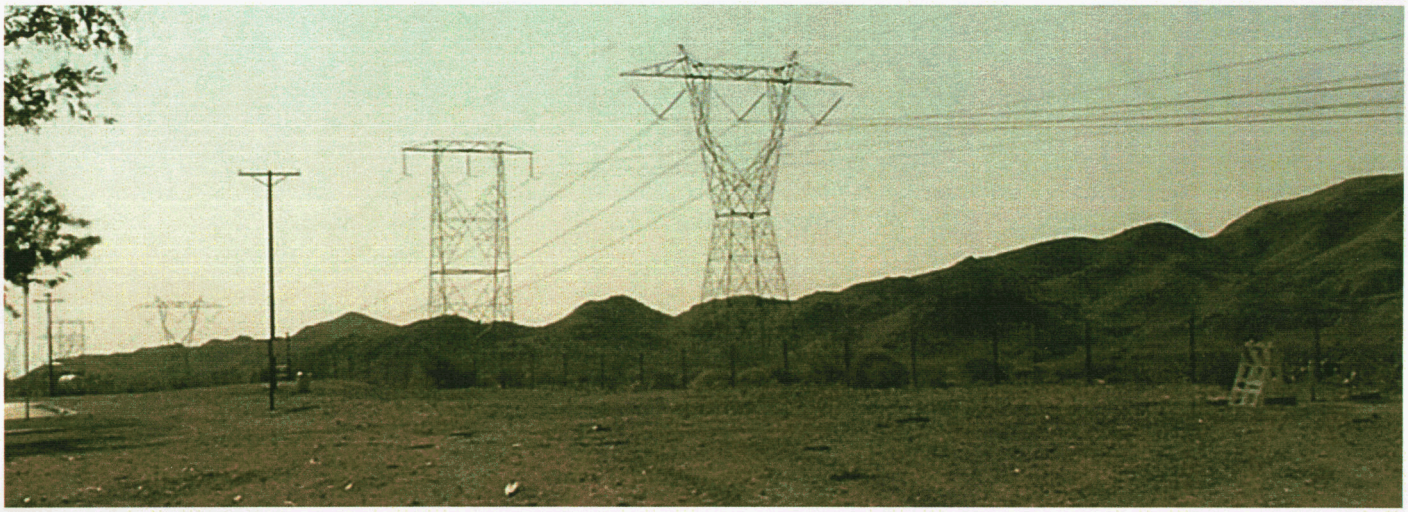
Class C landscapes including other foothills, bajadas, and plains are considered to be common to the area. Class C scenery includes the Chuckwalla and Shaver valleys, and the Coachella Valley Preserve.

Visual Image Types – Developed Areas

Developed areas crossed by the study corridor include land within the incorporated boundaries of Coachella and Cathedral City. Other developed areas in the vicinity include Palm Springs, North Palm Springs, Desert Hot Springs, Thousand Palms, Indio, and Blythe. These developed landscapes include agricultural, residential, and industrial image types within the proposed Devers-Harquahala study corridor. Examples of these image types are shown on Figure 4-2, and their locations are depicted on Map 4-6c-e (end of Chapter 4).

Agricultural Image Types – These include lands that are crossed immediately to the west of the Colorado River, in the Palo Verde Valley south of Blythe. These areas have been modified for

Desert Mountain / Bajada Character Type



Desert Foothill Character Type

Desert Plain Character Type

Figure 4-2
Proposed Devers-Harquahala Study Corridor in California
Landscape Character and Image Types

Riparian Character Type

Playa Character Type

Sand Dune Character Type

Figure 4-2 (cont.1)
Proposed Devers-Harquahala Study Corridor in California
Landscape Character and Image Types

Agricultural Image Type

Residential Image Type

Industrial Image Type

Figure 4-2 (cont.2)
Proposed Devers-Harquahala Study Corridor in California
Landscape Character and Image Types

crop production and display patterns that are organized and predominantly based on a grid, including dispersed rural residences and farmsteads. Other cultural modifications include facilities in support of agricultural production including canals and irrigation systems. Variations in landform are extremely limited and vegetation is seasonal, consisting primarily of alfalfa and cotton.

Residential Image Types – These consist of low- to medium-density, single-family detached units ranging from scattered to regularly ordered patterns. The development patterns for medium-density residential image types tend to display a strong sense of continuity in housing and street patterns, which are repeated throughout the development. These patterns are often arranged on an internal geometric grid with a loop road system, providing a perimeter of housing which serves as a separation or seam to surrounding uses. Low-density residential image types exhibit large individual lots and curvilinear circulation patterns with no centralized focus. In these areas housing character is non-unified, with random building orientations generating inward and outward views. Pockets of low- to medium-density residential areas are located adjacent to the study corridor west of Indio, and in the vicinity of the north Cathedral City and Palm Springs area.

Industrial Image Types – These include developments, which have active industrial uses including resource extraction and are found south of the Indio Hills along the western portion of the study corridor. Facilities, buildings and land modifications in this image type are centralized, often large, and may dominate the local setting in terms of complexity, scale, and layout concept. Landscape treatment (often limited) may include screening used on the perimeter of the industrial development to block views.

Existing Conditions

All of the land crossed by the proposed Devers-Harquahala study corridor in California has been locally modified by the presence of the existing DPV1 500kV and other transmission lines, access roads, and other forms of associated disturbance. This DPV1 transmission line will be

adjacent to the proposed Devers-Harquahala transmission line as it crosses California from the Palo Verde and Chuckwalla valleys, west through Coachella Valley, and into Devers. In the vicinity of Devers, two additional 230kV lines and up to two 115kV lines, and several hundred large windmills, further modify the existing landscape setting.

Views

The following discussion addresses viewer sensitivity and viewing conditions specific to sensitive viewpoints including residential, recreational, and travelway viewers within the Devers-Harquahala study corridor.

Residential Viewers - Residences in the vicinity of North Palm Springs, Desert Hot Springs, North Palm Desert, Thousand Palms, Indio, Cathedral City and dispersed residences near Indio Hills and Blythe were considered high sensitivity viewpoints (Links 10, 14, and 16). In medium- to high-density areas, views may range from open to screened depending upon the amount and type of landscaping, location of other residences, and fences and walls. In low-density residential areas, views tend to be more open. A majority of the views from residences range from middleground to background; however, in select locations including south of Blythe, and between the Indio area and North Palm Springs (Map 4-3c-e), residences will have foreground views ranging from sky-lined to back-dropped.

Recreational Viewers - High sensitivity viewers were identified for the area along the Colorado River due to the intensive water-based recreational uses found in county parks along and on the river (Link 10). Other dispersed recreational areas with high sensitivity include the Edmund C. Jaeger Preserve (Link 13), Indio Hills Palms Park (Link 14), Joshua Tree National Park (Link 13), and all WAs including the Chuckwalla Mountains WA (Link 13), Joshua Tree National Park WA (Links 13 and 14), Orocopia Mountains WA (Link 13), and Mecca Hills WA (Link 13). Moderate sensitivity viewpoints include Riverside County's proposed and existing hiking trails along the Whitewater and Colorado rivers (Links 10 and 14). Potential views from these areas

range primarily from middleground and beyond and are open to partially or fully screened, based on the location of the viewer.

Travelway Viewers - Scenic highways with high visual sensitivity include CA 62, a state designated scenic highway located west of Devers Hill and the Devers Substation (Link 16). CA 111, from SR 74 near Palm Desert to I-10, which is eligible for State Scenic Highway designation, also provides views to the study corridor (Link 16).

Several eligible Riverside County scenic highways are also found in the study area including I-10, Indian Avenue from its junction with CA 62 to Pierson Boulevard, Pierson Boulevard from Indian Avenue east to Palm Drive, Palm Drive south to Dillon Road, Dillon Road east to I-10, and CA 95 from I-10 north (Links 13, 14, and 16). Portions of I-10 that are not eligible for scenic designation were assigned a moderate sensitivity level.

Agency Management Objectives

The BLM land in California within the proposed Devers-Harquahala study corridor are managed through the CDCA Plan Amendment (USDI 2002) for the Coachella Valley, and the NECO plan (USDI 2002). These two documents provide direction on visual resources (the proposed Devers-Harquahala study corridor would be within a designated utility corridor). In the study corridor, land within the NECO planning area has not been assigned VRM classifications. This includes the eastern portion of the corridor from the vicinity of Blythe, to the eastern edge of the Chuckwalla Mountains, and the central portion of the corridor from the Chuckwalla Mountains to the CVPA Planning Area boundary in the eastern Coachella Valley. Interim VRM classifications were established as reported in the Draft Desert Southwest Transmission Line Project EIS/EIR (Foote 2003). These interim classifications were developed using the guidelines in BLM VRM Manual Section 8410 and 8411 and conform to the land use allocations set forth in the RMP, which includes the Devers-Harquahala study corridor. In this regard, the eastern end

of the corridor to the Chuckwalla Mountains was designated Class IV. The central corridor, from the Chuckwalla Mountains to the CVPA Planning Area, was designated Class III.

The remaining BLM land within the study corridor have been designated as either Class II, III, or IV . Class II areas were designated in parts of the following mountain ranges: Cottonwood, Little San Bernardino, and Alligator Rock in the Chuckwallas. Class III includes portions of the Coachella, Shavers, and Chuckwalla valleys; Palo Verde Mesa; and Indio Hills. The palm oases in the Indio Hills and the riparian zone surrounding the Colorado River were also identified as Class III. The remainder of the proposed transmission line would cross land designated as Class IV.

All WAs were identified as Class I including Paulen/McCoy WA, Joshua Tree National Park WA, Chuckwalla Mountains WA, Orocopia Mountains WA, and the Mecca Hills WA. Class I land, however, would not be crossed by the study corridor.

4.1.12 Cultural Resources

Cultural resources are defined herein as all evidence of past human activity. Included within this category are geographic places and tangible resources studied in the disciplines of archaeology (both prehistoric and historic), ethnography, and history. Although sometimes referred to as natural resources, values pertaining to the field of paleontology (i.e., the study of plant and animal fossil remains) also are included under the cultural resources heading.

Cultural resource discussion in this section is limited to information concerning (1) resource discovery methods, and (2) delineation of the area of potential effect (APE) for the proposed project, Historic Properties (i.e., resources eligible for or listed on the National Register of Historic Places [NRHP] within the APE). Potential project effects on historic properties, and proposed measures to mitigate adverse effects to historic properties associated with the proposed project are discussed in Chapters 5 and 6. Precise location of cultural resource sites will not be

disclosed in this document in accordance with provisions of the federal Archaeological Resources Protection Act of 1979 (16 U.S.C., Secs. 470aa to 47011, inclusive) regarding confidentiality. If additional information is desired, the reader is encouraged to contact the California and Arizona offices of the BLM and Office of Historic Preservation.

The cultural resource files of the California Historical Resources Inventory System, BLM California Palm Springs/South Coast Field Office, BLM Arizona State Office, Arizona State Historic Preservation Officer, AZSITE electronic database, and Arizona State Museum (ASM) were consulted for this assessment. Recent cultural resource studies of the DPV2 APE and Arizona alternatives were conducted by EPG (Dobschuetz et al. 2004; Luhnow 2004; Luhnow and Dickinson 2004), San Bernardino County Museum (Scott 2003), and Mooney-Hayes, LLP (Eckhardt and Walker 2004a; 2004b). These studies built upon numerous previous studies for the original DPV1 that included the design for a second line (Carrico et al. 1980; Carrico and Quillan 1982) and subsequent resurveys of the DPV2 tower sites and access roads for later regulatory re-filings (Swartz and Dongoske 1987). The result of this work is an extraordinarily detailed knowledge-base of cultural resources within the project APE that meets all state and federal criteria for a thorough, accurate, and intensive class III-type inventory.

Archaeological surveys within the proposed Devers-Harquahala 500kV transmission line corridor were facilitated by staked tower locations and access roads, which focused assessment work on areas of direct project effect.

Archaeology – Evidence of human presence in the study area extends from the Late Pleistocene/Early Holocene to present times. As used here, archaeology refers to the study of evidence of past human activity dating from the earliest prehistoric period to the latest historic period. Archaeologists have organized this evidence into cultural chronologies reflecting perceived cultural and occasionally environmental changes and site typologies. These typologies reflect the subsistence/settlement and cultural diversity practiced by aboriginal and historic era peoples. Synthesis of these chronologies are contained in technical documents prepared for the present analysis (Dobschuetz et al. 2004:8-13; Eckhardt and Walker 2004a, 2004b), as well as

published resources (e.g., the BLM Cultural Resource Overview of the Colorado Desert Planning Units [von Till Warren and Roske 1981] and Handbook of North American Indians, Volumes 8 and 9 [Sturtevant and Heizer 1978; Sturtevant and Ortiz 1979]). This information will not be repeated here.

Ethnography – As used here, ethnography refers to the description of aboriginal Native American peoples and incorporates aspects of ethnology dealing not only with human demographics at the time of European contact but changes that have occurred between then and the present time. The study area encompasses two major native language families and nine representative groups (Kroeber 1925).

Data presented here regarding ethnographic resources are drawn from the landmark study titled Persistence and Power (Bean and Vane 1978), which was prepared in support of the DPV1 transmission line project. This study is still considered to reflect an accurate assessment of traditional Native American values in the study corridor. The ethnographic work documented in Persistence and Power included (1) archival research and review of secondary sources to identify Native American groups associated with the study area, (2) ethnographic fieldwork among the identified Native American groups to ascertain traditional and contemporary attitudes and values associated with the study area, (3) data interpretation and an assessment of project effects on traditional Native American values associated with the study area, and (4) development of a set of suggestions to mitigate potential adverse effects to traditional values as a result of construction and operation of the project.

In Arizona, protohistoric groups in the study area were primarily Yuman speakers. Within that language family, four groups were more prominent than any other. The Mojave seem to have reflected an agricultural tradition established within the Colorado Basin by early Patayans. At the time of initial European contact, the Mojave were principally floodwater farmers, more densely settled in the Mojave Valley to the north of the study area, but extending south into the area around Parker, Arizona. An extension of that tradition may be witnessed in spring planting patterns of the Havasupai. However, this latter group was of a more arid upland adaptation

similar to the nomadic Walapai and Yavapai. Unlike the Mojave, the Walapai, Yavapai, and to some extent the Havasupai, were an extension of the very seasonal earlier Desert Archaic patterns.

Prior to having been assimilated by the Maricopa in California, the Halchidhoma occupied portions of the Colorado and Gila River basins. Along with occasional Mojave inroads, they were the only full Yuman speakers that may represent a direct historic tie with river Patayans within the study area.

West of the primary basin of the Colorado River in California, regions of largely internal drainage were the domain of inland Shoshonean speakers. Yuman speakers occupied the Colorado Desert west to Coachella Valley.

In the Transverse Range west of the Mojave Desert, the Serrano represented a mountain adaptation within the San Bernardino Mountains. Though much more oriented to higher elevations and timbered valleys, the Serrano are known to have extended their range to lower fertile valleys in the western end of the study area.

South of the Serrano, two of three Cahuilla groups were associated with the study area. The more northerly Pass Cahuilla were principally associated with the San Gorgonio Pass area. Within the Coachella Valley area, the Desert Cahuilla were found.

West of the Serrano and Cahuilla, the Gabrielino occupied the greater Los Angeles Basin. Although primarily associated with the coastal areas and Channel Islands, Gabrielino utilized territory that extended as far east as the vicinity of San Bernardino and Mount Rubidoux.

History – As used here, the term history refers to documentation of primarily non-Native American use of the study area. It is reflective of the period dating from initial European exploration of this region to approximately 50 years before present.

Spanish explorers were the first Europeans to enter the study area. Padre Marcos de Niza entered what is now Arizona from Mexico in 1539, but did not travel into the study area. De Niza was followed by Hernando de Alarcon in 1540. De Alarcon explored the lower portions of the Colorado River, but did not get very far north of Yuma, Arizona.

Juan de Oñate was probably the first white man to enter the study area. In 1604-1605 he traveled up the Colorado River as far as the Rio Azul (the Bill Williams River). In 1691 Padre Esubio Kino began missionary work in southern Arizona and founded the Mission San Xavier del Bac near Tucson in 1700. Padre Kino may have entered the study area, but most of his activities were to the south, and he probably had little effect on the Native Americans inhabiting the study area.

The first real impact of white culture on the study area came in the mid 1800s with the advent of mining in the mountains of the central portion of the study area. The towns of La Paz and Ehrenberg sprang up as a result of the mining activity. This was followed by the opening of the Bradshaw Trail through the study area in 1862. Steamer traffic on the Colorado River developed as a means of transportation and a method of getting supplies to the mines. This traffic remained high until 1909 when construction of Laguna Dam closed the river to navigation for all practical purposes.

Mining in the study area continued into the 1900s, but was almost completely phased out by World War I. Ranching and agriculture gradually developed beginning in the mid 1800s. Agriculture is presently well developed along the Colorado River, in some eastern portions of the study area, and in the Coachella Valley in the western end of the study area.

The traditional Native American cultures were gradually overwhelmed by these activities, and by the early 1900s the original inhabitants had been largely driven from the area and confined on reservations.

Some of the most recent historic resources in the study area are the result of the establishment of Camp Young (also known as the Desert Training Center and the California/Arizona Maneuver

Area). This training camp was the largest ever established by the U.S. Army, and covered 55,000 square miles in California and Arizona. Camp Young acquired much of its fame by association with General George S. Patton, who selected the area as the training center for his World War II North Africa campaign. Several Camp Young headquarters were established; the best preserved is near the northern portion of the study area in the vicinity of the Iron Mountains in California. Another headquarters location is near Desert Center, California, in the vicinity of the existing DPV1 transmission line. Roads and rock alignments with associated discarded materials can still be seen there.

Another military maneuver, Operation Desert Strike, took place within the study area in 1964. Remnants of Operation Desert Strike, including tank tracks, discarded military materials, and temporary camps, can be found scattered throughout the study area. Several well preserved rock alignments and camp areas left from Operation Desert Strike are located near Quartzsite, Arizona.

Paleontology – The paleontological resource inventory presented here is derived from a paleontological literature and records review for both the California and Arizona sections of the proposed Devers-Harquahala 500kV transmission line study corridor, prepared by the Division of Geological Sciences of the San Bernardino County Museum, California (Scott 2003). That study was based on previous geologic mapping (Jennings 1967; Richard, et al. 2000; Rogers 1965). A variety of geologic rock units are traversed by the project alignment that range in age from Proterozoic metamorphic rocks to Holocene alluvium and sand dune deposits. Potentially fossiliferous sedimentary and metasedimentary rock units located within the study area range in age from Late Jurassic–Cretaceous nonmarine sedimentary rocks to Late Pleistocene deposits. Appendix L and Appendix M provide a brief description of these rock units in order from oldest to youngest.

4.1.12.1 Arizona

Archaeology

The Class I records review of the Arizona study corridor identified 56 documented archaeological studies and 221 previously recorded sites located within 1 mile of the study corridor. Locations of those sites identified through the records review to be within the project APE (defined as within 100 feet of the proposed tower and access road locations) were revisited in the field for this project (Dobschuetz et al. 2004). A total of 15 archaeological site locations were visited in this attempt. Many of the revisited sites were recorded by Carrico and Quillan (1982) as part of the original DPV1 project.

Site definition and recordation standards have evolved over the 20+ years since the Carrico and Quillan (1982) assessment. It was discovered during the Class III survey (Dobschuetz et al. 2004) that some of the 15 sites revisited did not meet the criteria for site definition as currently defined by the ASM (AZ R:7:49 [ASM], AZ R:8:60 [ASM], AZ S:5:15 [ASM], and AZ S:7:15 [ASM]). Some were erroneously mapped as within the APE when they were not in the APE (AZ S:5:15 [ASM], AZ S:5:18 [ASM, AZ S:6:12 [ASM], AZ S:8:12 [ASU]/AZ S:8:10 [ASM], and AZ S:8:17 [ASM]), and one (AZ S:10:14 [ASM]) was recorded apparently outside the APE but was found to be in the APE. Four other sites (AZ R:8:37 [ASM], AZ R:8:44 [ASM], AZ S:6:21 [ASM], AZ S:7:1 [ASM]/AZ S:7:1 [ASU]) could not be relocated and documentation indicates they were collected as part of earlier projects and no longer exist within the APE. Of the 15 previously recorded sites in or near the APE, only five were relocated (AZ R:7:66 [ASM], AZ-S:5:18 [ASM], AZ S:6:12 [ASM], AZ S:8:1 [ASM], and AZ S:8:14 [ASM]), and of these only two (AZ S:8:1 [ASM] and AZ S:8:14 [ASM]) were found to be within the APE.

Of the two prehistoric archaeological sites confirmed by way of the Class III survey to be located within the project APE (AZ S:8:1 [ASM] and AZ S:8:14 [ASM]), only one (AZ S:8:1 [ASM]) has been assessed eligible to the NRHP. AZ S:8:1 (ASM) was confirmed by Carrico and Quillan (1982) and Stone (1979) to have no subsurface component. Artifacts from this site were

collected and analyzed as part of the original DPV1 project (Carrico and Quillan 1982) and the site artifacts identified during the Class III survey (Dobschuetz et al. 2004) were similar to those previously collected and analyzed. Thus, the data potential for the portion of AZ S:8:1 (ASM) located within the project APE now appears exhausted.

During the Class III archaeological survey of the project tower pads and access roads, 29 isolated archaeological occurrences were recorded (Dobschuetz et al. 2004). Of these occurrences, 13 were prehistoric and 5 were indeterminate features. Of the prehistoric isolated occurrences, 11 were chipped stone artifacts and 2 were ceramic sherds. Distribution of these artifacts across the landscape indicates that they increase in frequency with proximity to the bajada slopes of the mountains in the study area, and likely represent limited use of these areas during prehistory. Isolated artifacts do not meet criteria for listing on the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of several areas of ethnographic concern in the vicinity of the project area (Bean and Vane 1978). Some of these places may meet criteria for designation as traditional cultural properties (TCPs). These places are the Dome Rock Mountains, Tyson Wash, Dripping Spring, La Posa Plain, Kofa Mountains, Little Horn Mountains, Gunsight Notch Ridge, Ranegras Plain, Eagletail Mountains, and the Harquahala Plain (ibid). In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors.

Native American groups such as the Chemehuevi, Mojave, Yavapai, Tohono O'odham, Hia-Ced O'odham, and Cocopah may have affiliation with these areas. BLM staff have indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

The Class I research identified 16 historic-era sites within the 1-mile-wide study area. None of these sites are located in the project APE. One new archaeological site, AZ R:7:113 (ASM), was recorded during the Class III survey (Dobschuetz et al. 2004). This site is described as a historic-era artifact scatter, and was not deemed NRHP eligible.

During the Class III archaeological survey of the project tower pads and access roads, 16 historic-era isolated archaeological occurrences were recorded (Dobschuetz et al. 2004). Of these resources, 7 were historic artifacts, 4 were historic GLO survey markers, and 5 were indeterminate features. Isolated artifacts do not meet criteria for listing on the NRHP.

Paleontology

Between the Harquahala Switchyard and the Arizona/California border (Links 1A, 1B, 2, 6, and 8) the study corridor crosses approximately 88.7 miles of high or undetermined areas of paleontological sensitivity. The remainder of the area is low paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium and Holocene alluvium in Links 1A, 1B, and 2, Proterozoic metamorphics (overlain intermittently by Pleistocene and/or Holocene sediments) occur in Link 1B, Cretaceous nonmarine and undivided Quaternary sedimentary rocks in Link 2, and undivided Jurassic and Cretaceous nonmarine sedimentary rocks and Plio-Pleistocene alluvium in Link 6 (Scott 2003).

4.1.12.2 California

Archaeology

A records search identified 31 previously recorded archaeological resources and 34 isolated occurrences within the project APE (defined as within 100 feet of the project tower pads and access roads). Many of these resources were recorded as part of the original DPV1 project in 1980 (Carrico et al. 1980). Of these resources, five archaeological sites (RIV-183T, RIV-772T, RIV-893T, RIV-1808 and RIV-1812) could not be relocated during the Class III survey (Eckhardt and Walker 2004b).

In addition to the 26 previously recorded archaeological sites relocated during the Class III survey (RIV-53T(b), RIV-53T(c), RIV-53T(d), RIV-164T, RIV-250T, RIV-343T(b), RIV-343T(c), RIV-650T, RIV-673T, RIV-1018, RIV-1115T, RIV-1118, RIV-1119, RIV-1383, RIV-1811, RIV-1813, RIV-1814, RIV-1815, RIV-1816, RIV-1817, RIV-1818, RIV-1819, RIV-1820, RIV-1821, RIV-1822, and RIV-1823), another 11 archaeological sites and 8 isolated occurrences were identified. Of these resources, 18 are listed on or potentially eligible for listing on the NRHP. These NRHP eligible or potentially eligible resources include previously recorded RIV-53T(c), RIV-53T(d), RIV-250T, RIV-343T(b), RIV-343T(c), RIV-650T, RIV-673T, RIV-1119, RIV-1383, RIV-1813, RIV-1814, RIV-1815, RIV-1816, RIV-1819, RIV-1821, RIV-1822, P33-13574 and P33-13576.

The 8 isolated prehistoric archaeological occurrences consist of 1 flake, 2 lithic flake or tool occurrences, and 5 ceramic sherd occurrences. Isolated artifacts do not meet criteria for listing on the NRHP (Eckhardt and Walker 2004a).

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Cahuilla, Chemehuevi, and Mojave Native American groups between Devers and the Colorado River. These are archaeological sites and aboriginal trails in the north Palm Springs/Whitewater River areas; Edom Hill; the extensive complex of archaeological sites, trails, and Native plant and animal resources associated with the numerous palm oasis in the Indio Hills; archaeological sites and aboriginal trails in the Cottonwood Springs/Desert Center areas; archaeological sites and aboriginal trails in the Chuckwalla Valley area; and archaeological sites and aboriginal trails in the Colorado River area. With the exception of Edom Hill, none of the areas with direct Native American cultural association are located within the project APE. Edom Hill may qualify as a NRHP eligible traditional cultural property. In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors (Bean and Vane 1978).

BLM staff have indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

A records search identified five previously recorded historic-era resources within the project APE (defined as within 100 feet of the project tower pads and access roads). Many of these resources were recorded as part of the original DPV1 project in 1980 (Carrico et al. 1980). All were relocated during the Class III survey (Eckhardt and Walker 2004a).

In addition to the five previously recorded sites relocated during the Class III survey (RIV-1117H(a), RIV-1117H(b), RIV-1635H, RIV-1809H, and RIV-1810H), another 18 historic-era

sites and 12 isolated occurrence were identified. Of these sites, 13 are listed on or potentially eligible for listing on the NRHP. These NRHP eligible or potentially eligible resources are RIV-1117H(a), RIV-1117H(b),RIV-1809H, RIV-1810H, RIV-7489H, RIV-7490, P33-13588, P33-13596, P33-13598, P33-13600, P33-13601, P33-13602, and P33-13603.

The single historic-era isolated occurrence is a historic glass bottle. Isolated artifacts do not meet criteria for listing on the NRHP (Eckhardt and Walker 2004a).

Paleontology

Between the California border and Devers (Links 10, 12, 13, 14, and 16) the study corridor traverses approximately 30.9 miles of high or undetermined areas of paleontological sensitivity. The remainder of the area is low paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium in Links 10, 13, and 14; Eocene Maniobra Formation rocks in Link 13; and Ocotillo Conglomerate and Pliocene nonmarine sediments in Link 14 (Scott 2003).

4.1.13 Public Health and Safety

4.1.13.1 Arizona

School Facilities

Within Arizona, there are no existing or proposed schools located within the study corridor.

Airport and Airstrip Operations

The Mauldin Airstrip is located approximately 1.6 miles east of the existing DPV1 transmission line within the study corridor , near I-10 north of Saddle Mountain. There are no other airports or airstrips located within 2 miles of the study corridor.

4.1.13.2 California

School Facilities

Within California there are no existing schools located within ¼ mile of the existing DPV1 transmission line within the study corridor. Contacts with the Desert Sands and Palm Springs Unified School Districts indicate that no schools are planned for construction within the corridor.

Airport and Airstrip Operations

The Chiriaco Summit Airport is located about 1 mile north of the existing DPV1 transmission line within the study corridor, between the Orocopia and Cottonwood mountains.

4.2 WEST OF DEVERS 230KV TRANSMISSION UPGRADE

4.2.1 Introduction

The proposed 230kV transmission line upgrade route includes approximately 48 lineal miles of existing right-of-way between the Devers Substation, located north of Palm Springs, California and the Vista Substation located in Grand Terrace, California, with an interconnection at the San Bernardino Substation in unincorporated San Bernardino County. The following sections present

information about the proposed study corridor pertaining to land use, socioeconomics, population and housing, geology and soils, hydrology, air quality, traffic and transportation, biology, noise, mineral resources/energy, hazards and hazardous materials, public services and utilities, visual resources, cultural resources, and recreation.

4.2.2 Land Use

For the purposes of the land use study, a 2-mile-wide study corridor, centered on the proposed transmission line upgrade right-of-way, was inventoried.

The majority of the west of Devers study corridor is composed of private land. A small amount of BLM land is crossed to the west of Devers. Additionally, a small portion of BLM land is located within the corridor to the west of the city of Beaumont. The Morongo Indian Reservation also is within the west of Devers study corridor.

Incorporated cities within the west of Devers study corridor include Palm Springs, Desert Hot Springs, Banning, Beaumont, Calimesa, Redlands, Loma Linda, San Bernardino, Colton, and Grand Terrace. Other population centers include unincorporated communities (White Water, Cabazon, and Cherry Valley), and large-lot rural residential areas.

Other land uses within the study corridor not associated with incorporated population centers include energy facilities, mining operations, farms, ranches, rural residences, communication sites, and agriculture.

4.2.2.1 Methodology

The inventory was compiled through interpretation of existing maps and aerial photographs within and adjacent to the west of Devers right-of-way comprising a 2-mile-wide study corridor.

The mapped information was then field verified by air and ground reconnaissance. In addition, key federal, state, county, and local land resource agencies were contacted to update official information and identify planned land uses.

Land use inventory results are described in the following sections and displayed on the following maps (at the end of Chapter 4):

- Map 4-1c: Land Ownership
- Map 4-2e: Land Jurisdiction
- Map 4-3e: Land Use – Existing
- Map 4-4e: Land Use – Future

4.2.2.2 Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped within the west of Devers study corridor, primarily from secondary data sources. Descriptions of the major data categories follow, and the information is listed in Table 4-41 and 4-42 and shown on Maps 4-1c, and 4-2e.

TABLE 4-41
LAND OWNERSHIP CROSSED BY THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Ownership	Total Miles Crossed
Bureau of Land Management	1.0
Bureau of Indian Affairs (Morongo)	4.4
Private Land	42.7
Total	**48.1**
Note: Totals may not check due to rounding.	

TABLE 4-42 LAND JURISDICTION CROSSED BY THE PROPOSED WEST OF DEVERS STUDY CORRIDOR	
Jurisdiction	**Total Miles Crossed**
Morongo Reservation	4.4
Unincorporated Riverside County	19.9
Unincorporated San Bernardino County	2.9
City of Banning	5.0
City of Beaumont	3.8
City of Calimesa	2.9
City of Colton	1.8
City of Grand Terrace	0.8
City of Loma Linda	3.8
City of Redlands	2.9
Total	**48.2**
Note: Totals may not check due to rounding.	

Bureau of Land Management

A small portion of the west of Devers study corridor contains BLM-managed land. BLM land is primarily found in the eastern portions of the San Gorgonio Pass near Palm Springs. The proposed west of Devers 230kV upgrade right-of-way crosses 1 mile of BLM land in the northern half of Section 10, Township 3S Range 3E, along Link 100 near Milepost 4. Another portion of BLM land is within and adjacent to the study corridor south of Calimesa, south of Link 102 at Milepost 12.5.

Native American Lands

The Morongo Indian Reservation is located west of Palm Springs within the San Gorgonio Pass and is crossed by Link 100.

Incorporated Areas

Ten incorporated areas are located within the west of Devers study corridor—Palm Springs, Desert Hot Springs, Banning, Beaumont, Calimesa, Redlands, Loma Linda, San Bernardino, Colton, and Grand Terrace. The proposed west of devers upgrade corridor would cross through the cities of Banning, Beaumont, Calimesa, Redlands, Loma Linda, Colton, and Grand Terrace.

Private Land

Private land is found throughout the study corridor, and is the primary ownership category.

4.2.2.3 Existing Land Use

The following categories of existing land uses within the west of Devers study corridor were identified and mapped based on aerial photographs, existing maps, public documents, and field reconnaissance. Results are shown in Map 4-3e. A summary of land uses crossed by the study corridor is presented in Table 4-43.

TABLE 4-43
EXISTING LAND USES CROSSED
BY THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Land Use Category	Link	Milepost	Miles Crossed
Extraction Mining	100	3.5	0.2
Extraction Mining	101	8	0.4
Cemetery	102	1	0.1
Regional Park (Noble Creek)	102	7	0.1
Community Park	102	7.2	0.3
Golf Course (Oak Valley)	102	7.5 and 8	0.2
Orchard	102	9.5	0.2
Various Rural Residential	102	15 to 20	0.2
Orchard	102	18.5	0.1
Residential	103	3 to 5	1.0
Agriculture	104	1.5	0.3
Orchard	104	2	0.7
Agriculture	104	3	0.8

Note: Mileposts which depict ranges indicate a portion of corridor along which small sections of a land use category are crossed. The sum of these sections is shown under the column titled miles crossed.

Residential

Residential land uses are primarily associated with the developed communities located within and adjacent to the west of Devers study corridor. Developed areas include the incorporated cities of Palm Springs, Desert Hot Springs, Banning, Beaumont, Calimesa, Redlands, Loma Linda, San Bernardino, Colton, and Grand Terrace, and the unincorporated rural communities of Whitewater, Cabazon, and Cherry Valley. In addition, trailer/mobile home parks and large-lot residential subdivisions found throughout the study corridor have been classified as residential use.

Numerous areas of low-density residential use are found in the vicinity of Link 100, north of Mileposts 1.5 and 6.5, associated with Whitewater, and also near Link 101, north of Mileposts 4.5 to 6, on the Morongo Reservation. Medium-density residential areas are located near Link 102, Milepost 0.5 near Banning and Link 102, Milepost 6 near Beaumont. The medium-density residential community of Oak View is crossed by Link 102 from Milepost 7 to 8 and is in the western portion of Beaumont. Generally, along Link 102 north of Mileposts 18 to 21 in the San Timoteo Canyon, is low-density rural residential housing. Link 104 crosses Loma Linda through low-, medium-, and high-density residential areas from Milepost 0.5 to 2.5. Link 103 crosses Reche Canyon to the south of a low- to medium-density residential area from Milepost 2 to 3. Finally, Link 103 passes through a low- and medium-density residential area in Grand Terrace from Milepost 4 to 5.

Commercial and Industrial

Commercial uses correlate with urbanized areas and are associated with the major transportation routes found in rural areas throughout the west of Devers study corridor. Link 101 passes to the north of a Cabazon Morongo outlet mall near Milepost 5. Link 104 passes through a commercial area in Loma Linda south of I-10 near Milepost 2. Link 103 passes to the south of a commercial center in Grand Terrace near Milepost 4.5.

Light and heavy industrial uses are situated throughout the study corridor. Heavy industrial sites are primarily located in the urbanized areas such as in the city of Colton, west of the Vista Substation. Large-scale commercial wind energy facilities are located in the vicinity of the Devers (Link 100 from Milepost 2 to 3). Light industrial warehousing is located on county land to the east of Link 104 near Milepost 3. Sand and gravel operations also are found throughout the study corridor and are crossed by Link 100 at Milepost 3.5 and 7.5. Communication sites within the west of Devers study corridor mainly consist of microwave, radio, and cellular towers and are usually located atop mountain peaks and hillsides. Cellular equipment also is located on SCE's existing transmission lines.

Public/Quasi-Public

SCE's existing right-of-way and the proposed west of Devers 230kV upgrade corridor crosses through the Summit Cemetery, located on San Gorgonio Avenue in Banning, at Milepost 1 of Link 102. There are three other cemeteries within the study corridor in varying proximity to the existing right-of-way as follows: (1) in Colton City, about ½ mile north; (2) in Beaumont, about ⅓ mile south; and (3) in an unincorporated area near Beaumont, about 1/10 mile south of the right-of-way.

Agriculture

Agriculture within the west of Devers study corridor is located within the San Gorgonio Pass, within San Timoteo Canyon, and north of I-10 near Loma Linda. Agricultural production includes citrus and field crops in most agricultural areas.

Agricultural land located in southern California consists of the following four classifications, as established by federal and state agencies: Prime Irrigated Farmland, Statewide Important Farmland, Unique Farmland, and Local Important Farmland. A total of 0.3 mile of agricultural

land is crossed by Link 102, and includes all four of the farmland classifications. Link 104 crosses about 1.8 miles of Prime Irrigated Farmland that includes both cropland and orchards.

Air Facilities

Air facilities with FAA recognized airspace were identified. Other such facilities may exist in the vicinity of the study corridor as agricultural operations, and may utilize sparsely traveled roads as take-off and landing strips.

There are two airports located in the west of Devers study corridor. San Bernardino International Airport is situated 1 mile north of the San Bernardino Substation corresponding to Link 104. The Banning Airport is 1 mile south of Link 101 Milepost 7. FAA designated interference zones were identified around airports and airstrips within the study corridor, although the proposed transmission upgrade right-of-way would not be located within any of these zones.

Vacant/Undeveloped and Grazing Land

The vacant land use category includes all of the land within the west of Devers study corridor that does not contain a specific land use. Limited livestock grazing occurs on undeveloped land within the west of Devers study corridor.

Linear Features

Numerous utilities cross the study corridor and include pipelines, transmission lines, aqueducts, canals, transportation routes, and railroads. The proposed west of Devers transmission upgrade would include the Devers-San Bernardino No. 1 and No. 2 230kV, and the Devers-Vista No. 1 and No. 2 230kV transmission lines. The four lines cross and parallel one another at varying

distances throughout the study corridor. Other existing linear utility features, such as pipelines and transmission lines, parallel and cross the study corridor, as presented in Table 4-44.

TABLE 4-44
SUMMARY OF TRANSMISSION LINES THAT PARALLEL OR CROSS THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Transmission Line Name
Devers-Banning-Garnet Wind Park to Zanja 115kV
Devers-Capwind to Concho to Mirage 115kV
Devers-Carodean to Hi Desert to Yucca 115kV
Devers-Eisenhower 115kV
Devers-Farrell to Windland 115kV
Devers-Garnet to Indigo 115kV
Devers-Hi Desert to Terawind to Yucca 115kV
Devers-Mirage 230kV
Devers-Valley 500kV
Banning-Garnet to Marachino Wind Farm 115kV
Coachella Valley-Devers 230kV
Coachella Valley-Mirage 230kV
Etiwanda-Vista 230kV
Etiwanda-San Bernardino 230kV
Garnet-Santa Rosa 115kV
Julian Hinds-Mirage 230kV
Maraschino-San Bernardino 115kV
Mira Loma-Vista #1 230kV
Mira Loma-Vista #2 230kV
Mirage-Tamarisk 115kV
San Bernardino-Vista 230kV
Valley-Mayberry-Moreno-Vista 115kV
Valley-Moreno-Vista 115kV
Vista-Highgrove #2 115kV
Vista-Highgrove #1 115kV
Vista-Calelectric 115kV

Major transportation routes in the west of Devers study corridor include I-10, I-215, CA 62, and San Timoteo Canyon Road, and are shown in Table 4-45.

TABLE 4-45 SUMMARY OF MAJOR TRANSPORTATION ROUTES CROSSED BY PROPOSED WEST OF DEVERS STUDY CORRIDOR		
Transportation Routes Crossed by Study Corridor	**Link**	**Milepost**
I-10	102 104	9.0 2.5
I-215	103	4.5
CA 62	100	1.0
San Timoteo Canyon Road	102	12.0

4.2.2.4 Future Land Use

General Comprehensive and Land Management Plans

General comprehensive and land-management planning documents were reviewed to identify future land uses within the west of Devers study corridor. Table 4-46 lists these documents by jurisdiction with their adoption status. The future land uses identified in the west of Devers study corridor is shown on Map 4-4e.

TABLE 4-46 LAND MANAGEMENT AND GENERAL PLANS FOR PROPOSED WEST OF DEVERS STUDY CORRIDOR			
	General Plan Title/Location of Information	**Managing District**	**Date of Adoption**
County	Riverside County Comprehensive General Plan	Riverside County	Oct 2003
	San Bernardino County General Plan	San Bernardino County	Aug 1999 (revised)
Local	City of Grand Terrace General Plan Map of General Land Use	City of Grand Terrace	1997 Mar 2003
	City of Colton General Plan	City of Colton	Feb 2005
	City of Loma Linda Draft General Plan	City of Loma Linda	Oct 2004
	City of San Bernardino Draft General Plan	City of San Bernardino	Jan 2005
	City of Redlands General Plan	City of Redlands	Aug 1995 as amended
	City of Calimesa General Plan	City of Calimesa	Apr 1994
	City of Beaumont General Plan Map of General Land Use	City of Beaumont	1995 Oct 2000
	City of Banning Draft General Plan	City of Banning	Apr 2004
	City of Desert Hot Springs Comprehensive General Plan	City of Desert Hot Springs	Sept 2000
	City of Palm Springs General Plan	City of Palm Springs	Mar 2003

Riverside County

The Riverside County Comprehensive General Plan policy format provides a means for meeting State General Plan requirements and county needs for long-range direction, while providing the County with sufficient flexibility to respond to future changes. Riverside County has established land use categories that define the intensities and extent of future land uses. These categories are agricultural, rural, open space, and community development. Each of these is subdivided into more detailed land use designations at the area plan level. riverside county has been divided into 19 Land Use Planning Areas, and 3 of the 19 encompass the proposed transmission line corridor: Western Coachella Valley, The Pass, and Reche Canyon/Badlands.

Palm Springs

The proposed study corridor begins at Devers, north of the city limits of Palm Springs. The west of Devers corridor crosses through the Palm Springs sphere of influence as it passes to the west. The land use designations within the study corridor include low-density residential, open space, and energy-related industrial. Link 100 passes north of Palm Springs from Milepost 0 to 7.

Desert Hot Springs

The southwestern corner of the city falls within the west of Devers study corridor and is planned for industrial use and mountain reserve (preservation). The corridor crosses through a portion of the city's sphere of influence. The land use designations crossed include low-density residential and energy-related industrial. Link 100 passes south of Desert Hot Springs to the south from Milepost 1 to 3.

Banning

The west of Devers study corridor passes within the city limits of Banning, through the northern portion of the city. The land uses within the corridor are designated as low-density residential, agricultural, industrial, recreation, and open space. Link 101 at Milepost 6 and Link 102 from approximately Milepost 0 to 5, for a total of 5 miles, crosses through the city of Banning.

There are two active proposed developments in the city of Banning along the proposed west of Devers corridor and existing 230kV transmission line right-of-way. The Loma Linda Property specific plan and Draft EIR are in the review process for a 600-acre project at Milepost 2 of Link 102. The Deutsch Property is a 1,552-acre proposed development with an approved specific plan, located along Link 102 at Milepost 4.

Beaumont

The west of Devers study corridor crosses through approximately 4 miles of the northern portion of the city of Beaumont, from Milepost 6 to 9, along Link 102 . The land use designation for the existing 230kV transmission line right-of-way identifies a recreational greenbelt through which the proposed transmission upgrade would cross. Other land use elements identified by the city within the study corridor are low-, medium-, and high-density residential, commercial, business park industrial, and public facilities.

Four proposed project developments are located within the city of Beaumont along the 230kV transmission line right-of-way. The Sundance residential development is approximately 1,200 acres and located at Milepost 5 of Link 102. The Sundance Specific Plan was approved in June 2004 and the development is now under construction. The planned 330-acre Noble Creek residential development, located at Milepost 7 of Link 102, is pending city approval. The 76-acre Corman Leigh residential development, located at Milepost 9 of Link 102, is is under

construction. SunCal Corporation's 1,556-acre Oak Valley Champions residential development is also under construction, located along Link 102 from Milepost 10 to Milepost 12.

Calimesa

The Calimesa General Plan is a long-range comprehensive plan designated to regulate growth in the area and maintain environmental quality. The general plan indicates that a recognized utility easement runs along the southern portion of the city and sphere of influence. The proposed west of Devers upgrade would be located within the recognized utility easement. Other land use elements within the study corridor include low- and high-density residential, public/quasi-public, agricultural/ranching, and vacant/undeveloped. Link 102 crosses about 3 miles of the city of Calimesa from Mileposts 9 to 12. The Oak Valley Development is located in the southern portion of Calimesa, north of the existing right-of-way at Milepost 10 to Milepost 12.

San Bernardino County

The San Bernardino County General Plan represents the county's official position on future development and provides guidance in the form of goals and policies that span from 5 to 20 years.

The plan divides the region into subregional planning areas that focus on natural and man-made resources. The proposed west of Devers study corridor crosses subregion RSA-29, which is located in the eastern portion of the Valley Region of the San Bernardino County General Plan. The unincorporated land within the study corridor falls within the spheres of influence of those nearby cities located in San Bernardino County.

Redlands

The Redlands General Plan is a set of policies that guide development regulations and decisions. The plan has designated much of the southern portion of the city as resource preservation. The west of Devers study corridor crosses through Redlands within this resource preservation area. Other land use designations within the study corridor include low-density residential and public. The San Bernardino Substation is located within the city of Redlands. Link 102 crosses within Redlands for 2 miles from Milepost 19 to 21, and Link 104 also crosses within the City for 1 mile from Milepost 2.5 to 3.5.

Loma Linda

The Loma Linda General Plan contains a comprehensive plan for managing the community's future. The west of Devers study corridor crosses through the southern portion of the city. Links 103 and 104 cross Loma Linda. The land use designations for that portion include low-density residential and preservation. Link 103 proceeds west through Loma Linda for 1.5 miles.

San Bernardino Junction is located east of the Loma Linda city limits. Link 104 proceeds north for 2 miles through a public open space designated as a riding and hiking trail to the San Bernardino Substation. The other land uses within the study corridor for the proposed line include low-, medium-, and high-density residential, commercial, business park industrial, industrial, and public.

Colton

The west of Devers study corridor crosses through approximately 2 miles of the eastern portion of Colton along Link 103. The designated land uses within the study corridor include low- and high-density residential, commercial, planned community development, and public.

Grand Terrace

The west of Devers study corridor passes through 1 mile of the city of Grand Terrace along Link 103 and terminates at the Vista Substation. The proposed line crosses low-density residential and industrial. The other categories within the study corridor include medium-density residential, commercial, industrial, public, and open space.

4.2.2.5 Park, Recreation, and Preservation Land Uses

Park, recreation, and preservation land uses within the west of Devers study corridor are presented on the Existing Land Use Map (Map 4-3e) and summarized in this section.

BLM Areas of Critical Environmental Concern

The Whitewater Canyon Area of Critical Environmental Concern (ACEC) is located ½ mile north of Milepost 5 of Link 100 within the west of Devers study corridor. The 16,400-acre Whitewater Canyon ACEC was designated by the BLM in September 1980 for fish and wildlife, botanical, and cultural value.

State and County Parks

The state has acquired land within San Timoteo Canyon in Riverside County for future recreation use. The property may not be available for public use until the necessary planning, staffing, and facility development occurs.

There are four Riverside County parks within the west of Devers study corridor. Of these, only the Noble Creek Regional Park would be crossed by the proposed west of Devers transmission

upgrade, along Link 102 at Milepost 7 (approximately 0.1 mile). Noble Creek provides athletic and outdoor opportunities.

Three other parks are located within the study corridor, but would not be crossed by the west of Devers upgrade. Bogart Park is located north of Beaumont in Cherry Valley and supports horseback riding, camping, hiking, and picnicking. Bogart Park is north of Milepost 25 on Link 102. The Gilman Historic Ranch and Wagon Museum is located in Banning on Wilson and 16th Street and has historical interpretive programs. The Gilman Historic Ranch and Wagon Museum is south of Milepost 1 on Link 102. Norton Younglove Reserve is located 5 miles east of Moreno Valley off Highway 60 and Theodore Street and is designated as an off-road vehicle park. The Norton Younglove Reserve is south of Milepost 30 of Link 102.

San Bernardino County does not have any parks within the study corridor.

Scenic Roads

There are two scenic highways designated by the California Department of Transportation within the west of Devers study corridor. They are CA 62, between I-10 and the San Bernardino County line, and CA 243 between CA 74 and the city limits of Banning. The study corridor near Milepost 1 on Link 100 crosses CA 62. CA 243 has a view of the study corridor to the south from the junction between Links 101 and 102.

In addition to the state-designated scenic highways, highways eligible for scenic designation include CA 111 between CA 74 and I-10 near Whitewater, and I-10 between CA 38 near Redlands and CA 62 near Whitewater. CA 111 is located near Milepost 5 on Link 100. I-10 is parallel to the study corridor for approximately 30 miles along Links 100, 101 and 102 and crosses the study corridor near Milepost 20 of Link 102.

Recreational Areas

Hiking and Riding Trails

The California State Parks department developed the 2002 California Recreational Trails Plan. Appendix B of the plan contains a map of the proposed and developed California Trail Corridors up to the year 2000. The west of Devers study corridor contains two trails listed in the plan. The Pacific Crest National Scenic Trail passes through the study corridor crossing Link 100 at Milepost 7. The Santa Ana River Trail corridor was proposed for establishment in 2002. The Santa Ana River Trail connects Huntington Beach to the Pacific Crest Trail. The trail is approximately 110 miles in length and is partially complete. The Santa Ana River Trail passes within the study corridor to the north of Links 103 and 104.

Campgrounds

Bogart Park is located north of Beaumont in Cherry Valley and supports camping, horseback riding, hiking, and picnicking. Fisherman's Retreat is located within San Timoteo Canyon and provides opportunities for camping and fishing. Fisherman's Retreat is located north of Milepost 14 of Link 102.

Golf Courses

Four golf courses are within the west of Devers study corridor and include Calimesa Country Club, PGA Southern California Golf Club, Oak Valley Golf Club, and the Palm Meadows Golf Course. The corridor crosses the Oak Valley Golf Club at Milepost 7.5 and 8.0 at Link 102 (approximately 0.2 mile).

Roadside Rest Areas

Two roadside rest areas are located within the west of Devers study corridor. The Whitewater Rest Area is located on I-10, 1 mile west of Whitewater and located approximately at Milepost 4 on Link 100. The Brookside Rest Area is located 3 miles west of Beaumont and is only accessible in the westward direction. The Brookside Rest Area is located near Milepost 9 on Link 102.

4.2.3 Socioeconomics, Population, and Housing

From the Devers Substation, the study corridor travels west through the Riverside County communities of Banning, Beaumont, and Calimesa. The corridor then proceeds northwest into San Bernardino County and the communities of Redlands, Loma Linda, Colton, and Grand Terrace enroute to the Vista Substation.

4.2.3.1 Riverside County

Riverside County encompasses 7,200 square miles with a population density of 214 persons per square mile. Riverside County has experienced a high growth rate for the past 20 years, increasing 76.5 percent between 1980 and 1990. Between 1990 and 2000, Riverside County experienced a 32 percent growth rate in county population, the fifth highest of all 58 California counties (SCAG 2000). The County's aggregate household income was $28 billion in 1999, comprising about 3.8 percent of the state aggregate household income (U.S. Census Bureau 2000).

The area through which the proposed west of Devers study corridor passes, including Banning, Beaumont, and Calimesa, is primarily rural, agricultural, and light urban in nature. Banning covers 22 square miles and has 11 hotels and 15 mobile home/recreational vehicle parks with a

total of 1,007 spaces. Because it is situated on I-10, the area receives a large amount of traffic, and the city estimates that on a normal day (excluding holidays and weekends), over 110,000 cars pass through the community. The city of Beaumont encompasses 26 square miles and has six motels and four mobile home/recreational vehicle parks. The city of Calimesa encompasses 16 square miles and was incorporated in 1990 (COC 2003). Calimesa has one hotel and eight mobile home/recreational vehicle parks.

The proposed 230kV upgrade also would pass through a portion of the Morongo Indian Reservation, which encompasses 32,000 acres (www.morongonation.org 2003) and has a population of 960 and a median household income of $51,071 for the 234 households (U.S. Census Bureau 2000). The unemployment rate for 2000 was 10 percent (U.S. Census Bureau 2000).

4.2.3.2 San Bernardino County

San Bernardino County encompasses 20,052 square miles with a population density of 85.2 persons per square mile. Between 1990 and 2000, San Bernardino County experienced the fifteenth highest county population growth rate in California at 20.5 percent (SCAG 2000). This growth rate is less than half that experienced between 1980 and 1990, when the County grew by 56 percent. The aggregate household income in 1999 was $28.1 billion, comprising about 3.7 percent of the state aggregate household income of $755.5 billion (U.S. Census Bureau 2000).

In San Bernardino County, the proposed west of Devers corridor crosses through the communities of Redlands, Loma Linda, Colton, and Grand Terrace enroute to the Vista Substation. There are numerous hotels, mobile home parks, and recreational vehicle parks in these communities. The city of Redlands is the largest city traversed by the proposed upgrade corridor, with a population of 63,590 and a geographic area of 36 square miles. Loma Linda is a small university town and covers 8 square miles, with a population density of 2,700 people per square mile. The backbone of the local economy is healthcare, provided largely by the Loma

Linda University Medical Center, a combination of medical, research, and educational facilities that draws patients and students from around the country. The city of Colton encompasses approximately 18 square miles. The city of Grand Terrace is 3.6 square miles, and has the highest median household income of any community through which the proposed study corridor crosses. Grand Terrace also has a low crime rate, with only 321 incidents reported in 2001.

Tables 4-47 through 4-50 present current and future population, housing data, and labor force statistics for Riverside and San Bernardino counties, as well as for the communities traversed by the west of Devers study corridor.

TABLE 4-47
YEAR 2000 POPULATION AND DEMOGRAPHICS

	Riverside County	Banning	Beaumont	Calimesa	San Bernardino County	Loma Linda	Redlands	Colton	Grand Terrace
Total Population	1,545,387	23,562	11,384	7,139	1,709,434	18,681	63,591	47,662	11,626
Gender:									
Male	769,384	11,220	5,443	3,354	853,024	8,659	30,024	23,492	5,479
Female	776,003	12,342	5,941	3,785	856,410	10,022	33,567	24,170	6,147
Race:									
White	65.6%	64.2%	68.1%	89.1%	58.9%	54.2%	73.7%	42.7%	73.8%
African American	6.2%	8.5%	2.9%	.6%	9.1%	7.2%	4.3%	11.0%	4.6%
Native American	1.2%	2.5%	2.3%	.7%	1.2%	.5%	.9%	1.3%	.7%
Asian or Pacific Islander	4%	5.5%	1.7%	1.2%	5.0%	24.6%	5.4%	5.5%	5.9%
Other	23%	19.3%	25.0%	8.4%	25.8%	13.5%	15.7%	39.5%	15.0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Hispanic Heritage	36.2%	30.2%	36.2%	14.1%	39.2%	16.3%	24.1%	60.7%	25.4%

Source: U.S. Census Bureau 2000 Census; SCAG 2001

TABLE 4-48
HISTORIC AND ESTIMATED FUTURE POPULATION GROWTH

Year	Population								
	Riverside County	Banning	Beaumont	Calimesa	San Bernardino County	Loma Linda	Redlands	Colton	Grand Terrace
1980	663,172	14,020	6,818	NA*	895,016	10,694	43,619	21,310	8,498
1990	1,170,413	20,570	9,685	4,647	1,396,600	17,400	60,394	40,213	10,946
2000	1,545,387	23,562	11,384	7,139	1,709,434	18,681	63,591	47,662	11,626
2002	1,645,300	25,736	12,212	7,276	1,788,479	19,735	66,313	49,330	11,975
2005	1,864,700	31,401	18,115	8,663	1,980,000	25,415	69,229	51,575	13,768
2010	2,159,700	34,658	26,074	12,473	2,231,600	28,281	70,817	56,425	14,237
2015	2,459,600	37,723	33,573	16,073	2,487,700	31,529	72,642	61,626	15,142
2020	2,817,600	42,027	44,103	21,144	2,800,900	35,378	74,804	67,770	16,213

Source: U.S. Census Bureau, 2000 Census; California Department of Finance 2000, 2001; SCAG 2001, 2003
*Calimesa was incorporated in 1990

TABLE 4-49
YEAR 2000 HOUSING DATA

	Riverside County	Banning	Beaumont	Calimesa	San Bernardino County	Loma Linda	Redlands	Colton	Grand Terrace
Total Housing Units	584,674	9,761	4,258	3,248	601,369	8,084	24,790	15,680	4,458
Occupied	506,218	8,923	3,881	2,982	528,594	7,536	23,593	14,520	4,221
Owner occupied	348,532	6,426	2,097	2,474	340,933	2,883	14,259	7,545	2,745
Rented	157,686	2,497	1,784	508	187,661	4,653	9,334	6,975	1,476
Vacant	78,456	838	377	266	72,775	548	1,197	1,160	237
Single unit	398,747	7,575	2,865	1,872	442,954	3,835	16,723	9,699	3,038
Multiple unit	103,066	1,030	1,046	121	116,581	3,687	7,162	5,166	1,170
Mobile	82,861	1,156	347	1,255	41,834	562	905	815	250
Median Value	$146,500	$110,000	$98,600	$131,900	$131,500	$165,200	$159,300	$105,200	$142,600

Source: U.S. Census Bureau, 2000 Census; SCAG 2001.

TABLE 4-50
YEAR 2000 EMPLOYMENT BY OCCUPATION

	Riverside County	Banning	Beaumont	Calimesa	San Bernardino County	Loma Linda	Redlands	Colton	Grand Terrace
Total Civilian Labor Force	651,952	8,248	4,843	3,071	721,185	8,644	31,985	20,758	6,192
Total Unemployment	49,096 7.5%	741 9%	449 9.3%	246 8%	59,913 8.3%	436 5%	2,043 6.4%	1,831 8.8%	275 4.4%
Total Employment	602,856	7,507	4,394	2,825	661,272	8,208	29,942	18,927	5,917
Management, professional, and related	167,739	1,551	825	884	186,096	4,512	13,719	4,194	2,261
Service	105,446	1,518	1,014	439	104,728	1,258	4,290	3,239	683
Sales and office	163,095	2,465	1,169	907	180,447	1,662	7,167	5,098	1,764
Farming, fishing, forestry	9,499	32	22	0	3,040	9	26	71	13
Construction, extraction, maintenance	70,974	818	590	217	74,519	264	2,097	2,159	545
Production, transportation, material moving	86,103	1,123	774	378	112,442	503	2,643	4,166	651
Median Household Income	$42,887	$32,076	$29,721	$37,849	$42,066	$38,204	$48,155	$35,777	$53,649

Source: US Census Bureau, 2000 Census

4.2.4 Geology and Soils

4.2.4.1 Geology

The proposed west of Devers 230kV transmission upgrade would be located within an existing utility corridor from Devers west through San Gorgonio Pass, north of the San Jacinto Mountains and south of the San Bernardino Mountains. The study corridor continues northwest through the San Timoteo Canyon to the Vista Substation, with an interconnection to San Bernardino Substation.

San Gorgonio Pass is an east-trending lowland between the San Bernardino and San Jacinto mountains. The surface of this lowland is covered by multiple generations of alluvial-fan deposits that are mainly derived from the San Bernardino Mountains. The northern foothills are underlain by upper Cenozoic nonmarine and marine sedimentary deposits with basalt flows and small intrusive bodies occurring locally in the sedimentary sequence. The east-trending right-lateral Banning Fault separates the sedimentary section from crystalline rocks of the San Bernardino Mountains to the north. To the east, crystalline rocks of the San Bernardino Mountains block descend beneath the Coachella Valley (USGS 2004).

The San Bernardino Mountains consist of a high, east-trending block that has been uplifted to its present elevation during the last few million years. The southwestern and southeastern margins of the San Bernardino Mountains are traversed by several strands of the San Andreas Fault zone.

From Devers, the study corridor passes through alluvium in the San Gorgonio Pass to a point west of the Morongo Indian Reservation, where the corridor would pass through QPC in the foothills of the San Bernardino Mountains. The corridor then proceeds west into San Timoteo Canyon, crossing Plio-Pleistocene non-marine sedimentary rock and alluvium until it terminates at Vista Substation.

4.2.4.2 Seismic Activity

Eleven earthquakes of magnitudes raging from 4.0 to 4.9 were recorded through year 2000 in the west of Devers study corridor (California Geological Survey 2001). The proposed west of Devers study corridor falls with the San Jacinto Fault zone as well as the San Andreas Fault zone. The San Jacinto Fault zone separates the San Jacinto Mountains and San Timoteo Badlands from the Perris Block. The main strand of the San Andreas Fault in southern California consists of two segments: the Mojave Desert segment that mainly separates rocks of San Gabriel Mountains from rocks of San Bernardino Mountains, and the Coachella Valley segment that separates rocks of Peninsular Ranges from rocks of the San Bernardino and San Gabriel mountains.

4.2.4.3 Soils

Soils in the San Gorgonio Pass generally consist of very deep, well-drained to excessively drained, nearly level to moderately steep soils that have a surface layer of sand to sandy loam. Soils in the San Timoteo Canyon area consist of well-drained, rolling to very steep, moderately deep calcareous loam, and very shallow soils.

Soil Collapse and Consolidation

Soil collapse and consolidation result from hydrocompaction and loading of the surface. Hydrocompaction is a condition that occurs when water is introduced into some moisture deficient fine-grained soils (typically silts and clay) of arid environments. The introduction of water causes a collapse of the soils intergranular structure. This consolidates the soil and in turn results in a depression of the ground surface. Hydrocompaction is most commonly associated with projects that introduce large volumes of water to moisture deficient soils, such as canals, irrigation associated with agriculture, or landscaping of development projects.

The potential degree of hydrocompaction resulting from a transmission line is far less likely than potential soil compaction resulting from the loading and consolidation of the loose surface soil horizons by construction traffic. Such consolidation from vehicular traffic commonly produces a permanent rut or depression in the road surface. If water is channeled into the rut, and there is sufficient gradient to develop surface flow, the rut also may become a location for erosion.

Wind Erosion

Deflation or erosion of soils by wind is a common natural phenomenon in deserts and is governed by soil characteristics and the velocity of the wind. Fine-grained silt and clay particles are picked up by the wind and blown away as dust. Heavier sand particles usually do not become airborne but move in short leaps, referred to as saltation. These soils are most susceptible to wind erosion when recently disturbed by activities such as vehicular traffic. In some of the fine-grained soils, raindrops produce a thin film of clay to coat the surface. This crust, referred to as a carapace crust, provides a fragile shield against wind erosion until it is broken again by vehicular traffic or other activities.

Surface Water Erosion

The sensitivity of a particular site to erosion by surface runoff is a function of the soil type, and the degree of topographic relief, which governs the velocity of the surface water runoff.

Typical erosional features within the corridor consist of shallow gulleys and rills along localized areas of access road courses. Favorable factors that appear to have contributed to low erosion rates include the limited grading used along the existing transmission lines, the general conformance of access roads to topography, the utilization of existing roads where possible. Also, the majority of the existing line crosses terrain of low topographic relief.

4.2.5 Hydrology

The study corridor falls within the Coachella Valley Groundwater Basin. Within this basin, the study corridor falls within the San Gorgonio Pass Sub-basin. The sub-basin is bounded on the north by the San Bernardino Mountains and on the south by the San Jacinto Mountains. The San Gorgonio River flows over the sub-basin and is the main surface drainage feature for the sub-basin. Runoff from the San Bernardino Mountains contributes runoff to the river. The water bearing units in the region are alluvium and the San Timoteo Formation. The alluvium consists mostly of gravel and sand; however, they lie largely above the water table and therefore do not contribute much water to wells. The older, Pleistocene age alluvium contains sand and gravel and also large amounts of clay and silt. These deposits yield moderate amounts of water to wells (California Department of Water Resources 2004).

The storage capacity of the sub-basin was estimated by the California Department of Water Resources in 1987 to be 2,200,000 acre feet.

4.2.6 Air Quality

The proposed west of Devers study corridor is located in the northwestern end of San Jacinto Valley of southern California. The valley is defined by the San Bernardino Mountains to the north and the San Jacinto Mountains to the east. The meteorology found in this area can be described as a temperate climate, typically mild daytime temperatures, low humidity, and low amounts of precipitation. The seasons are marked by warm dry summers and cool wet winters.

Temperature, precipitation, and wind data for the region were developed from data collected in Redlands, California, and was provided by the Western Regional Climate Center. Maximum annual average temperature for the area is 78.2 degrees Fahrenheit with an absolute maximum of 115 degrees Fahrenheit. The minimum temperatures for the area on average are 49.4 degrees Fahrenheit with an absolute minimum temperature of 19 degrees Fahrenheit. Precipitation falls at

about 13.3 inches per year. Finally, the average annual wind speeds are 5.6 miles per hour. These data are summarized in Table 4-51.

TABLE 4-51
PROPOSED WEST OF DEVERS STUDY CORRIDOR CLIMATOLOGY SUMMARY

Temperature		Redlands, California
Annual Average	max (F)	78.2
	min (F)	49.4
January	max (F)	64.9
	min (F)	39.4
July	max (F)	94.5
	min (F)	60.6
Absolute	max (F)	115
	min (F)	19
Precipitation		
Annual Average		13.3
Summer Average		0.35
Winter Average		7.1
Wind (Riverside Municipal Air Park)		
Annual Average (mph)		5.6
Source: Western Regional Climate Center, web page (accessed July 22, 2003)		

The proposed west of Devers transmission upgrade is located in the SCAB and is governed by the SCAQMD. As was mentioned previously, in June 2003 the Riverside County portion of the SCAQMD was listed as non-attainment for ozone, carbon monoxide, and particulate matter. The non-attainment for ozone and carbon monoxide was redefined to the Los Angeles portion of the SCAB. However, the non-attainment status for particulate matter remained for the whole SCAB based on standards adopted by both federal (EPA 2003) and state management agencies (California Air Resources Board [CARB] 2003).

The proposed west of Devers transmission upgrade is located along an existing transmission line right-of-way; thus, there are virtually no air emissions directly generated due to on-site equipment. The proposed upgrade parallels existing transmission lines and access roads that have already been developed and are used for maintenance. The amount of land required for construction purposes includes 229.8 acres for equipment laydown areas and less than 1 mile of additional spur roads. The laydown areas may require some vegetative clearing or will be designated for overland access. During construction-related modifications to the site, particulate

matter in the form of fugitive dust will be generated during periods of high winds or large equipment transportation on unpaved roads. After construction, there may continue to be particulate matter emissions in the form of fugitive dust due to maintenance activities.

4.2.7 Traffic and Transportation

The proposed 230kV upgrade corridor extends west from Devers along an existing 230kV transmission line right-of-way through the communities of Banning, Beaumont, and Calimesa in Riverside County, and the communities of Loma Linda, Redlands, Colton, and Grand Terrace in San Bernardino County. The corridor exits the Devers Substation on the northern side of I-10, crossing CA 62, then crosses to the western side of I-10 near the border between Calimesa and Beaumont, near the Cherry Valley Boulevard exit. The corridor then crosses San Timoteo Canyon Road, and generally follows on the western side of this road until crossing I-215 and turning west to enter Vista Substation. Table 4-52 below provides traffic counts in the areas where the corridor crosses major travel arterials.

TABLE 4-52
AVERAGE DAILY TRAFFIC COUNT (ADT)

	South or West Bound			North or East Bound		
Location	**Peak Hour**	**Peak Month ADT**	**Annual ADT**	**Peak Hour**	**Peak Month ADT**	**Annual ADT**
CA 62 – I-10 exit to Pierson Blvd.*	1,550	16,600	15,900	1,400	15,100	14,500
I-10 at Fields Road exit	10,200	110,000	103,000	9,700	104,000	97,000
I-10 at Cherry Valley Boulevard exit*	6,300	91,000	85,000	6,000	86,000	80,000
San Timoteo Canyon Road east of Redlands Boulevard*	8,007 (6/26/01)	NA	NA	NA	NA	NA
Redlands Boulevard south of San Timoteo Canyon Road*	8,657 (3/13/02)	NA	NA	NA	NA	NA
I-10 at California Street exit*	14,000	185,000	183,000	13,600	180,000	178,000
I-215 at Washington Avenue exit*	13,200	163,000	160,000	14,100	174,000	171,000

Source: CDOT Division of Traffic Operations 2003; Riverside County DOT, Engineering Services Division 2004
*Indicates locations where proposed west of Devers 230kV upgrade corridor crosses state or interstate highways.

4.2.8 Biology

4.2.8.1 West of Devers Upgrade

This section summarizes the results of biological resource surveys conducted for the proposed west of Devers upgrade along an existing SCE transmission line corridor right-of-way between Vista Substation near Terrace View in Riverside County, and Devers near Palm Springs in San Bernardino County. The purpose of these studies was to determine the potential and actual occurrence of any special-status plant and wildlife species, or sensitive habitats, along the proposed right-of-way.

Methods

The approach to this portion of the project involved two phases. In the first phase, background information was gathered and compiled in preparation for going into the field. Biologists compiled a list of candidate sensitive species (plants and wildlife), and areas of special concern, that are known or expected to occur along the right-of-way. Standard database searches were performed (e.g., CNDDB, and others). All of the information compiled formed the basis for a project-specific database and resource mapping effort for the right-of-way.

Prior to going into the field, a map atlas was compiled that depicted the entire right-of-way using USGS topographic base maps. A set of maps was provided to each of the field biologists for reference and to assist with data collection and navigation in the field. The maps included the pre-survey (known) locations of any sensitive species or their habitat, areas likely to require specific surveys along the right-of-way, tower locations, and any access roads.

Following this pre-field orientation, the second phase involved having qualified field biologists conduct field studies along the entire right-of-way. Fieldwork began in early April 2003 and was

completed in September 2003. The majority of the field effort coincided with the time of year when sensitive species were most likely to be observed. For plants, several visits to the project area were required to address differing flowering seasons for each sensitive plant species.

Data collection was standardized for each site visited to the fullest extent possible. A field form designed specifically for the project was used to record the results of each survey. Digital photos of each site were taken for reference purposes.

The field biologists were equipped with handheld global positioning system (GPS) units. Specific locations of sensitive resources found in the field were digitized for later mapping and reporting purposes.

The field surveys were conducted usually by a team of two biologists traveling together. Additional, individual surveys were conducted on an as-needed basis by individual specialists. Wherever possible, the biologists drove to the existing tower locations using existing access roads. Elevation and location were recorded with a Magellan GPS unit. Where the access was closed (e.g., behind closed gates lacking SCE locks), the biologists either walked to each existing tower site, or (rarely) they observed them from a distance with binoculars.

At each existing tower site, the biologists compiled a list of representative plant species present and any sensitive plant or vertebrate species they observed. Habitat features such as hilltops, rock outcrops, and ridgelines were recorded also. The relative level of human disturbance in the area (i.e., trash, grading, vehicle tracks, etc.) was noted. A list of potential sensitive species was generated for each existing tower site or specialized habitat between existing tower sites. Any riparian or spring habitats were also noted and their distances from existing tower sites were estimated. The vegetation along the right-of-way between each existing tower site was also recorded and generally mapped, as were potential access problems (e.g., locked gates, washouts) for subsequent surveyors. The findings of the field surveys were compiled into a map atlas.

Vegetation

The project study area lies largely within the most inland and interior extension of South Coast Floristic Region of California (Hickman 1993). The interior valleys of southern coastal California in Los Angeles, western Riverside, and western San Bernardino and Orange counties are now heavily urbanized, but still retain large fragments of their original biotic elements.

The project study region, which lies at the piedmont of the convergence of the San Jacinto and San Bernardino mountains, is largely characterized by shrub vegetation known variously as chaparral or soft chaparral (coastal sage scrub). The characteristic climate on the western end of the project is Mediterranean arid (Raven and Axelrod 1978), the majority of the 10 inches of precipitation falls in the winter season from November to March. The climate of the eastern end is very arid, with as little as 5 inches of precipitation.

The project study area traverses one of the major biotic boundaries in North America: the transition from chaparral to desert. On the western end of the corridor, chaparral and sage scrub floristic elements characteristic of cismontane California, rich in endemic plants, predominate. On the eastern end of the corridor, the biota is fully characteristic of the Sonoran Desert.

Chaparral and related scrub communities in the Southern California region are variable in dominant plants, but share common structural characteristics: the vegetation is dense, often covering more than two-thirds or more of the ground, and is approximately the height of a person in canopy height. Annual plants and perennial plants are diverse and common, but are largely confined to the spaces between dense shrub canopies, or more commonly, annual plants and perennial plants dominate after fires, which are characteristic and important in chaparral.

Chaparral communities present include: scrub oak chaparral, Chamise chaparral, and Riversidean sage scrub/Chaparral mixed scrub. These habitats are found on the north-facing slopes and hilltops along the central and western portions of the right-of-way. Chaparral has been impacted by historical uses (e.g., agriculture, grazing) that resulted in the introduction of non-native grass

species. These include the brome grasses (*Bromus* sp.) and wild oats (*Avena* sp.). These introductions also changed the fire regimes and resulted in a more open type of habitat.

Riversidean sage scrub does not occur along the right-of-way as a well-defined vegetation type; instead, it occurs as a mixed vegetation type with chaparral and/or grassland vegetation elements. These areas usually contain stands of California buckwheat (*Eriogonum fasciculatum*) mixed with non-native grasses or chamise (*Adenostoma fasciculatum*), or scrub oak (*Quercus berberidifolia*) mixed with brittlebush or black (*Salvia mellifera*) or white sage (*Salvia apiana*) and/or California sagebrush (*Artemisia californica*).

Upland sites with stony or alluvial soils are often largely chaparral, but scattered within the study area corridor are numerous washes and perennial streams, each with characteristic riparian vegetation depending on hydrology. The riparian vegetation types present include: desert willow/scalebroom scrub, willow scrub, seepwillow scrub, and willow forest. The distribution is limited for the riparian scrubs and forests along the right-of-way. They only occur in active channels (i.e., the Whitewater River) (desert willow [*Chilopsis linearis*]/scalebroom scrub [*Lepidospartum squmatum*]), the San Timoteo Canyon Forest (willow [*Salix* sp.], with California sycamore [*Platanus racemosa*], alder [*Alnus rhombifolia*], and coast live oak [*Quercus agrifolia*]), or in spring areas on slopes or hillsides (willow and seepwillow [*Baccharis salicifolia*] scrubs). Common riparian dominants of dry washes are scale broom and willows (principally *Salix exigua*).

Oak woodland vegetation, now scattered as isolated remnants, is also characteristic of portions of the study area corridor. Coast live oak (*Quercus agrifolia*) is the characteristic dominant, with Palmer's oak (*Quercus palmeri*) frequent, and rare stands can contain Mesa oak (*Quercus engelmanii*) and or California walnut (*Juglans californica*); the latter two species are special status rare plants (CNPS 2001). Larger drainages of the southerly slopes of the San Bernardino Mountains, such as the San Gorgonio River and adjacent drainages to the west, support this habitat type.

Grassland communities are characteristic of the study area corridor on deep soils of lower slopes and valley bottoms, which are now largely urbanized.

The grassland communities present include: grassland, grassland/chaparral, grassland/scrub mosaic, and catclaw/grassland/valley cholla. The grasslands are dominated by non-native grass species including the brome grasses, particularly ripgut (*Bromus diandrua*) and red brome (*B. rubens*), wild oats, and mustard (*Brassica nigra*). These support fires nearly annually, which in turn have brought about a conversion in some areas to where only these and other weedy annual species occur (Zedler et al. 1983). In general, there has been an overall reduction in the native perennial species present in the grasslands. On the Morongo Indian land, the catclaw/grassland/valley cholla (*Opuntia parryi*) vegetation type may occur as a result of past grazing.

The desert scrub communities present include: creosote bush scrub, brittlebush scrub, and catclaw scrub. They are dominated by creosote bush and burrobush at the eastern end of the right-of-way beginning at Devers and extending onto the Morongo Indian land. The Morongo lands are grazed by cattle and, over an extended period, have produced a transitional vegetation type between catclaw dominated scrub to grassland (see below). Along this transition area, the upper elevations are dominated by brittlebush) scrub.

Devers Substation is situated on the broad alluvial fans of the eastern San Bernardino Mountains. The vegetation locally is sparse, with much open ground, and with shrub cover on the order of one-third of the landscape or less comprised by creosote bush in association with white bursage on gravelly soils. Washes that dissect valley bottoms of creosote bush scrub may support shrubby species such as cheesebush (*Hymenoclea salsola*).

The habitat quality of much of the vegetation has been degraded as a result of various human activities. Much of the right-of-way includes: ruderal/degraded scrub, ruderal/non-native grassland, and ruderal chaparral mosaic. Ruderal vegetation is dominated by weedy species that often establish as a result of either previous agricultural activities or weed abatement plowing.

These can produce fields of non-native grasslands or star-thistle (*Centaurea melitensis*). Ruderal/degraded scrub and ruderal chaparral mosaic often results from agricultural/weed abatement activities or frequent fires that encourage the spread of non-native grasses. Non-native grasses are more easily involved in fires than some other vegetation types. As a result, shrub communities often gradually disappear.

Special Status Plant Species

Table 4-53 summarizes the sensitive plant species that may occur in or near the right-of-way and possibly be affected by the project. Studies confirmed the presence of suitable habitat in or near the right-of-way for 18 sensitive plant species. Nevin's barberry (*Mahonia nevinii*) is a federal and state listed endangered species that was confirmed in the right-of-way.

TABLE 4-53
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Abronia villosa var. *aurita*	Chaparral sand-verbena	CEQA	Moderate	Yes
Allium marvinii	Yucipa onion	CEQA	Moderate	Yes
Arenaria plaudicola	Marsh sandwort	FE, CE	None	No
Astragalus lentiginosuus var. *coachellae*	Coachella Valley milk-vetch	FE, CEQA	None	Yes
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	CEQA	Moderate	Yes
Astragalus tricarinatus	Tripple-ribbed milk-vetch	CEQA	Moderate	Yes
Atriplex coronata var. notatior	San Jacinto Valley crownscale	CE	None	No
Calochortus plummerae	Plummer's mariposa	CEQA	Low	Yes
Carex comosa	Bristly sedge	CEQA	None	No
Chorizanthe parryi var. *parryi*	Parry's spineflower	CEQA	High	Yes
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CEQA	Moderate	Yes
Chorizanthe xantii var. leucotheca	White-bracted spineflower	CEQA	High	Yes
Deinandra mohavensis	Mojave tarplant	CE	Moderate	Yes
Dodecahema leptoceras	Slender-horned spineflower	FE, CE	Moderate	Yes
Dudleya multicaulis	Many stem live-forever	CEQA	None	No

TABLE 4-53
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woolly-star	FE, CE	Moderate	Yes
Erodium macrophyllum	Round leaf filaree	CEQA	Moderate	Yes
Euphorbia misera	Cliff spurge	CEQA	Moderate	Yes
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CEQA	Moderate	Yes
Linanthus maculatus	Little San Bernardino Mtns.	CEQA	Moderate	Yes
Mahonia nevinii	Nevin's barberry	FE, CE	High	Yes
Navarretia fossilis	Spreading pincussion-plant	CT	None	No
Nemacaulis denudata var. *gracilis*	Slender woolly heads	CEQA	Moderate	Yes
Monardella pringlei	Pringle's coyote-mint	CEQA	None	No
Orcuttia californica	California orcutt grass	FE, CE	None	No
Sidalcea neomexicana	Salt-spring checkerbloom	CEQA	None	No
Trichocoronis wrightii	Wright's button	CEQA	None	No

Status Codes:
FE – Federally Endangered
CE – California Endangered
CT – California Threatened
CEQA – California Environmental Quality Act

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution

Wildlife

The vertebrate fauna of the west of Devers portions of the study corridor is composed of species of mammals, birds, amphibians, and reptiles. While chaparral, coastal sage scrub and valley grassland habitats are composed of characteristic suites of plant species, the vertebrate fauna is not particularly unique and most species present may be found in a variety of other habitat types. Exceptions to this generalization include the coastal California gnatcatcher (*Polioptila californica*) and Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*).

Mammals

The mammalian fauna of the west of Devers portion of the study corridor is dominated by species of small, nocturnal rodents that include the highly desert-adapted pocket mice and kangaroo rats that occupy Sonoran Desert and arid grassland portions of the western part of the corridor. Rodents also dominate the slightly more mesic California coastal sage scrub and chaparral habitats in the corridor. Small mammals likely to be present in sage scrub and chaparral include deer mouse (*Peromyscus maniculatus*), harvest mouse (*Reithrodontomys megalotis*), and desert cottontail (*Sylvilagus auduboni*). Mule deer, coyote, and bobcat (*Lynx rufus*) occur sparingly in the study corridor. Riparian areas such as San Timoteo Canyon likely host a variety of bat species including big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californicus*), and Townsend's long-eared bat (*Plecotus townsendii*).

Birds

The avifauana of the west of Devers portion of the study corridor is dominated by small species of songbirds. In the western portions of the corridor, species like black-throated sparrow and LeConte's thrasher are present. In the slightly more mesic California coastal sage scrub, chaparral, and grassland species such as California towhee (*Pipilo crissalis*), Say's phoebe (*Sayornis saya*), sage sparrow (*Amphispiza belli*), and northern mockingbird (*Mimus polyglottos*) are likely to be encountered. Larger species that may be found at any location within the west of Devers study corridor include red-tailed hawk and turkey vulture. Similarly, the ubiquitous mourning dove (*Zenaida macroura*) is likely to occur anywhere in the corridor.

Reptiles

The reptile fauna of the west of Devers portion of the study corridor is fairly diverse and includes the desert forms such as Mohave desert tortoise and desert horned lizard (*Phrynosoma*

platyrhinos) in the western part of the corridor. In the slightly more mesic California coastal sage scrub, chaparral, and grassland species such as Gilbert's skink (*Eumeces gilberti*), alligator lizard (*Elgaria multiarinata*), western fence lizard (*Scelopoorus occidentalis*), gopher snake, common kingsnake (*Lampropeltis getulus*), and California whipsnake (*Masticophis aurigulus*).

Amphibians

The amphibian fauna of the west of Devers portion of the study corridor is likely quite depauperate. The red-spotted toad likely occupies rocky canyons and arroyos in the corridor and Couch's spadefoot may be present in the more westerly portions of the corridor.

Special Status Wildlife Species

Table 4-54 summarizes the sensitive wildlife species that may be affected by the proposed project and their likelihood of occurrence along the right-of-way. The field surveys focused on determining whether suitable habitat exists in the right-of-way rather than detecting species to determine presence/absence.

TABLE 4-54
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Scientific Name	Common Name	Status	Counties of Presence	Probability of Presence	Pre-construction Survey Recommended
AMPHIBIANS					
Bufo californicus	Arroyo toad	FE, CSC	R	None	No
Spea hammondii	Western spadefoot toad	CSC	R, SB	Low	No
REPTILES					
Crotalus ruber ruber	Northern red-diamond rattlesnake	CSC	R, SB	High	No
Charina trivirgata	Rosy boa	FSC, S	R, SB	High	No
Cnemidophorus hyperythrus beldingi	Beldings orange-throated whiptail	CSC	R, SB	High	No
Phrynosoma coronatum blainvillei	San Diego horned lizard	CSC	R, SB	High	No
Gopherus agassizii	Desert tortoise	FT, CT	R	Low	Yes
BIRDS					
Accipiter cooperi	Cooper's hawk	CSC	R, SB	Moderate	No
Accipiter striatus	Sharp-shinned hawk	CSC	R, SB	Moderate	No
Aquilla chrysaetos	Golden eagle	CSC, S	R, SB	Moderate	No
Buteo regalis	Ferruginous hawk	CSC, S	R, SB	Moderate	No
Buteo swainsoni	Swainson's hawk	CT	R, SB	Low	No
Circus cyaneus	Northern harrier	CSC	R, SB	Moderate	No
Elanus leucurus	White-tailed kite	FP	R, SB	Low	No
Falco columbarius	Merlin	CSC	R, SB	Moderate	No
Falco mexicanus	Prairie falcon	CSC	R, SB	Moderate	No
Falco peregrinus anatum	Peregrine falcon	CE, FP	R, SB	Moderate	No
Athene cunicularia	Burrowing owl	CSC, S	R, SB	High	No
Empidonax traillii extimis	Southwestern willow flycatcher	FE, CE	R, SB	Low	Yes
Lanius ludovicianus	Loggerhead shrike	CSC	R, SB	High	No
Vireo bellii pusillus	Least Bell's vireo	FE, CE	R, SB	High	Yes
Eremophila alpestris actia	California horned lark	CSC	R, SB	High	No
Polioptila californica californica	Coastal California gnatcatcher	FT, CSC	R, SB	High	Yes
Toxostoma lecontei	Le Conte's thrasher	CSC, S	SB	Moderate	No
Dendroica petechia brewsteri	Yellow warbler	CSC	R, SB	High	No
Icteria virens	Yellow-breasted chat	CSC	R, SB	High	No
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	CSC	R, SB	High	No
Amphispiza belli belli	Bell's sage sparrow	CSC	R, SB	High	No

TABLE 4-54
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Scientific Name	Common Name	Status	Counties of Presence	Probability of Presence	Pre-construction Survey Recommended
MAMMALS					
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE, CSC	R, SB	Low	Yes
Dipodomys stephensii	Stephens' kangaroo rat	FE, CT	R, SB	Low	Yes
Perognathus longimembris brevinasus	Los Angeles pocket mouse	CSC	R, SB	High	No
Neotoma lepida intermedia	San Diego desert woodrat	CSC	R, SB	Moderate	No
Lepus californicus bennettii	San Diego black-tailed jackrabbit	CSC	R, SB	High	No

Status Codes:
FE – Federally Endangered
FT – Federally Threatened
FSC – Federal Species of Concern
CE – California Endangered
CT – California Threatened
CSC – California Species of Concern
S – BLM Sensitive
FP – Fully Protected
R – Riverside County
SB – San Bernardino County

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable or potential habitat, or far from known distribution.

4.2.9 Noise

The proposed 230kV transmission line upgrade corridor is located within the San Gorgonio Pass and the San Jacinto Valley. The corridor crosses mainly rural areas with large lot residential classifications; however, there are areas of medium density (2 – 15 residences per acre) through which the corridor either crosses or passes within 1 mile. Typical municipal ordinances stipulate that activities producing ambient noise should not exceed 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at receiving residential

property lines or sensitive areas. For example, the city of Loma Linda noise ordinance 9.20.040 stipulates that 55 dBA for daytime hours and <50 dBA for nighttime hours is acceptable.

Roadways that contribute to ambient noise include I-10, Interstate 15 (I-15), and intermittent traffic on San Timoteo Canyon Road. The existing transmission lines within the corridor may also produce noise from corona discharge.

4.2.10 Public Services and Utilities

Banning – The Banning Police Department consists of 33 sworn personnel and 14 civilian personnel. Fire service is provided by the Riverside County Fire Department Station # 89, located less than 2 miles north of the proposed west of Devers upgrade right-of-way. The community is served by the San Gorgonio Memorial Hospital in Banning, which has a 68-bed capacity, and by the Redlands Community Hospital, which has a 175-bed capacity. Two trauma centers located in Palm Springs and Loma Linda are also available (ECOPAC 2003).

Beaumont – Beaumont has a local police department located about 2 miles north of the proposed route. Fire service is provided by the Riverside County Fire Department Station # 20 and # 66. The project would likely be served by Station No. 20, located less than 1 mile north of the right-of-way. Hospital services are available in Banning, Redlands, and Palm Springs.

Calimesa - Police service is provided by the Riverside County Sheriff's Office Cabazon Station, located a few miles east of Banning. Under the city's contract with Riverside County, deputies are on duty in the city at all times. Fire service is provided by the Riverside County Fire Department Station # 21, located in Calimesa about 2 miles east of the right-of-way. Hospital services are available in Banning, Redlands, and Palm Springs.

Loma Linda – Police service is provided through a contract with the San Bernardino County Sheriff's Department. The Loma Linda Police Department is located in the nearby town of San

Bernardino, about 5 miles north of the Vista Substation. Fire service is provided by the local fire department, which consists of a full-time staff of 14 in addition to 30 part-time firefighters. Medical services are provided by the Loma Linda University Medical Center and Children's Hospital, which have 528 and 250 beds, respectively, and the Loma Linda Community Hospital with 120 beds. Loma Linda also has the Jerry L. Pettis Memorial Veterans Medical Center with a 434-bed capacity (SBC 2002).

Redlands - The Redlands Police Department employs 81 officers in four stations, the nearest of which is about 2 miles north of the right-of-way. The Redlands Fire Department operates and maintains three separate fully staffed fire stations. The fire department also provides emergency medical services. The Redlands Community Hospital has a 203-bed capacity (SBC 2002). Hospital services are also available in the near-by community of Loma Linda.

Colton – The Colton police department is located about 4 miles north of the Vista Substation. Colton has four fire stations. Service to the project would likely be provided by Fire Station # 4, located about 1 mile north of the right-of-way just east of I-215. Colton has three medical centers; hospital services are provided in the cities of Redlands and Loma Linda.

Grand Terrace – Police services are provided through a contract with the San Bernardino County Sheriff's Department out of the San Bernardino police station that also provides service to Loma Linda. Fire services are also provided by San Bernardino County through Fire Station # 23, located about 2 miles south of the right-of-way. Hospital services are provided 10 minutes away in Loma Linda.

4.2.11 Visual Resource Inventory

This section describes the visual resource inventory for the proposed west of Devers 230kV transmission line upgrade. The inventory has been conducted in a manner that is consistent with accepted practices, in response to CEQA Criteria for Aesthetics and the BLM, VRM 8400 Series

Manual (BLM 1986). The visual resource studies were conducted by reviewing aerial photographs, maps, and planning documents; contacting agencies; and field reconnaissance within the proposed study corridor. The visual resource inventory includes the consideration of visual quality, scenic vistas, and agency management objectives as described below.

4.2.11.1 Inventory Elements

Visual Quality

For purposes of this study, visual quality is a term used to describe the setting and the viewers that may be affected by the proposed project.

Landscape Setting

The study area is located in the Pacific Border Province in the Angeles Range Section (Fennemen 1951). The landscape within the study corridor is primarily rural to suburban with gently rolling terrain largely surrounded by mountain ranges in the eastern portion of the corridor, becoming more urban near the Vista and San Bernardino substations. There are several notable land features that contribute to the landscape setting, including the San Bernardino, San Jacinto, and San Gabriel mountain ranges and San Gorgonio Pass. The study corridor falls between the San Bernardino and San Gabriel mountains to the north and the San Jacinto and Santa Ana mountains to the south. The extensive east-west trending lowlands at the base of the mountain ranges are referred to as the "Valley of Southern California" and consist of generally smooth valleys or basins. Throughout the valleys, isolated hills or groups of hills rise above the valley floor. Natural vegetation within the study area includes desert scrub (creosote), coastal scrub (sumac and buckwheat), mixed chaparral (scrub oak), and suburban agriculture.

Throughout much of the study corridor, this natural setting has been modified to a large extent by previous and ongoing suburban development. In this regard, mixed use development (residential, commercial, industrial) often dominates the setting in locations where the proposed west of Devers 230kV transmission line upgrade crosses developed areas in Riverside and San Bernardino counties, and through the suburban areas of Banning, Beaumont, Calimesa, Redlands, Loma Linda, Colton, and Grand Terrace before terminating at Vista Substation.

The inventory of visual quality within non-developed, natural settings was based on the premise that each landscape character type (e.g., mountain foothills, valley chapparal) exhibits its own type of scenic quality and encompasses a variety of sensitive viewers. Within suburban settings visual quality is primarily based on the viewers and the visual image of the built environment. The west of Devers 230kV transmission line upgrade corridor includes landscapes that are both natural and developed (built). Existing conditions (e.g., the presence of existing transmission lines) that may affect the scenic quality or visual image of an area were also considered in the evaluation of landscape scenery.

Natural Setting - Scenic Quality

In a natural setting, landscape character types are defined by areas of land that have similar characteristics of landform, water related features, vegetative communities, and patterns of these landscape elements. In the natural setting, scenic quality was determined by evaluating landscape character type based upon the uniqueness and diversity of landform, water, vegetation, cultural features, and influence of adjacent scenery. Landscapes with greater diversity of features are typically considered to have higher scenic value. For purposes of this study, landscape character types were assigned one of the following scenic quality classifications:

Class A – land of outstanding or distinctive diversity or interest

Class B – land of common or average diversity or interest

Class C – land of minimal diversity or interest

Developed Settings – Visual Image Types

The purpose of characterizing the types of existing and planned visual images in proximity to the proposed west of Devers 230kV transmission upgrade corridor was to determine the potential visual quality impacts. In developed rural, suburban, and urban settings, landscape scenery is based on the visual features of the built environment and is defined by visual image types. Visual image types consist of development patterns that are defined by existing and planned land use, planning concepts (circulation and building types), and visual character (landscape design and architecture). Six major image types were identified in the developed setting, including residential, open space/park, commercial, industrial, institutional, and agricultural landscape types.

Existing Visual Conditions

The scenic quality of natural settings and the visual image of developed settings may be modified locally by the presence of facilities including transmission and distribution lines, overhead lighting, signs, roadways, canals, railroads, and other features that affect visual quality. The existing condition within the proposed 230kV transmission upgrade corridor was evaluated through mapping and field review in order to determine those locations where modifications would influence scenery and views. In this regard, the presence of multiple existing high voltage transmission lines adjacent to the proposed west of Devers 230kV transmission upgrade, has created an existing utility corridor that has substantially modified the local landscape setting along the entire length of the project and, in particular, in areas that have been previously developed.

Views

The inventory of views included four components: (1) the identification of key viewpoints, (2) visual sensitivity, (3) distance zones, and (4) viewing conditions.

Key Viewpoints and Sensitive Viewers

Numerous key viewpoints associated with sensitive viewers were identified including individual residences, residential developments, recreation areas, and travelways. Of particular importance were those locations where viewers have open, permanent views.

Visual sensitivity reflects the degree of concern for change in the scenic quality of the natural landscape, or to the visual image of the suburban setting. Visual sensitivity levels (high, moderate, or low) reflect the type of viewpoint/viewer (residential, recreational, or travel) and viewer concern for change, volume of use, public and agency concerns, influence of adjacent land use, and viewing duration.

Distance Zones

The distance from the viewer to the proposed west of Devers 230kV transmission upgrade also was considered. For this type of project, in the foreground (0 to 0.25 mile) individual objects are seen in greater detail, whereas the middleground (0.25 to 0.5 to 1 mile) is an area where objects are typically viewed in relationship to patterns rather than individual features. In background areas (1-3 miles), landscapes are viewed as horizon lines and tones, where atmospheric conditions often dominate.

Viewing Conditions

Viewing conditions address viewer orientation (parallel, perpendicular, elevated, or depressed), the potential for screening from sensitive view locations, and the potential for skylining of facilities. Three levels of screening were identified during the inventory, including open viewing conditions that exhibit minimal to no screening; partially screened views, including areas where viewing opportunities are intermittent; and screened views, including areas where terrain, vegetation, buildings, or other built elements (walls and fences) may obscure views. Skylining may range from fully or partially skylined viewing conditions to backdropped by terrain, vegetation, or structures.

Scenic Vistas

Scenic vistas are designated viewpoints associated with scenic views that typically occur along highways or other travel routes.

4.2.11.2 Visual Resource Inventory Results

This section describes the results of the visual resource inventory within the proposed west of Devers study corridor including visual quality, and scenic vistas.

Visual Quality

Landscape Character Types - Natural Setting

While portions of the west of Devers 230kV transmission upgrade study corridor have been developed, areas of vacant land still demonstrate natural conditions that can be divided into three distinct landscape types: desert valley grasslands, grasslands, and foothills. For examples of these natural landscape character types refer to Figure 4-3.

Scenic Quality - Scenic quality was inventoried for the study area as depicted on Map 4-6e (end of Chapter 4). Scenic Quality Rating Forms were developed for the landscape types previously described, consistent with BLM methods, and used to determine levels of scenic quality within the corridor as described below.

The proposed project does not pass through any lands that have been designated as Class A scenery.

Class B scenery is associated with undeveloped landscapes with some visual variety in line, color, form, and texture. The foothills associated with the San Bernardino Mountains west of the Devers Substation and the hills associated with San Timoteo Canyon were designated as Class B scenery. These landscapes exhibit variety in color based on the season and landform, adding interest to the setting.

Class C landscapes consist of undeveloped land with little variety in landform and vegetation. Approximately one-third of the study corridor crosses Class C scenery, which primarily consists of the flat valley land surrounded by subtle rolling hills. The rest of the study corridor passes through developed lands.

Desert Grasslands Character Type

Grasslands Character Type

Foothills Character Type

Figure 4-3
Proposed West of Devers Study Corridor
Landscape Character and Image Types

Foothills Character Type

Commercial Image Type

Institutional Image Type

Figure 4-3 (cont.1)
Proposed West of Devers Study Corridor
Landscape Character and Image Types

Industrial Image Type

Open Space / Park Image Type

Figure 4-3 (cont.2)
Proposed West of Devers Study Corridor
Landscape Character and Image Types

Residenital Image Type

Agricultural Image Type

Figure 4-3 (cont.3)
Proposed West of Devers Project Corridor
Landscape Character and Image Types

Visual Image Types – Developed Settings

Within the suburban setting, six visual image types (see Figure 4-4) were identified during field reconnaissance along the proposed project including agricultural, residential, industrial, commercial, institutional, and open space/park. While developed areas, primarily residential, are currently found in scattered concentrations, future land use plans suggest that a majority of the study corridor (Links 101-104) will continue to be developed as residential areas with open space.

Agricultural Image Types – These include small pockets of land that are crossed by the proposed west of Devers upgrade within San Timoteo Canyon. While limited in extent, these areas have been modified for crop production. Other cultural modifications include facilities in support of agricultural production. Variations in landform are extremely limited, and vegetation primarily consisting of citrus grove, is homogenous in color.

Residential Image Types – These consist of low- to high-density single-family detached units in addition to apartment style condos and/or town homes, most often in a regular ordered pattern. The development pattern for medium- to high-density residential image types displays a strong sense of continuity in housing and street patterns, which are repeated throughout the development. These patterns are often arranged on an internal geometric grid, with a loop road system, providing a perimeter of housing which serves as a separation or seam to surrounding uses. Low-density residential image types exhibit large individual lots and curvilinear and random circulation patterns, often with no centralized focus. Housing character in these areas is non-unified, with orientation of the building generating inward and outward views to the surrounding landscape. Pockets of low-density residential types occur within San Timoteo Canyon and eastward toward the Morongo Indian Reservation as well as in Grand Terrace and Colton. Medium-density housing in the form of master-planned communities is scattered along the study corridor but is in higher concentrations in the cities of Banning and Beaumont (between Links 101 and 102).

Industrial Image Types – These include developments which have active industrial uses and are found immediately west of Devers Substation and in other limited areas. Facilities, buildings and land modifications in this image type are centralized, often large, and may dominate the local setting in terms of complexity, scale, and layout concept. Landscape treatment (often limited) may include vegetation screening, used on the perimeter of the industrial development to block views. These areas include wind farms, resource extraction, and other utility related facilities adjacent to, or in the vicinity of the proposed project.

Commercial Image Types – These are typically oriented to the street with the layout concept designed to provide high visibility and access. Structures are often "box like," unified, and display a repetition of architectural facades and sign types. Open parking lots are the predominant source of buffering from the surrounding area. Hotels, motels, strip malls and stores are all examples of the commercial image type. Commercial image types were identified within the Morongo Indian Reservation (casino/hotel and outlet shopping center) and in localized areas.

Institutional Image Types – These include developments such as schools, libraries, and churches, which often provide a strong community landmark. The setting is dominated by a central building, which serves as a focus for the site. The character may consist of open green space, often including recreation facilities (schools). Visibility is often high both to and from the surrounding roads.

Open Space/Park Image Types – These include parks and open space and cemeteries. This image type is characterized by contiguous open space, typically including combinations of grass, shrubs/trees, and hardscape. The edges are most often defined by surrounding land use, usually residential or institutional, and streets, which may enclose these areas while at the same time providing access. Views are usually focused into the interior of the image type while other development confines off-site views. Open space/park image types that are adjacent to, or crossed by the proposed project, include golf courses, parks, trail systems, and the cemetery. In the cities of Banning, Calimesa, Redlands, and Loma Linda it was required that the existing

utility corridor, where the proposed project is to occur, function as an open space, passive recreation/pedestrian circulation corridor.

Existing Conditions

Existing visual conditions that may affect the scenic quality or image type of an area were considered in the evaluation of landscape settings. All land crossed by the proposed west of Devers 230kV transmission upgrade have been highly modified by the presence of the existing transmission line corridor which includes up to five different types of existing structures. In many locations these facilities dominate the existing setting.

Views

Numerous key viewpoints were identified including dispersed residences within master planned communities, recreational areas, and travel routes. Of particular importance were those locations where regional landscape features such as the San Bernardino and San Jacinto mountains were dominant. Localized views of importance include those from neighborhood areas, parks, cemeteries, and roads immediately adjacent to or crossed by the existing utility corridor. The following discussion regarding the inventory of views addresses viewer sensitivity, distance zones, and viewing conditions specific to sensitive viewpoints including residential, recreation, and travelway viewers within the proposed west of Devers 230kV transmission upgrade study corridor.

Residential Area Viewers – Residential viewers were identified within the study corridor and were assigned a high sensitivity based primarily on viewing duration and concern for change in the landscape. Dispersed rural residential viewers and low- to medium-density residential development and associated viewers include some areas within the Morongo Indian Reservation and San Timoteo Canyon. Viewers in these and other locations have foreground to middleground

views of the proposed and existing transmission lines that vary from open, to partially or fully screened views, depending on localized conditions. Residential viewers along Links 103 and 104 (Loma Linda, Colton, and Grand Terrace) have similar viewing conditions. Residences that occur on the northern and southern side of the proposed transmission upgrade corridor within the Morongo Indian Reservation have immediate foreground views of the proposed transmission line.

Medium- to high-density housing and associated viewers occur in several locations including the cities of Banning and Beaumont. These viewers have open to partially or fully screened views of the existing and proposed west of Devers 230kV transmission lines, dependent upon their location within each development and localized screening conditions. Viewers on the edge of developments tend to have the most direct unobstructed views, while those on the interior have views that are partially to fully screened. Specifically, those homes occurring immediately adjacent on the north side of the existing transmission line right-of-way in Beaumont will have direct immediate foreground views of the proposed transmission upgrade.

Recreational Viewers - There are a number of parks located in proximity to, or that have foreground/middleground views of the existing transmission line corridor, including the PGA of Southern California Golf Course and the Oak Valley Green Neighborhood Park. The Pacific Crest National Scenic Trail, which crosses the existing right-of-way and the proposed west of Devers 230kV upgrade corridor, is considered to have high visual sensitivity because of its scenic designation. In addition, Riverside and San Bernardino counties and the cities of Banning, Calimesa, Redlands, and Loma Linda all preserve existing transmission line easements as open space/trail corridors in their general plans.

Travelway Viewers – High sensitivity travelways include several eligible, and officially designated, State Scenic Highways. Those located within the study corridor include CA 62 from I-10 to San Bernardino County, CA 111 to I-10 near Whitewater, and I-10 from CA 38 near Redlands to CA 62 near Whitewater. San Timoteo Canyon Road, which runs parallel to portions of the existing transmission line corridor, is also considered highly sensitive, in part, due to its

historic value to the community. San Timoteo Canyon is located within a "resource preservation" area in the city of Redlands General Plan. Views from these roads range from open immediate foreground where I-10 and CA 62 cross the proposed west of Devers 230kV transmission upgrade corridor, to middleground/background screened views from CA 111 and San Timoteo Canyon Road, where views may range from partially to fully skylined, or backdropped.

Scenic Vistas

There are no designated scenic vistas within the proposed west of Devers 230kV upgrade study corridor.

4.2.12 Cultural Resources

See Section 4.1.12 for a brief overview of cultural resources in the project area.

Archaeology

Class I records search data identified eight previously recorded prehistoric archaeological sites and one isolated occurrence potentially within the study corridor. Two of these sites (RIV-179 and RIV-197) and the one isolated occurrence appeared to be potentially within the 300-foot-wide project APE. Based on the Class III archaeological survey of the 300-foot-wide project APE, RIV-179 could not be relocated, RIV-197 was found to be outside the APE, and two new sites were recorded (P33-13429, and P33-13430 (Eckhardt and Walker 2004b).

Neither P33-13429 nor P33-13430 appear eligible for the NRHP (Eckhardt and Walker 2004b).

Ethnography

Apart from the recorded archaeological sites and the portion of the study corridor that crosses the Morongo Indian Reservation, there are no known areas of ethnographic sensitivity within the project APE. In addition, Native American groups have an interest in the disposition of prehistoric archaeological sites as evidence of the presence of their ancestries.

BLM staff has indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

A Class I records search identified 38 previously recorded historic-era buildings and archaeological sites, and five isolated occurrences potentially within the 1-mile-wide study corridor. Three of the previously recorded sites (RIV-4768H/SBR-7168H, RIV-2262H, and P33-007888) and none of the isolated occurrences appeard to be potentially within the 300-foot-wide project APE. The Class III archaeological survey resulted in the relocation of all of those resources, and the recordation of nine other historic sites (RIV-7462H/P33-13427, P33-13428, RIV-2262H, RIV-4768H/SBR-7168H/P36-007168, SBR-11624H/P36-011624, P33-13431, P33-13434, P33-007888, and P36-020240 and one historic isolated occurrence (P33-13432) within the 300-foot-wide project APE (Eckhardt and Walker 2004b).

Of the nine historic sites identified within the APE, three (RIV-7168H/4768H, RIV-2262H, and P33-007888) are assessed potentially eligible for listing on the NRHP. Isolated artifacts do not meet criteria for listing on the NRHP (Eckhardt and Walker 2004b).

Paleontology

Between the Devers and Vista substations (Links 100, 101, 102, 103, and 104) the proposed 230kV upgrade right-of-way traverses approximately 25.9 miles of high or undetermined areas of paleontological sensitivity. The remainder of the corridor has a low paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium in Links 102 and 103, Canebrake Conglomerate or Palm Springs Formation in Link 102, and San Timoteo Formation in Links 102 and 103. Link 104 traversing the area between Link 103 and San Bernardino Substation crosses only lithic units of low paleontological sensitivity (Scott 2003).

4.2.13 Public Health and Safety

4.2.13.1 School Facilities

The following section describes the school facilities that are located within ½ mile of the proposed west of Devers upgrade and SCE's existing transmission line right-of-way. Table 4-55 provides a summary of existing schools and their respective locations relative to the existing right-of-way within the proposed west of Devers transmission line upgrade corridor.

Existing schools located within approximately ¼ mile from the existing transmission line right-of-way are listed in Table 4-55. The new Beaumont High School, now under construction, also would be within ¼ mile from the right-of-way. The Colton Joint Unified School District plans to construct a new middle school in Bloomington, and will construct a new high school at an undetermined location in 2006 (CJUSD 2005).

TABLE 4-55
SCHOOLS WITHIN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

School District	City/Jurisdiction	School	Location	Distance from Existing Right-of-way
Schools Within ¼ Mile				
Link 100				
Banning Unified (private under contract)	White Water, California	Whitewater High School	55860 Verbenia Avenue	0.1 mile (south)
Link 102				
Beaumont Unified	Beaumont, California	Beaumont Senior High School	1591 Cherry Avenue Cherry Avenue/Cougar Way	120 feet (north)
Beaumont Unified	Beaumont, California	Mountain View Middle School	200 Cougar Way Cougar Way/Palm Avenue	.25 mile (north)
Beaumont Unified	Cherry Valley, California	Beaumont High School (under construction)	11445 Beaumont Avenue Beaumont Avenue/Cougar Way	.25 mile (north)
Link 103				
Colton Joint Unified	Colton, California	Reche Canyon Elementary	3101 Canyon Vista Drive Canyon Vista Drive/Chase Canyon Lane	0.1 mile (south)
Private	Colton, California	Christian Center Academy	1401 S. Mount Vernon Avenue Mt. Vernon Avenue/I-215	adjacent (south)
Colton Joint Unified	Grand Terrace, California	Terrace View Elementary	22731 Grand Terrace Road Grand Terrace Road/Vista Grande Way	800 feet (south)
Link 104				
Redlands Unified	Loma Linda, California	Bryn Mawr Elementary School	11680 Whittier Avenue Whittier Avenue/Cresthaven Court	.25 mile (east)
Schools Within ½ Mile				
Link 101				
Banning Unified	Banning, California	Hoffer Elementary	1115 E Hoffer Street Hoffer Street/Phillips Avenue	.5 mile (southwest)
Link 102				
Private	Banning, California	Calvary Christian School	1325 Mountain Avenue	.5 mile (south)
Beaumont Unified	Beaumont, California	Chavez Elementary	1730 Cherry Avenue Cherry Avenue/Mary Lane	.5 mile (north)
Link 103				
Charter	Colton, California	San Andreas Academy	851 S. Cooley Drive	.5 mile (north)
Colton Joint Unified	Grand Terrace, California	Terrace Hills Middle	22579 De Berry Street De Berry Street/Mt. Vernon Avenue	.5 mile (south)
Private	Grand Terrace, California	Azure Hills Adventist Elementary	22577 City Center Court	.5 mile (southeast)
Colton Joint Unified	Grand Terrace, California	Grand Terrace Elementary	12066 Vivienda Avenue Vivienda Avenue/Barton Road	.5 mile (south)

TABLE 4-55 SCHOOLS WITHIN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR				
School District	**City/Jurisdiction**	**School**	**Location**	**Distance from Existing Right-of-way**
Link 104				
Redlands Unified	San Bernardino, California	Victoria Elementary	9963 Richardson Street	.5 mile (west)
Sources: AES 2004; BUSD 2004; California Department of Education 2004; CJUSD 2004; RUSD 2004 Note: School property locations were identified within approximately ½-mile on either side of the existing transmission line right-of-way				

4.2.13.2 Airport and Airstrip Operations

There are two public airports and three heliports within 2 miles of the proposed west of Devers upgrade right-of-way. The San Bernardino International Airport is located about 1.25 miles north of the San Bernardino Substation. The Banning Municipal Airport is located just less than 1 mile south of the right-of-way. The Loma Linda University Medical Center Heliport and San Bernardino Heliport are located 1 mile and 1.6 miles, respectively, north/northeast of the right-of-way, between the Vista and San Bernardino substations. There is also a heliport at Devers Substation.

4.3 SUBALTERNATE TRANSMISSION LINE ROUTES

4.3.1 Introduction

Two 500kV transmission line subalternate routes are evaluated in this document—the Harquahala-West and Palo Verde Subalternate Routes. The Harquahala-West subalternate route would be approximately 14 miles shorter than the proposed Devers-Harquahala route. The route segment begins at the Harquahala Switchyard approximately 1 mile north of Courthouse Road and follows section lines west for approximately 12 miles through private and state land to the El Paso Natural Gas pipeline corridor. The route then follows the pipeline corridor northwest,

through predominately BLM land for approximately 9 miles, to its intersection with the existing DPV1 and proposed Devers-Harquahala transmission line corridor.

The Palo Verde Subalternate Route was evaluated in the event that the termination point of the project would be the PVNGS Switchyard, as an alternative to the Harquahala Switchyard. The route is approximately 14.9 miles long and would parallel the DPV1 transmission line southeast past Saddle Mountain, and then east and northeast to PVNGS.

The description of the environmental setting for each of the subalternate routes follow. The Harquahala-West Subalternate Route is identified as Link HW and the Palo Verde Subalternate Route is identified as Link PVS on Maps 4-1a, 4-2a, 4-3a, 4-4a, 4-5a, and 4-6a, located at the end of Chapter 4.

4.3.2 Land Use

4.3.2.1 Methodology

The inventory was compiled through interpretation of existing maps and aerial photographs within and adjacent to the subalternate routes. The mapped information was then field verified by ground reconnaissance. The study corridor for both subalternate routes is 2 miles wide.

Land use inventory results for the subalternate routes are described in the following sections and displayed on in the following maps (end of Chapter 4):

- Map 4-1 a: Land Ownership
- Map 4-2 a: Land Jurisdiction
- Map 4-3 a: Land Use – Existing
- Map 4-4 a: Land Use – Future

4.3.2.2 Harquahala-West Subalternate Route

Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped for the Harquahala-West subalternate route based on available secondary data sources. Descriptions of the major categories follow, and the information is listed in Table 4-56 and Table 4-57 and shown on Maps 4-1a and 4-2a (end of Chapter 4).

TABLE 4-56
LAND OWNERSHIP CROSSED BY THE HARQUAHALA-WEST SUBALTERNATE ROUTE

Ownership	Total Miles Crossed
Bureau of Land Management	8.9
Arizona State Trust Land	3.1
Private Land	9.1
Total	**21.1**
Note: Totals may not check due to rounding.	

TABLE 4-57
LAND JURISDICTION CROSSED BY THE HARQUAHALA-WEST SUBALTERNATE ROUTE

Jurisdiction	Total Miles Crossed
Unincorporated Maricopa County	13.2
Unincorporated La Paz County	7.8
Total	**21.0**
Note: Totals may not check due to rounding.	

The public land managed by the BLM along the Harquahala-West Subalternate Route is within the Yuma Field Office planning area. The subalternate route is within the BLM utility corridor designated in the Lower Gila South RMP. The Eagletail Mountains WA falls within the study corridor of this subalternate route. The boundary of the wilderness comes within approximately ¼ mile from the proposed route. Approximately 8.9 miles of BLM land is crossed by the route.

Approximately 3.1 miles of Arizona State Trust Lands are crossed by the subalternate route. These lands occur in small areas between the BLM and private land. Approximately 9.1 miles of private land are found along the subalternate route as it goes west to the El Paso Natural Gas Pipeline corridor from the Harquahala Switchyard.

Existing Land Use

The following land use categories are found within the study corridor of the Harquahala-West Subalternate Route. The land uses are described as they occur in the study corridor.

Residential land uses along the Harquahala-West Subalternate Route include dispersed rural residences, which are accessed from Courthouse Road. Four residences occur within 1 mile of the subalternate route, and one residence occurs within ¼ mile of the route (between Mileposts 8 and 9 of link HW). Agricultural areas within the study corridor are located close to the Harquahala Generating Station, generally in the Harquahala Plain. Link HW crosses approximately 3 miles of agricultural land along irrigation canal laterals. Agricultural land within the study corridor is Prime Farmland as described by the Natural Resource Conservation Service. Prime Farmland characteristics are described in Section 4.1.2.1.

The majority of land within the subalternate route study corridor is vacant and/or undeveloped land. This vacant land includes private, state, and BLM land. Recreation areas within the study area include Courthouse Rock, a large rock feature located approximately 1.5 miles southwest of the subalternate route within the Eagletail WA.

The subalternate route parallels an El Paso Natural Gas pipeline corridor, which traverses from south of the PVNGS northwest through Wenden Pump Station 4126. The Wenden Station is located south of Milepost 30 on Link 1b and the pipelines that pass through it include 1600, 1103, 1100, and the All American Pipeline (Line 2000). Pipelines have been installed on both sides of the access road. A fiber optic cable is also located along the pipeline corridor.

Future Land Use

The general comprehensive and land management planning documents identify planned land uses in the subalternate corridor within the same jurisdictions as the proposed Devers-Harquahala route in this area. Eagle Ranch is a subdivided area along Courthouse Road. The subalternate route crosses approximately 4.5 miles of Eagle Ranch. The future land uses are identified on Map 4-4a.

The BLM has planned for utility corridors within their jurisdiction. The Harquahala-West Subalternate Route is located in a designated utility corridor where it is parallel to the El Paso Natural Gas pipeline corridor. The Maricopa County Comprehensive Plan designates the subalternate corridor as a Rural Residential area. Rural Residential is defined as one dwelling unit or less per acre. La Paz County does not have an adopted general plan.

No established hiking and riding trails were identified within the subalternate corridor, although dispersed recreation occurs on land managed by the BLM. The BLM is currently evaluating a proposal to develop a trail within the vicinity of Courthouse Rock.

4.3.2.3 Palo Verde Subalternate Route

If it is determined that the termination point of the project is the PVNGS Switchyard instead of the Harquahala Switchyard, the 500kV transmission line route would follow the DPV1 transmission line southeast past Saddle Mountain (See Map 3-2a) within the 130-foot-wide right-of-way granted to SCE by the BLM for DPV2 in 1989. The right-of-way is adjacent to the existing DPV1 transmission line, on the eastern and northern side, within the BLM-designated utility corridor. Acquisition of new right-of-way across private and state land also would be required. Construction of this alternative would require a cutover with the DPV1 line. A diagram of the proposed and subalternate route construction configurations is shown on Map 3-3 (end of

Chapter 3). The length of the Palo Verde 500kV subalternate transmission line route, between the junction of Harquahala and PVNGS, would add approximately 10 miles.

Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped for the Palo Verde Subalternate Route. Descriptions of the major categories follow, and the information is listed in Table 4-58 and shown on Maps 4-1a, 4-2a, and 4-2b.

TABLE 4-58
LAND OWNERSHIP CROSSED BY THE PALO VERDE SUBALTERNATE ROUTE

Ownership	Total Miles Crossed
Bureau of Land Management	8.8
Arizona State Trust Land	2.3
Private Land	3.8
Total	**14.9**

Land managed by the BLM along this subalternate route is managed by the Phoenix Field Office and includes Saddle Mountain and the Palo Verde Hills. The route would utilize the 130-foot-wide right-of-way granted to SCE in 1989 for the DPV2 transmission line. Approximately 2.3 miles of Arizona State Trust Lands are crossed by the subalternate route. Approximately 3.8 miles of private lands are found along the subalternate route in the vicinity of the PVNGS.

Existing Land Use

The following land uses are found within the Palo Verde subalternate study corridor and are identified on Map 4-3a. Dispersed rural residences occur in the northern portion of the study corridor along the Salome Highway and in the southern portion of the study corridor, along Wintersburg Road. Residences along the Salome Highway are between 1 and 2 miles away from

the centerline of the subalternate route. The Palo Verde Subalternate Route does not cross any agricultural land. The majority of land within the subalternate route study corridor is vacant and/or undeveloped land. The route parallels the existing DPV1 500kV transmission line for its entire length.

Future Land Use

General comprehensive and land management planning documents identify planned land uses in the subalternate corridor within the same jurisdictions as the proposed Devers-Harquahala transmission line route in this area. The future land uses are identified on Map 4-4a. The Palo Verde Subalternate Route is located in the BLM designated Palo Verde-Devers utility corridor that includes the DPV1 transmission line. The Maricopa County Tonopah/Arlington Specific Area Plan includes planned land use designations of rural residential, planned open space (in the vicinity of Saddle Mountain), and industrial (within the PVNGS property).

4.3.3 Socioeconomics, Population, and Housing

4.3.3.1 Harquahala-West and Palo Verde Subalternate Routes

The Harquahala-West Subalternate Route is located in Maricopa and La Paz counties, Arizona. The Palo Verde Subalternate Route is entirely within Maricopa County. Socioeconomic, population, and housing data are reported in Section 4.1.3.1.

4.3.4 Geology and Soils

4.3.4.1 Harquahala-West and Palo Verde Subalternate Routes

Physiographic Setting

The Harquahala-West and Palo Verde Subalternate Routes are in the Sonoran Desert section of the Basin and Range physiographic province (refer to Plate 4 in the 1977 Environmental Report). The province is described in Section 4.1.4.1.

4.3.5 Hydrology

4.3.5.1 Harquahala-West and Palo Verde Subalternate Routes

The Harquahala-West and Palo Verde Subalternate Routes are located in the Harquahala Plain. This plain is bounded by discontinuous mountain ranges including the Little Harquahala, Big Horn Mountains, Gila Bend Mountains, and Palo Verde Hills. As noted in Table 4-25, the Harquahala Plain drains into Centennial Wash.

As noted in Section 4.1.5.1, groundwater is typically found in the sand and gravel layers that lie beneath the alluvial valleys.

4.3.6 Air Quality

4.3.6.1 Harquahala-West and Palo Verde Subalternate Routes

The air quality data for the Harquahala-West and Palo Verde Subalternate Routes are described in Section 4.1.6.1.

4.3.7 Traffic and Transportation

4.3.7.1 Harquahala-West and Palo Verde Subalternate Routes

The Harquahala-West Subalternate Route does not cross any major transportation routes. The Palo Verde Subalternate Route crosses Wintersburg Road.

4.3.8 Biology

4.3.8.1 Harquahala-West Subalternate Route

Vegetation

Beginning at the Harquahala Switchyard, the Harquahala-West Subalternate Route traverses agricultural, ruderal, and native desert lands. Agricultural and ruderal land makes up the first 3 miles of the alternative as it crosses the Harquahala Plain. Once beyond the human-affected lands, the route crosses native desert land that is dominated by creosote bush (*Larrea tridentata*) with local co-dominance by white bursage (*Ambrosia dumosa*), the classic plant species that typify the Lower Colorado River Valley Subdivision of the Sonoran Desert (Turner 1982). Small drainageways and runnels on the Harquahala Plain support widely scattered individuals of mesquite (*Prosopis velutina*). In areas where water from runnels and sheet flows collect, small

patches of mesquite woodland are present. Creosote bush communities dominate the corridor westward to the CAP lateral canal and the El Paso Natural Gas pipeline near the easternmost foothills of the Eagletail Mountains. At this location, the corridor turns to the northwest and follows the El Paso Natural Gas pipeline and associated access road.

The El Paso Natural Gas pipeline runs along the northeastern edge of the Eagletail Mountain foothills. The route segment along the natural gas pipeline traverses a plant community that is ecotonal between the shrub-dominated Lower Colorado Valley Subdivision of the Sonoran Desert and the more diverse, arborescent/succulent Arizona Upland Subdivision. Soils in this area are much more coarse and gravelly than those on the Harquahala Plain and this is manifest in a different plant community in the foothills. Creosote bush continues to be a dominant species, but is joined by the arborescent ironwood, blue paloverde, and foothill paloverde. Cacti and ocotillo also become a much more common component of the foothill flora. Cactus species present include saguaro, chain-fruit cholla, prickly pear, silver cholla, teddy bear cholla (*O. bigelovii*), hedgehog cactus (*Echinocereus engelmannii*), and pincushion cactus (*Mammillaria tetrancistra*; *M. grahamii*) among others.

Close examination of the actual distribution of ironwood, blue paloverde, and saguaro reveals that most of these plants are actually growing alongside small washes and runnels with interfluvial sites dominated by creosote bush and white bursage with brittlebush on some of the steeper, rockier sites. Larger washes also contain catclaw acacia and cheesebush.

Special Status Plant Species and Sensitive Plant Communities

The USFWS (2004) lists two species of Endangered plants in Maricopa County (see Table 4-32) — Arizona agave (*Agave arizonica*) and Arizona cliff-rose (*Purshia subintegra*). Neither of these plants is known from any locality anywhere near the Harquahala-West Subalternate Route, nor is there suitable habitat for either species within the corridor.

A number of species that are listed under the ANPL are present within the Harquahala-West corridor. Based on several previous native plant surveys along the existing DPV1 line, it appears highly unlikely that any of the Highly Safeguarded Protected Native Plants are present within the Harquahala-West corridor. It is possible that crested or fan-top forms of the saguaro cactus could be present, although no individuals of this form were observed during site reconnaissance conducted in March 2004. There is a number of Salvage Restricted Protected Native Plants within the corridor including all agaves, cacti, and ocotillo. Table 4-32 contains three representative species of cacti, two of which are known to be present within the Harquahala-West corridor. Salvage Assessed and Harvest Restricted species include blue and foothill paloverde, mesquite, and ironwood.

Although the BLM sensitive Death Valley Mormon tea (Table 4-32) was not observed, it may be present in the this area, but it is more likely to be found further west toward the Colorado River. There were no unique or highly sensitive plant communities observed within the Harquahala-West corridor. The creosote bush-dominated communities that typify the vegetation of the area are the most common, widespread communities in the lowlands of southern Arizona. The more sensitive habitats include xeroriparian scrublands along major washes and patches of mesquite woodland occurring at lowland areas on the Harquahala Plain.

Wildlife

Vertebrate wildlife that is present within the Harquahala-West corridor is composed of mammals, birds, amphibians, and reptiles that are characteristic of arid Sonoran Desert lowland and low foothill plant communities and soil types.

Mammals

The mammalian fauna of the Harquahala-West corridor is composed largely of small, nocturnal species of bats and rodents, including highly desert-adapted Heteromyid pocket mice and kangaroo rats. Owing to an absence of suitable roosting and nursery sites (e.g., caves, mine shafts and adits, buildings, and bridges), it is likely that bat presence is largely restricted to foraging individuals. Diurnal species include black-tailed jack rabbit, Harris antelope ground squirrel, and rock squirrel. Desert mule deer occur sparingly in larger desert washes and the ubiquitous coyote is likely to be encountered almost anywhere within the corridor.

Birds

Turner (1994) notes that the Lower Colorado River Valley Subdivision is the poorest of the Sonoran Desert subdivisions with respect to its avifauna. He points out that LeConte's thrasher (*Toxostoma lecontei*) is the only bird species that is diagnostic of the subdivision. The fact that florisitic elements that are not strictly Lower Colorado River Valley are present in this area contributes significantly to a more diverse avifauna than would be present otherwise. It is likely that one could expect to find 75 or so species of birds in the Harquahala-West corridor over the course of a year's time including vultures, hawks, quail, doves, roadrunner, owls, goatsuckers, swifts, hummingbirds, woodpeckers, and a fairly diverse array of songbirds (flycatchers, larks, swallows, wrens, gnatcatchers, mockingbird, thrashers, shrike, vireos, wood warblers, orioles, tanagers, grosbeaks, finches, and sparrows).

Amphibians

The only amphibians likely to be present with the Harquahala-West corridor are the highly adapted species of toads and spadefoot toads that appear in response to summer monsoon rainfall. These species spend most of the year sequestered in rodent burrows or are dug well into the soil awaiting the summer rains when they emerge to breed in temporary rainfall pools and

stock tanks. Species likely to be present include Couch's spadefoot, Great Plains toad, Sonoran Desert toad, and red-spotted toad.

Reptiles

Depending on substrate, a fairly diverse group of lizards and snakes may be found in habitats traversed by the Harquahala-West subalternate route. Fine, sandy soils are likely to host such species as banded sand snake, sidewinder, and desert iguana. Rocky slopes, outcrops, and washes support a different herpetofauna that includes such species as long-tailed brush lizard, chuckwalla desert spiny lizard, desert horned lizard, western whiptail, desert glossy snake, and many more (Turner 1982).

Special Status Wildlife

Table 4-33 provides a listing of federally listed, state-listed, and BLM sensitive species that are known to occur in Maricopa and La Paz counties, Arizona. Of this group of organisms, none of the federally listed species were observed or are likely to be present within the Harquahala-West corridor. There is some possibility of the Southwestern willow flycatcher being present along wooded washes during spring or fall migration, but due to lack of habitat, there is no possibility of the species nesting within the corridor. Loggerhead shrike and California leaf-nosed bat, both federal species of concern and BLM sensitive species, are almost certain to occur at least occasionally within the corridor. Desert bighorn reside in the Eagletail Mountains and may occasionally wander downslope in the Harquahala-West corridor.

4.3.8.2 Palo Verde Subalternate Route

Vegetation

The Palo Verde Subalternate Route exits the Harquahala Switchyard and travels easterly for approximately 2 miles across agricultural land. Between the point the corridor leaves agricultural land and the point it crosses the Salome Highway and turns to the southeast, the route crosses land dominated by creosote bush with white bursage. There are local patches of mesquite along washes and behind berms created by road construction. Creosotebush continues being the dominant plant species, but Arizona Upland Subdivision elements that appear include saguaro, ironwood, foothill paloverde, and several species of cacti. The ecotonal plant community composed of elements of both Sonoran Desert subdivisions is the characteristic vegetation type as the route travels southward between Saddle Mountain and the Palo Verde Hills.

Approximately 5 miles after turning to the southeast, the route leaves the fairly broken terrain between the Palo Verde Hills and Saddle Mountain and crosses a broad, alluvial plain that is dominated by creosote bush. Arizona Upland elements persist on this plain, but the upland plants including ironwood, mesquite, etc., tend to be restricted to major and minor drainages. Past the southern tip of the Palo Verde Hills, the route turns to the east and crosses approximately 2.2 miles of ruderal land that is located about 650 feet east of Winters Wash. The route crosses Winters Wash, which is dominated by mid-sized mesquite trees with a dense grass and forb understory.

Special Status Plants and Sensitive Plant Communities

The USFWS (2004) lists two species of plants in Maricopa County (see Table 4-32) — Arizona agave and Arizona cliffrose. Neither of these plants has been found in any locality anywhere near the subalternate route, nor is there suitable habitat for either species within the corridor.

A number of species that are listed under the ANPL are present within the corridor. Based on several previous native plant surveys along the existing DPV1 line, it appears highly unlikely that any of the Highly Safeguarded Protected Native Plants are present along the Palo Verde Subalternate Route. It is possible that crested or fan-top forms of the saguaro cactus could be present, although no individuals of this form were observed during site reconnaissance of the route during mid-September 1999, nor was this form reported by field crews conducting cactus ferruginous pygmy-owl surveys or monitoring construction of the Harquahala-Hassayampa 500kV transmission line. Salvage Restricted Protected Native Plants within the subalternate route include all agaves, cacti, and ocotillo. Table 4-32 contains three representative species of cacti, two of which are known to be present within the corridor. There are a number of other species of cacti present that are not listed in Table 4-32, such as Salvage Assessed and Harvest Restricted species include blue and foothill paloverde, mesquite, and ironwood.

There are no unique or highly sensitive plant communities within the corridor. The most sensitive habitats are associated with major and minor drainageways and include communities on washes between the Palo Verde Hills and Saddle Mountain. These washes are dominated by ironwood with blue paloverde, mesquite, and catclaw acacia. Saguaro cacti also tend to be associated with small washes and runnels in this area. Habitats along Winters Wash are very strongly dominated by dense growth of mesquite, representing the most "unique" vegetation type within the corridor.

Wildlife

Vertebrate wildlife present within the Palo Verde Subalternate Route corridor includes mammals, birds, amphibians and reptiles that are characteristic of arid Sonoran Desert lowland and low foothill plant communities and soil types.

Mammals

The mammalian fauna of the Palo Verde Subalternate Route are composed largely of small, nocturnal species of bats and rodents, including highly desert-adapted Heteromyid pocket mice and kangaroo rats. Owing to an absence of suitable roosting and nursery sites in the corrodor (e.g., caves, mine shafts and adits, buildings, and bridges), it is likely that bat presence is largely restricted to foraging individuals. Diurnal species include black-tailed jackrabbit, Harris antelope ground squirrel, and rock squirrel. Desert mule deer occur sparingly in larger desert washes and the ubiquitous coyote is likely to be encountered almost anywhere within the corridor.

Birds

Turner (1994) notes that the Lower Colorado River Valley Subdivision is the poorest of the Sonoran Desert subdivisions with respect to its avifauna. He points out that LeConte's thrasher is the only bird species that is diagnostic of the subdivision. The fact that florisitic elements that are not strictly Lower Colorado River Valley are present in the Palo Verde Subalternate Route corridor contributes significantly to a more diverse avifauna than would be present otherwise. It is likely that one could expect to find 75 or so species of birds over the course of a year's time including vultures, hawks, quail, doves, roadrunner, owls, goatsuckers, swifts, hummingbirds, woodpeckers, and a fairly diverse array of songbirds (flycatchers, larks, swallows, wrens, gnatcatchers, mockingbird, thrashers, shrike, vireos, wood warblers, orioles, tanagers, grosbeaks, finches, and sparrows).

Amphibians

The only amphibians likely to be present with the Palo Verde Subalternate Route corridor are the highly adapted species of toads and spadefoot toads that appear in response to summer monsoon rainfall. These species spend most of the year sequestered in rodent burrows or are dug well into

the soil awaiting the summer rains when they emerge to breed in temporary rainfall pools and stock tanks. Species likely to be present within the corridor include Couch's spadefoot Great Plains toad, Sonoron Desert toad, and red-spotted toad.

Reptiles

Depending on substrate, a fairly diverse group of lizards and snakes may be found in habitats traversed by this subalternate route. Fine, sandy soils are likely to host such species as banded sand snake, sidewinder, and desert iguana. Rocky slopes, outcrops, and washes support a different herpetofauna that includes such species as long-tailed brush lizard, chuckwalla, desert spiny lizard, desert horned lizard, western whiptail, desert glossy snake, and many more (Turner 1982).

Special Status Wildlife

Federally listed, state-listed, and BLM sensitive species that are known to occur in Maricopa and La Paz counties, Arizona are listed in Table 4-33. Of this group of organisms, none of the federally listed species were observed, or are likely to be present within the Palo Verde subalternate corridor. There is some possibility of the Southwestern willow flycatcher being present along wooded washes during spring or fall migration; but due to lack of habitat, there is no possibility of the species nesting in the corridor. A 7-mile segment of this corridor south of the Salome Highway traverses Category II Sonoran Desert tortoise habitat. Loggerhead shrike and California leaf-nosed bat, both federal species of concern and BLM sensitive species, are almost certain to occur at least occasionally within the subalternate corridor. The big game species, desert bighorn, likely occupy the rugged terrain of Saddle Mountain and may move back and forth across the corridor in their travels between Saddle Mountain and the Palo Verde Hills.

4.3.9 Noise

4.3.9.1 Harquahala-West and Palo Verde Subalternate Routes

The acoustic setting for the Harquahala-West and Palo Verde Subalternate Routes is similar to the proposed Devers-Harquahala transmission line route as described in Section 4.1.9.

4.3.10 Public Services and Utilities

4.3.10.1 Harquahala-West and Palo Verde Subalternative Routes

The unincorporated community of Tonopah is the nearest community to both of the subalternate routes. Public Services and Utilities information for these subalternate routes is similar to that described in Section 4.1.10.1.

4.3.11 Visual Resources

4.3.11.1 Harquahala-West Subalternate Route

Potential visual issues identified along the Harquahala-West subalternate route are associated with sensitive viewers, including recreational and residential. The existing conditions have been modified by a gas pipeline and associated road. A number of residences occur within 1 mile of the subalternate route with open views of the proposed project. Additional sensitive viewers that occur within the subalternate route study corridor are associated with the trail in the Eagletail Wilderness. However, the views of the subalternate transmission line would be partially screened and back-dropped and would occur approximately 1 mile away from the trail. The scenic quality adjacent to and crossed by this alternative is Class C.

4.3.11.2 Palo Verde Subalternate Route

Sensitive viewers associated with the Palo Verde Subalternate Route include travelers, residents, and dispersed recreation users. The landscape within the study corridor has been locally modified by existing 500kV transmission lines for the entirety of the subalternate route and designated as Scenic Quality Class C. The residential viewers identified are located at least 1 mile away from the route. Travelers on the Salome Highway would have open views of the existing DPV1 transmission line and the Palo Verde subalternate transmission line on this alternative route. Dispersed recreation users will have varying views of the existing DPV1 and subalternate transmission lines, depending on their location within the Eagletail WA.

4.3.12 Cultural Resources

4.3.12.1 Harquahala-West Subalternate Route

Archaeology

Class I research conducted in 2004 identified 19 prior studies and 15 recorded archaeological sites within the Harquahala-West Subalternate Route study corridor. Of these 15 recorded sites, 4 were determined to be potentially within the 300-foot-wide project study corridor based on Class I research information (Luhnow 2004).

A Class II archaeological survey was conducted in 2004 for the Harquahala-West Subalternate route. The purpose of the Class II survey was to ascertain the relative cultural resource sensitivity of the Harquahala-West Subalternate Route study corridor (Luhnow 2004).

None of the four sites determined through the Class I research to be potentially within the 300-foot-wide corridor could be relocated in the field (Luhnow 2004). The Class II survey did result

in the discovery of two isolated prehistoric archaeological occurrences—a lithic tool and a lithic flake. Isolated artifacts do not meet criteria for listing on the NRHP.

Ethnography

Previous ethonographic research conducted for the DPV1 transmission line project resulted in the identification of two areas of ethnographic concern in the vicinity of the project area (Bean and Vane 1978). These places may meet criteria for designation as TCPs. They are the Eagletail Mountains and Harquahala Plain (ibid). In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors.

Native American groups such as the Yavapai, Tohono O'odham, Hia-Ced O'odham, and Cocopah may have affiliation with these areas. BLM staff has indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document prepared for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

Class I research identified 19 prior studies and no recorded historic-era resources within the study corridor (Luhnow 2004).

A Class II archaeological survey was conducted for the Harquahala-West Subalternate route. This survey consisted of an intensive survey of two sample transects 300-foot-wide by 1-mile long along two areas with environmental characteristics with potential for the presence of archaeological resources (across a large wash and playa setting, and along a valley/hill interface). The purpose of the Class II survey was to ascertain the relative cultural resource sensitivity of the Harquahala-West Subalternate Route (Luhnow 2004).

The Class III survey resulted in the discovery of one isolated historic-era archaeological occurrence. This is a rock cairn that may be associated with a mining claim (Luhnow 2004). Isolated artifacts do not meet criteria for listing on the NRHP.

Paleontology

Virtually the entire length of the Harquahala-West Subalternate Route crosses undifferentiated Pleistocene older alluvium and Holocene alluvium in the Harquahala Plain. The Pleistocene older alluvium has a high paleontological sensitivity ranking (Scott 2003).

4.3.12.2 Palo Verde Subalternate Route

Archaeology

Class I research identified 26 prior studies, 48 previously recorded prehistoric archaeological sites, and one NRHP listed district within 1 mile of the Palo Verde Subalternate Route. Of these resources, 14 were identified in the Class I research as occurring within or immediately adjacent to the project APE (defined as a 300- to 600-foot-wide corridor encompassing future tower and access road locations).

The Class III survey was unable to relocate 10 of the 14 resources identified as potentially occurring within the project APE (Luhnow and Dickinson 2004). These sites are recorded as AZ S:12:5 (ASM), AZ S:12:6 ASM), AZ S:12:7 (ASM), AZ T:9:10 (ASM), AZ T:9:11 (ASM), AZ T:9:14 (ASM), AZ T:9:15 (ASM), AZ T:9:16 (ASM), AZ T:9:17 (ASM), and AZ T:9:22 (ASM). The four sites that were relocated are AZ T:9:12 (ASM), AZ T:9:13 (ASM), AZ T:9:21 (ASM), and AZ T:9:64 (ASM). In addition, four previously unrecorded sites were discovered during the Class III survey. These are AZ S:12:35 (ASM), AZ S:12:36 (ASM), AZ T:9:86 (ASM) and AZ T:9:87 (ASM).

Three archaeological sites are assessed NRHP eligible or potentially eligible. The Class III survey observations indicate that the site lacks integrity and does not demonstrate any historic or prehistoric associations (Luhnow and Dickinson 2004). The newly recorded sites consist of one small scatter of chipped stone and two small localized ceramic scatters. All are recommended not NRHP eligible (ibid).

In addition to the archaeological sites, the Class III survey located 21 isolated archaeological occurrences (Luhnow and Dickinson 2004). Isolated artifacts do not meet criteria for listing on the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 transmission line project resulted in the identification of five TCPs (Bean and Vane 1978). These are: the Jagow Well/Palo Verde Hills Archaeological District, Palo Verde Hills, plains between the Palo Verde Hills and Gila Bend Mountains, Harquahala Plain, and the Tonopah area. In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors.

Native American groups such as the Yavapai, Tohono O'odham, Hia-Ced O'odham, and Cocopah may have affiliation with these areas, which were largely associated with resource procurement.

The Jagow Well/Palo Verde Hills Archaeological District is called "Mountain that sounds like a drum" by the Yavapai people. This area, which exhibits rock art, shrines, and an intaglio figure, is considered to be a place of spiritual power (Rogge et al. 2000a).

BLM staff has indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for

input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

The Class I research identified 13 recorded historic-era sites within the study corridor. Of these resources, three were identified in the Class I research as occurring within or immediately adjacent to the project APE (defined as 300- to 600-foot-wide corridor encompassing future tower and access road locations). The Class III survey was unable to relocate one of the three resources identified as potentially occurring within the project APE (Luhnow and Dickinson 2004). AZ S:12:32 (ASM) is recommended not eligible to the NRHP. One previously unrecorded site was discovered during the Class III survey, AZ S:12:36 (ASM). The newly recorded site consists of late historic mining features with an associated scatter of historic artifacts. It is recommended not NRHP eligible (ibid).

In addition, nine isolated historic occurrences were recorded during the Class III survey. These include five historic artifacts, three historic GLO survey markers, and one chassis with associated body parts of an abandoned five-window Ford pickup truck. Isolated artifacts do not meet criteria for listing on the NRHP (Luhnow and Dickinson 2004).

Paleontology

Approximately 8 miles of the 15-mile Subalternate Route study corridor traverse areas of high paleontological sensitivity. The remainder is low sensitivity. The high sensitivity areas are all Pleistocene older alluvium (Scott 2003).

4.3.13 Public Health and Safety

4.3.13.1 School Facilities

There are no existing or proposed schools located within the study corridor of either subalternate route.

4.3.13.2 Airport and Airstrip Operations

The PVNGS heliport is located approximately ½ mile northeast of the existing DPV1 transmission line near the PVNGS switchyard, the terminus of the Palo Verde Subalternate Route.

4.4 MIDPOINT SUBSTATION ALTERNATIVES

4.4.1 Introduction

The Midpoint Substation alternatives include three sites (Map 3-2a,b) located along the proposed Devers-Harquahala 500kV transmission line route, west of Blythe, California. All of the alternatives occur on vacant, undeveloped land; therefore, the alternatives are combined into one description for several of the following resources. Because the alternatives occur immediately adjacent to the proposed Devers-Harquahala transmission line route, several of the descriptions refer to previous resource sections that address the proposed route.

4.4.2 Land Use

4.4.2.1 Land Ownership/Jurisdiction

The Midpoint Substation preferred site and alternative sites occur in Riverside County, California, west of Blythe. The SCE preferred site and the Wiley Well alternative site are located on BLM land. The Mesa Verde alternative site is located on private land.

4.4.2.2 Existing Land Use

The Midpoint Substation preferred and alternative sites are immediately adjacent to the proposed Devers-Harquahala transmission line, west of Blythe. Land use within this corridor is documented in the proposed route description and shown on Maps 4-3c and 4-4c. All of the alternatives occur on vacant/undeveloped land. The closest residence to the preferred site is approximately 1 mile to the east. Residences are located more than 2 miles from either of the two alternative sites.

4.4.2.3 Planned Land Use

The Midpoint Substation preferred site and alternative sites are located within Riverside County, California. According to the Riverside County General Plan, the land use designation for the Wiley Well and Mesa Verde alternative sites is Rural Residential. The land use designation for the Preferred Site is agriculture. A review of development plans at Riverside County in June 2004 showed no specific development plans in the area of the preferred and alternative sites.

4.4.3 Socioeconomics, Population, and Housing

The Midpoint Substation preferred and alternative sites are located within Riverside County, west of Blythe. Section 4.1.3.2 includes socioeconomic, population, and housing data for Riverside County and Blythe, applicable to the preferred and alternative substation sites.

4.4.4 Geology and Soils

The Midpoint Substation preferred and alternative sites lie in the Western Mojave Desert and Eastern Mojave Desert physiographic provinces. (These provinces are described in Section 4.1.4.2.) The Midpoint Substation preferred and alternative sites are located on the Palo Verde Mesa, which is underlain by non-indurated sedimentary rock. The soils for the Midpoint Substation preferred and alternative sites are the same as those described for the proposed route in Section 4.1.4.1.

4.4.5 Hydrology

The Midpoint Substation preferred and alternative sites are located on the Palo Verde Mesa, which is drained by McCoy Wash and a number of unnamed drainages. Groundwater data for the Palo Verde Mesa are provided in Table 4-26.

4.4.6 Air Quality

The Midpoint Substation preferred and alternative sites are located in Riverside County, California within the Mohave Desert Air Quality District. Air quality standards for Riverside County and the Mohave County Air Quality District are described in Section 4.1.6.

4.4.7 Traffic and Transportation

Descriptions of road and traffic conditions in the vicinity of the Midpoint Substation preferred and alternative sites are provided in Section 4.1.7.2.

4.4.8 Biology

Vegetation

The Midpoint Substation preferred and alternative sites are located within the Lower Colorado River Valley subdivision of Sonoran Desertscrub (Turner and Brown 1994). Vegetation is dominated by creosote bush and white bursage. Big galleta is a common herbaceous perennial. Dyebush is locally common in places. Common annuals include species of *Lotus, Cryptantha,* and *Plantago* as well as desert sand verbena (*Abronia villosa*). Drainageways in the area are lined with blue paloverde and ironwood as well as big galleta.

Special Status Plant Species

There are four species that could potentially be found in the area of the preferred and alternative substation sites: Abram's spurge (*Chamaesyce abramsiana*), Arizona spurge (*Chamaesyce arizonica*), Harwood's milkvetch (*Astragalus insularis harwoodii*), and glandular ditaxis (*Ditaxis clariana*). A complete list of sensitive plant species found in Riverside County is in Table 4-35.

Individuals of Harwood's milkvetch were found on and adjacent to the preferred substation site in surveys conducted in April 2004. The milkvetch were also found adjacent to the Mesa Verde Alternative Site, but none were found at the Wiley Well Alternative Site. This species has no federal or state status, but the California Native Plant Society considers it a List 2 plant.

Wildlife

The suite of vertebrate wildlife that is present within the area of the preferred and alternative sites is composed of mammals, birds, amphibians, and reptiles that are characteristic of the arid Colorado River Valley vegetation community and soil types.

Mammals

The mammalian fauna in the area of the preferred and alternative sites is composed largely of small nocturnal species of bats and rodents, including highly desert-adapted Heteromyid pocket mice and kangaroo rats. Owing to an absence of suitable roosting and nursery sites (e.g., caves, mine shafts and adits, buildings, and bridges), it is likely that bat presence is largely restricted to foraging individuals. A common diurnal species is the black-tailed jackrabbit. Desert mule deer occur sparingly in larger washes, and the ubiquitous coyote is likely to be encountered almost anywhere within the project area.

Birds

Turner and Brown (1994) note that the Lower Colorado River Valley Subdivision is the poorest of the Sonoran Desert subdivisions with respect to its avifauna. They point out that the LeConte's thrasher is the only bird species that is diagnostic of the subdivision. However, many other species are common in this area including: vultures, hawks, doves, owls, woodpeckers, flycatchers, gnatcatchers, mockingbird, finches, and sparrows.

Amphibians

The only amphibians likely to be present in the area of the Midpoint Substation preferred and alternative sites are the highly adapted species of toads and spadefoots that appear in response to unreliable summer rainfall. These species spend most of the year sequestered in rodent burrows or dug well into the soil awaiting the summer rains when they emerge to breed in temporary rainfall pools and stock tanks. Species likely to be present include Couch's spadefoot, Great Plains toad, Sonoran Desert toad, and red-spotted toad.

Reptiles

The fine sandy soils found in the area of the preferred and alternative sites provide habitat for species such as banded sand snake, sidewinder, and desert igunana. Western whiptails and zebra-tailed lizards (*Callisaurus draconoides*) are also common in the area of the preferred and alternative sites.

Special Status Wildlife

A list of special status wildlife species occurring in Riverside County can be found in Table 4-36. Habitat for the federally threatened desert tortoise on Palo Verde Mesa is minimal, and few if any individuals are likely to be found here. The Colorado Desert fringe-toed lizard (*Uma notata*) is likely to occur on the loose sandy substrates in the area of the Midpoint Substation preferred and alternative sites. This lizard is considered a species of concern by the USFWS and sensitive by BLM. There is also habitat for the flat-tailed horned lizard within the areas of the sites. This species utilizes fine windblown sand; however, the range for this species does not include the study corridor. It is possible that burrowing owls could be found in the vicinity of the sites.

4.4.9 Noise

Noise is generally defined as unwanted sound. Sound travels through the air as waves of minute air pressure fluctuations caused by some type of vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. Thus, the energy contained in a sound wave is spread over an increasing area as it travels away from the source resulting in a reduction in noise as the distance from the noise source increases.

The preferred and alternative substation sites are located in open desert land. The nearest residence is located approximately 1 mile from the preferred alternative site. The area has a desert climate and is subject to inclement weather only 9 percent of the time. Minimal ambient noise is expected at the proposed and alternative substation sites.

4.4.10 Public Services and Utilities

The nearest public services and utilities to the Midpoint Substation preferred and alternative sites are located in Blythe, California. Section 4.1.10.2 describes these services in the Blythe area.

4.4.11 Visual Resources

4.4.11.1 Preferred Site

One residence is located within 1 mile of the preferred Midpoint Substation site. The residence is situated below a bluff and would have a viewing position that provides partially screened views of the substation site. Furthermore, the existing viewing conditions in this area have been modified by the occurrence of 500kV and 161kV transmission lines.

4.4.11.2 Mesa Verde Alternative

There are no residential or other sensitive viewers within 1 mile of the Mesa Verde alternative site. Travelers on I-10 will have open to partially screened views of this site.

4.4.11.3 Wiley Well Alternative

The Wiley Well alternative substation site is located approximately ½ mile from I-10, resulting in unobstructed foreground views to this substation site in a landscape with little modification. The site is located on Class C scenic quality. To the south of this alternative substation site is a prison complex and access road.

4.4.12 Cultural Resources

4.4.12.1 Preferred Site

Archaeology

A records search identified four previously recorded archaeological sites and two isolated occurrences within a ½-mile radius of the preferred Midpoint Substation site. These resources include two trail segments (RIV-775T, RIV-772T), two multi-component sites (RIV-1823 and RIV-6534), and isolated occurrences of lithic flakes and ceramic sherds (P33-005963 and P33-005964). In addition to these previously recorded resources, an archaeological survey of the substation site resulted in the recordation of two new resource discoveries within the site boundaries (P33-13659 and P33-13660). Of the previously recorded resources, one (RIV-775T) was found to be located within the substation site boundary.

All of the three archaeological sites confirmed to be located within the preferred Midpoint Substation site (RIV-775T, P33-13659, and P33-13660) appear potentially eligible to the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Chemehuevi and Mojave Native Americans in the vicinity of the preferred Midpoint Substation site. These are archaeological sites and aboriginal trails in the Colorado River area. None of the areas with direct Native American association are known to be within the preferred Midpoint Substation site. Native Americans have indicated a general interest in prehistoric archaeological resources that represent evidence of their ancestors.

No known TCPs are present in the preferred Midpoint Substation site boundaries. BLM staff has indicated that they would consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project.

History

A records search identified two previously recorded historic-era resources within ½ mile of the preferred Midpoint Substation site. An archaeological survey of the preferred Midpoint Substation site resulted in no further historic resource discoveries, and confirmed that two previously recorded historic resources are located outside of the preferred Midpoint Substation boundaries. There are no known historic-era resources located within the preferred Midpoint Substation site.

Paleontology

The preferred Midpoint Substation site is located on Pleistocene older alluvium, which is considered to have a high paleontological sensitivity ranking (Scott 2003). Rock units composed of Holocene alluvium are located on either side of the substation area. Pleistocene alluvium has a low paleontological sensitivity ranking (ibid.).

4.4.12.2 Mesa Verde Alternative

Archaeology

A records search identified one previously recorded archaeological site (RIV-1819, a cobble quarry locus with ceramic scatter) within ½ mile of the Mesa Verde alternative substation site. Archaeological survey of this alternative substation site resulted in the discovery of one previously unrecorded archaeological resource within the alternative substation boundaries (P33-13672), and confirmed that RIV-1819 is located outside of the alternative substation site boundaries. P33-13672 is a lithic scatter of petrified wood flakes and is potentially eligible to the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Chemehuevi and Mojave Native Americans in the vicinity of the preferred substation site. These are archaeological sites and aboriginal trails in the Chuckwalla Valley and Colorado River areas. None of the areas with direct Native American association are known to be within the Mesa Verde alternative substation site. Native Americans have indicated a general interest in prehistoric archaeological resources that represent evidence of their ancestors.

No known archaeological resources or TCPs are present in the Mesa Verde alternative substation site boundaries. BLM staff has indicated that they would consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project.

History

A records search identified no previously recorded historic-era resources within ½ mile of the Mesa Verde alternative substation site. An archaeological survey of the alternative substation site resulted in no additional historic-era resource discoveries. There are no known historic-era resources within the Mesa Verde alternative substation boundaries.

Paleontology

The Mesa Verde alternative substation site is located on Holocene alluvium and Holocene dune sand geological units. Neither of these geological units is conducive to the formation or preservation of fossils, and this alternative substation site is therefore given a low paleontological sensitivity ranking (Scott 2003).

4.4.12.3 Wiley Well Alternative

Archaeology

A records search identified three previously recorded archaeological sites and one isolated occurrence within a ½-mile radius of the Wiley Well alternative substation site. These resources are RIV-1818, a ceramic sherd scatter, RIV-3810, a large multi-component site, and P33-013599, a sparse lithic scatter. The isolated occurrence is P22-12930, an isolated lithic flake. An

archaeological survey of the proposed Wiley Well alternative site resulted in no resource discoveries. There are no known archaeological resources on the alternative substation site.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Chemehuevi and Mojave Native Americans in the vicinity of the Wiley Well alternative substation site. These are archaeological sites and aboriginal trails in the Chuckwalla Valley and Colorado River areas. None of the areas with direct Native American association are known to be within the Wiley Well alternative substation site. Native Americans have indicated a general interest in prehistoric archaeological resources that represent evidence of their ancestors.

No known archaeological resources or TCPs are present in the Wiley Well alternative substation site boundaries. BLM staff has indicated that they would consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project.

History

A records search identified no previously recorded historic-era resource within ½ mile of the Wiley Well alternative substation site. Archaeological survey identified one newly recorded resource, P33-013598, a refuse scatter associated with the World War II Desert Training Center. P33-013598 is located off the substation site. Archaeological survey of this alternative substation site resulted in no resource discoveries within the substation site boundaries.

Paleontology

The Wiley Well alternative substation site is located on Holocene alluvium and Holocene dune sand geological units. Neither of these geological units is conducive to the formation or preservation of fossils, and this alternative substation site is therefore given a low paleontological sensitivity ranking (Scott 2003).

4.4.13 Public Health and Safety

4.4.13.1 School Facilities

There are no existing schools located within ¼ mile of the preferred and alternative Midpoint Substation sites.

4.4.13.2 Airport and Airstrip Operations

There are no public airports or private airstrips within 2 miles of the Midway Substation preferred site or alternative sites.

Map 4-1a
OWNERSHIP
Devers - Palo Verde No. 2 Transmission Line Project
Panel 1 of 3

Sources

United States Geological Survey (USGS), Phoenix, AZ (1969), Salton Sea, AZ (1969), 1:250,000-scale topographic maps. Arizona land ownership, EPG, Inc. 2000. Arizona land jurisdiction, Town of Quartzsite, 2003. KOFA, U.S. Fish and Wildlife Service. U.S. Bureau of Land Management, California State Office, June 1998. U.S. Department of the Interior, Bureau of Land Management, BLM Arizona Access Guide (La Posa), October 1999. Devers to Palo Verde No.2 PEA (1988), SEIS (1988).

Prepared By: Environmental Planning Group, Inc. March 9, 2005

0 1 2 3 4 5 Miles

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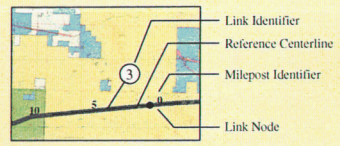
mt/projects/scc/devers/arizona/mxds/owner.mxd

Ownership

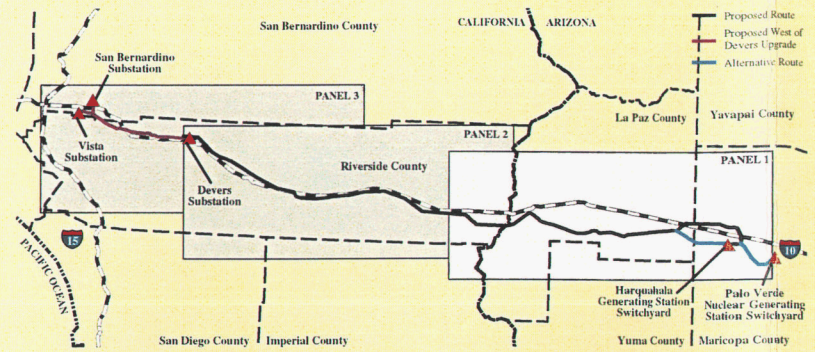
- Bureau of Land Management
- Bureau of Reclamation
- U.S. Fish and Wildlife Service
- Native American Tribe
- Yuma Proving Ground
- State
- Private

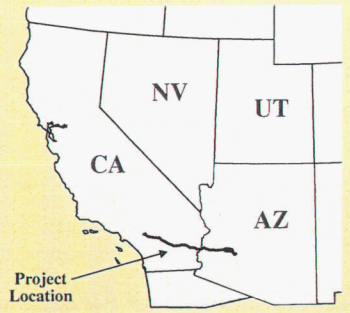
General Reference Features

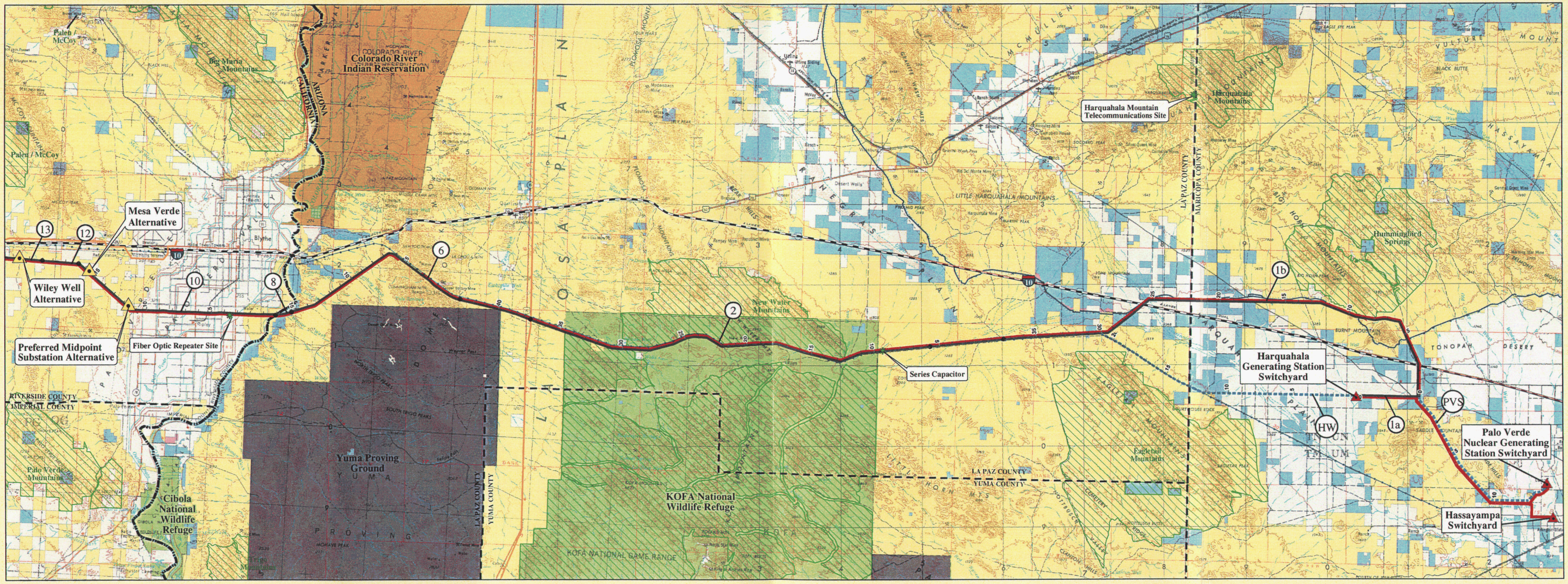
- Proposed 500kV Transmission Line Route
- Alternative 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- Central Arizona Project Canal (USBR)
- State Boundary
- County Boundary
- Substation/Switchyard
- Midpoint Substation Alternative
- Wilderness
- Series Capacitor/ Fiber Optic Repeater Site/ Telecommunications Site



Panel Index Map







Map 4-1b
OWNERSHIP

Devers - Palo Verde No. 2 Transmission Line Project

Panel 2 of 3

Sources

United States Geological Survey (USGS), Santa Ana, CA (1979), Needles, CA/AZ, (1969), Salton Sea, AZ (1969), 1:250,000-scale topographic maps. Arizona land ownership, EPG, Inc. 2000. Arizona land jurisdiction, Town of Quartzsite, 2003. California land jurisdiction, Riverside County, July 3, 2003. KOFA, U.S. Fish and Wildlife Service. U.S. Bureau of Land Management, California State Office, June 1998. U.S. Department of the Interior, Bureau of Land Management, October 1999. Devers to Palo Verde No.2 PEA (1988), SEIS (1988).

Prepared By: Environmental Planning Group, Inc. March 9, 2005

0 5 10 Miles

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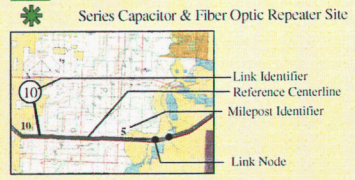
Ownership

- Bureau of Land Management
- Bureau of Reclamation
- California Fish and Game
- U.S. Fish & Wildlife Service
- U.S. Forest Service
- Nature Conservancy
- National Park Service
- Native American Tribe
- Military
- State
- Private
- Salton Sea

General Reference Features

- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Joshua Tree National Park Boundary
- Substation/Switchyard
- Midpoint Substation Alternative
- Wilderness
- Series Capacitor & Fiber Optic Repeater Site



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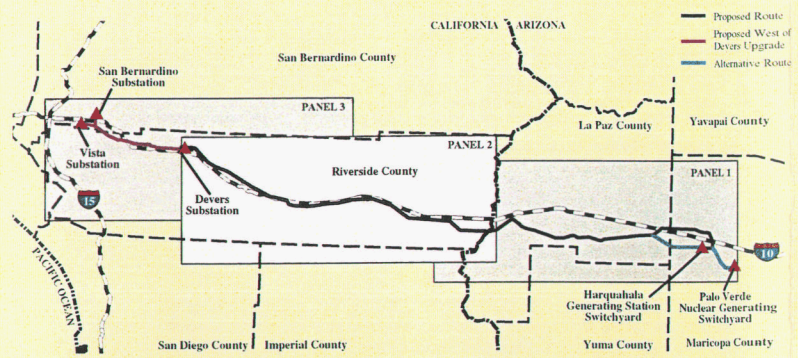

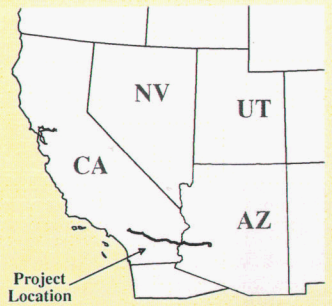

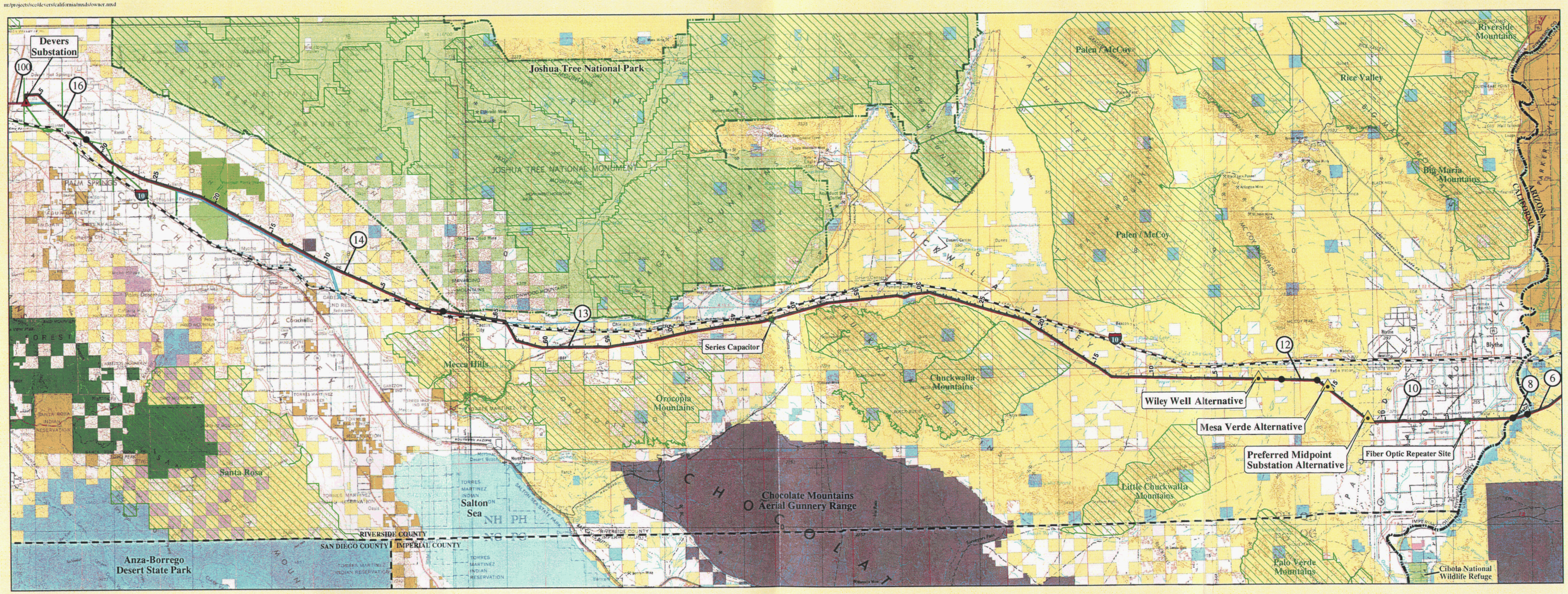

Map 4-1c
OWNERSHIP

Devers - Palo Verde No. 2
Transmission Line Project
Panel 3 of 3

Sources

United States Geological Survey (USGS), Santa Ana, CA (1979), Needles, CA/AZ, (1969), Salton Sea, AZ (1969), 1:250,000-scale topographic maps. Arizona land ownership, EPG, Inc. 2000. California land jurisdiction, Riverside County, July 3, 2003. KOFA, U.S. Fish and Wildlife Service. U.S. Bureau of Land Management, California State Office, June 1998. U.S. Department of the Interior, Bureau of Land Management, October 1999. Devers to Palo Verde No.2 PEA (1988). SEIS (1988).

Prepared By: Environmental Planning Group, Inc. March 9, 2005

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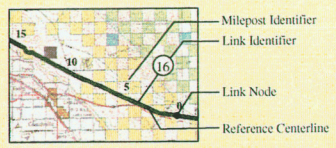
mt/projects/sce/devers/west/mxds/owner.mxd

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- California Fish and Game
- U.S. Fish & Wildlife Service
- U.S. Forest Service
- Nature Conservancy
- National Park Service
- Native American Tribe
- Military
- State
- Private

General Reference Features

- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- County Boundary
- Joshua Tree National Park Boundary
- Substation/Switchyard
- Wilderness
- Series Capacitor



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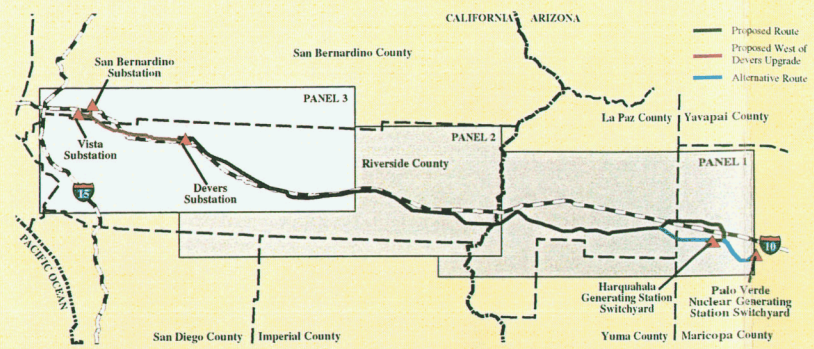
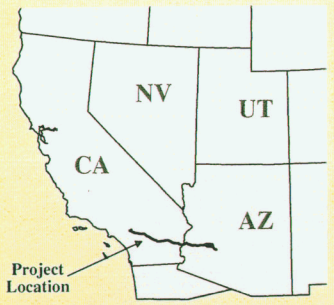
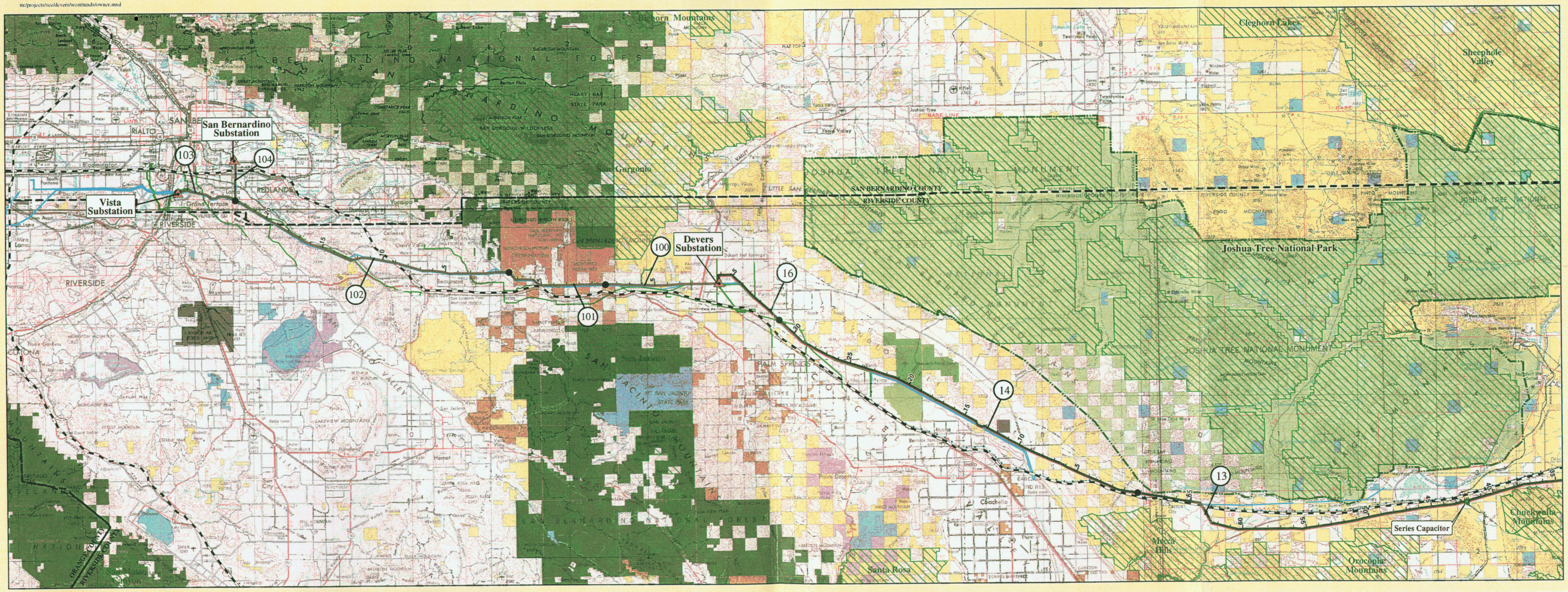






Map 4-2a

JURISDICTION

Devers - Palo Verde No. 2 Transmission Line Project

Panel 1 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models Arizona Land use data, EPG, Inc. 2000.

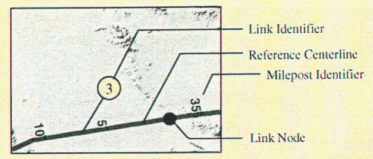
Prepared By: Environmental Planning Group, Inc. March 9, 2005

Jurisdiction

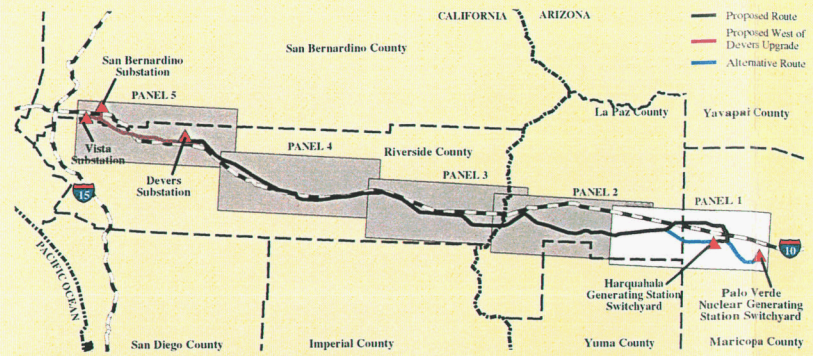
- Unincorporated Area
- Wilderness
- KOFA National Wildlife Refuge

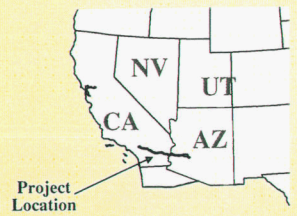
General Reference Features

- Proposed 500kV Transmission Line Route
- Alternative 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Natural Gas Pipeline
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- Series Capacitor



Panel Index Map





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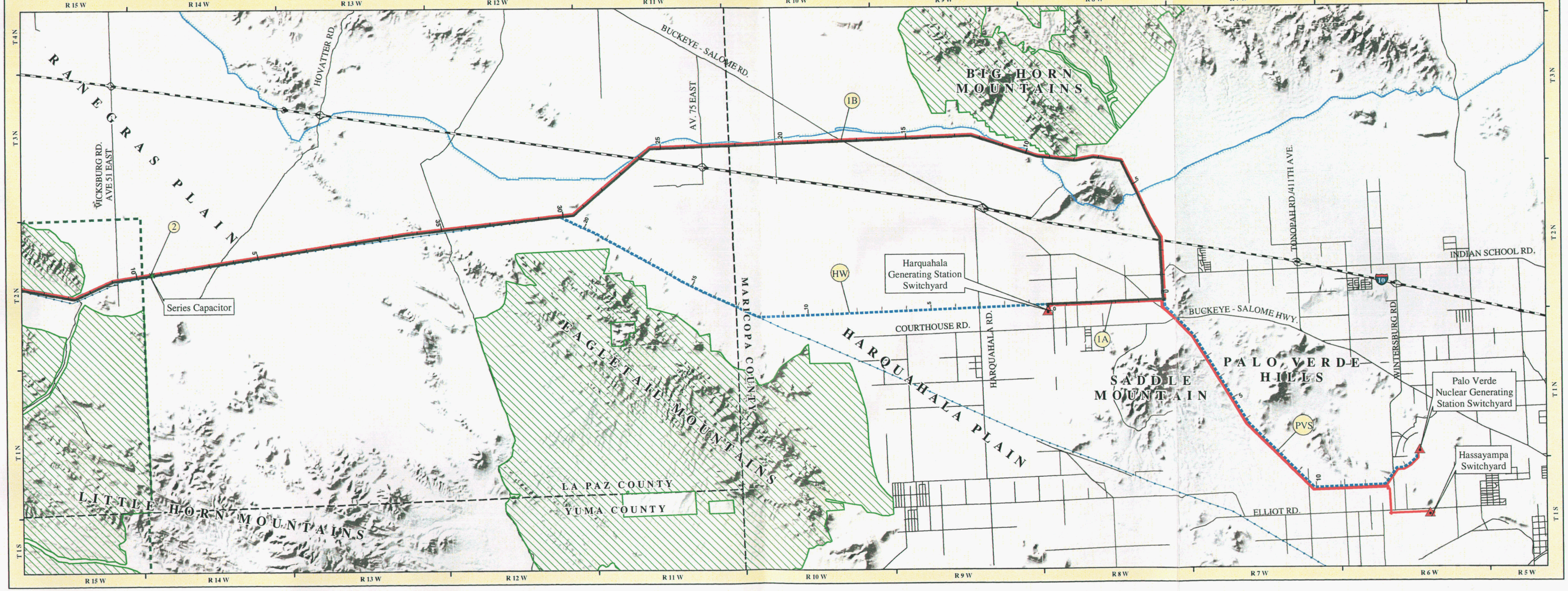

Map 4-2b

JURISDICTION

Devers - Palo Verde No. 2 Transmission Line Project

Panel 2 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meterDigital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 9, 2005

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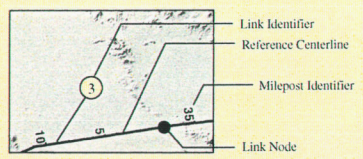
Jurisdiction

- Unincorporated Area
- Wilderness
- KOFA National Wildlife Refuge

General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- Series Capacitor



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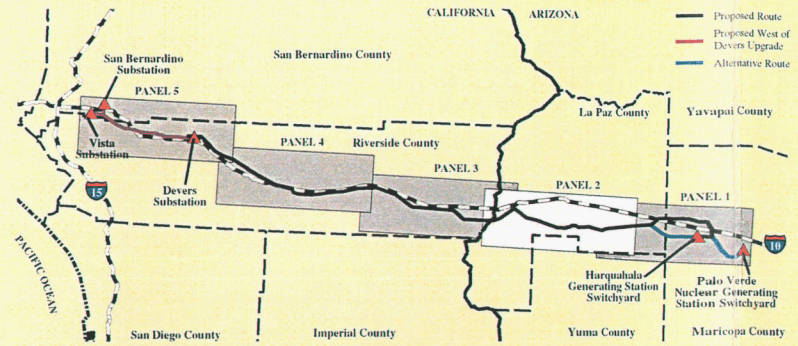
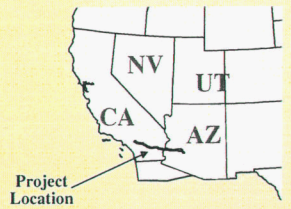
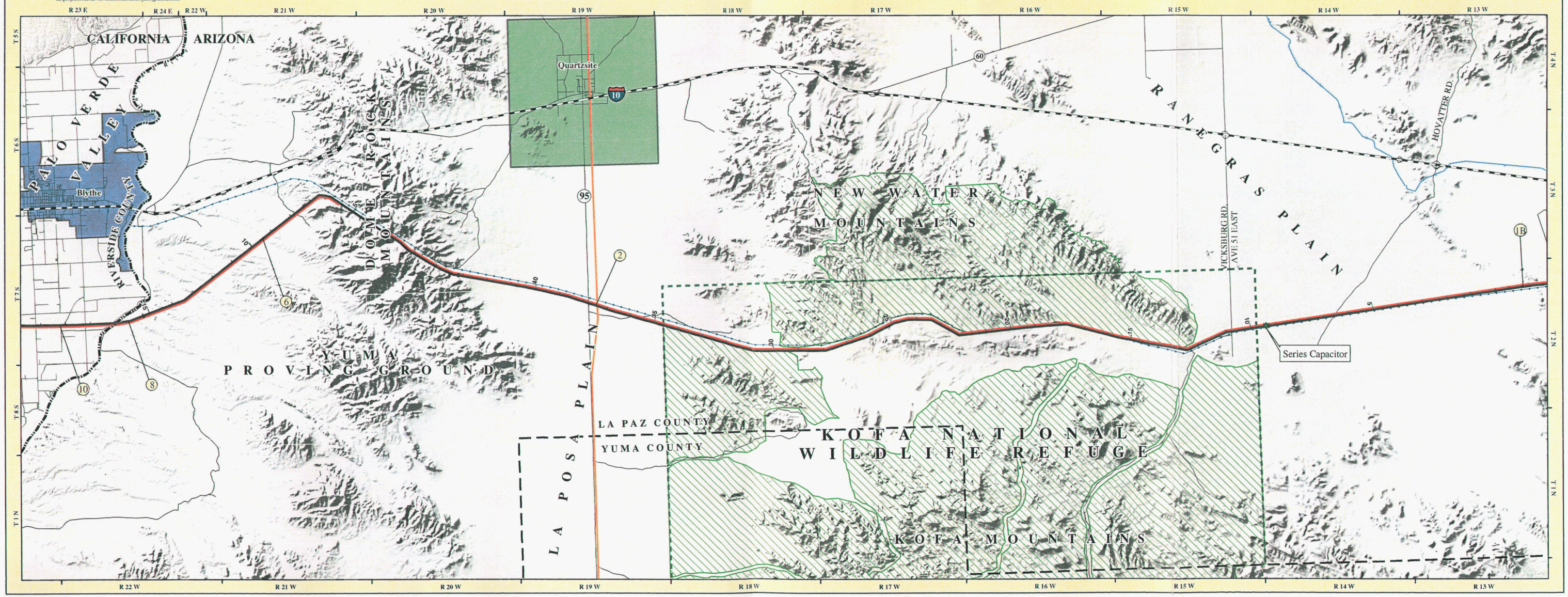




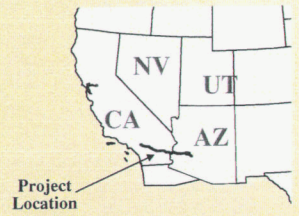


Map 4-2c

JURISDICTION

Devers - Palo Verde No. 2 Transmission Line Project

Panel 3 of 5



Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models.

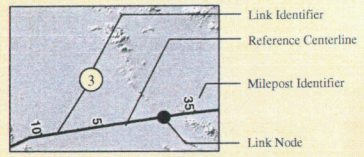
Prepared By: Environmental Planning Group, Inc. March 9, 2005

Jurisdiction

- Unincorporated Area
- Wilderness

General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Interstate/Highway
- Roads
- Township and Range
- Midpoint Substation Alternatives
- Fiber Optic Repeater Site



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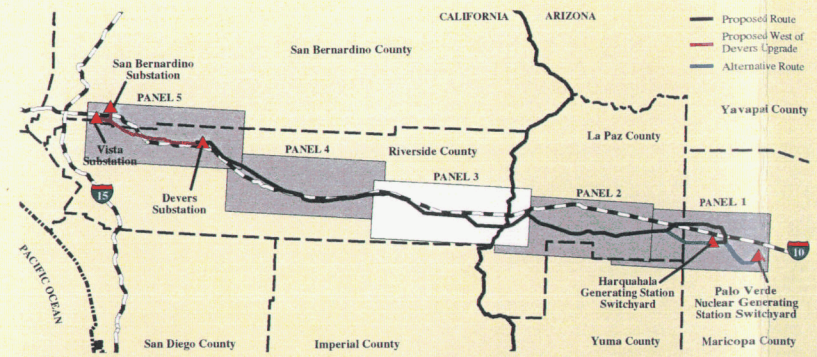

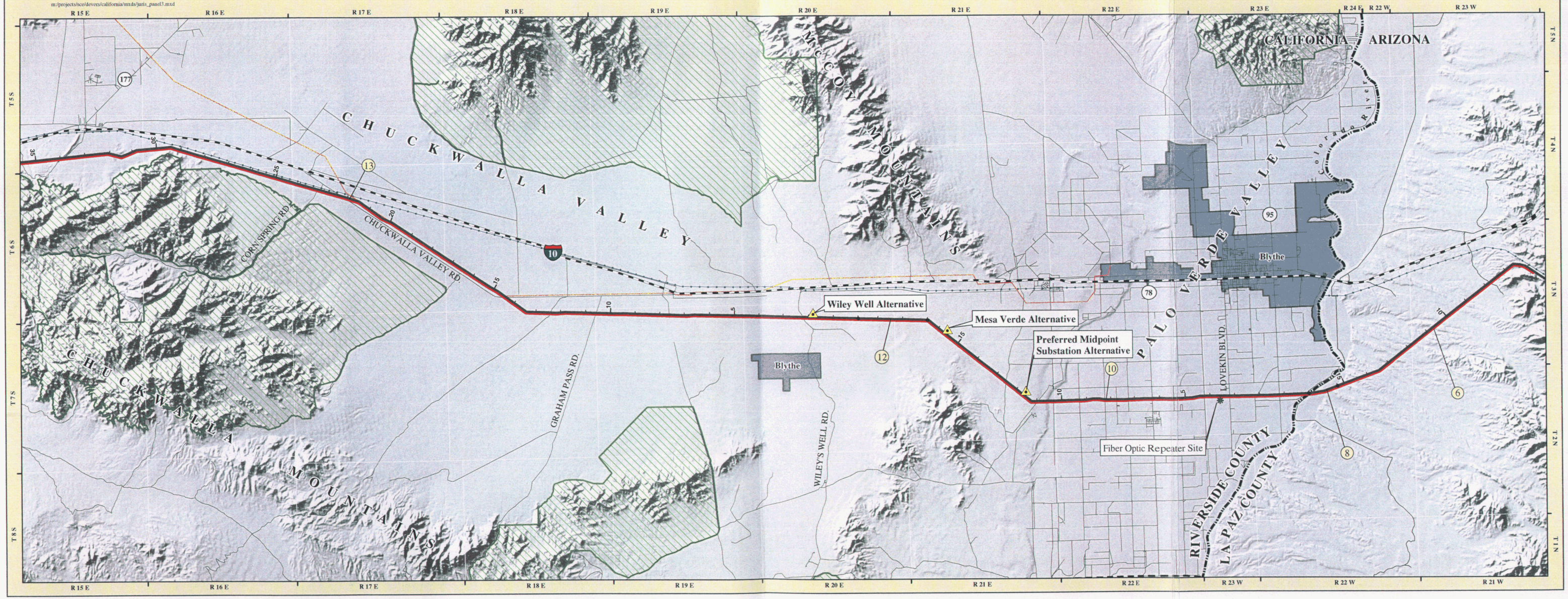

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Map 4-2d

JURISDICTION

Devers - Palo Verde No. 2 Transmission Line Project

Panel 4 of 5

Sources

United States Geological Survey, hillshade derived from USGS 30-meterDigital Elevation Models.

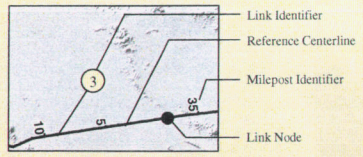
Prepared By: Environmental Planning Group, Inc. March 9, 2005

Jurisdiction

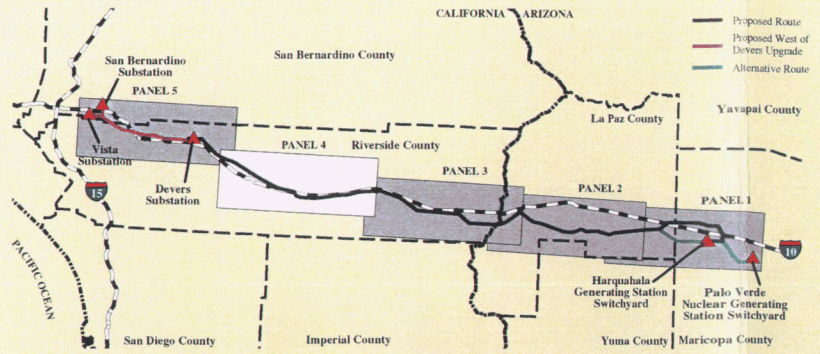
- Unincorporated Area
- Wilderness
- Coachella Valley Preserve
- Joshua Tree National Park Boundary

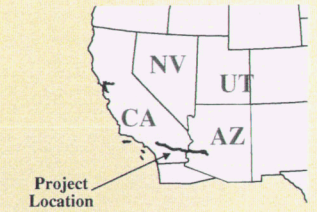
General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- Interstate/Highway
- Roads
- Township and Range
- Series Capacitor



Panel Index Map





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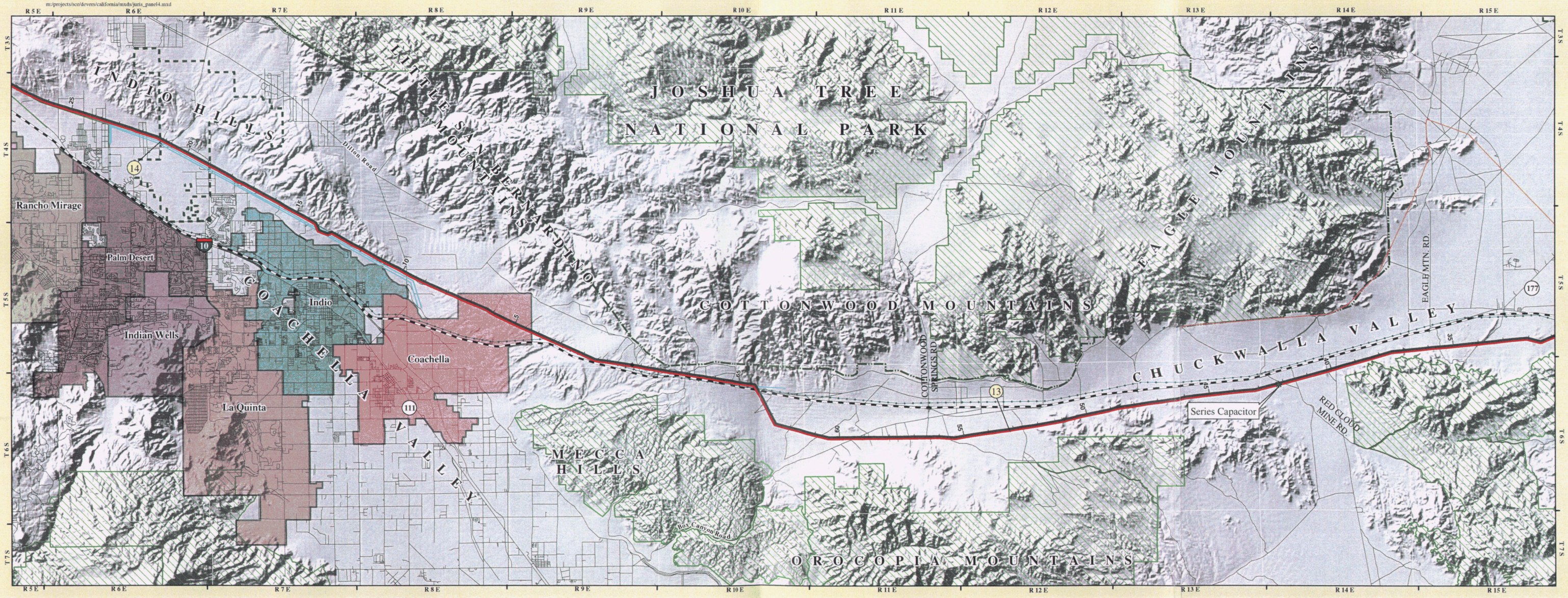


0 1 2 3 4 5 Miles

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Jurisdiction data, San Bernardino County and Riverside County.

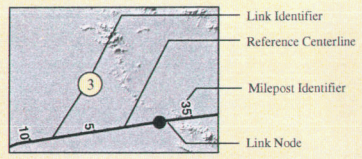
Prepared By: Environmental Planning Group, Inc. March 9, 2005

Jurisdiction

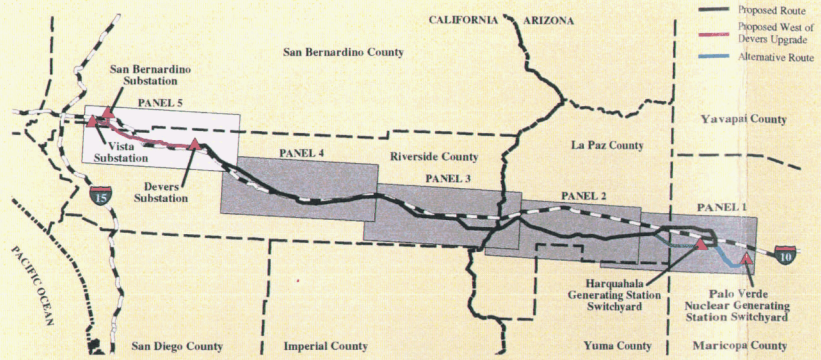
- Unincorporated Area
- Wilderness
- Coachella Valley Preserve
- Joshua Tree National Park Boundary

General Reference Features

- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Roads
- Township and Range



Panel Index Map

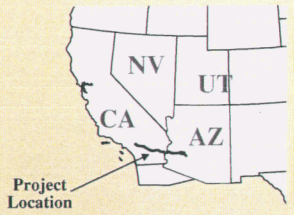


Map 4-2e

JURISDICTION

Devers - Palo Verde No. 2 Transmission Line Project

Panel 5 of 5



0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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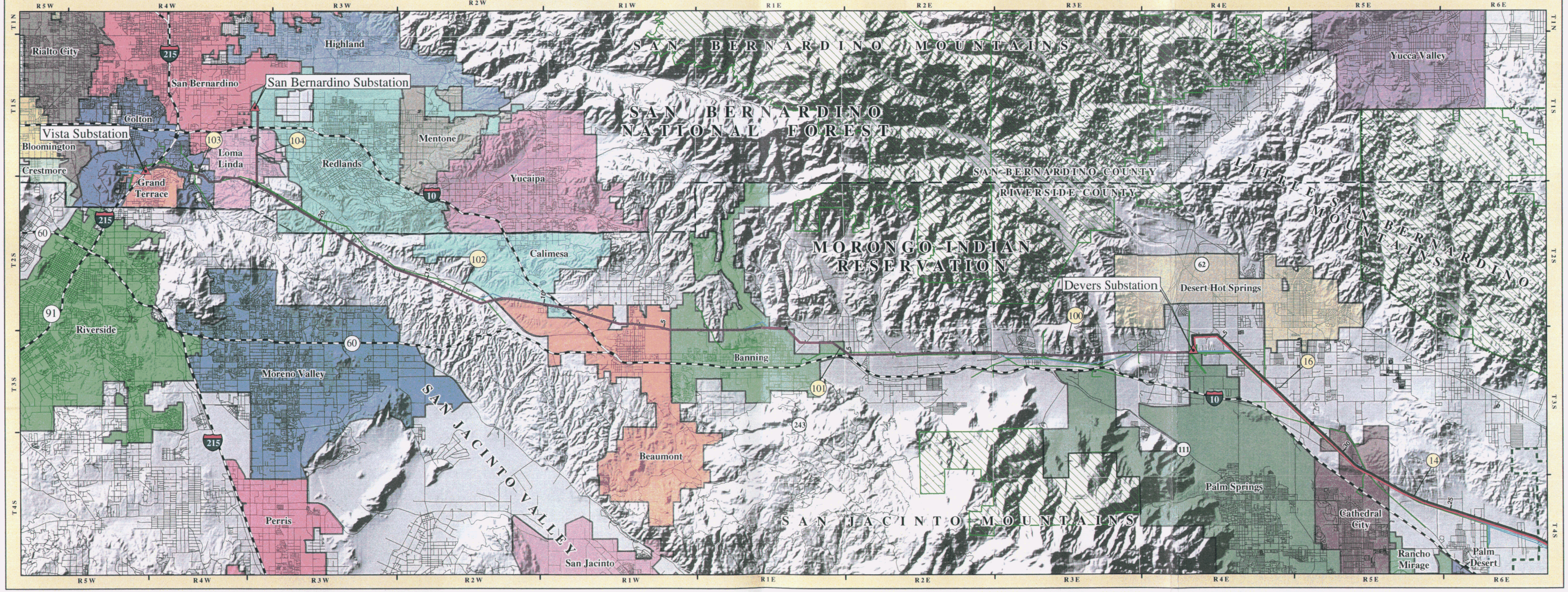
m:/projects/sce/devers/california/mxds/juris_panel5.mxd



Map 4-3a
EXISTING LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 1 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

Prepared By: Environmental Planning Group, Inc. March 9, 2005

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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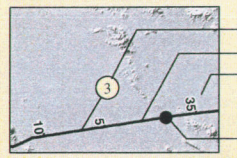
m:/projects/sce/devers/california/mxds/exlu_panel01.mxd

Existing Land Use

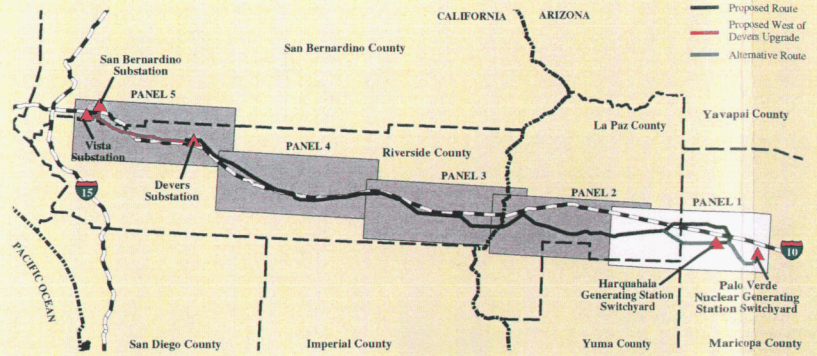
- Residential - Low Density
- Single Family Dwelling Unit
- Industrial
- Agriculture
- Agriculture - Outstructure
- Vacant/Undeveloped
- Abandoned Building
- Utility
- Communication Facility
- Airport
- Heliport

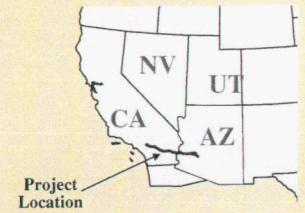
General Reference Features

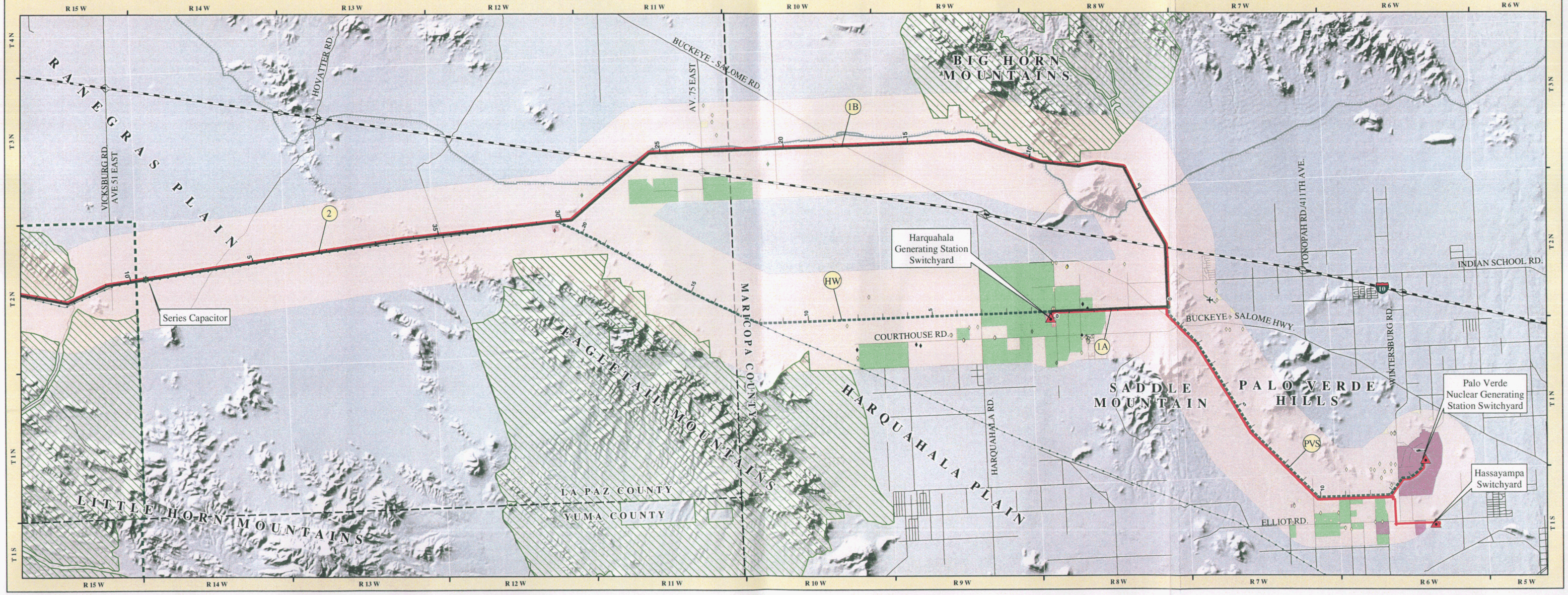
- Proposed 500kV Transmission Line Route
- Alternative Route
- Existing 500kV Transmission Line
- Natural Gas Pipeline
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Wilderness
- Series Capacitor



Panel Index Map







Map 4-3b
EXISTING LAND USE

Devers - Palo Verde No. 2
Transmission Line Project
Panel 2 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

Prepared By: Environmental Planning Group, Inc. March 9, 2004

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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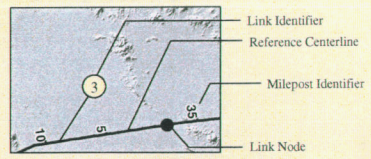
m:/projects/sce/devers/california/mxds/exlu_panel02.mxd

Existing Land Use

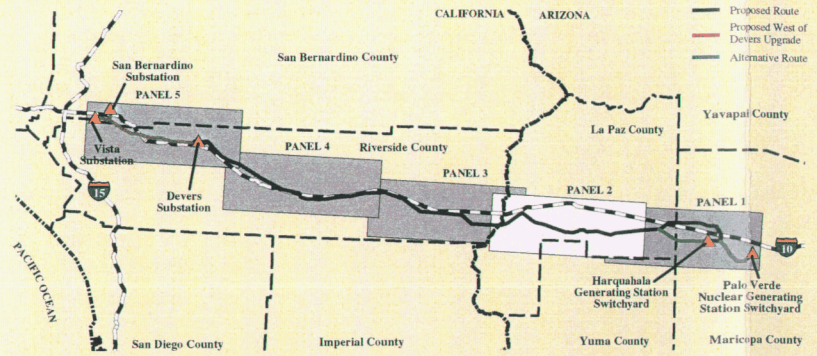
- Residential - Low Density
- Single Family Dwelling Unit
- Agriculture
- Agriculture - Outstructure
- Vacant/Undeveloped
- Utility
- Communication Facility
- Riverbed/Wash
- BLM La Posa Designated Camping Area
- BLM La Posa Long-Term Visitor Area

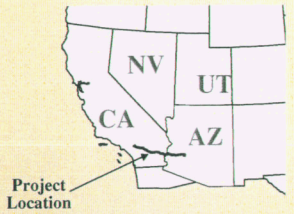
General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Wilderness
- Series Capacitor



Panel Index Map





CALIFORNIA ARIZONA

PALO VERDE VALLEY

Colorado River

RIVERSIDE COUNTY

DOME ROCK MOUNTAINS

NEW WATER MOUNTAINS

RANEGRAS PLAIN

HOVATTER RD

VICKSBURG RD
AVE 51 EAST

YUMA PROVING GROUND

LA POSA PLAIN

LA PAZ COUNTY
YUMA COUNTY

KOFA NATIONAL WILDLIFE REFUGE

KOFA MOUNTAINS

Series Capacitor

R 23 E R 24 E R 22 W R 21 W R 20 W R 19 W R 18 W R 17 W R 16 W R 15 W R 14 W R 13 W

T5S T6S T7S T8S T9S T1N T1S

Map 4-3c
EXISTING LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 3 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2000.

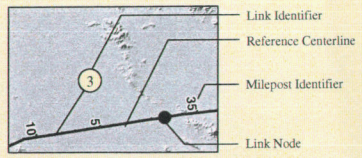
Prepared By: Environmental Planning Group, Inc. March 9, 2005

Existing Land Use

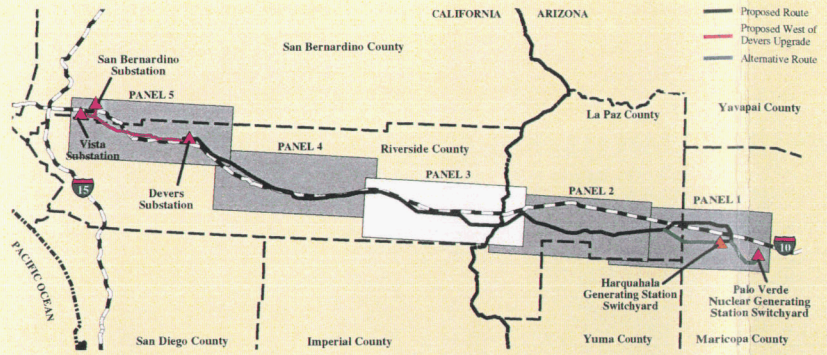
- Residential - Low Density
- Single Family Dwelling Unit
- Mixed Use
- Education
- Agriculture
- Agriculture - Outstructure
- Vacant/Undeveloped
- Abandoned Building
- Riverbed/Wash

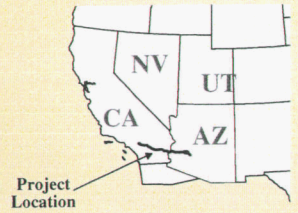
General Reference Features

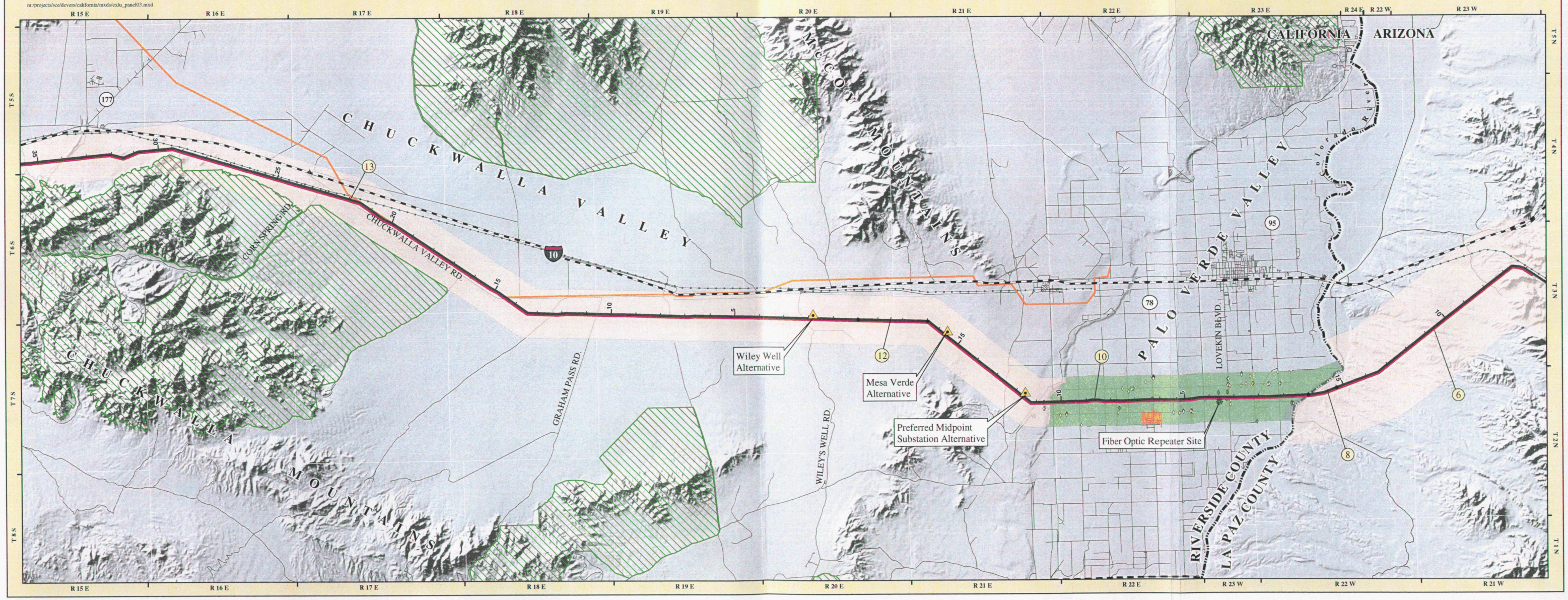
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Interstate/Highway
- Roads
- Township and Range
- Midpoint Substation Alternatives
- Fiber Optic Repeater Site



Panel Index Map







m:/projects/sce/devers/california/mxds/exlu_panel03.mxd

Map 4-3d
EXISTING LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 4 of 5

Sources

United States Geological Survey, hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

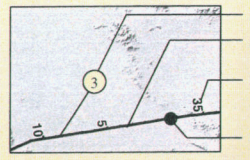
Prepared By: Environmental Planning Group, Inc. March 9, 2004

Existing Land Use

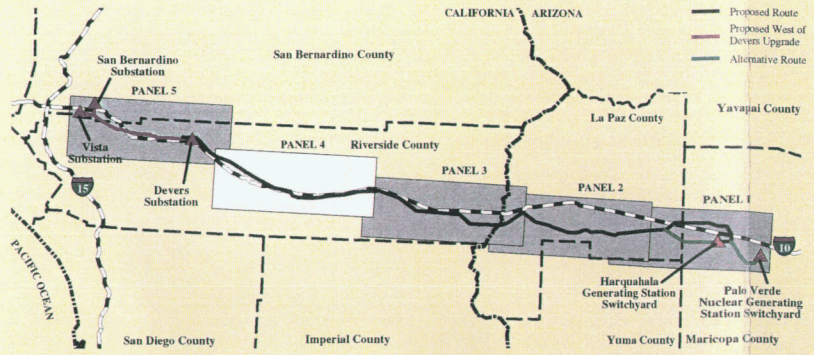
- Residential - Medium Density
- Residential - Low Density
- Single Family Dwelling Unit
- Mixed Use
- Industrial
- Light Industrial
- Extraction/Mining
- Public/Quasi Public
- Airfield
- Agriculture
- Vacant/Undeveloped
- Utility
- Water Tower/Tank
- Communication Facility
- Recreation
- Lake/Riverbed/Wash
- Airport

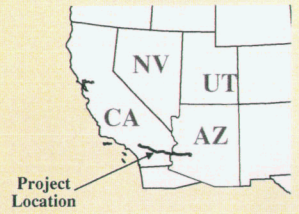
General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- Interstate/Highway
- Roads
- Township and Range
- Wilderness
- National Park Boundary
- Series Capacitor



Panel Index Map





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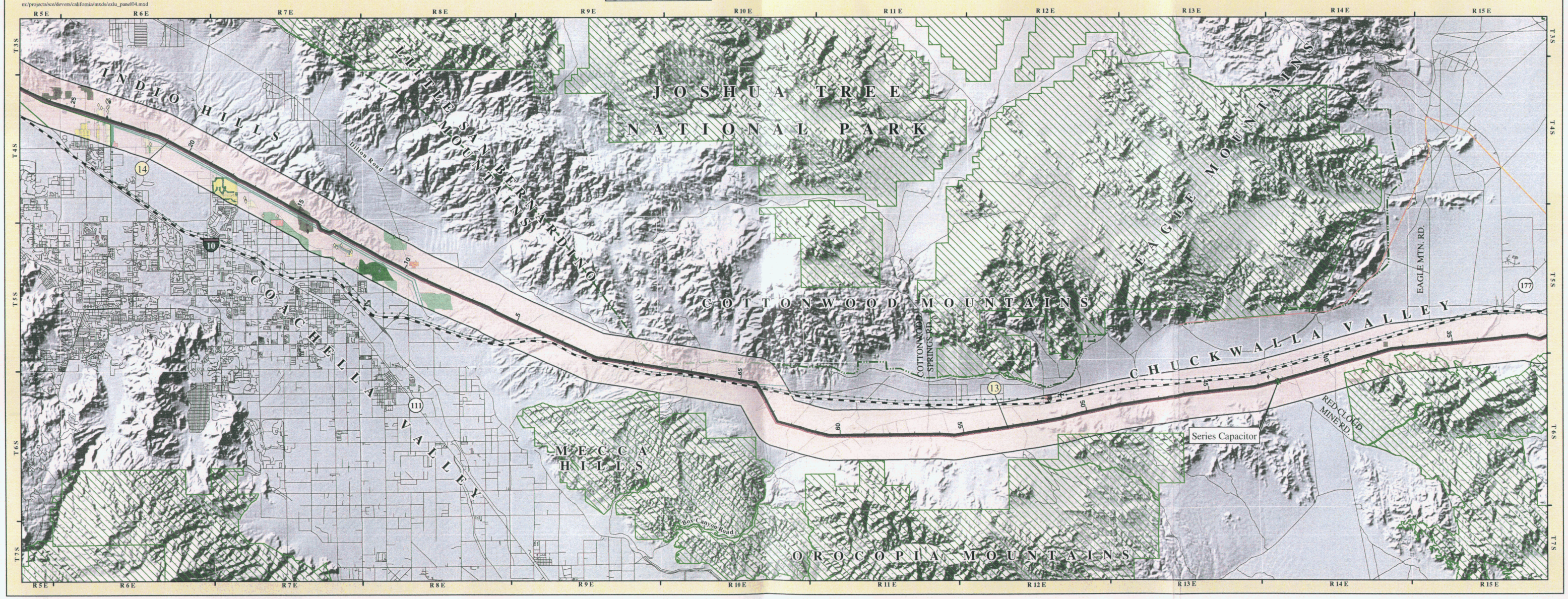
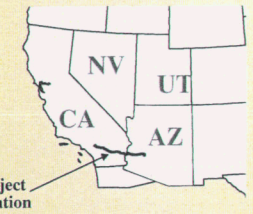


Map 4-3e

EXISTING LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 5 of 5



Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

Prepared By: Environmental Planning Group, Inc. March 9, 2004

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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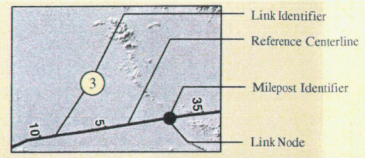
m:/projects/sce/devers/california/mxds/etlu_panel05.mxd

Existing Land Use

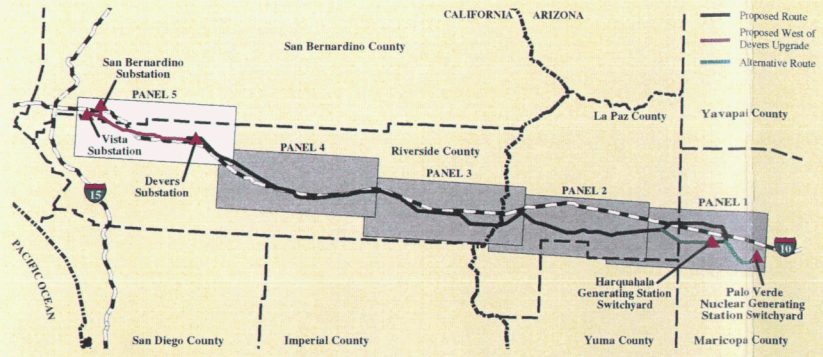
- Residential - High Density
- High Density Residential
- Residential - Medium Density
- Residential - Low Density
- Single Family Dwelling Unit
- Commercial
- Resort/Hotel/Casino
- Mixed Use
- Industrial
- Light Industrial
- Landfill
- Public/Quasi Public
- Cemetary
- Hospital
- School/Educational Facility
- Airfield
- Agriculture
- Agriculture - Outstructure
- Vacant/Undeveloped
- Abandoned Building
- Utility
- Water Tower/Tank
- Wind Farm/Turbine
- Communication Facility
- Recreation
- Open Space
- Water/Riverbed/Wash

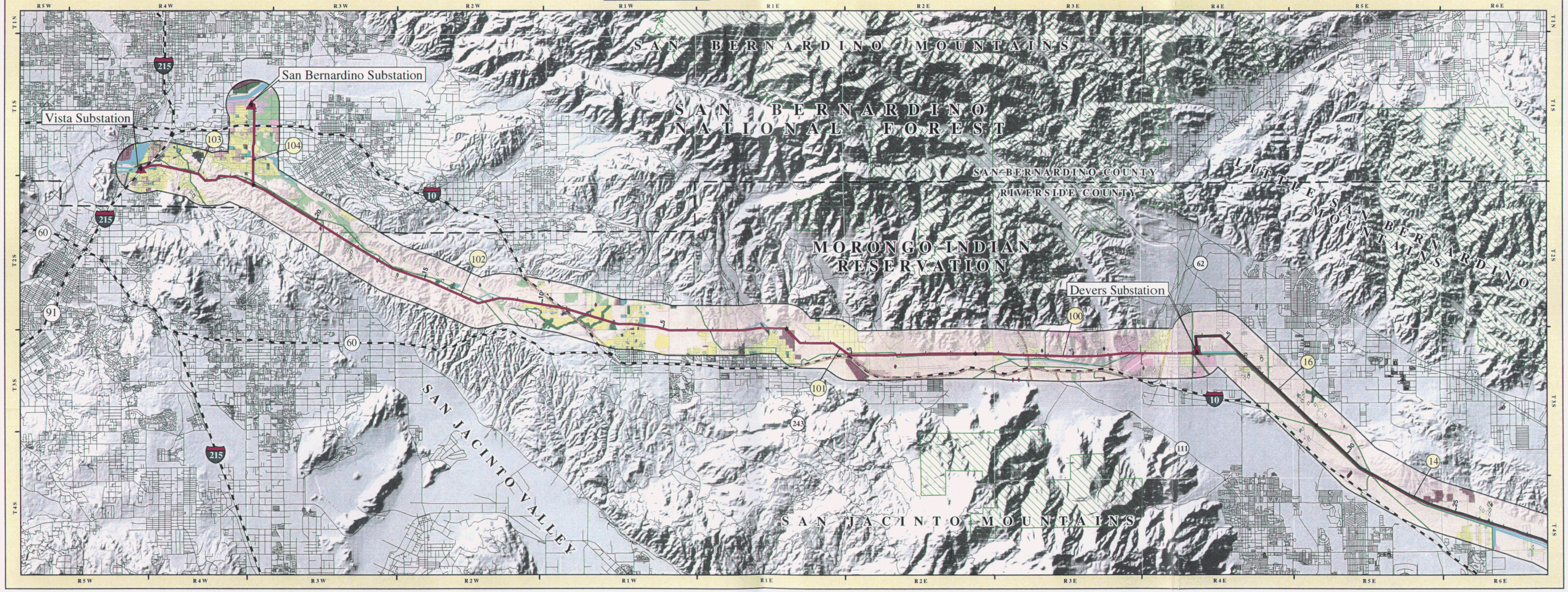
General Reference Features

- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 115kV Transmission Line
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Roads
- Township and Range
- Scenic Road



Panel Index Map





Map 4-4a
FUTURE LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 1 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

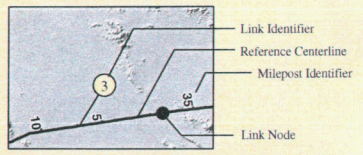
Prepared By: Environmental Planning Group, Inc. March 9, 2004

Future Land Use

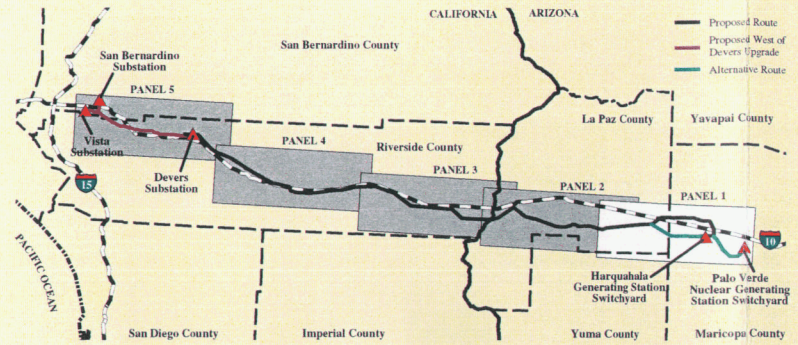
- Residential - Low Density
- Residential - Rural
- Single Family Dwelling Unit
- Industrial
- Agriculture
- Agriculture - Outstructure
- Unplanned
- Utility
- Communication Facility

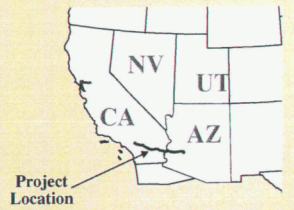
General Reference Features

- Proposed 500kV Transmission Line Route
- Alternative Route
- Existing 500kV Transmission Line
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Series Capacitor



Panel Index Map





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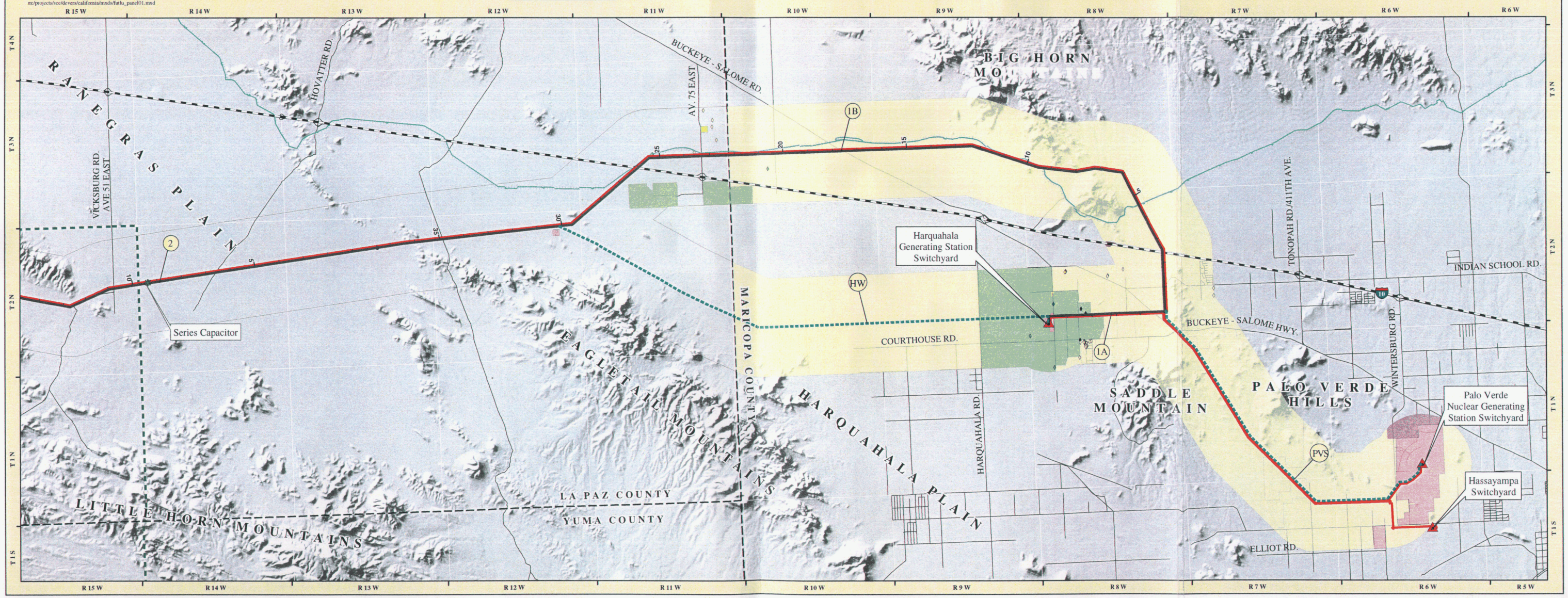
mt:/projects/sce/devers/california/mxds/futlu_panel01.mxd



Map 4-4b
FUTURE LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 2 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

Prepared By: Environmental Planning Group, Inc. March 9, 2004

0 1 2 3 4 5 Miles

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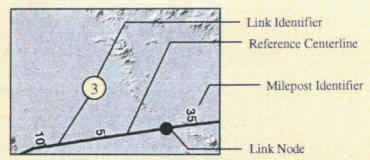
m:/projects/sce/devers/california/mxds/futlu_panel02.mxd

Future Land Use

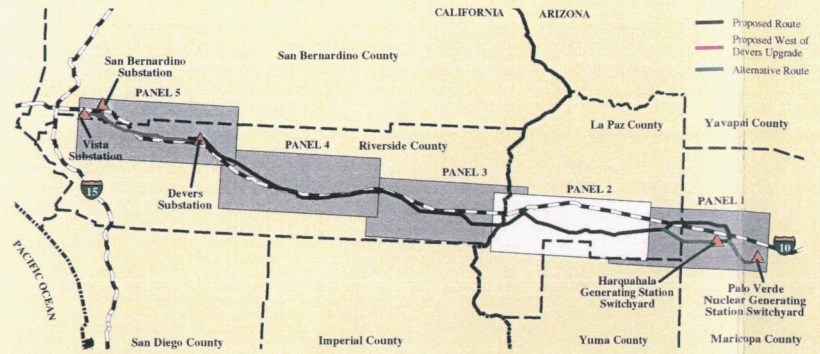
- Residential - Low Density
- Single Family Dwelling Unit
- Agriculture
- Agriculture - Outstructure
- Unplanned
- Utility
- Communication Facility
- Riverbed/Wash
- Parks/Preservation

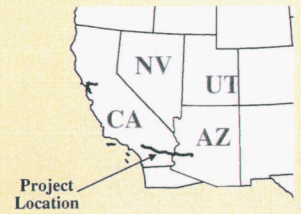
General Reference Features

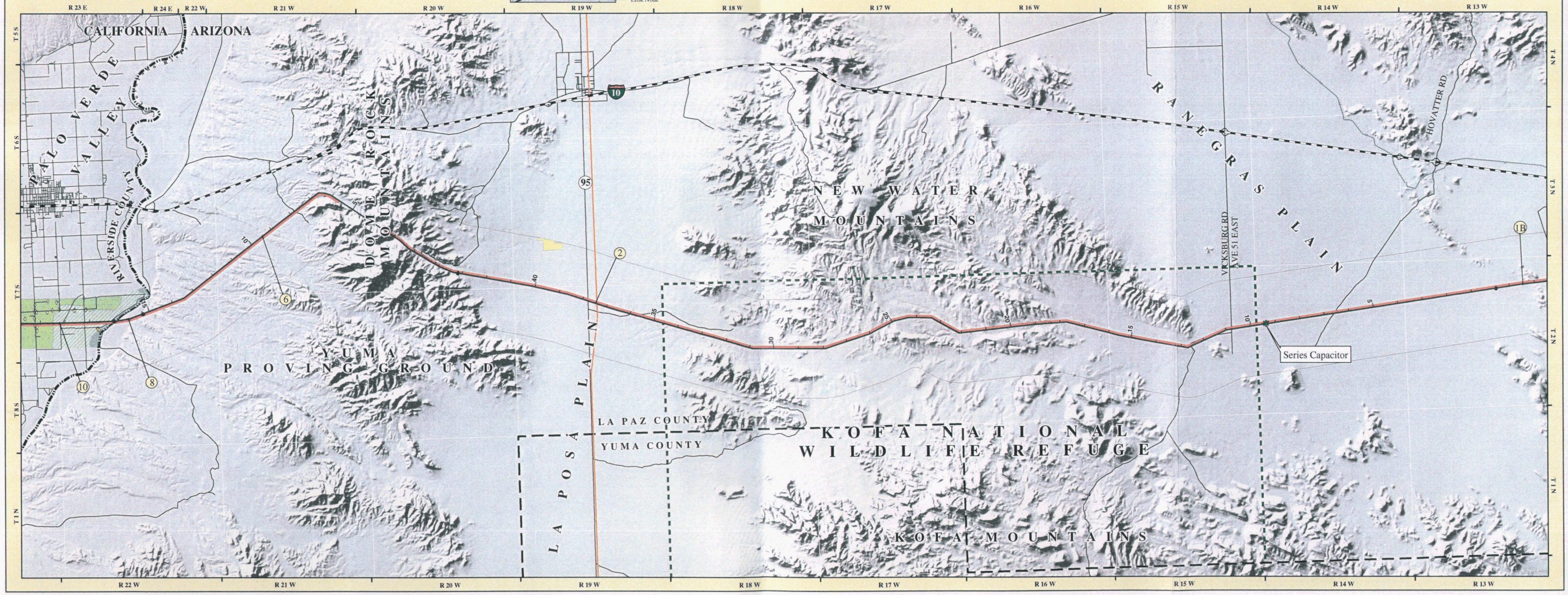
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- State Boundary
- County Boundary
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Series Capacitor



Panel Index Map







Map 4-4c
FUTURE LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 3 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Landuse data, EPG, Inc. 2003.

Prepared By: Environmental Planning Group, Inc. March 9, 2004

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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epg

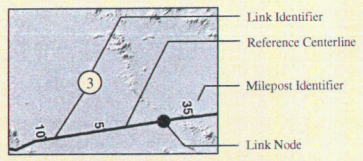
m:/projects/sce/devers/california/mxds/futlu_panel03.mxd

Future Land Use

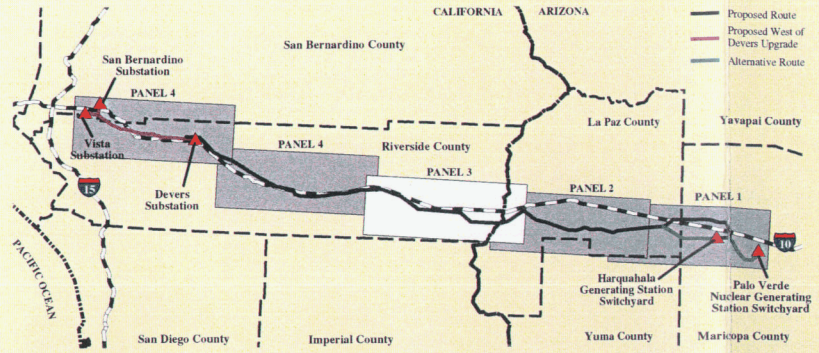
- Residential - Low Density
- Residential - Rural
- Single Family Dwelling Unit
- Mixed Use
- Education
- Agriculture
- Agriculture - Outstructure
- Unplanned
- Abandoned Building
- Riverbed/Wash
- Communication Facility
- Parks/Preservation

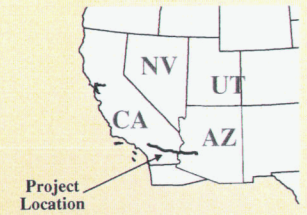
General Reference Features

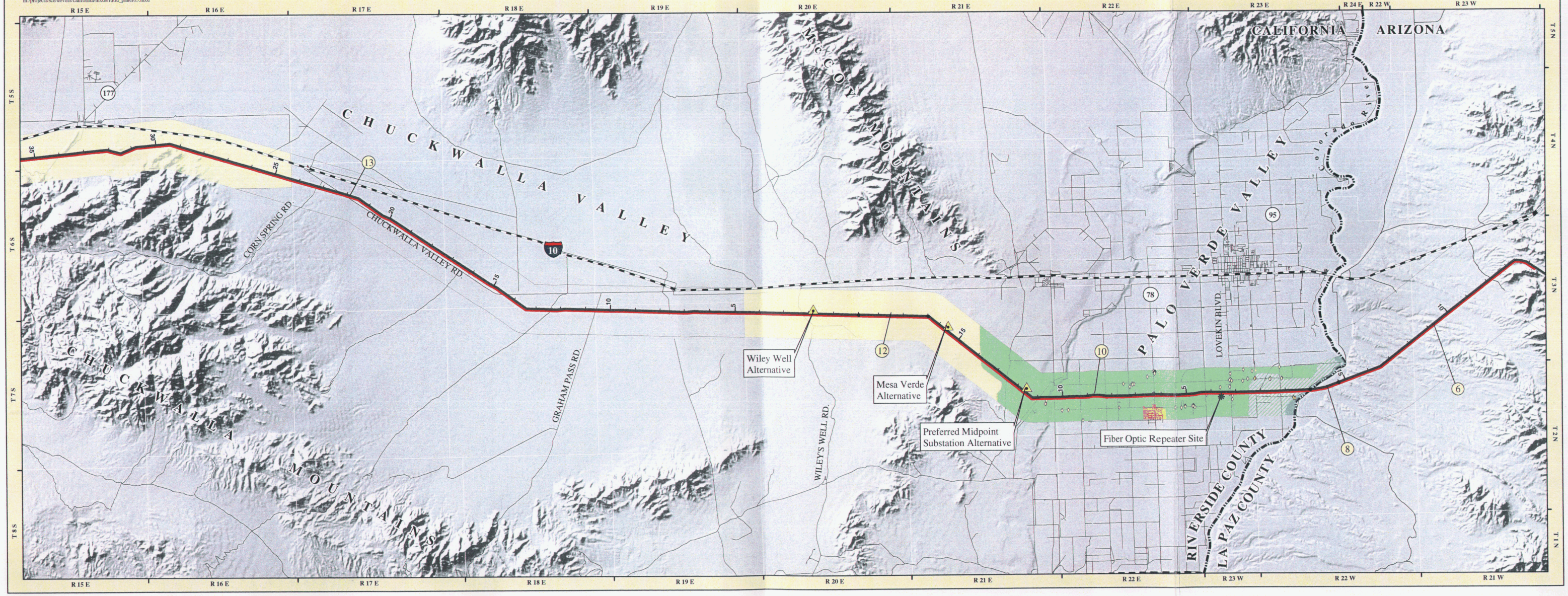
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- State Boundary
- Interstate/Highway
- Roads
- Township and Range
- Midpoint Substation Alternatives
- Fiber Optic Repeater Site



Panel Index Map







Map 4-4d
FUTURE LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 4 of 5

Sources

United States Geological Survey, hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

Prepared By: Environmental Planning Group, Inc. March 9, 2004

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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epg

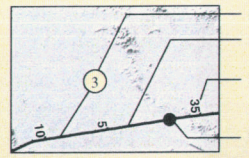
m:/projects/sce/devers/california/mxds/futu_panel04.mxd

Future Land Use

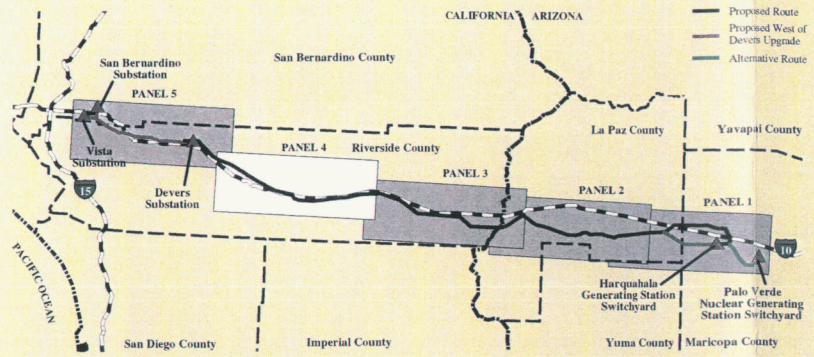
- Residential - Medium Density
- Residential - Low Density
- Residential - Rural
- Single Family Dwelling Unit
- Commercial
- Mixed Use
- Industrial
- Light Industrial
- Extraction/Mining
- Public/Quasi Public
- Airfield
- Agriculture
- Unplanned
- Abandoned Building
- Utility
- Water Tower/Tank
- Communication Facility
- Recreation
- Parks/Preservation
- Open Space
- Non-Developable Open Space
- Lake/Riverbed/Wash

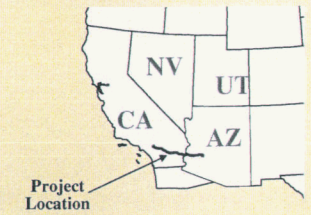
General Reference Features

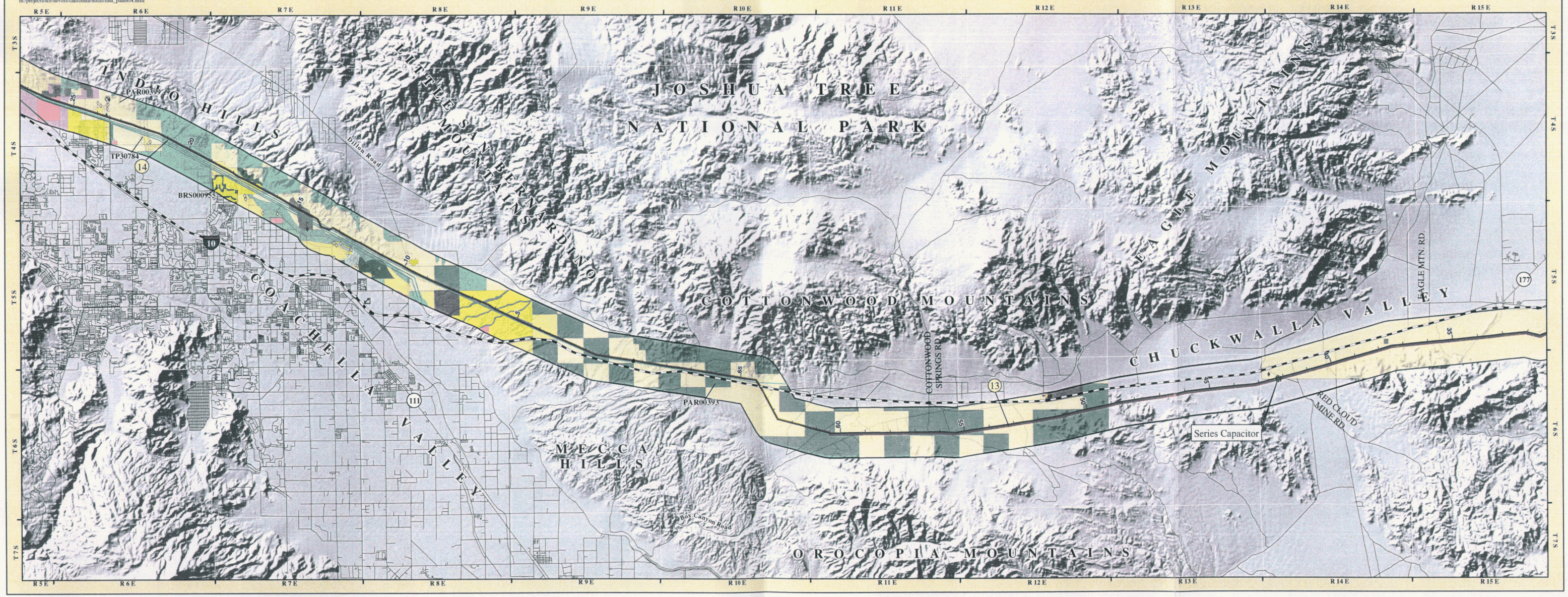
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 115kV Transmission Line
- Interstate/Highway
- Roads
- Township and Range
- Series Capacitor



Panel Index Map





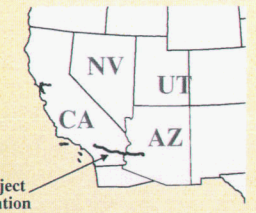


Map 4-4e

FUTURE LAND USE

Devers - Palo Verde No. 2 Transmission Line Project

Panel 5 of 5



Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models. Land use data, EPG, Inc. 2003.

Prepared By: Environmental Planning Group, Inc. March 9, 2004

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

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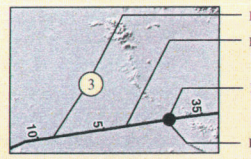
m:/projects/sce/devers/california/mxds/exlu_panel05.mxd

Future Land Use

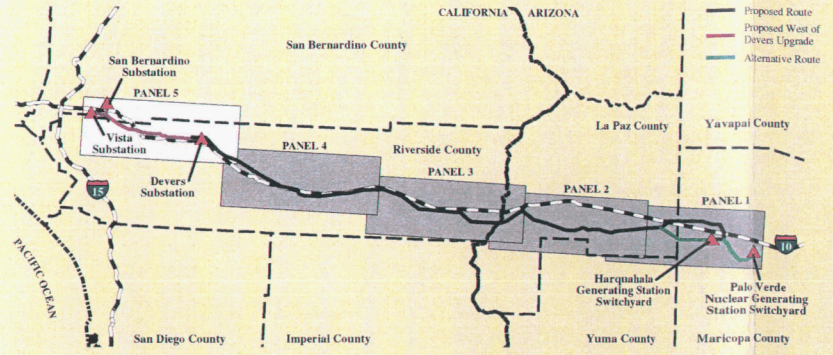
- Residential - High Density
- High Density Residential
- Residential - Medium Density
- Residential - Low Density
- Residential - Rural
- Single Family Dwelling Unit
- Commercial
- Resort/Hotel/Casino
- Mixed Use
- Industrial
- Light Industrial
- Landfill
- Public/Quasi Public
- Cemetary
- Hospital
- School/Educational Facility
- Airfield
- Agriculture
- Agriculture - Outstructure
- Unplanned
- Abandoned Building
- Utility
- Water Tower/Tank
- Wind Farm/Turbine
- Communication Facility
- Recreation
- Parks/Preservation
- Open Space
- Non-Developable Open Space
- Water/Riverbed/Wash

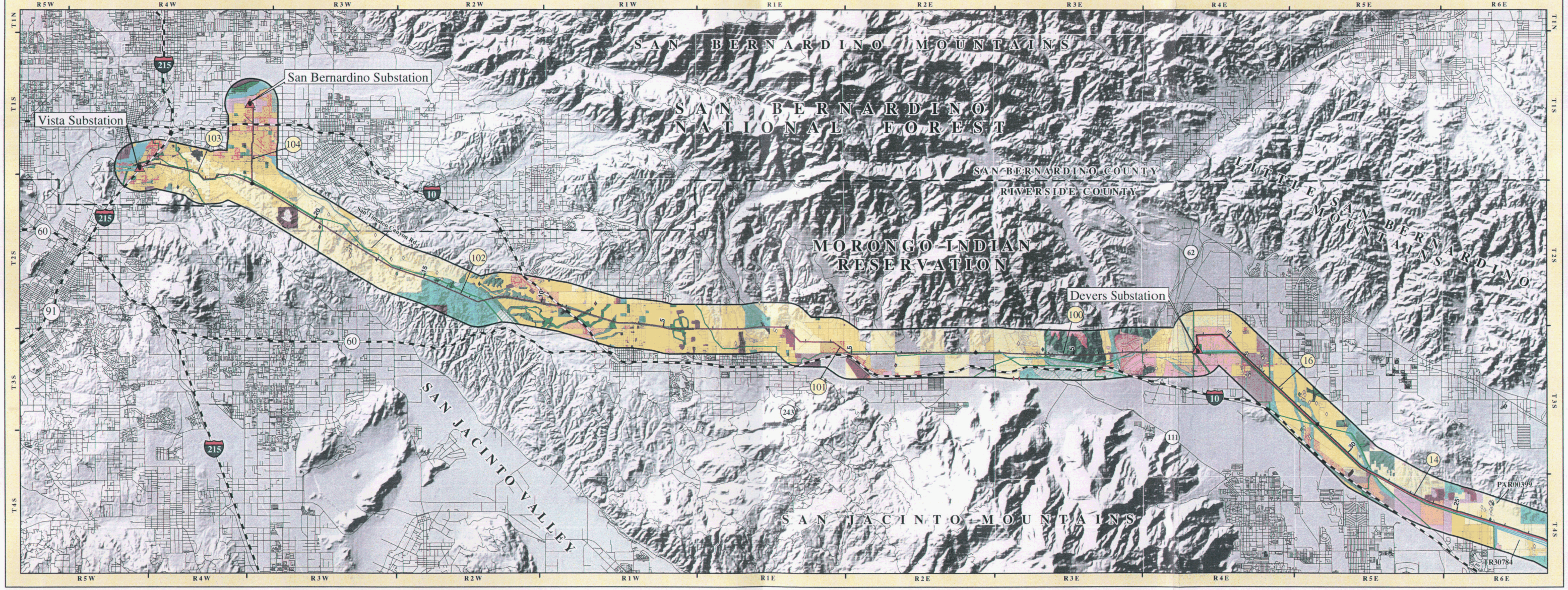
General Reference Features

- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 115kV Transmission Line
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Roads
- Township and Range



Panel Index Map





Map 4-5a
SENSITIVE HABITATS

Devers - Palo Verde No. 2 Transmission Line Project

Panel 1 of 5

Sources

Phoenix BLM, Hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 11, 2005

Sensitive Habitats

Sonoran Desert Tortoise

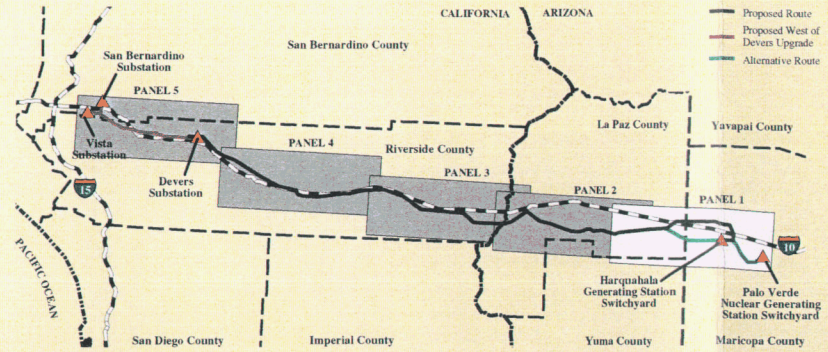
- BLM Designated Category 2 Habitat
- BLM Designated Category 3 Habitat

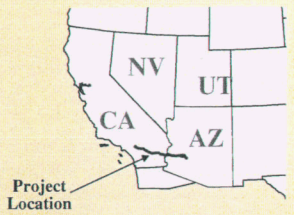
General Reference Features

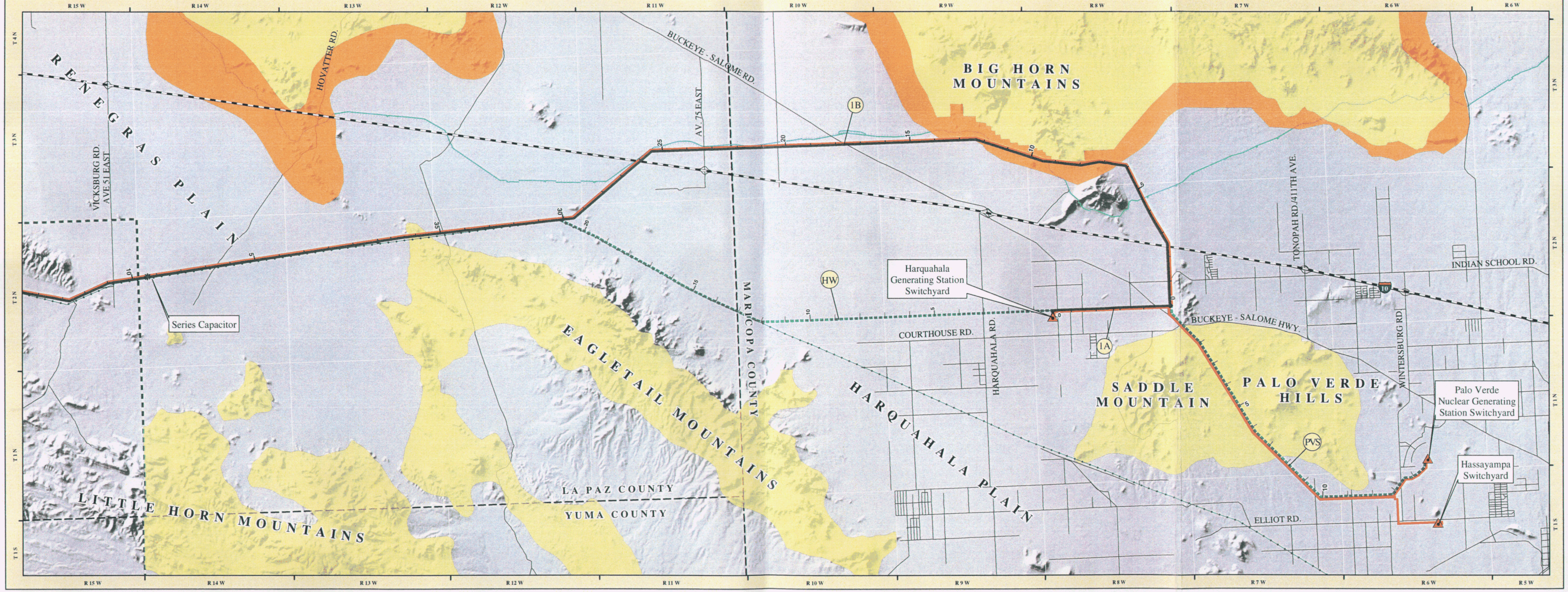
- Proposed 500kV Transmission Line Route
- Alternative 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Natural Gas Pipeline
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Series Capacitor

Link Identifier
Reference Centerline
Milepost Identifier
Link Node

Panel Index Map







m:/projects/sce/devers/california/mxds/senhabitat_panel01.mxd

Map 4-5b
SENSITIVE HABITATS

Devers - Palo Verde No. 2 Transmission Line Project

Panel 2 of 5

Sources

Phoenix BLM. Hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 9, 2005

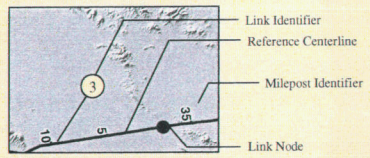
Sensitive Habitats

Sonoran Desert Tortoise

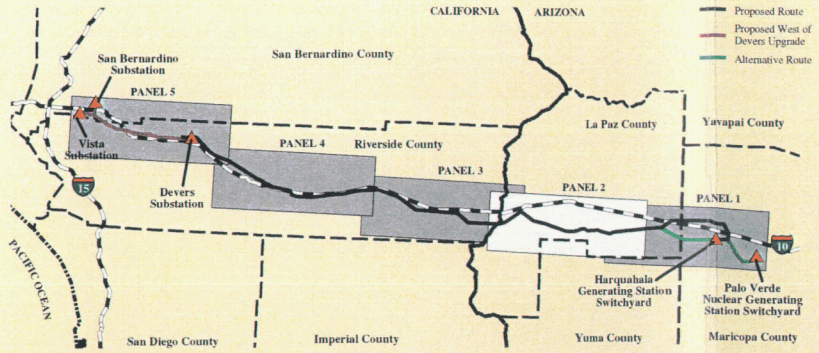
- BLM Designated Category 2 Habitat
- BLM Designated Category 3 Habitat

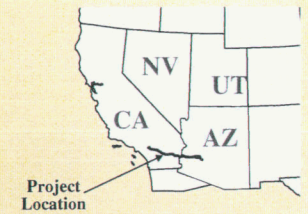
General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- Central Arizona Project Canal
- State Boundary
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Series Capacitor



Panel Index Map





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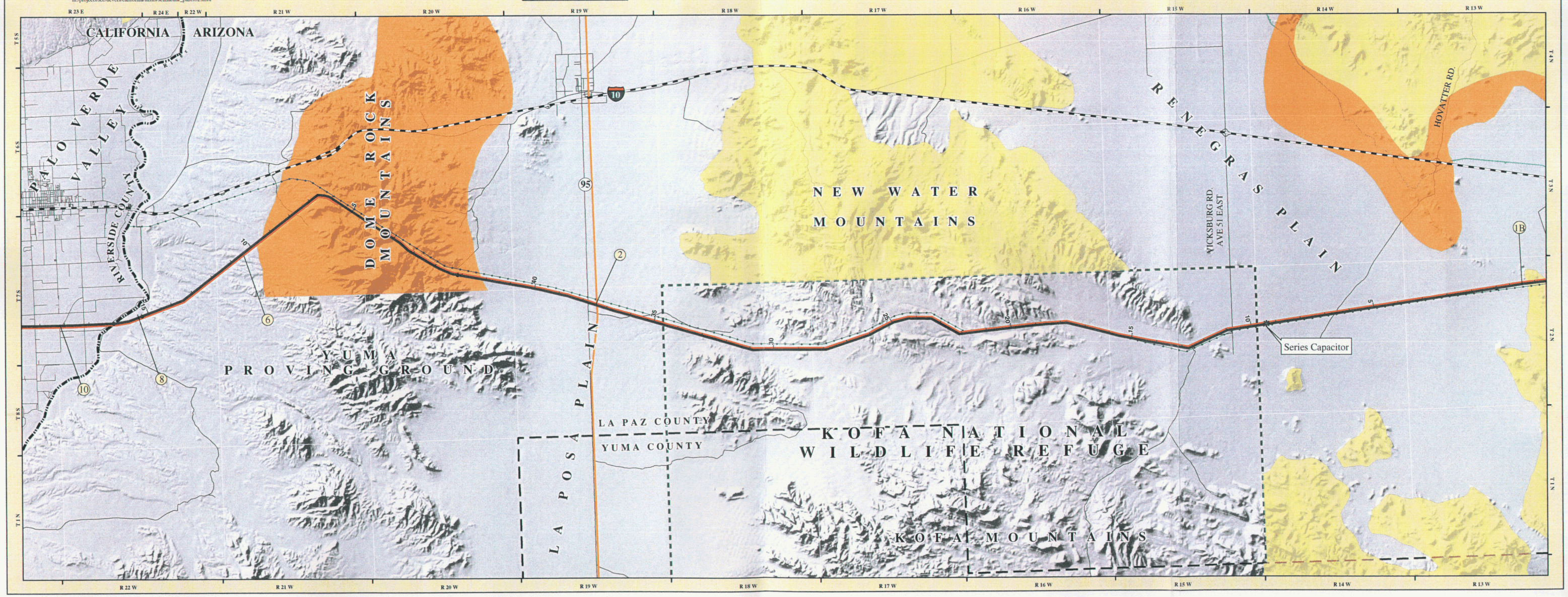


Map 4-5c
SENSITIVE HABITATS

Devers - Palo Verde No. 2 Transmission Line Project

Panel 3 of 5

Sources

BLM Phoenix, BLM California Desert District, USFWS Carlsbad. Hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 9, 2005

Sensitive Habitats

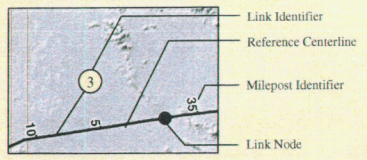
Sonoran Desert Tortoise
- BLM Designated Category 2 Habitat
- BLM Designated Category 3 Habitat

Mojave Desert Tortoise
- BLM Chuckwalla DWMA ACEC
- Critical Habitat

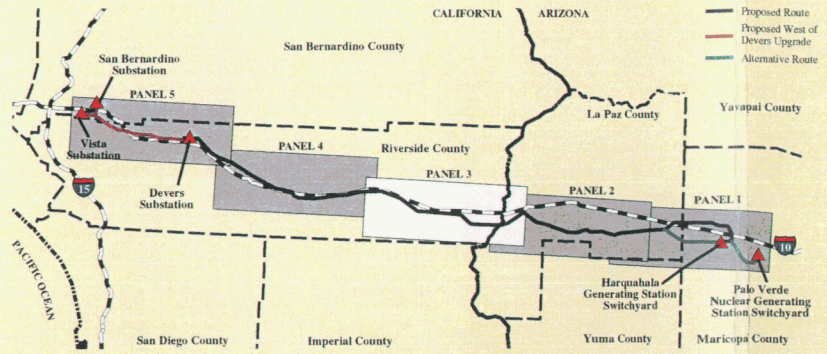
BLM ACEC
- Chuckwalla Valley Dune Thicket

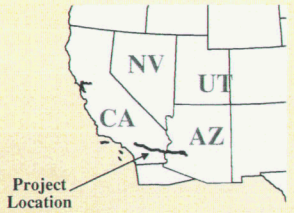
General Reference Features

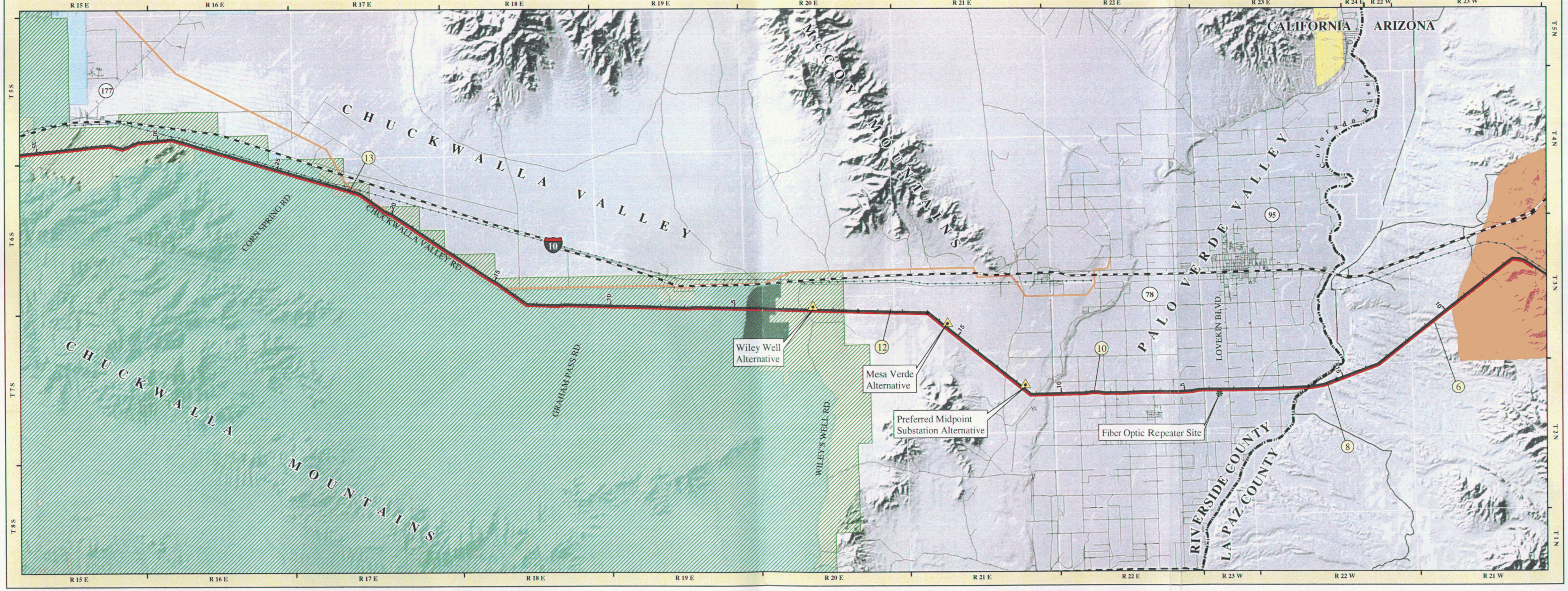
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Interstate/Highway
- Roads
- Township and Range
- Midpoint Substation Alternatives
- Fiber Optic Repeater Site



Panel Index Map







0 1 2 3 4 5 Miles

m:/projects/sce/devers/california/mxds/senhabitat_panel03a.mxd

Sources

BLM California Desert District, USFWS Carlsbad. Hillshade derived from USGS 30-meterDigital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 9, 2005

Sensitive Habitats

Mojave Desert Tortoise

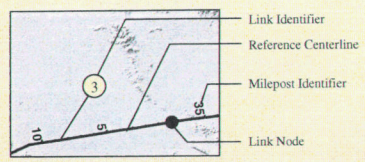
- BLM Chuckwalla DWMA ACEC
- Critical Habitat
- BLM Chuckwalla DWMA ACEC/Critical Habitat

Coachella Valley Fringe-toed Lizard

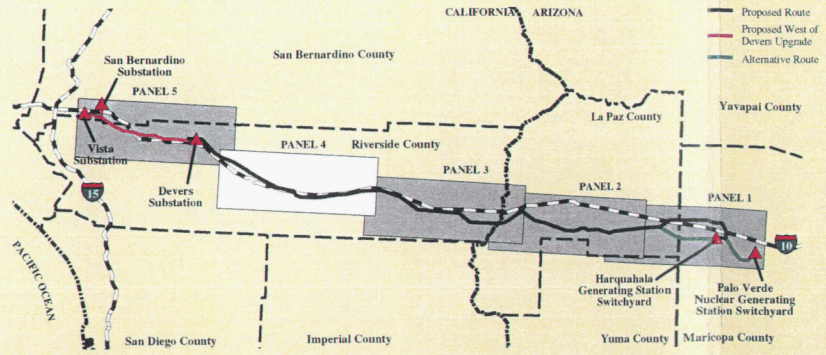
- BLM ACEC
- Critical Habitat

General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- Interstate/Highway
- Roads
- Township and Range
- Series Capacitor



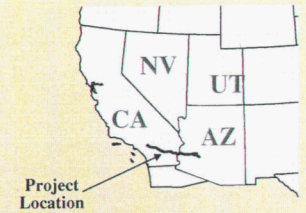
Panel Index Map



Map 4-5d
SENSITIVE HABITATS

Devers - Palo Verde No. 2 Transmission Line Project

Panel 4 of 5



0 1 2 3 4 5 Miles

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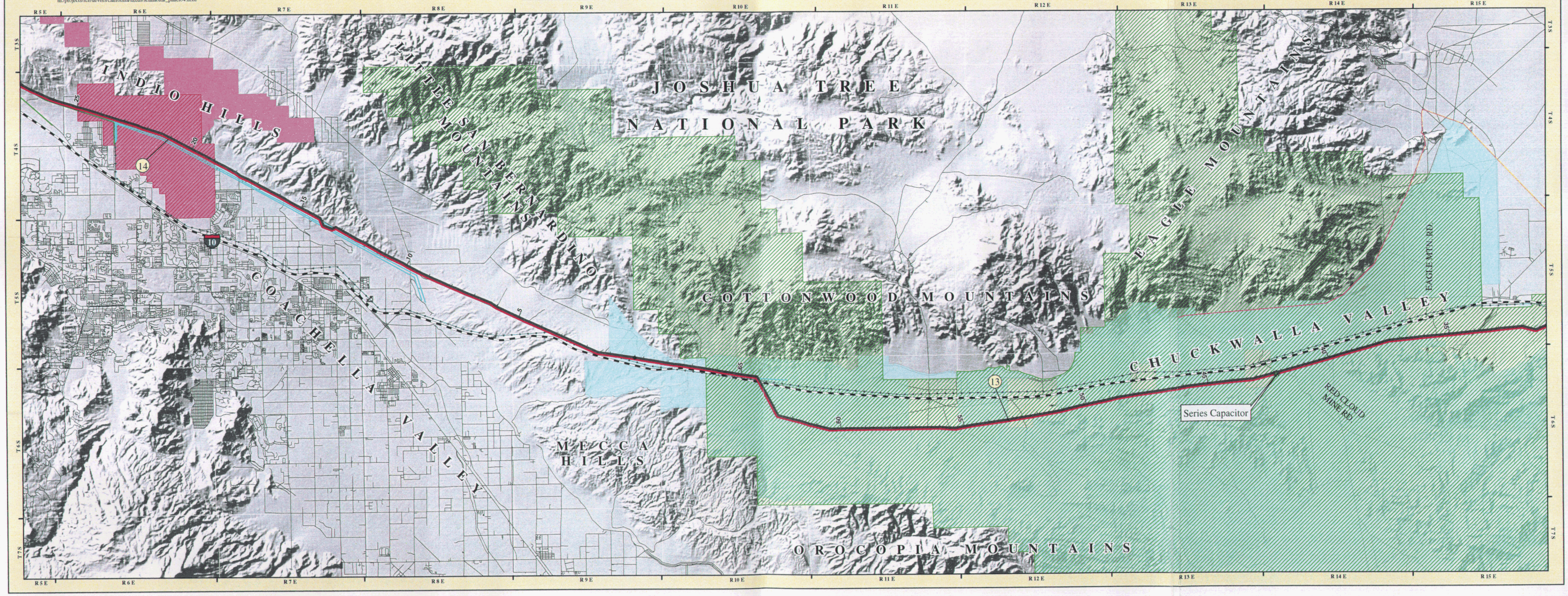
m:/projects/sce/devers/california/mxds/senhabitat_panel04.mxd



Sources

BLM California Desert District, USFWS Carlsbad. Hillshade derived from USGS 30-meterDigital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 9, 2005

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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m:/projects/sce/devers/california/mxds/senhabitat_panel05.mxd

Sensitive Habitats

Coachella Valley Fringe-toed Lizard

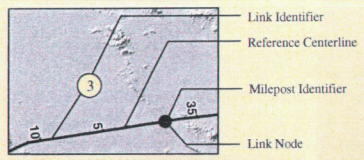
- BLM ACEC
- Ctitical Habitat

BLM ACECs

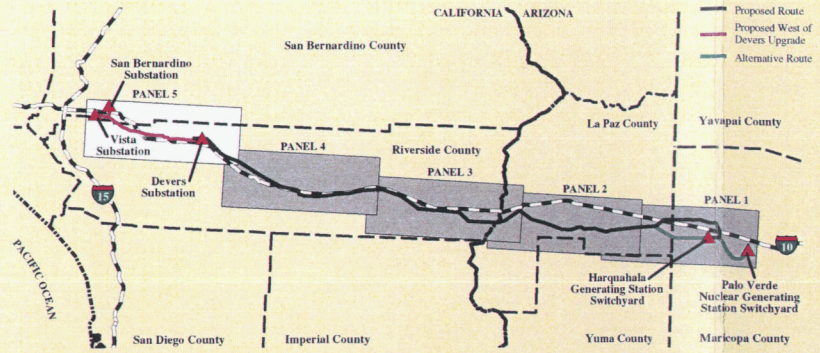
- Big Morongo Canyon
- Potrero
- Whitewater Canyon

General Reference Features

- Proposed 500kV Transmission Line Route
- Proposed West of Devers Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Roads
- Township and Range



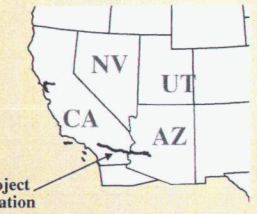
Panel Index Map

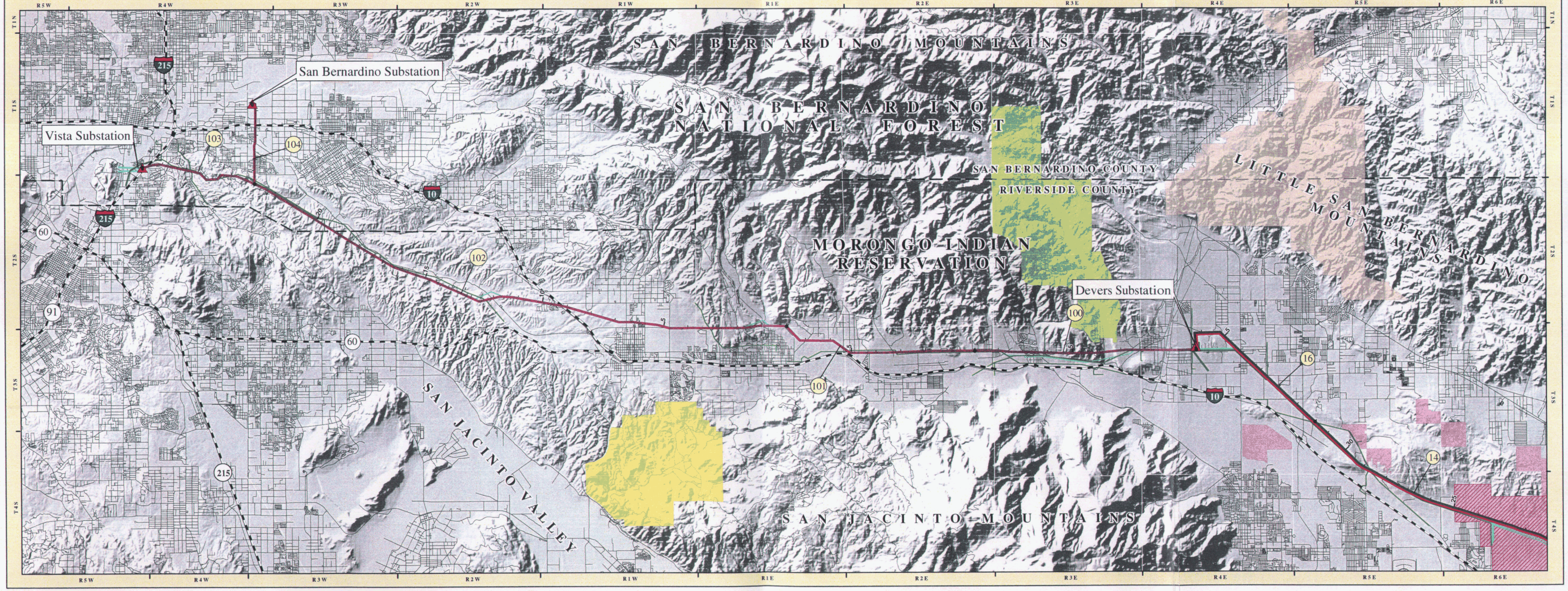


Map 4-5e
SENSITIVE HABITATS

Devers - Palo Verde No. 2 Transmission Line Project

Panel 5 of 5





Map 4-6a
SCENIC QUALITY RATING UNITS/ VISUAL IMAGE TYPES

Devers - Palo Verde No. 2
Transmission Line Project

Panel 1 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 11, 2005

0 1 2 3 4 5 Miles

SOUTHERN CALIFORNIA EDISON
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m:/projects/sce/devers/california/mxds/scenicvis_panel01.mxd

Scenic Quality Rating

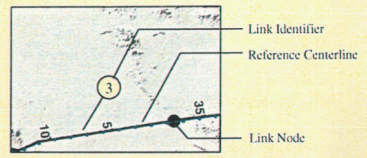
- Class A
- Class B
- Class C

Visual Image Type

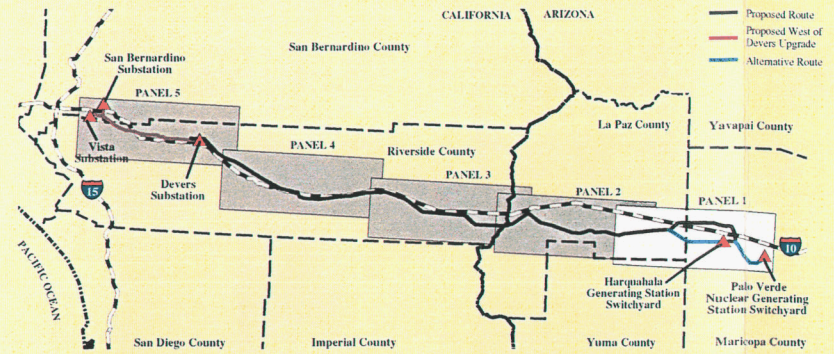
- Agriculture
- Commercial
- Industrial
- Institutional
- Open Space/Parks
- Residential

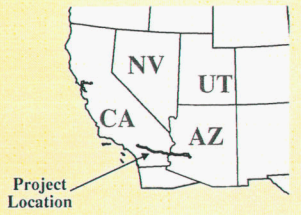
General Reference Features

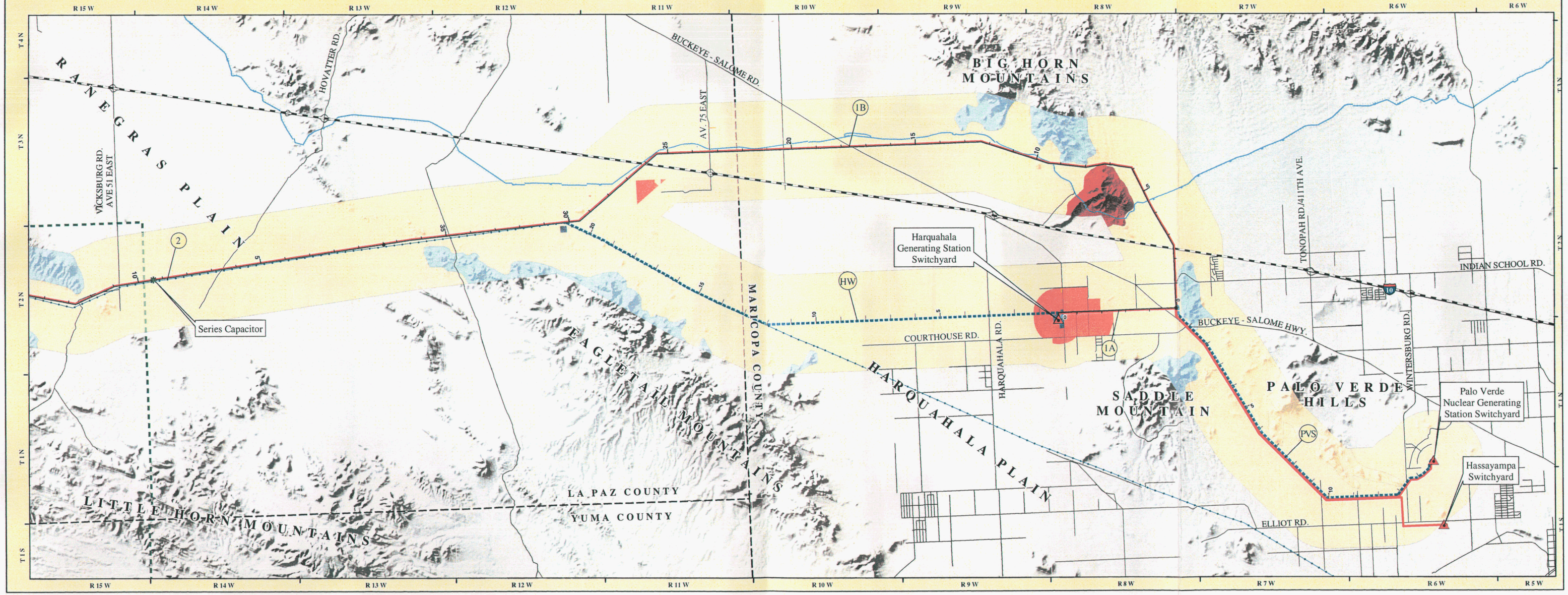
- Proposed 500kV Transmission Line Route
- Alternative Route
- Existing 500kV Transmission Line
- Natural Gas Pipeline
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Series Capacitor



Panel Index Map







Map 4-6b
SCENIC QUALITY RATING UNITS/ VISUAL IMAGE TYPES

Devers - Palo Verde No. 2
Transmission Line Project

Panel 2 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 11, 2005

Scenic Quality Rating

- Class A
- Class B
- Class C

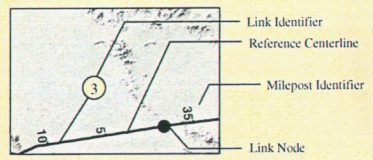
Visual Image Type

- Agriculture
- Commercial
- Industrial
- Institutional
- Open Space/Parks
- Residential

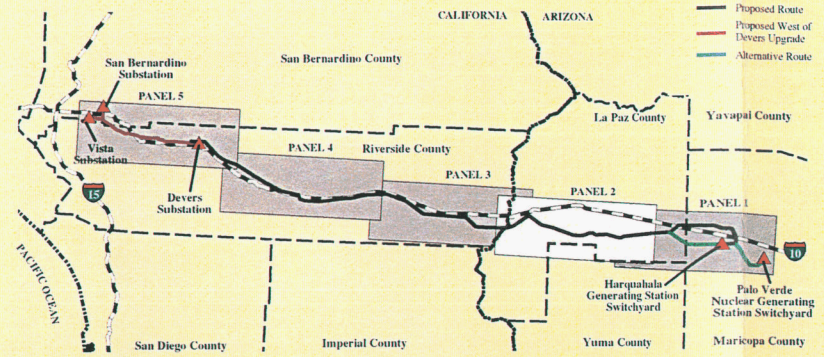
0 1.25 2.5 5 Miles

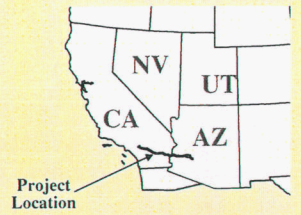
General Reference Features

- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Interstate/Highway
- Central Arizona Project Canal
- Roads
- Township and Range
- KOFA National Wildlife Refuge
- Series Capacitor



Panel Index Map





m:/projects/sce/devers/california/mxds/scenicvis_panel02.mxd

CALIFORNIA ARIZONA

PALO VERDE VALLEY

COLORADO RIVER

RIVERSIDE COUNTY

DOME ROCK MOUNTAINS

YUMA PROVING GROUND

LA POSA PLAIN

LA PAZ COUNTY

YUMA COUNTY

NEW WATER MOUNTAINS

KOFA NATIONAL WILDLIFE REFUGE

KOFA MOUNTAINS

RANEGRAS PLAIN

VICKSBURG RD.

AVE 51 EAST

HOVATTER RD.

Series Capacitor

R 23 E R 24 E R 22 W R 21 W R 20 W R 19 W R 18 W R 17 W R 16 W R 15 W R 14 W R 13 W

T5S T6S T7S T8S T1N T2N T3N T4N

Map 4-6c
SCENIC QUALITY RATING UNITS/ VISUAL IMAGE TYPES

Devers - Palo Verde No. 2
Transmission Line Project
Panel 3 of 5

Sources

United States Geological Survey (USGS). hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 11, 2005

Scenic Quality Rating

- Class A
- Class B
- Class C

Visual Image Type

- Agriculture
- Commercial
- Industrial
- Institutional
- Open Space/Parks
- Residential

0 1.25 2.5 5 Miles

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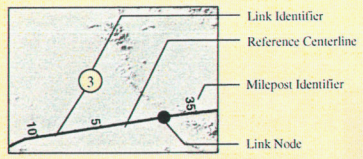
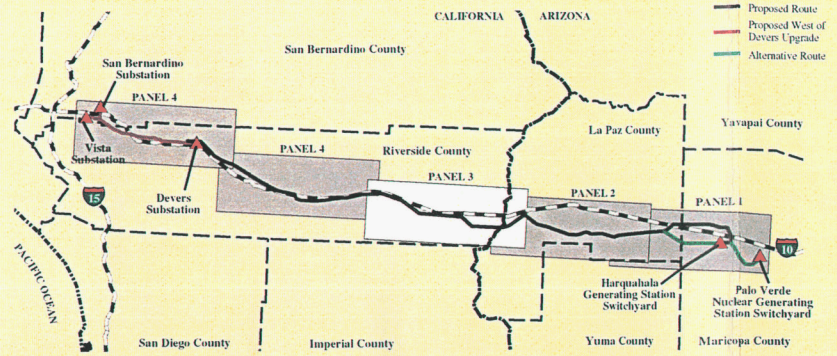
m:/projects/sce/devers/california/mxds/scenicvis_panel03.mxd

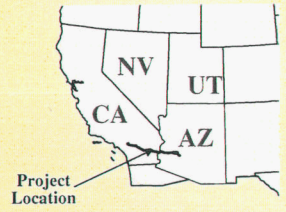
General Reference Features

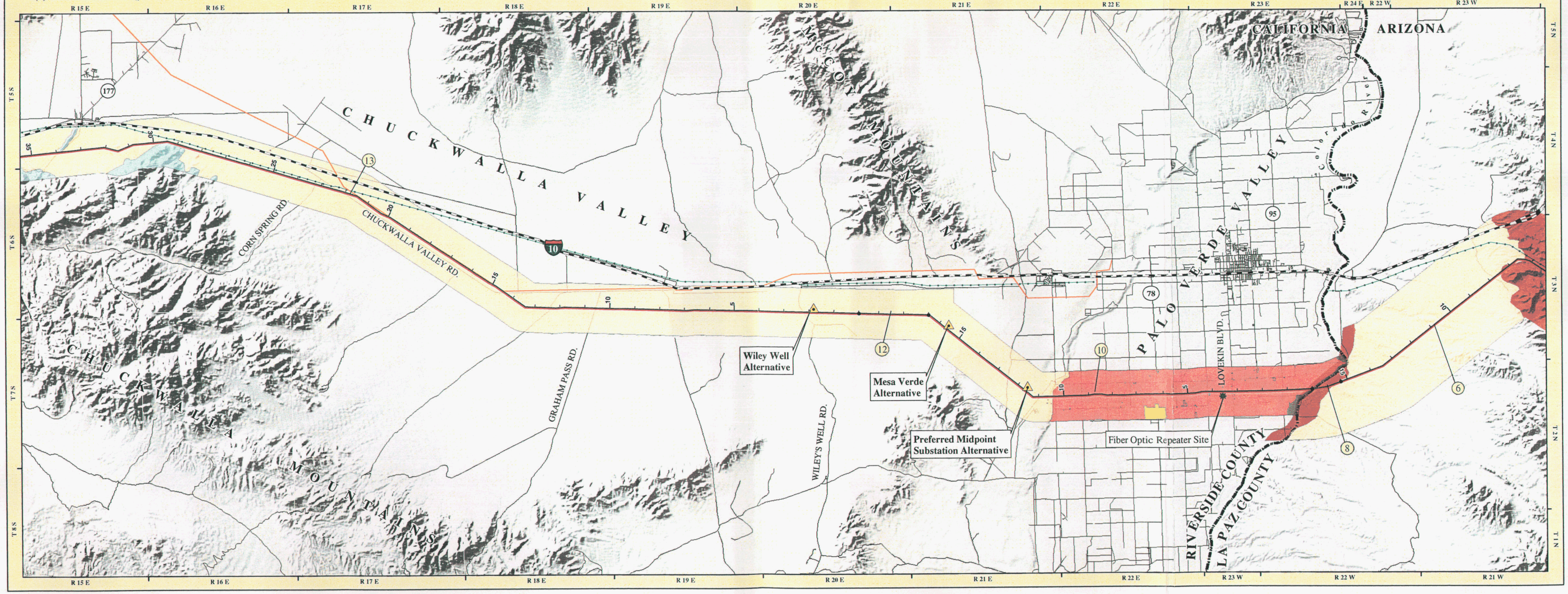
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 161kV Transmission Line
- Natural Gas Pipeline
- State Boundary
- County Boundary
- Interstate/Highway
- Roads
- Township and Range
- Midpoint Substation Alternatives
- Fiber Optic Repeater Site



Panel Index Map







Map 4-6d
SCENIC QUALITY RATING UNITS/ VISUAL IMAGE TYPES

Devers - Palo Verde No. 2 Transmission Line Project

Panel 4 of 5

Sources

United States Geological Survey, hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 11, 2005

Scenic Quality Rating

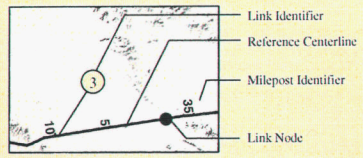
- Class A
- Class B
- Class C

Visual Image Type

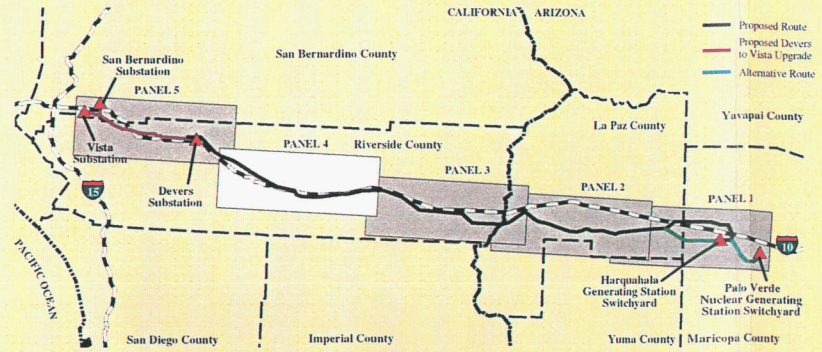
- Agriculture
- Commercial
- Industrial
- Institutional
- Open Space/Parks
- Residential

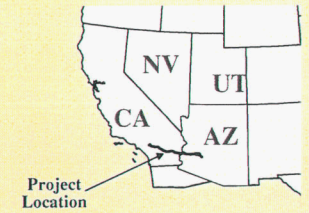
General Reference Features

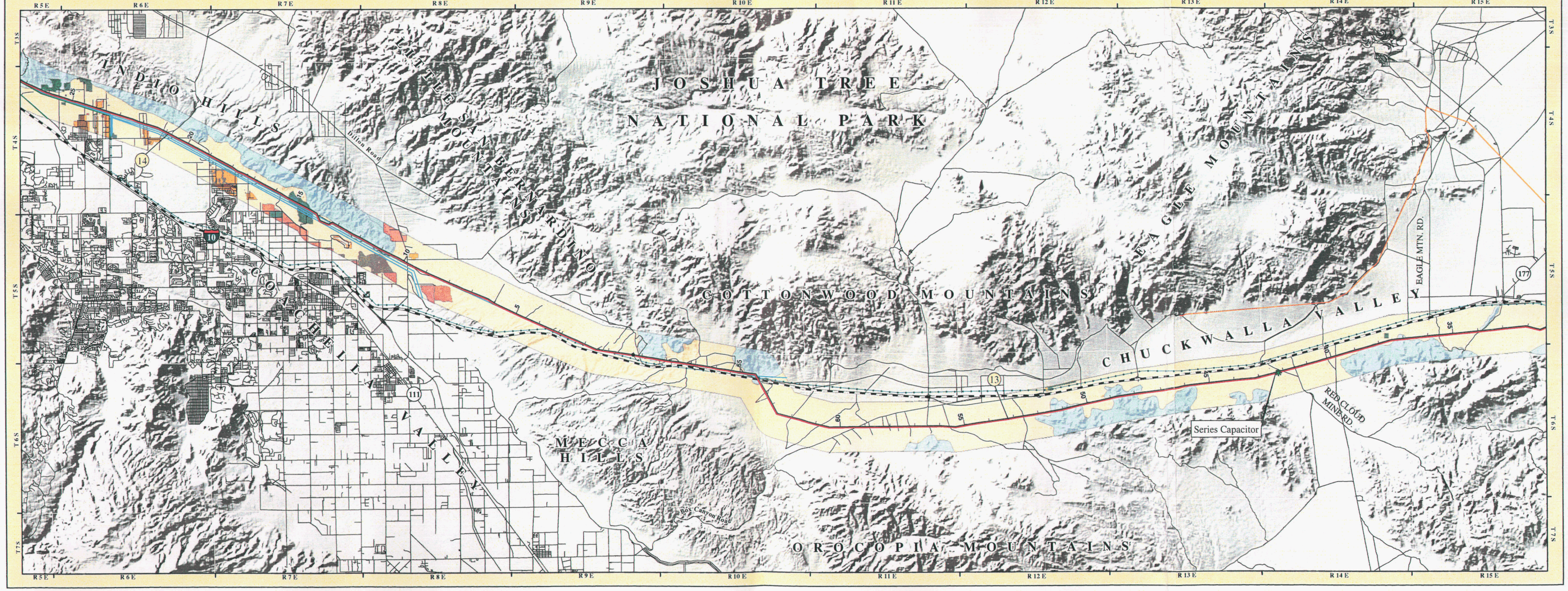
- Proposed 500kV Transmission Line Route
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 161kV Transmission Line
- Existing 115kV Transmission Line
- Natural Gas Pipeline
- Interstate/Highway
- Roads
- Township and Range
- Series Capacitor



Panel Index Map







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Map 4-6e

SCENIC QUALITY RATING UNITS/ VISUAL IMAGE TYPES

Devers - Palo Verde No. 2
Transmission Line Project

Panel 5 of 5

Sources

United States Geological Survey (USGS), hillshade derived from USGS 30-meter Digital Elevation Models.

Prepared By: Environmental Planning Group, Inc. March 11, 2005

Scenic Quality Rating

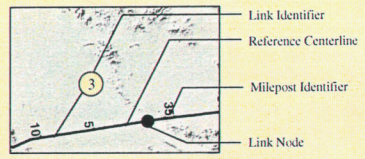
- Class A
- Class B
- Class C

Visual Image Type

- Agriculture
- Commercial
- Industrial
- Institutional
- Open Space/Parks
- Residential

General Reference Features

- Proposed 500kV Transmission Line Route
- Proposed Devers to Vista Upgrade
- Existing 500kV Transmission Line
- Existing 230kV Transmission Line
- Existing 115kV Transmission Line
- County Boundary
- Substation/Switchyard
- Interstate/Highway
- Roads
- Township and Range



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SOUTHERN CALIFORNIA EDISON

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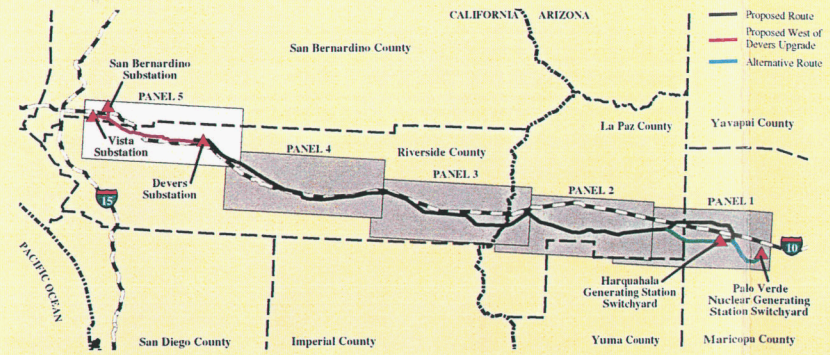
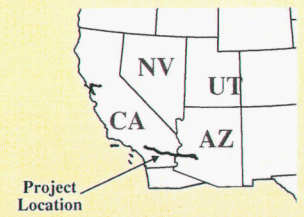
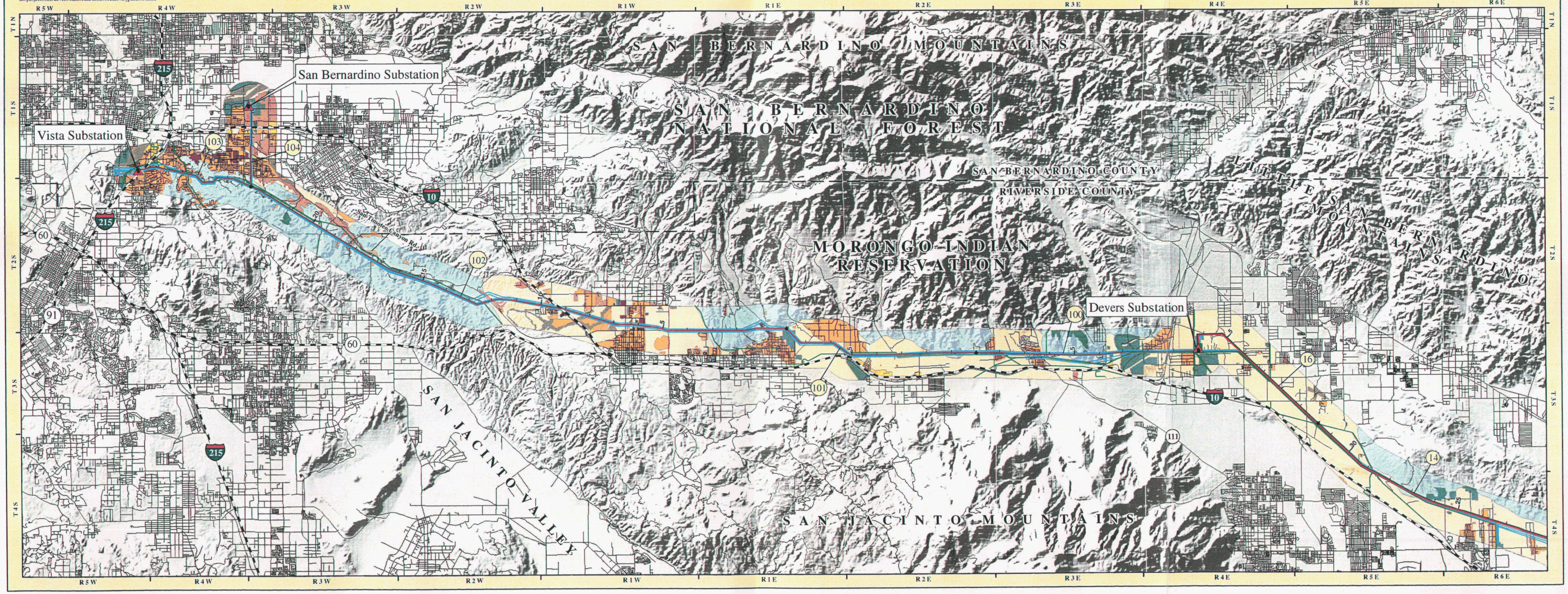
Panel Index Map







BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) for a Certificate of Public Convenience and Necessity Concerning the Devers-Palo Verde No. 2 Transmission Line Project	)	Application No. 05-04-015 (Filed April 5, 2005)

PROPONENT'S ENVIRONMENTAL ASSESSMENT

DEVERS-PALO VERDE NO. 2 TRANSMISSION LINE PROJECT

VOLUME I – PART 2 OF 2

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Dated: April 5, 2005

CHAPTER 5.0
ENVIRONMENTAL IMPACT ASSESSMENT SUMMARY

5.1 DEVERS-HARQUAHALA 500kV TRANSMISSION LINE

5.1.1 Introduction

This section includes the summary of impacts that could occur for each affected resource with respect to the proposed Devers-Harquahala 500kV transmission line. Potentially significant impacts are described in Chapter 6.

5.1.2 Land Use

The proposed Devers-Harquahala transmission line generally parallels the existing DPV1 line, utilizing existing access roads where possible and requiring approximately 19.3 miles of new spur roads.

According to CEQA significance criteria, potential land use impacts can occur based on the following:

- project physically divides an established community
- project conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect
- project conflicts with any applicable habitat conservation plan or natural community conservation plan

- prime farmland, unique farmland, or farmland of statewide importance is converted into a non-agricultural use

- conflicts occur with the existing zoning for agricultural use or Williamson Act contract

- due to location or nature of other involved changes to the existing environment a conversion of farmland to a non-agricultural use results

5.1.2.1 Arizona

The Arizona portion of the proposed Devers-Harquahala 500kV transmission line would be constructed within an existing utility corridor and, therefore, would not physically divide any established community.

The proposed transmission line would not conflict with existing general plans for the study area. The proposed transmission line crosses federal lands within a designated utility corridor, and within an existing right-of-way granted across federal lands; therefore, land use impacts to federal land would be minimal.

No conflicts with habitat conservation plans or natural community conservation plans would occur. Link 2 crosses the KOFA NWR. The USFWS issued a CRC (USFWS 1989 – Appendix C) for the proposed DPV2 500kV transmission line through the KOFA NWR. The CRC states that the proposed transmission line is "compatible with the purpose for which the land was acquired...." Additionally, the CRC indicates that "although the existing and proposed Devers-Palo Verde transmission lines are routed adjacent to proposed wilderness areas on the KOFA Refuge, they remain within the Crystal Hill-Coyote Peak Exclusion, an area specifically eliminated from consideration for wilderness designation because of its utility ROW

development. As stated in the EIS prepared for the 1974 wilderness proposal, wilderness designation would provide for continuation of existing rights-of-way, easements, and permits, and would not preclude additional routes on those lands excluded from wilderness designation if authorized under permit from this agency" (USFWS 1989). The impacts associated with crossing the KOFA NWR would therefore be less than significant.

Potential impacts to areas where private land and recreational areas may be affected by the construction and operational phases of the proposed transmission line are described below.

Construction

The proposed transmission line would cross 2 miles of agricultural land along Link 1a, where approximately 11 tubular steel pole towers would be installed in a parallel alignment with the Harquahala-Hassayampa 500kV transmission line. During the construction phase, temporary laydown areas, tensioning, and pulling sites would result in the removal of some active prime and unique agricultural land from production, and interfere with tilling and irrigation patterns.

A temporary impact during construction may occur where Link 8 crosses the Colorado River and could disrupt the recreational opportunities on the river in the vicinity of the proposed line.

Operation

Potential long-term operational impacts would occur along Link 1a, where tubular steel pole foundations would take approximately 950 square feet of active agricultural land out of production, and may interfere with tilling and irrigation patterns. The proposed transmission line would parallel the existing DPV1 500kV line; thus, impacts to agricultural crop dusters would be less than significant.

5.1.2.2 California

The California portion of the proposed Devers-Harquahala 500kV transmission line would be constructed within an existing utility corridor and, therefore, would not physically divide any established community.

The proposed route would not conflict with adopted environmental plans, policies, or goals of the affected communities. Although the preferred route passes through three cities and two municipal spheres of influence, the proposed transmission line would not conflict with existing general plans. The proposed route would not conflict with specific developments within Riverside County.

No conflicts with habitat conservation plans or natural community conservation plans would occur. The California portion of the proposed Devers-Harquahala 500kV transmission line crosses federal lands within the designated BLM utility corridor and within the existing right-of-way granted by BLM for construction of the DPV2 project. Therefore, impacts to federal land would be minimal.

Potentially significant impacts could occur along Links 13 and 14 where the proposed transmission line would cross three BLM ACECs (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.

Construction

Removal of an unoccupied single-family dwelling unit located within the proposed Devers-Harquahala right-of-way may be required at Link 10, Milepost 5.3. Two single-family dwelling units and a mobile home are located on an 11-acre parcel located west of CA 78 between 24th Avenue and 22nd Avenue north of and adjacent to the DPV2 right-of-way at Milepost 6.2. The

proposed Devers-Harquahala 500kV transmission line would be constructed north of and adjacent to the irrigation ditch, and would be located within approximately 100 feet of the structures. Mitigation would include purchase of the parcel, or selective tower placement, to avoid conflict with the residences.

The proposed transmission line would impact prime irrigated farmland in the Palo Verde Valley along Link 10. Approximately 39 transmission structures would be installed along 10.5 miles of farmland, parallel to the existing DPV1 line. Potential impacts during the construction phase would result from the removal of cropland from production, interference with tilling/irrigation patterns, and potential conflict with agricultural aviators due to temporary laydown areas, tensioning, and pulling sites.

Milepost 15 of Link 14 of the proposed transmission line would cross the Granite Construction Company sand and gravel mine. Impacts may occur if mining operations are impeded during construction.

Link 16 crosses a corral at Milepost 3.4. Potential construction impacts could occur to the corral located under the existing DPV1 transmission line if construction were to temporarily restrict the use of the corral.

Operation

Long-term operational impacts would occur in the Palo Verde Valley along Link 10 where structure foundations would permanently remove less than 0.1 acre of active agricultural land from production, and may interfere with tilling and irrigation patterns. Because the proposed transmission line would parallel the existing DPV1 line, impacts to agricultural aviators would be minimal.

Operational impact also could occur in the vicinity of the Granite Construction Company sand and gravel mine located at Milepost 15 of Link 14. No long-term operational impacts would occur, however, because the mine would be spanned by placing towers on either side of the mine pit.

5.1.3 Socioeconomics, Population, and Housing

According to CEQA significance criteria, potential impacts to population and housing could occur based on the following:

- project induces substantial population growth in an area, either directly (i.e., by proposed new homes and businesses) or indirectly (i.e., through extension of roads or other infrastructure)

- project displaces substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere

- project displaces substantial numbers of people, necessitating the construction of replacement housing elsewhere

5.1.3.1 Arizona

The construction of the proposed transmission line would not have a significant impact on the population or housing of the communities through which it passes in Arizona. An estimated 205 construction personnel are expected to be employed for the Devers-Harquahala 500kV line construction in Arizona and California combined.

No permanent housing would be required, as a long-term operations work force would not be needed after construction is complete. Should housing be required during construction, the town of Quartzsite, located near the proposed route in La Paz County, is accustomed to seasonal fluctuations in population from tourism; the relatively small influx of construction workers would not adversely impact the community's ability to provide housing or other accommodations. In addition, the towns of Tonopah and Buckeye in Maricopa County have adequately supported the influx of construction labor for numerous energy projects in recent years. As such, the proposed transmission line would not induce significant growth, resulting in a less than significant impact, or displace any existing housing, resulting in no impact. Any worker expenditures in these communities would represent a small, short-term benefit to some businesses in the vicinity of the proposed route.

An estimate of potential property tax payments to local jurisdictions was calculated based on proposed project costs and weighted ad valorem tax rates on a county basis. Many property-taxing jurisdictions would receive tax revenues from the proposed Devers-Harquahala transmission line. For purposes of this analysis, only total tax payments in each county are addressed, without allocation to the jurisdictions within counties to which such taxes would accrue, such as cities and special districts.

The results indicate that property taxes paid in La Paz County would represent a significant proportion of the county's total assessed valuation. The estimated annual property tax revenue would be approximately $3.4 million (in 2010), which would be more than 19 percent of La Paz County's total assessed value in fiscal year 2003-2004, and a total of approximately $14 million (net present value) or $48 million (nominal value) over the project life.

The estimated highest annual property tax payment in Maricopa County would be less than $2 million, which would be less than 1 percent of the county's total assessed valuation.

It is important to recognize that these estimates are preliminary and subject to revision as project planning proceeds. Actual property tax payments would be established by the state valuation

agencies in detail when the proposed transmission line is constructed and do not constitute a commitment by SCE.

5.1.3.2 California

The construction of the proposed Devers-Harquahala transmission line would not have a significant impact on the population or housing of the communities through which it passes in California. The greater Palo Verde and Coachella valleys are accustomed to seasonal fluctuations in population from tourism. The relatively small influx of construction workers would not adversely impact the community's ability to provide housing or other accommodations.

Potential property tax payments to local jurisdictions were estimated based on proposed project costs and weighted ad valorem tax rates on a county basis. Many property-taxing jurisdictions would receive tax revenues from the proposed DPV2 project. For purposes of this analysis, only total tax payments in each county are addressed, without allocation to the jurisdictions within counties to which such taxes would accrue, such as cities and special districts. These estimates also combine the west of Devers 230kV transmission upgrades with the California portion of the Devers-Harquahala 500kV transmission line and related facilities. Tax payments have been estimated for all counties affected by the proposed transmission line within California (i.e., Riverside, San Bernardino, Orange, and San Diego).

The results indicate that property taxes paid in California would not represent a significant proportion of the counties' total assessed valuation. The estimated annual property tax revenue for Riverside County would be approximately $3.9 million (in 2010), which would be less than one percent of the county's combined total assessed value in fiscal year 2003-2004, and total $15.3 million (net present value) or $51 million (nominal value) over the project life.

In San Bernardino County, estimated tax revenues would be approximately $7.2 million over the project life. Negligible tax revenues would accrue to Orange and San Diego counties.

It is important to recognize that these estimates are preliminary and subject to revision as project planning proceeds. Actual property tax payments would be established by the state valuation agencies in detail when the Devers-Harquahala transmission line is constructed and do not constitute a commitment by SCE.

5.1.4 Geology and Soils

According to CEQA significance criteria, potential geologic impacts could occur if the proposed Devers-Harquahala transmission line facilities were exposed to or cause one or more of the following:

- rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault
- seismic ground shaking, seismic-related ground failure, liquefaction
- inundation by seiche, tsunami, mudflow
- landslides and flooding
- wildland fires
- substantial soil erosion or the loss of topsoil
- loss of unique geologic features
- on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse

- expansive soil that could create substantial risks to life or property

- have soils incapable of adequately supporting the use of septic tanks or alternate wastewater disposal systems where sewers are not available for the disposal of wastewater

- the project was to result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state

- the project was to result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan or other land use plan

5.1.4.1 Arizona

Geology

No potentially significant impacts for geology were identified within the Arizona portion of the Devers-Harquahala study corridor during construction of the DPV1 project. The proposed transmission line would follow the alignment of the existing DPV1 transmission line and would utilize existing access roads. Except for spur roads in work areas within the existing right-of-way, construction of the proposed transmission line would not require any new access road grading that would result in modifications to ground surface features.

In areas of low relief along the existing DPV1 line right-of-way, a minimal amount of grading was done for the construction of spur roads and tower pads, thus minimizing disturbance to the existing terrain or ground surface within the right-of-way. Similar procedures would be utilized in construction of the spur road extensions and pads for the proposed Devers-Harquahala transmission line. Soil compaction along new spur roads in soft fluvent soils may result in

localized shallow depressions of the ground surface. These depressions would be limited to the spur roads and tower pads and would be insignificant.

Geologic or physical features that may be considered unique are desert pavements and sand dunes. The only extensive sand dune is located southeast of Ford Dry Lake in California. The access road along the existing alignment does not traverse this feature.

Desert pavement is common in the study area. As noted previously, impacts to desert pavement by spur roads and tower pads were minimized on the existing DPV1 line alignment by limiting or eliminating grading in areas of low relief terrain. Similar procedures would be utilized in constructing the spur roads and pads for the proposed Devers-Harquahala transmission line.

Operation of the proposed transmission line would have minimal impacts on geology.

To mitigate potential impacts to geology, mitigation measures specified in the 1989 BLM Right-of-Way Grant (Appendix B) would be applied, including 2-1, 2-6, and 2-9.

Soils

No significant impacts were identified to soils within the Arizona portion of the proposed Devers-Harquahala study corridor during construction of the existing DPV1 project. Soil erosion along the existing DPV1 transmission line and its access road, due to surface water runoff, has been minimal. The erosion that has occurred is localized and is largely the result of surface water eroding low fill slopes and local portions of the access road with steep gradients. Since the proposed transmission line would utilize existing access roads, and the major portion of the proposed route crosses relatively low relief terrain, the erosion impacts due to the new spur roads and tower pads would be insignificant.

5.1.4.2 California

Geology

No potentially significant impacts were identified for geology within the California portion of the Devers-Harquahala study corridor during construction of the DPV1 project. Similar to the Arizona portion of the corridor, the proposed transmission line would follow the alignment of the existing DPV1 transmission line and would utilize existing access roads. Except for spur roads in work areas within the existing right-of-way, construction of the proposed transmission line would not require any new access road grading that would result in modifications to ground surface features.

In areas of low relief along the existing DPV1 line right-of-way, minimal or no grading was done for spur roads and tower pads for its construction, thus disturbance to the existing terrain or ground surface was minimized. Similar procedures would be utilized in construction of the spur roads and pads for the proposed Devers-Harquahala transmission line. Soil compaction along new spur roads in soft fluvent soils may result in localized shallow depressions of the ground surface. These depressions would be limited to the spur roads and tower pads and would be insignificant.

The western portion of the proposed route is located in a seismically active region and crosses the active Banning and Mission Creek faults and the potentially active Mecca Hills Fault. The towers along the alignment in this area could likely be subject to severe seismic shaking within the lifetime of the proposed project. Stringing and wind loads are generally higher than seismic load on towers, so this potential impact is not considered significant to the operation of the proposed transmission line. Ground surface rupture also may occur at the line crossings of active faults. Towers would be located to avoid siting over an active fault trace. Landslides, mudslides, or other related ground failures are not considered to be a significant impact along the preferred alignment.

During the design life of the proposed project, moderate to high levels of ground shaking are possible given the seismic setting of the project area. Design-level studies would identify the hazard levels and present engineering recommendations to support appropriate seismic designs. Overhead transmission lines and substation equipment can be engineered and constructed to withstand strong motions and moderate ground deformation. For example, specific requirements for seismic design would be followed based on the Institute of Electrical and Electronic Engineers' 693 "Recommended Practices for Seismic Design of Substation." Strong ground shaking is considered during substation design, but is not as relevant to transmission line tower design because wind design criteria, which are considered, are more conservative than ground shaking considerations.

Geologic or physical features that may be considered unique are desert pavements and sand dunes. Impacts to these features would be insignificant as the access road along the existing alignment would be utilized. This access road does not traverse the only extensive sand dune found in the study area. The sand dune is located southeast of Ford Dry Lake in California, which is north of I-10.

Soils

No significant impacts were identified to soils within the California portion of the proposed Devers-Harquahala study corridor during construction of the DPV1 project. Soil erosion along the existing DPV1 transmission line and its access road due to surface water runoff has been minimal. The erosion that has occurred is localized and is largely the result of surface water eroding low fill slopes and local portions of the access road with steep gradients. Since the proposed Devers-Harquahala transmission line would utilize existing access roads, and the major portion of the proposed route crosses relatively low relief terrain, the erosion impacts due to the new spur roads and tower pads would be insignificant.

5.1.5 Hydrology

According to CEQA significance criteria, potential impacts to water quality could occur if the proposed transmission line were to cause one or more of the following:

- violation of any water quality standards or waste discharge requirements
- substantial depletion of groundwater supplies or interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level
- substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site
- substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase in the rate or the amount of surface runoff in a manner which would result in flooding on- or off-site
- creation or contribution to runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff
- placement of housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- placement of a structure within a 100-year floodplain structure that would impede or redirect flood flows

5.1.5.1 Arizona and California

The construction and operation of the proposed Devers-Harquahala transmission line is not expected to violate water quality standards or waste discharge requirements. No groundwater would be used for construction or operations; therefore, no impacts are expected to aquifer volume. There is a low potential for increased surface water runoff and sedimentation. Such an effect would be less than significant since existing access roads would be utilized, except for construction of spur roads and work areas. Washes would be spanned, where possible; therefore, no significant impacts are expected to streams or washes.

5.1.6 Air Quality

According to CEQA significance criteria, potential air quality impacts could occur if the project would:

- conflict with or obstruct implementation of applicable Air Quality Attainment Plan or Congestion Management Plan
- violate any stationary source air quality standard or contribute to an existing or projected air quality violation
- result in a net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold for ozone precursors)
- create or contribute to a non-stationary source "hot spot" (primarily carbon monoxide)
- expose sensitive receptors to substantial pollutant concentrations
- create objectionable odors impacting a substantial number of people

5.1.6.1 Arizona and California

CEQA requires Air Quality Management Districts in California to determine thresholds of significance for emissions. These emissions thresholds have been compiled based on the standards developed by SCAQMD and the MDAQMD. No local emissions thresholds exist for the portion of the proposed Devers-Harquahala transmission line that is located in Arizona. Table 5-1 lists the daily emission thresholds of significance in California for the construction components of the proposed Devers-Harquahala transmission line. Projects that produce pollutants that exceed the amounts listed may have a potentially significant impact on air quality.

Emissions results for the west of Devers 230kV transmission line upgrade are described in Section 5.2.6. Fugitive dust and vehicle emissions for the proposed west of Devers 230kV upgrade are included in Tables 5-2 through 5-4, in order to illustrate cumulative impacts for the California portion of the proposed Devers-Harquahala transmission line during construction.

TABLE 5-1
AIR POLLUTION CONTROL DISTRICT
SIGNIFICANCE IMPACT EMISSION THRESHOLDS (CONSTRUCTION)

Air Pollution Control District		Pollutant				
		CO	ROC	NO_x	SO_x	PM_{10}
SCAQMD	tons per year	99	10	10	27	27
	tons per quarter	25	2.5	2.5	7	7
	pounds per day	413	42	42	113	113
MDAQMD	tons per year	75	25	25	25	15
	tons per quarter	19	6	6	6	4
	pounds per day	313	104	104	104	63

Source: MDAQMD 2002; SCAQMD 2002
CO – carbon monoxide
ROC – reactive organic compounds
NO_x – nitrogen oxide
SO_x – oxides of sulfur
PM_{10} – particulate matter

TABLE 5-2
ESTIMATED CUMULATIVE FUGITIVE DUST PM_{10} EMISSIONS BEFORE MITIGATION

	PM_{10} (lbs/day)
Arizona (Devers-Harquahala)	273
California (Devers-Harquahala)	340
California (west of Devers upgrade)	114
California Emissions Total	**454**

TABLE 5-3
ESTIMATED CUMULATIVE FUGITIVE DUST PM_{10} EMISSIONS AFTER MITIGATION

	PM_{10} (lbs/day)	PM_{10} (tons/year)
Arizona (Devers-Harquahala)	62	7.2
California (Devers-Harquahala) (MDAQMD)	78	2.1
California (Devers-Harquahala) (SCAQMD)	78	9.2
California (west of Devers) (SCAQMD)	31	0.4
California SCAQMD Total	109	9.6
Assumptions based on five-day work weeks.		

TABLE 5-4
ESTIMATED CUMULATIVE DAILY EXHAUST EMISSIONS FOR CONSTRUCTION VEHICLES

	Emissions (lbs/day)				
	CO	**ROC**	**NO_x**	**SO_x**	**PM_{10}**
Arizona	236.3	61.7	445.4	76.7	32.4
California (Devers-Harquahala) (MDAQMD and SCAQMD)	236.3	61.7	445.4	76.7	32.4
California (west of Devers upgrade) (SCAQMD)	195.2	45.6	366.1	30.0	23.3
California SCAQMD Total	431.5	107.3	811.5	106.7	55.7
	Emissions (tons/year)				
	CO	**ROC**	**NO_x**	**SO_x**	**PM_{10}**
Arizona	27.3	7.1	51.4	8.9	3.7
California (Devers-Harquahala) (MDAQMD)	6.4	1.7	12.0	2.1	0.9
California (Devers-Harquahala) (SCAQMD)	27.8	7.2	52.3	9.0	3.8
California (west of Devers upgrade) (SCAQMD)	25.4	5.9	47.6	3.9	3.0
California SCAQMD Total	53.2	13.1	99.9	12.9	6.8

Source: Exhaust emissions factors found in Table A9-8-B of CEQA Air Quality Handbook. SCAQMD, revised 1993. Assumptions based on diesel fuel emissions, for eight-hour work day.

Construction

Based on the construction plan described in Section 3.5, a variety of truck auxiliary vehicles would be used over a 24-month period for construction. Construction would occur in phases starting at both endpoints. The phases include material processing, roads, foundations, tower assembly/erection, and conductor operations. As work on any one phase is completed, the construction crew moves on to the next segment and is followed by the crew responsible for the next phase of construction. The construction of the proposed Devers-Harquahala 500kV transmission line would produce emissions in the form of fugitive dust and exhaust from heavy equipment and support vehicles.

During construction of the proposed project, exhaust emission is produced by vehicles and other internal combustion equipment. These emissions are in the form of CO, ROC, NO_x, SO_x, and PM_{10}.

PM_{10} is also generated as fugitive dust emissions from ground clearing and grading, and dust generated from vehicle traffic at the construction site.

Based on the estimated total number of acres disturbed and the amount of fuel consumption per day, the total amount of unmitigated worst case PM_{10} fugitive dust emissions were calculated to be 454 pounds per day (lbs/day) for the SCAQMD (including Devers-Harquahala and west of Devers) and 340 lbs/day for the MDAQMD (Devers-Harquahala), as presented in Table 5-2 (SCAQMD 1993). Approximately 127 miles of the proposed Devers-Harquahala 500kV line are located in California. Within California, approximately 24 miles of the proposed line are within the MDAQMD and 103 miles are within the SCAQMD. Calculations assume that there would be grading operations performed on all of the development area in California and would include 114 lbs/day of PM_{10} for the west of Devers 230kV upgrade portion of the DPV2 project. The calculated value exceeds the construction emission threshold of 113 lbs/day developed by the SCAQMD and 63 lbs/day developed by the MDAQMD. However, implementation of the Best Available Control Measures (BACM) would be utilized in order to control dust emissions,

reducing the cumulative impact of the project to less than significant levels (see Table 5-3). These BACM mitigation measures are described in Section 6.1.6. Yearly emissions totals were calculated assuming a 24-month construction period for the Devers-Harquahala 500kV and the west of Devers portions of the proposed DPV2 project. The MDAQMD and SCAQMD totals were calculated (after mitigation) based on the percent of the line found in each district. These totals also are shown in Table 5-3.

The cumulative exhaust emissions produced from the vehicles and equipment used for construction also were calculated. A summary of the impacts produced from the vehicles and equipment used is presented in Table 5-4. The work schedule and total fuel consumed were used in the calculations and the emission rates were estimated based on the CEQA Air Quality Handbook. The estimated daily exhaust emissions would exceed the SCAQMD thresholds for CO, ROC, and NO_x and the MDAQMD threshold for NO_x. Yearly exhaust emissions would exceed the SCAQMD thresholds for ROC and NO_x and the MDAQMD for NO_x. Mitigation measures to reduce these impacts would include purchasing air emissions credits from the districts to offset the construction emissions.

The estimates of daily emissions are dependent on the activity of the equipment used. The estimates shown here were developed for the entire construction portion of the project. It was assumed that on any given day, the same number and types of vehicles are used for each portion of the Devers-Harquahala 500kV line construction; therefore, exhaust emissions would be the same. Yearly emissions were calculated assuming a 24-month construction period for the Devers-Harquahala 500kV and the west of Devers portions of the DPV2 project. The MDAQMD and SCAQMD totals were calculated based on the proportion of the line found in each district. As part of the construction contract, SCE would require bidders to submit a construction transportation plan describing how workers would travel to the job site.

Operation

Operation of the Devers-Harquahala 500kV transmission line would not produce significant emissions. There would be extremely small amounts of ozone produced due to corona discharge at the hardware/insulator assemblies. Some fugitive dust and vehicle emissions would be produced by maintenance activities. Overall, impacts to air quality due to the operation and maintenance of the transmission line would be less than significant.

5.1.7 Traffic and Transportation

According to CEQA significance criteria, potential impacts to traffic and transportation could occur based on the following:

- project would cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, volume to capacity ratio on roads, or congestion at intersections)

- project would exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways

- project would result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk

- project substantially increases hazards due to a design feature (e.g. sharp curves, dangerous intersections, or incompatible uses [e.g., farm equipment])

- project results in inadequate emergency access, inadequate parking capacity, or conflicts with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)

5.1.7.1 Arizona and California

Construction workers and supply vehicles would generate a less than significant amount of additional traffic in the area in which they are working. Because the work force would be divided into small crews working on different portions of the line, the additional traffic generated in any one area would be small and would occur for a short period of time. I-10 and numerous major arterials designed to accommodate large volumes of traffic are located near the proposed route. Access roads previously constructed for the existing DPV1 transmission line would be used for construction. Since construction would not require new access roads, new access for off-road vehicles would not be promoted. Road closures, if necessary, would be limited to short durations and periods of low volume traffic or in accordance with state departments of transportation policies. No long-term additional traffic from project operation would occur. The construction and operation of the proposed Devers-Harquahala 500kV line would not result in significant traffic impacts.

5.1.8 Biology

Under CEQA Significance Criteria (Appendix G of the revised CEQA Guidelines), a project would be considered to have a potentially significant biological impact if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS

- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

In general, the primary criteria for determining significance of an impact on biological resources are sensitivity ratings and regulatory protection assigned by federal and state resource agencies (e.g., USFWS, CDFG). Any activity within the proposed project area that results in the "take" of a federally or state-listed threatened or endangered species would be considered significant. To "take" is defined in the federal Endangered Species Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect an endangered or threatened species or to attempt to engage in any of these activities." Harm not only includes killing a species, but activities that modify or significantly degrade habitat that could result in death or injury to individual members of a species by significantly disrupting their essential behavioral patterns. The number of individuals impacted is not relevant to determining significance; if one individual is or could be impacted, then the impact would be considered significant. Because the impact is significant, mitigation would be required to reduce the impact to less than significant.

Four types of impacts to biological resources could result from the construction and operation of the proposed Devers-Harquhala transmission line, as follows:

- Direct impacts occur when biological resources are altered, disturbed, destroyed, or removed during the course of project implementation. Examples of direct impacts are loss of habitat as a result of grading, filling or "take" of a sensitive species.

- Indirect impacts occur when project-related activities impact biological resources in a manner other than direct. Potential indirect impacts include increased noise levels and non-native weed establishment.

- Permanent impacts result in the irreversible loss of biological resources. Examples include the removal of sensitive vegetation or vegetation that supports a sensitive species, or chronic disturbance of sensitive species during a critical time period (e.g., breeding season).

- Temporary impacts are reversible with the implementation of mitigation measures. Examples include the revegetation of an area cleared during construction, or short-term noise events associated with operations.

The following sections include summaries of potential impacts to sensitive plant and wildlife species that may result from construction and operation of the proposed Devers-Harquahala transmission line.

Related facilities include new telecommunications system facilities, series capacitor banks, shunt reactors, and additional equipment that would be installed at existing substations as described in Section 3.4, Chapter 3. New telecommunications facilities would be installed on existing properties at the Black Peak, Smith Peak, and Harquahala Mountain communication sites and within existing properties at Devers, Mirage, and Harquahala Generating Station substations.

The new Blythe Optical Repeater facility would be constructed within the proposed Devers-Harquahala 500kV right-of-way in California. The new series capacitor bank sites in Arizona and California would be located adjacent to the existing DPV1 capacitor banks. The description provided in Sections 4.1.8.1 and 4.1.8.2 of existing vegetation and wildlife resources within the Devers-Harquahala study corridor includes these sites.

Each of the communication and substation sites described above have previously been disturbed, and therefore construction of new facilities at these sites would not cause any substantial new ground disturbance. Therefore, impacts to vegetation and wildlife at these sites would be less than significant.

An assessment of habitat conditions was also undertaken at the Valley Substation. The facilities would be installed within the existing substation property. The substation property has been previously disturbed, and no endangered or threatened wildlife or plant species, or otherwise sensitive species are present or would be expected to occur at the site. Therefore, impacts to vegetation and wildlife at Valley Substation would be less than significant.

5.1.8.1 Arizona

Vegetation

Table 5-5 contains information on the estimated impacts to the various vegetation communities traversed by the proposed Devers-Harquahala study corridor in Arizona.

TABLE 5-5
POTENTIAL DIRECT TEMPORARY IMPACTS TO VEGETATION ASSOCIATIONS WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR BY TRANSMISSION LINE LINK – ARIZONA (ACRES)

Vegetation Association	Link 1a and 1b	Link 2	Link 6	Link 8	Total Acres
Creosote-bush scrub	0	53.7	0	0	53.7
Creosote bush – bursage scrub	176.2	88.6	33.0	1.8	299.6
Mixed paloverde-creosote bush scrub	1.8	1.8	35.0	0	39.4
Paloverde-ironwood/smoketree wash	0	56.2	2.8	0	59.0
Mesquite scrub dominated wash	7.8	0	0	0	7.8
Mixed paloverde and cactus	0	0	0	0	0
Mesquite and salt cedar riparian	0	0	0	1.4	1.4
Sand dune community	0	0	0	0	0
Agricultural	13.8	0	0	0	13.8
Total Disturbance	**199.6**	**200.3**	**71.6**	**3.2**	**474.7**

Source: Dames & Moore (1989)

Sensitive Plant Species

There are no federally listed threatened or endangered plants that have been documented in the Arizona portion of the Devers-Harquahala study corridor or are likely to be found there. Other sensitive plants known or likely to be found include Death Valley Mormon tea and straw-top cholla, both species that are tracked by the AGFD through the Heritage Data Management System.

There would be less than significant impacts to sensitive plants in the Arizona portion of the Devers-Harquhala study corridor. Straw-top cholla is common and widespread in western Arizona and eastern California. No individuals of Death Valley Mormon tea were found during field surveys of tower sites and access roads in 2002 and 2003.

Wildlife

During construction of the proposed Devers-Harquahala transmission line, impacts to general wildlife are expected. Individuals of fossorial species may be inadvertently killed when burrows are collapsed by heavy machinery. Depending on the season of construction, bird nests in cacti, shrubs, or trees could be destroyed. Similarly, highly cryptic nests of ground-nesting species may be accidentally destroyed. Wildlife may also be accidentally run over by vehicles, an impact type that could persist as long as the access road for the project is available to back-country motorists.

Sensitive Wildlife

There are no known federally listed wildlife species that are likely to occur in the Arizona portion of the proposed Devers-Harquahala study corridor with regularity. Yuma clapper rails pass through the corridor during migration where it crosses the Colorado River, but there is no nesting or loafing habitat for Yuma clapper rails at the crossing location of the proposed Devers-Harquahala transmission line. For this reason, the impact to any federally listed species would be less than significant.

Other sensitive wildlife species that may occur in the Arizona portion of the study area include desert tortoise (Sonoran population), Arizona chuckwalla, Mojave fringe-toed lizard, banded Gila monster, and desert rosy boa. The desert tortoise and the chuckwalla are likely to occur in upland areas, the Mojave fringe-toed lizard in sandy areas, and the Gila monster may be found in upland or lowland habitats. Sensitive bird species likely to be in this vicinity include western least bittern, great egret, snowy egret, white-faced ibis, and western burrowing owl. The herons and ibis are likely to be restricted to the Colorado River vicinity or irrigated agricultural areas, but the burrowing owl could be found in other habitats. Sensitive mammals in the transmission line corridor include California leaf-nosed bat, western yellow bat, pale big-eared bat, and desert bighorn sheep. All of these species, except the desert bighorn, are species that are monitored by

the AGFD's Heritage Data Management System. The desert bighorn is a high profile big game species that is intensely monitored by the AGFD.

Impacts to sensitive wildlife species in Arizona are expected to be less than significant. Most species, if impacted at all, would be temporarily disturbed by construction activity and noise, and most would be able to simply move away from the disturbance. It is possible that some individuals of desert tortoise, Gila monster, or rosy boa could be directly affected during construction of spur roads. Similarly, individuals of these species could be crushed by construction equipment and along access roads, especially in more upland, mountainous terrain. Sensitive bird species, mostly associated with the Colorado River crossing, are likely to simply move away from construction-related disturbance. There would be some minimal residual collision hazard for birds flying up and down the river and potentially running into conductors or static lines. It is highly unlikely that construction and operation of the proposed line would have any effect on any of the sensitive bat species that may occur in the proposed transmission line corridor. Desert bighorn sheep would be affected by construction activities in the KOFA NWR, New Water and Plomosa mountains, and in the Livingston Hills. The results of studies conducted on this population of bighorn between 1978 and 1984, however, suggest that the effects would neither be negative nor severe. In that study, the most significant effect of construction of the DPV1 line was that radio-collared animals spent more time in the construction zone during construction than they did before (four years of data) or after (two years of data) construction.

Indirect Impacts

Indirect impacts associated with the construction of the proposed transmission line could include an increase in non-native weed establishment and recruitment, particularly at tower sites, crane pads, material stockpile yards, and concrete batch plant sites.

5.1.8.2 California

Vegetation

Table 5-6 is a summary of potential impacts to general vegetation types within the California reach of the proposed Devers-Harquahala study corridor.

TABLE 5-6
POTENTIAL DIRECT TEMPORARY IMPACTS TO VEGETATION ASSOCIATIONS WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR BY TRANSMISSION LINE LINK – CALIFORNIA
(ACRES)

Vegetation Association	Link 8	Link 10	Link 12	Link 13	Link 14	Link 16	Total Acres
Creosote bush scrub	0	0	0	15.4	145.9	22.0	183.3
Creosote bush – bursage scrub	0	27.1	13.3	234.8	0	0	275.2
Paloverde-ironwood/ smoketree wash	0	0	0	68.8	0	0	68.8
Sand dune community	0	0	0	0	0	5.5	5.5
Agricultural	3.7	48.2	0	0	0	0	51.9
Total Disturbance	**3.7**	**75.3**	**13.3**	**319.0**	**145.9**	**27.5**	**584.7**

Source: Dames & Moore (1989)

Sensitive Plant Species

Field studies for rare plants in California revealed the presence of the following species that are federally listed or proposed for listing as threatened or endangered.

Scientific Name	Common Name	Status
Astragalus lentiginosus var. *coachellae*	Coachella Valley milkvetch	Endangered
Escobaria alversonii.	Cushion foxtail cactus	Species of Concern

Impacts to Coachella Valley milkvetch would be less than significant. There is evidence to suggest that the kinds of soil disturbances caused by electrical transmission line construction in milkvetch habitat may actually enhance populations. This is based on studies conducted by SCE following construction of DPV1. SCE biologists found Coachella Valley milkvetch populations

to be more robust in areas that had been disturbed by construction than in nearby, undisturbed areas. Impacts to cushion foxtail cactus would be significant unless mitigated.

Other plant species that may be adversely affected are listed in Table 4-34 and include triple-ribbed milkvetch and Little San Bernardino Mountains linanthus. The remaining sensitive plants of Riverside County that are listed in Table 4-34 have very little probability of occurring in the proposed Devers-Harquahala study corridor and none were detected during field surveys of tower sites and access roads in 2002 and 2003. Impacts to non-federal sensitive plant species are expected to be less than significant owing to an apparent absence of populations of these species within the Devers – Harquahala study corridor. Neither the triple-ribbed milkvetch, nor the Little San Bernardino Mountains linanthus, have been found within the study corridor during surveys conducted in 1987, 1994, 2002, and 2003.

Wildlife

Construction of the California portion of the proposed Devers-Harquahala transmission line could impact wildlife as a result of burrows being collapsed by heavy equipment, animals being inadvertently run over by construction vehicles, and generally being disturbed by the presence of people and machines. Depending on the season of construction, bird nests could be destroyed as a result of clearing of shrubs, trees, or cacti from spur roads and/or tower sites.

Sensitive Wildlife

Federally listed wildlife species, or potential habitat thereof, found during field surveys in California include the following:

Scientific Name	Common Name	Status
Phrynosoma mcallii	Flat-tailed horned lizard	Proposed Threatened
Gopherus agassizii	Desert tortoise	Threatened (California threatened)
Uma inornata	Coachella Valley fringe-toed lizard	Threatened (California endangered)
Spermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel	Candidate (California species of concern)

Potential habitat for flat-tailed horned lizard, Coachella Valley fringe-toed lizard, and Palm Springs round-tailed ground squirrel was found during field surveys in 2002 and 2003. Desert tortoise and sign thereof were found at several locations in 2002 and 2003 in the proposed Devers-Harquahala study corridor.

Potential impacts to desert tortoise, Coachella Valley fringe-toed lizard, and Palm Springs round-tailed ground squirrel are considered to be potentially significant, but would be mitigated to less than significant. It is anticipated that the USFWS would provide mitigation recommendations as part of the Section 7 Consultation process for the DPV2 project.

A number of other sensitive (e.g., federally listed or proposed) wildlife species may occur in the California portions of the study area along the Colorado River. These include several species of fishes and birds, including southern bald eagle, Yuma clapper rail, western snowy plover, mountain plover, western yellow-billed cuckoo, and southwestern willow flycatcher. Of these species, the cuckoo, rail, and flycatcher could nest in the vicinity of the proposed crossing, if suitable riparian habitat is available.

Construction of the proposed transmission line would avoid any disturbance of riparian or aquatic habitats on the Colorado River. Consequently, impacts to these species by construction or operation of the proposed transmission line would be less than significant.

A number of species listed in the California Natural Diversity Database (CDFG 2003) also are likely to occur within California portions of the study corridor. Possible sensitive reptiles include chuckwalla, Mojave fringe-toed lizard, and desert rosy boa. Sensitive bird species in the

California portion of the study corridor include western least bittern, snowy egret, white-faced ibis, ferruginous hawk, Swainson's hawk, California black rail, elf owl, western burrowing owl, Gila woodpecker, loggerhead shrike, and LeConte's thrasher. Sensitive mammal species in this vicinity also may include California leaf-nosed bat, pale big-eared bat, pallid bat, and western yellow bat.

Impacts to these species include disturbance during construction, loss of habitat, loss of prey species and/or habitat thereof, incidental crushing of less mobile forms on access roads and in work areas, and crushing or smothering of individuals sequestered in burrows on work sites. Impacts to the more mobile forms (birds and bats) would be less than significant, owing to their ability to move away from disturbance. Habitat loss for these species will be less than significant and of short term in a regional sense.

Impacts to the sensitive reptile species are considered to be potentially significant and would be mitigated in order to reduce the impact to less than significant.

Indirect Impacts

Indirect impacts associated with construction within the proposed Devers-Harquahala corridor could include an increase in non-native weed establishment and recruitment, particularly at tower sites, crane pads, materials stockpile yards, and concrete batch plants. It is at these sites that soil surface disturbance is likely to be greatest, thus encouraging establishment of invasive, weedy species.

5.1.9 Noise

According to CEQA significance criteria, potential noise impacts can occur based on the following:

- exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels
- substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project
- substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, where the project would expose people residing or working in the project area to excessive noise levels
- for a project within the vicinity of a private airstrip, where the project would expose people residing or working in the project area to excessive noise levels

5.1.9.1 Arizona and California

Construction

The noise associated with the construction activities would be due to equipment operation. The noise levels produced within the corridor would depend on the number of operating machines and the distance to the nearest sensitive receiving source property line. Typical noise levels associated with construction equipment falls in the range of 80 to 100 dBA (at a range of 50 feet from the active construction site). For the proposed transmission line, most of the corridor is in vacant desert land; however, there are isolated areas with residences within 350 feet of construction. Noise associated with construction would be masked by other sources of noise (i.e., I-10 and other high volume streets) and would be inaudible at large distances.

The proposed Devers-Harquahala construction would comply with local noise ordinances. Typical municipal ordinances stipulate that activities producing ambient noise should not exceed 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at residential property lines or sensitive areas. However, exemptions include temporary construction during daytime hours except on Sundays and federal holidays. There may be a need to work outside of the aforementioned local ordinances in order to take advantage of low electrical draw periods during the nighttime hours. SCE would comply with variance procedures established by local authorities if a variance is required.

Operation

The major sources of ambient noise in the area are due to I-10, aircraft flyovers, local traffic, activities at business locations, various recreational activities, and the existing DPV1 transmission line. The proposed Devers-Harquahala 500kV transmission line would slightly increase the noise level within the corridor. However, the increase would not be audible at the nearest sensitive receptors relative to the existing ambient noise levels and the distance from the

source. There are no residences or other sensitive receptors located within audible range of the proposed series capacitor stations. Noise impacts would be less than significant.

5.1.10 Public Services and Utilities

According to CEQA significance criteria, potential impacts to public services could occur based on the following:

- project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services including fire protection, police protection, schools, parks, and other public facilities

5.1.10.1 Arizona

Since most community services are provided to local residences and employee relocation would be temporary, no significant impacts on public services including medical, police, fire, and emergency are anticipated. Services to construction workers would not exceed the level that local facilities are equipped to provide for visitors or temporary workers in the area. In addition to the medical facilities available in the small communities near the proposed route, numerous medical facilities equipped to handle all levels of emergency medical situations are located in the greater Phoenix metropolitan area.

5.1.10.2 California

Since most community services are provided to local residences and employee relocation would be temporary, no significant impacts on public services including medical, police, fire, and emergency are anticipated. Services to construction workers would not exceed the level local facilities are equipped to provide for visitors or temporary workers in the area. In addition to the medical facilities available in the small communities near the proposed route, numerous medical facilities equipped to handle all levels of emergency medical situations are located on the western end of the proposed route near Devers. These include medical facilities in the cities of Palm Springs, Rancho Mirage, and Indio. Cathedral City also has two general hospitals.

5.1.11 Visual Resources

The impact analysis was based on the BLM's VRM System 8400 series (BLM 1984) as well as previous transmission line visual impact assessments in response to CEQA environmental criteria for aesthetics. This section focuses on potential impacts resulting from the construction and operation of the proposed Devers-Harquahala 500kV transmission line. CEQA provides specific significance criteria relating to visual impacts. According to the criteria, significant visual impacts could occur if the project would:

- substantially degrade the existing visual quality of the site and its surroundings
- have a substantial adverse effect on a scenic vista
- substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- create a new source of substantial light or glare adversely impacting day or nighttime views in the area

Visual impacts associated with the proposed Devers-Harquahala transmission line include short-term impacts resulting from the presence of vehicles and equipment during construction, and long-term impacts resulting from the presence of the proposed transmission line facilities over their lifetime.

The measure of potential adverse impacts on visual resources is based on visual contrast. Visual contrast is a measure of the degree of perceived change that would occur in the landscape due to the construction and operation of the proposed Devers-Harquahala transmission line. Visual contrast typically results from (1) landform modifications that are necessary to upgrade and construct new access roads and tower pad sites, (2) removal of vegetation to construct roads and maintain right-of-way and ground clearance zones associated with the conductors and towers, and (3) introduction of new structures in the landscape.

The visual contrast assessment was performed by comparing landscape elements (form, line, color, and texture) of the existing landscape with the elements associated with the proposed transmission line facilities including new structures (towers, hardware, equipment, and conductors) and new or improved access. In this regard, landform, vegetation, and structural elements in the landscape were evaluated in conjunction with the proposed (newly introduced) transmission line, and assigned degrees of change/contrast ranging from strong to moderate, weak, or none. Contrast evaluations were performed from selective key viewpoints representing typical views of the project, including the documentation of existing and simulated conditions as illustrated in Figures 5-1 through 5-3.

5.1.11.1 Arizona and California

Following is a summary of visual impacts based on the criteria as identified by CEQA.

Substantially Degrade the Existing Visual Quality of the Site and Its Surroundings

Impacts to scenic quality would occur in areas of Class A scenery and where construction and operation of the proposed Devers-Harquahala transmission line would result in strong contrast with the natural landscape setting. The proposed Devers-Harquahala transmission line crosses the Dome Rock Mountains and the Colorado River, which have a designation of Class A scenic quality. However, because the proposed transmission line would be located adjacent to existing transmission lines, with existing access and other land modifications, the resulting contrast and impacts are anticipated to be minimal.

Visual impacts would result from the visibility of the proposed Devers-Harquahala transmission line from sensitive viewpoints and from the contrast of the proposed facilities within the existing setting. Viewer impacts consist of potential effects to views from residences, park and recreation areas, and travel routes and highways. However, since the transmission line route would be constructed within designated BLM utility corridors, parallel to existing 500kV transmission lines with similar structures, and the use of existing access roads, the contrast is expected to be weak. The impact would therefore be less than significant. This would apply to both existing viewers and viewers associated with planned future use.

Residential Viewers

Typically, foreground to background views from a high-sensitivity viewpoint of the proposed transmission line, combined with a weak project contrast, would result in impacts that are not considered significant. This is the case with dispersed residences located adjacent to the proposed project in both Arizona and California, where the proposed line would directly parallel existing transmission lines including the existing DPV1 500kV transmission lines, and additional 230kV lines near Devers. Areas of residential viewers that would be impacted by the proposed Devers-Harquahala transmission line in Arizona include dispersed residences associated with the agricultural lands in the Harquahala Valley and north of the Eagletail Mountains, and from

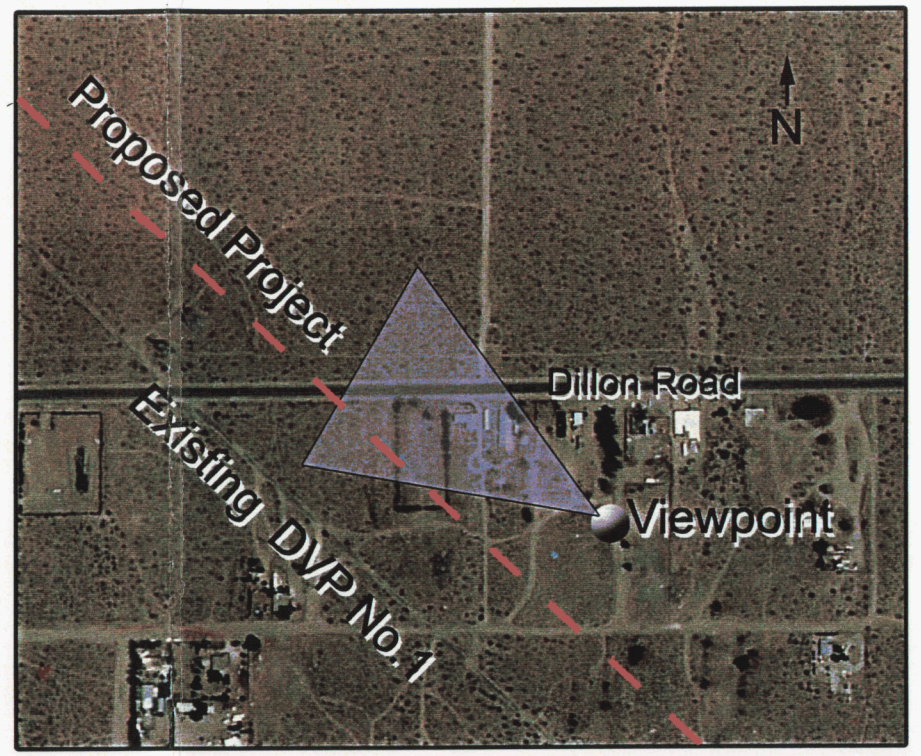
isolated residences adjacent to the KOFA NWR. In California, residential viewers potentially affected by the project include dispersed locations south of Blythe and near Indio and Palm Desert. In the vicinity of the Devers Substation (Link 16), where residences have immediate foreground views of the proposed transmission line, the impacts are minimized because of the highly modified existing conditions, the presence of existing transmission lines in the foreground view, and wind turbines scattered throughout the middleground and background (see simulations, Figures 5-1 and 5-2). Therefore, impacts to residential viewers are anticipated to be less than significant.

Travelway Viewers

Potential impacts of short duration to travelway viewers would result from the proposed transmission line crossing or paralleling I-10 (see simulation, Figure 5-3). Similar impacts to views would occur from other travel routes including crossings of the Salome-Tonopah Road and SR 95. Additional impacts would occur to viewers from travel routes parallel to the proposed transmission line or with middleground views of the proposed transmission line such as portions of I-10, CA 111, and SR 74. However, because the proposed Devers-Harquahala transmission line would be constructed adjacent to existing 500kV transmission lines, impacts are anticipated to be less than significant.

Existing Condition - Transmission line corridor in the foreground and San Bernardino Mountains and wind farm in the background.

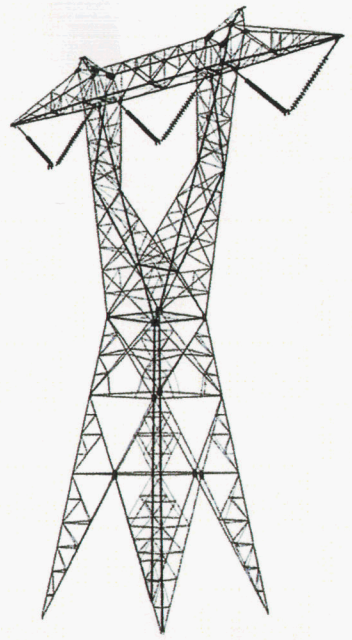
Photograph taken 12/11/03 at 11:10 a.m. using a 50mm focal length.



Viewpoint located north of Palm Springs at residence south of Dillon Road looking west-northwest towards proposed project, approximately 1/4 mile from the tower in the center of view.

Simulation - Transmission line corridor with proposed Devers-Palo Verde No. 2 500kV lattice steel structure transmission line.

This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.



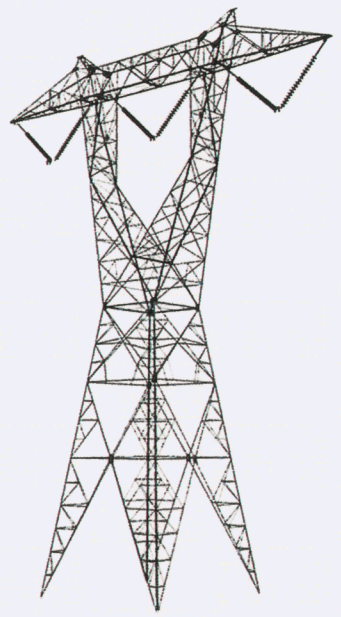
Typical 500kV single-circuit lattice steel tower. Proposed towers are simulated to match existing tower heights and spans.

Figure 5-1

Existing Condition - Transmission line corridor in the foreground and Little San Bernardino Mountains and Desert Hot Springs in the background. Photograph taken 12/11/03 at 11:27 a.m. using a 50mm focal length.

Viewpoint located north of Palm Springs at residence south of Dillon Road looking north-northeast towards proposed project, approximately 1/4 mile from the tower in center of view.

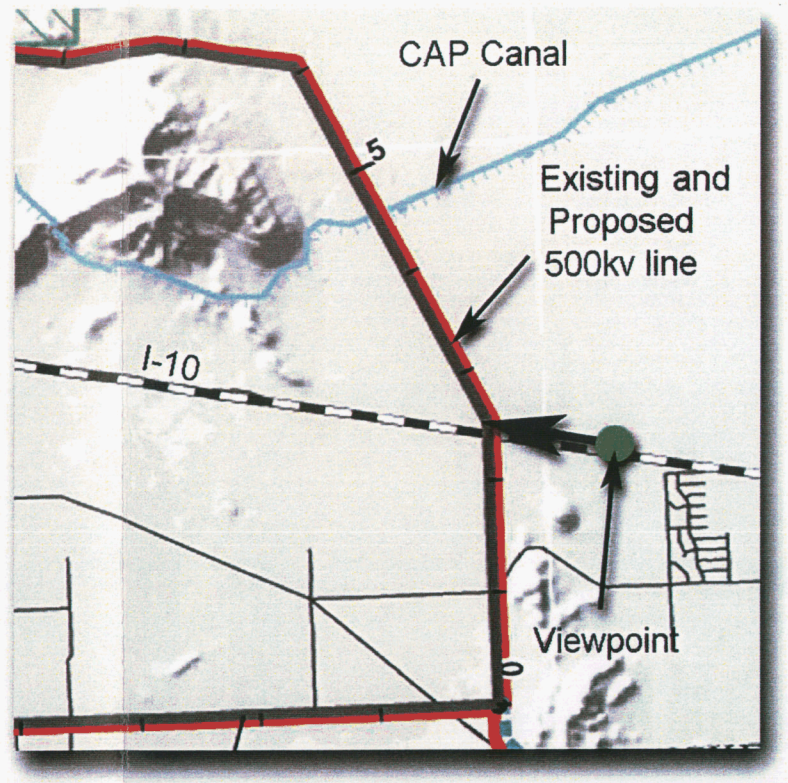
Simulation - Transmission line corridor with proposed Devers-Palo Verde No. 2 500kV lattice steel structure transmission line.
This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.



Typical 500kV single-circuit lattice steel tower used in simulations. Proposed towers are simulated to match existing tower heights and spans.

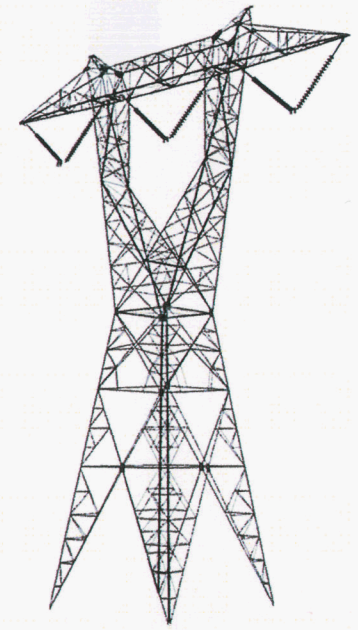
Figure 5-2

Existing Conditions - Transmission line corridor crossing Interstate 10 west of Tonopah, Arizona.
Photograph taken 7/26/04 at 12:26 p.m. using a 50mm focal length.



Viewpoint located along Interstate 10 west of Phoenix, Arizona looking west across the proposed project, approximately 0.6 mile from route crossing.

Simulation - Transmission line corridor crossing Interstate 10 west of Tonopah, Arizona with proposed Devers-Palo Verde No. 2 500kV lattice steel structure transmission line.
This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.



Typical 500kV single-circuit lattice steel tower used in simulations.
Proposed towers are simulated to match existing tower heights and spans.

Figure 5-3

Recreation/Open Space Viewers

Impacts would occur to recreational users of the Colorado River, and park and recreation areas near the river. Impacts to recreational users of KOFA NWR would result from the proposed transmission line crossing through the valley and foothill area south of the Plomosa Mountains. Additional impacts to recreation areas include views from the La Posa Visitor Area and views from the Big Horn and Eagletail mountains. However, because the proposed project is located adjacent to the existing DPV1 500kV transmission line, contrast levels are low and impacts are anticipated to be less than significant.

Substantial Adverse Effect on Scenic Vistas

There would be no adverse effect on scenic vistas because there are no state-designated scenic vistas within the proposed Devers-Harquahala transmission line study corridor.

Substantially Damage Scenic Resources Including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings Within a State Scenic Highway.

The proposed Devers-Harquahala transmission line would not cross or affect any state scenic roads or highways. Therefore, there are no anticipated impacts to state scenic highways.

Create a New Source of Substantial Light or Glare Adversely Impacting Views

Construction of the proposed Devers-Harquahala transmission line would normally occur during daylight hours. No additional sources of light or glare would be created, as non-specular conductors would be utilized, and the finish on structures would be dulled.

5.1.12 Cultural Resources

Potential impacts to cultural resources could occur if the project would:

- cause a substantial adverse change in the significance of a historical resource
- cause a substantial adverse change in the significance of an archaeological resource
- directly or indirectly destroy a unique paleontological resource or site or unique geological resource
- disturb any human remains, including those interred outside of formal cemeteries

5.1.12.1 Arizona

Archaeology

Two archaeological sites have been identified within the proposed project APE: AZ S:8:1 (ASM) and AZ S:8:14 (ASM). Of these, only AZ S:8:1 (ASM) has been determined eligible for the NRHP. Artifacts from AZ S:8:1 were collected and analyzed as part of the original DPV1 project (Carrico and Quillan 1982) and the site artifacts identified during the Class III survey for the present project (Dobschuetz et al. 2004) were similar to those previously collected and analyzed. As a result, it was concluded that the data potential for the portion of AZ S:8:1 (ASM) located within the project APE appear exhausted. Therefore, no impacts to significant archaeological resources are anticipated by construction of the proposed Devers-Harquahala transmission line.

Ethnography

Because the proposed transmission line would be constructed adjacent to the existing DPV1 500kV transmission line, indirect effects to TCPs or potential TCPs are considered negligible. No TCPs or potential TCPs have been identified within the project APE (defined as within 100 feet of project tower pads and access roads). Apart from archaeological sites within the APE, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by the proposed transmission line. BLM staff has indicated that they would consult with appropriate Native American groups regarding project effects on traditional cultural values within the context of the BLM's government-to-government responsibility with Native American tribes (personal communication, Wanda Raschkow 2004).

History

One archaeological site, AZ R:7:113 (ASM), was identified during the Class III survey within the project APE (Dobschuetz et al. 2004). This site is described as a historic-era artifact scatter and was not deemed NRHP eligible. No effects to NRHP eligible historic-era resources are expected as a result of construction and operation of the proposed transmission line.

Paleontology

Approximately 88.7 miles of high or undetermined areas of paleontological sensitivity are crossed by the proposed Devers-Harquahala study corridor between the Harquahala Substation and the Arizona/California border (Links 1a, 1b, 2, 6, and 8). Potentially significant paleontological specimens may be impacted by excavation of tower footings and grading of access spur roads in these areas (Scott 2003).

5.1.12.2 California

Archaeology

Eighteen NRHP eligible or potentially eligible archaeological resources have been identified within the proposed project APE. These resources are designated RIV-53T(c), RIV-53T(d), RIV-250T, RIV-343T(b), RIV-343(c), RIV-650T, RIV-673T, RIV-1119, RIV-1383, RIV-1813, RIV-1814, RIV-1815, RIV-1816, RIV-1819, RIV-1821, RIV-1822, P33-13574, and P33-13576. Potential impacts to these resources could result from earth-disturbing construction activities including tower pad and access road grading, footing digging, tower erection, and conductor pulling and splicing.

Ethnography

Because the proposed Devers-Harquahala transmission line would be constructed adjacent to the existing DPV1 500kV transmission line, indirect effects to TCPs or potential TCPs are considered negligible. Only one TCP or potential TCP has been identified within the project APE (defined as within 100 feet of project tower pads and access roads). This is Edom Hill forming the northwestern end of the Indio Hills. The hill is considered sacred to the Agua Caliente Indian Tribe. The study corridor crosses approximately 3 miles of the lower slopes of Edom Hill including 0.1 mile of Agua Caliente Indian Reservation land. Incremental effects to the Native American belief system from construction of the proposed project are thought to be minimal due to the presence of the DPV1 transmission line and a gas pipeline in the same area. Other potential ethnographic issues in the project APE are effects to archaeological sites, about which Native Americans have expressed a general concern.

BLM staff has indicated that they would consult with appropriate Native American groups regarding project effects on traditional cultural values within the context of the BLM's

government-to-government responsibility with Native American tribes (personal communication, Wanda Raschkow 2004).

History

Thirteen NRHP eligible or potentially eligible historic-era resources have been identified within the project APE. These resources are designated RIV-1117H(a), RIV-1117H(b), RIV-1809H, RIV-1810H, RIV-7489H, RIV-7490, P33-13588, P33-13596, P33-13598, P33-13600, P33-13601, P33-13602, P33-13603. Potential project impacts to these resources could result from earth-disturbing construction activities including tower pad and access road grading, footing digging, tower erection, and conductor pulling and splicing.

Paleontology

Between the California border and Devers (Links 10, 12, 13, 14, and 16) the study corridor traverses approximately 31 miles of high or undetermined areas of paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium in Links 10, 13, and 14; Eocene Maniobra Formation rocks in Link 13; and Ocotillo Conglomerate and Pliocene non-marine sediments in Link 14. Potentially significant paleontological specimens may be impacted by excavation of tower footings and grading of access spur roads in these areas (Scott 2003).

5.1.13 Public Health and Safety

According to the CEQA significance criteria, potential hazards or hazardous materials impacts that may be caused by the project include the following:

- creation of a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous waste

- creation of a significant hazard to the public or the environment though reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment

- reasonable anticipation to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school

- if the project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment

- if the project is located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area

- if the project is within the vicinity of a private airstrip, and would result in a safety hazard for people residing or working in the project area

- if the project would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan

- exposure to people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

Potential impacts to public health and safety could occur during construction or operation of the proposed project, as follows.

5.1.13.1 Hazardous Materials

A hazardous substance is any substance that the EPA has designated as hazardous, dangerous, or toxic under the Clean Air Act, 42 U.S.C. 7401 et seq., the Clean Water Act, 33 U.S.C. 1251 et seq., the Toxic Substances Control Act, 15 U.S.C. 2601 et seq., the Comprehensive Environmental Response, Compliance, and Liability Act, as well as any hazardous waste under the Resource Conservation and Recovery Act of 1976. The Occupational Safety and Health Administration (OSHA) and the EPA at the federal level, and the California Occupational Safety and Health Administration (Cal/OSHA) and the California Environmental Protection Agency (Cal/EPA) at the state level, regulate hazardous materials. Cities and counties also regulate hazardous materials.

Project construction activities would involve the operation of heavy equipment and support vehicles on site. The presence of hazardous materials or hazardous wastes within the project area could pose a threat to the environment only if substances were improperly stored or handled, if construction equipment were to leak or spill petroleum or hydraulic fluids, or if hazardous materials are encountered during excavation of foundations resulting in inadvertent releases to the environment. Operation of the proposed DPV2 project would not cause the routine transport, use, or disposal of hazardous materials. Measures to avoid and/or minimize impacts from hazards or hazardous materials have been included as part of the project design or would be incorporated per regulation and SCE standard construction, operation, and maintenance procedures. A hazardous substance management, handling, storage, disposal and emergency response plan would be prepared, implemented, and kept on site (or in vehicles) during construction and maintenance of the project. To minimize, avoid and/or clean up any hazardous material, should an unforeseen spill occur, SCE and its contractors would be responsible for following SCE's Storm Water Pollution Prevention Plan (SWPPP).

The majority of the proposed transmission line project construction would be located within SCE fee-owned rights-of-way or easements granted to SCE. Within areas subject to new right-of-way acquisition, SCE would conduct an Environmental Site Assessment (ESA). The ESA (also

known as a Phase I review) includes a review of published information, aerial photographs, and environmental databases; interviews with persons knowledgeable about the area; and site inspections to identify sites located within or near the designated area of construction that have a potential to release hazardous materials to the subsurface in actionable concentrations. Further investigation in the form of a Preliminary Site Investigation would be performed within areas of concern if and where warranted by the findings of the ESA.

5.1.13.2 School Facilities

Project construction and operations would not occur on any school sites. There would be a very low risk of emitting hazardous materials, substances, or waste within ¼ mile of an existing or proposed school. No schools were identified within ½ mile from the project right-of-way, and no temporary construction areas would be located within ¼ mile of any existing school site.

5.1.13.3 Airport and Airstrip Operations

The proposed transmission line would not impact operation of any airport or private airstrip. The proposed route is located adjacent to an existing 500kV transmission line and would therefore not create a new safety hazard for people residing or working in the project area.

5.1.13.4 Emergency Response or Evacuation Plans

The risk of wildland fires in the project area is possible given the dry climate and vegetation in the existing rights-of-way. The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan, nor would it cause people or structures to be exposed to wildland fires. SCE would minimize fire risk of loss,

injury, or death as a result of fire during construction by maintaining brush clearance in accordance with applicable local, state, and federal laws.

5.2 WEST OF DEVERS 230kV TRANSMISSION UPGRADE

5.2.1 Introduction

The proposed DPV2 project would require upgrades to SCE's existing 230kV transmission system west of Devers. The existing 230kV system west of Devers includes two 230kV circuits connecting Devers and Vista substations and two circuits connecting Devers with the San Bernardino Substation located at the San Bernardino Generating Station (see Figure 3-7a). San Bernardino Junction is the term used to identify the intersection of the 230kV transmission line corridors that meet 3.4 miles south of the San Bernardino Substation. This section includes the summary of impacts that would occur for each affected resource with respect to the 230kV upgrade for the DPV2 project. Potentially significant impacts are described in Chapter 6.

5.2.2 Land Use

The proposed transmission corridor upgrade involves four transmission lines, the Devers-San Bernardino No. 1 and No. 2 230kV, and the Devers-Vista No. 1 and No. 2 230kV transmission lines. The upgrade would utilize existing access roads. The transmission lines are located within an existing transmission corridor; therefore, the majority of impacts to land use are expected to be minimal.

The corridor has been established and therefore would not cause a divide within an existing or planned community. No conflicts would occur with existing general plans for communities within the study area. Additionally, no conflicts with habitat conservation plans or natural

community conservation plans would occur. However, land uses may be affected by the construction and operational phases of the proposed project, described as follows.

5.2.2.1 Construction

Since no additional right-of-way would be required for the 230kV upgrade project, there would be no direct impacts to existing residences.

Link 102 would cross a cemetery at Milepost 1 in Banning. Impacts to the cemetery would be less than significant because the cemetery would be spanned by the conductors and ground disturbance would be avoided during construction.

Mileposts 3.5 and 8 of Link 101 cross existing material extraction mines. Temporary impacts may occur during construction if mining operations are impeded but would be of short duration and therefore would be less than significant.

Using the acreage assumptions described in Section 3.5.5.2, approximately 0.8 acre of agricultural land would be temporarily disturbed during construction of the project along Links 102 and 104. Potential impacts during the construction phase to irrigated cropland within the right-of-way would result from the temporary removal of cropland from production and interference with tilling/irrigation patterns and potential conflict with agricultural aviators due to temporary laydown areas, tensioning, and pulling sites. Additional impacts could occur due to restricted agricultural vehicular access.

Various parks and recreational facilities located within the right-of-way may be affected by construction activities. Noble Creek Regional Park (Link 102, Milepost 7), Oak Valley Golf Course (Link 102, Mileposts 7.5 and 8), and the Pacific Crest Trail (Link 100, Milepost 7) would incur temporary impacts during construction. The impacts are associated with a temporary disruption of recreation activities in these areas.

5.2.2.2 Operation

Long-term operational impacts would occur along Links 102 and 104 where transmission line structure foundations would permanently remove active agricultural land out of production and interfere with tilling and irrigation patterns. Additional impacts would occur if towers are placed within an orchard. However, if the orchards are spanned and the clearances maintained, minimal impacts would occur.

Operational impact also would occur in the vicinity of the extraction mines located under Link 101. However, no long-term operational impacts would occur if the material extraction mines can be spanned.

5.2.3 Socioeconomics, Population, and Housing

The construction of the proposed project would not have a significant impact on the population or housing of the communities through which it passes west of Devers. The construction industry has an adequate local workforce in Riverside and San Bernardino counties, and much of the labor force may commute locally, alleviating the need for temporary housing. The total workforce would be less than 0.1 percent of the Riverside or San Bernardino county employment base.

The construction workforce for the west of Devers 230kV transmission upgrade project is expected to be contractors who may reside in southern California. Construction worker immigration to the area is expected to be a minor component of the total labor force. Should temporary housing be needed, the area is highly developed and has adequate housing facilities.

Any worker expenditures in these communities would represent a small, short-term benefit to some businesses in the vicinity of the proposed corridor.

According to the analysis conducted for this study, property tax revenues paid in California for the 230kV upgrade project would be less than one percent of the total assessed valuation in 2003 (refer to previous Section 5.1.3.2).

5.2.4 Geology and Soils

5.2.4.1 Geology

No potentially significant impacts were identified for geology within the west of Devers 230kV upgrade study corridor. The proposed route would follow an existing transmission corridor and would utilize existing access roads. Except for potential upgrades to existing tower sites and select new tower locations, construction of the proposed transmission line would not require grading that would result in modifications to ground surface features.

To mitigate potential impacts to geology that might result from construction of the proposed upgrade, mitigation measures specified in Section 6.2.4 of this PEA would be applied.

5.2.4.2 Soils

No significant impacts were identified to soils within the west of Devers 230kV transmission upgrade study corridor. Since the proposed project would utilize existing access roads, and the major portion of the proposed route crosses relatively low relief terrain, the erosion impacts due to select new tower pads would be less than significant.

To mitigate potential impacts to soils that might result from construction of the proposed upgrade, mitigation measures specified in Section 6.2.4 of this PEA would be applied.

5.2.5 Hydrology

No potentially significant impacts were identified for hydrology. The proposed west of Devers transmission upgrade would be built within an existing corridor with tower placements designed to avoid washes, where possible. The transmission upgrades would not deplete groundwater supplies or alter the drainage pattern of an area.

To mitigate potential impacts to hydrology that might result from construction of the proposed upgrade, mitigation measures specified in Section 6.2.5 of this PEA would be applied.

5.2.6 Air Quality

5.2.6.1 Construction

Based on the construction plan for the proposed west of Devers upgrade (Section 3.5.2.2), a variety of truck auxiliary vehicles would be used over a 24-month period of construction. Construction would occur in phases, and would include structure removal, material processing, roads, foundations, tower assembly/erection, and conductor operations. As work on any one phase is completed, the construction crew moves on to the next segment and is followed by the crew responsible for the next phase of construction. The construction of the west of Devers 230kV transmission upgrade would produce emissions in the form of fugitive dust and exhaust from heavy equipment and support vehicles. Equipment used for the construction of the west of Devers portion of the proposed DPV2 project was assumed to be the same as that of the Devers-Harquahala 500kV portion.

Based on the total number of acres developed and the amount of fuel consumption per day, the total amount of PM_{10} fugitive dust emissions were calculated to be 114 lbs/day as an unmitigated worse case for the west of Devers 230kV portion of the project (see Table 5-2, Section 5.1.6.1). The estimate assumes that there would be grading operations performed on all areas disturbed by

construction activities. The estimated PM_{10} cumulative dust emissions for California are 454 lbs/day. The calculated value would exceed the SCAQMD construction emission threshold of 113 lbs/day. Implementation of the BACM would be utilized in order to further reduce dust emissions, reducing the cumulative impact of the project to 109 lbs/day (see Table 5-3).

The cumulative exhaust emissions produced from the vehicles and equipment used for the project were also calculated. A summary of the estimated levels of vehicle and equipment emissions are provided in Table 5-4. The work schedule and total amount of fuel consumed were used to calculate emissions levels and the emission rates were taken from the CEQA Air Quality Handbook (SCAQMD 1993). Cumulative daily exhaust emissions for California are shown on Table 5-4.

5.2.6.2 Operation

Operation of the 230kV upgrade would not produce significant emissions. There would be minute amounts of ozone produced due to corona discharge at the hardware/insulator assemblies. Minimal fugitive dust and vehicle emissions would be produced by maintenance activities. Overall, impacts to air quality due to the operation and maintenance of the transmission line would be less than significant.

5.2.7 Traffic and Transportation

Construction workers and supply vehicles would generate an insignificant amount of additional traffic in the area in which they are working. Because the workforce would be divided into crews working on different portions of the line, the additional traffic generated in any one area would be small and would occur for short periods of time. In addition, I-10 and numerous major arterials designed to accommodate large volumes of traffic are located near the proposed route, and new access roads would not be required for construction of the proposed project. Since

construction would not require new access roads, new access for off-road vehicles through undeveloped areas would not be promoted. Road closures, if necessary, would be limited to short durations and periods of low volume traffic or in accordance with state departments of transportation policies. No additional long-term traffic from project operation would occur.

5.2.8 Biology

Vegetation

Possible impacts associated with construction of the proposed west of Devers 230kV transmission upgrade are summarized below. The segment includes approximately 40 miles of existing right-of-way from Devers to San Bernardino Junction within which new tower construction and tower removals are planned. This area would include approximately 73 acres of habitat for plants and wildlife that may be disturbed. Areas disturbed during construction may be less than estimated based on the specific locations of new structures determined in final design, and potential utilization of existing access roads for construction. No new access roads would be required for reconductoring activities between San Bernardino Junction and Vista Substation, or between San Bernardino Junction and San Bernardino Substation, resulting in a minimal level of potential disturbance.

Table 5-7 summarizes the potentially affected area by vegetation associations where the proposed west of Devers upgrade from Devers to San Bernardino Junction may cause a loss of habitat. Approximately 35 acres (48 percent) are characterized as ruderal and degraded areas, or non-native grasslands, unlikely to support sensitive species or native vegetation. The remaining 38 acres are mainly chaparral or scrub habitats, with the exception of 1.3 acres (1.8 percent) of riparian habitat types and 1.9 acres (2.6 percent) of Riversidean sage scrub chaparral. The latter habitat types may support several sensitive plant and wildlife species, including coastal California gnatcatchers, a federally threatened species.

TABLE 5-7
POTENTIAL DIRECT TEMPORARY IMPACTS TO VEGETATION ASSOCIATIONS WITHIN THE PROPOSED WEST OF DEVERS TRANSMISSION UPGRADE STUDY CORRIDOR

Dominant Vegetation Type	Miles crossed from Devers to San Bernardino Junction	Area potentially affected (acres)[1]
Catclaw scrub	3.8	6.9
Catclaw/grassland/valley cholla	0.5	1.0
Chaparral	2.0	3.7
Creosote bush scrub	2.6	4.7
Desert willow/scalebroom	0.6	1.0
Grassland	2.4	4.4
Grassland scrub mosaic	2.0	3.6
Grassland/chaparral	3.7	6.7
Mixed scrub oak/chaparral	1.5	2.6
Non native grassland	5.0	9.2
Riparian	0.4	0.7
Riparian willow	0.3	0.6
Riversidean sage scrub chaparral	1.1	1.9
Ruderal/chaparral mosaic	1.0	1.8
Ruderal/degraded scrub	10.2	18.7
Ruderal/non native grassland	2.8	5.2
Total[2]	**39.8**	**72.7**

Source: BioResource Consultants 2003
Note:
[1] Potentially affected area was calculated assuming approximately 1.8 acres/mile of total disturbance (includes spur roads, structure removal, structure installation, and other construction areas.)
[2] Totals may not check due to rounding.

Southern sycamore alder riparian is a CNDDB sensitive habitat that occurs in the general region, but none was encountered in the study corridor. This is true also for southern riparian scrub habitat.

Wildlife

Some impacts to most classes of wildlife can be expected as a result of construction activities within the proposed west of Devers corridor. Small, fossorial forms may be crushed in their burrows by heavy equipment and others may be inadvertently run over by construction vehicles. The presence of men and equipment would result in a disturbance impact to many animals.

Depending on the season of construction, it is also possible that nesting birds could be disturbed or their nests destroyed.

Sensitive Plants and Wildlife

Based on CNDDB occurrences and other historical information that was reviewed for this project, there are at least 16 sensitive plant and wildlife species with CNDDB occurrence records in the study corridor, or in the general region of the project. Of those 16 species, no more than 53.3 acres of suitable habitat for four sensitive wildlife species are likely to be impacted (Table 5-6). Of these, impacts at most locations can be reduced to less than significant levels by avoiding and minimizing impacts during construction. This is true for habitat that potentially supports sensitive plants along the right-of-way.

The areas of potentially affected wildlife species are summarized in Table 5-8. If some loss of habitat for sensitive wildlife cannot be avoided, depending on the specific tower and construction site layouts, then suitable mitigation for sensitive species habitat losses would need to be determined to reduce impact levels to less than significant. It is possible that there would be some loss of potential habitat for desert tortoises, though there are very few recent records for this species within the study corridor, which is at the edge of the species' current known distribution. For this reason, impacts to desert tortoise are considered to be less than significant. As much as 19.1 acres of potential coastal California gnatcatcher habitat may be affected; however, much of this would likely be avoided or the impacts would be minimized so as to not cause a significant loss of suitable habitat. If habitat losses occur, mitigation would be warranted. Less than 1 acre of suitable habitat for least Bell's vireo may be affected; however, there are no recent records for this species in the project area where habitat loss is expected to occur. For this reason, impacts to least Bell's vireo are expected to be less than significant. Approximately 27 acres of potential habitat for Stephens' kangaroo rats may be impacted. Much of this area will either have no impact to potential habitat for this species, or impacts can be avoided entirely and

are, therefore, considered less than significant. Final areas identified for construction and tower placements would determine the actual habitat loss for this species.

TABLE 5-8
SENSITIVE SPECIES HABITAT POTENTIALLY AFFECTED BY NEW TOWER CONSTRUCTION

Species Habitat	Miles crossed from Devers to San Bernardino Junction	Area potentially affected (acres)
Desert tortoise	3.3	6.0
Coastal California gnat catcher	10.5	19.1
Least Bells vireo	0.5	0.8
Stephens' kangaroo rat	15.0	27.4
Total	**29.2**	**53.3**

Note:
[1]Potentially affected area was calculated assuming approximately 1.8 acres/mile of total disturbance (includes spur roads, structure removal, structure construction, and other construction areas.)
[2]Totals may not check due to rounding.

Indirect Impacts

Indirect impacts associated with construction within the proposed west of Devers upgrade corridor could include an increase in non-native weed establishment and recruitment, particularly at tower sites, crane pads, materials stockpile yards, and concrete batch plants. It is at these sites that soil surface disturbance is likely to be greatest, thus encouraging establishment of invasive, weedy species.

5.2.9 Noise

5.2.9.1 Construction

The noise associated with the construction activities would be primarily generated by the equipment involved. The noise levels produced within the corridor would depend on the number of operating machines and the distance to the nearest sensitive receiving source property line.

Typical noise levels associated with construction equipment fall in the range of 80 to 1 00 dBA (at a range of 50 feet from the active construction site). Most of the west of Devers upgrade corridor is within vacant land; however, there are some residences within 350 feet of construction. Noise associated with construction may be masked by other sources of noise (i.e., I-10, aircraft flyovers, local traffic, and activities at nearby businesses).

The proposed west of Devers 230kV transmission upgrade would comply with local noise ordinances. Typical municipal ordinances stipulate that activities producing ambient noise should not exceed 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at receiving residential property lines or sensitive areas. However, exemptions include temporary construction during daytime hours except on Sundays and federal holidays. There may be a need to work outside of the aforementioned local ordinances in order to take advantage of low electricity use during nighttime hours. SCE would comply with variance procedures established by local authorities if a variance is necessary.

5.2.9.2 Operation

The major sources of ambient noise in the area are due to traffic on I-10 and I-15, local traffic, aircraft flyovers, activities at business locations, various recreational activities, and the existing transmission lines. The proposed transmission line upgrade would not increase noise levels within the corridor. No noise impacts are anticipated to occur.

5.2.10 Public Services and Utilities

Since most community services are provided to local residences and employee relocation and project construction would be temporary, no impacts on public services including medical, police, fire, and emergency are anticipated. Services to construction workers would not exceed the level for which local facilities are equipped to provide for visitors or temporary workers in

the area. In addition to medical facilities available in the smaller communities near the proposed west of Devers upgrade corridor, numerous medical facilities equipped to handle all levels of emergency medical situations also are available in the larger metropolitan area of San Bernardino, near Vista Substation. These include the cities of Redlands and Loma Linda; Loma Linda has the premier University Medical Center that draws patients from around the country.

5.2.11 Visual Resources

The impact analysis was based on the BLM's VRM System 8400 series (BLM 1984) as well as previous transmission line visual impact assessments in response to CEQA environmental criteria for aesthetics. This section focuses on impacts resulting from the construction and operation of the proposed west of Devers 230kV transmission upgrade. Visual impacts include short-term impacts resulting from the presence of vehicles and equipment during construction, and long-term impacts resulting from the presence of transmission lines facilities over their lifetime.

The measure of potential adverse impact on visual resources is based on visual contrast. Visual contrast is a measure of the degree of perceived change that would occur in the landscape due to the construction and operation of the proposed west of Devers 230kV transmission upgrade. Visual contrast typically results from (1) landform modifications that are necessary to upgrade and construct new access roads and tower pad sites, (2) removal of vegetation to construct roads and maintain right-of-way and ground clearance zones associated with the conductors and towers, and (3) introduction of new structures in the landscape.

The visual contrast assessment was performed by comparing landscape elements (form, line, color, and texture) of the existing landscape with the elements associated with the proposed transmission line facilities including new structures (towers, hardware, equipment, and conductors) and new or improved access. In this regard, landform, vegetation, and structural elements in the landscape were evaluated in conjunction with the proposed (newly introduced)

transmission line, and assigned degrees of change/contrast ranging from strong to moderate, weak, or none. Contrast evaluations were performed from key viewing areas representing typical views to the project, including the documentation of existing and simulated conditions are illustrated in Figures 5-4 through 5-7.

According to the CEQA criteria for aesthetics, significant visual impacts could occur if the project would:

- substantially degrade the existing visual quality of the site and its surroundings
- have a substantial adverse effect on a scenic vista
- substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- create a new source of substantial light or glare adversely impacting day or nighttime views in the area

Following is a summary of visual impacts based on the CEQA criteria.

Substantially Degrade the Existing Visual Quality of the Site and Its Surroundings

There is no Class A scenery adjacent to, or crossed by, the proposed 230kV upgrade corridor, and all Class B landscapes are crossed within an existing modified utility corridor. Therefore, impacts to existing scenic quality are anticipated to be less than significant.

The proposed west of Devers 230kV transmission upgrade would cross or be adjacent to the following image types: agriculture, open space/park, industrial, commercial, institutional, and residential. The existing condition of these image types has already been highly modified by the

presence of two single-circuit 230kV lines and one double-circuit 230kV transmission line. Construction of the proposed 230kV transmission line would be limited to the existing utility corridor in these areas and would not affect the current or future development pattern and visual character of these and other areas, due to the presence of the existing utility corridor.

In general, an adverse impact is a result of high to moderate visibility (foreground to middleground views) and strong or moderate project/setting contrast from residential, recreation or travel route views. The proposed west of Devers 230kV transmission upgrade would occur in an existing transmission line corridor, and consists of upgrading an existing line and matching existing tower types (Links 100-102) or simply reconductoring with selective tower replacement (Links 103 and 104). Therefore, the visual contrast created by the proposed west of Devers upgrade would be minimal to indiscernible. In addition, the number of structures that occur within the corridor would be reduced from three to two structures for portions of the proposed route, or from four to three in others, resulting in an overall reduction of towers visible to sensitive viewers. Overall, impacts to sensitive viewers are anticipated to be less than significant.

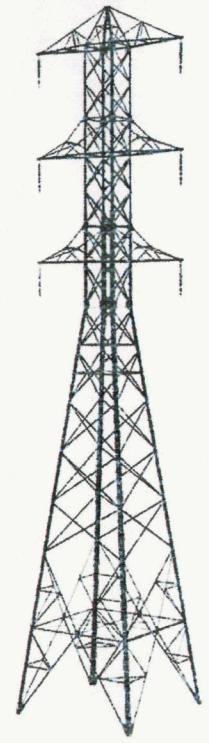
Residential Viewers

The majority of the views of the west of Devers upgrade corridor from residential viewers are screened by topography, vegetation, and/or buildings, and may occur from the foreground into the background. As a result of distance, screening, and existing corridor conditions, the visual impact to these viewers would be less than significant, as illustrated on Figures 5-4 and 5-7. In some locations, the proposed transmission upgrade would result in an improvement on visual quality based on a reduction in the number of towers.

Existing Condition - Transmission line corridor adjacent to residential image type.
Photograph taken 1/22/04 at 11:37am using a 50mm focal length.

Viewpoint located in the city of Beaumont east of Beaumont Avenue and north of transmission line, looking west-southwest towards proposed project. Viewpoint approximately 1/8 mile from the tower in the center of view.

Simulation - Transmission line corridor with two 230kV single-circuit lattice towers removed and proposed 230kV double-circuit lattice steel structure transmission line.
This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.



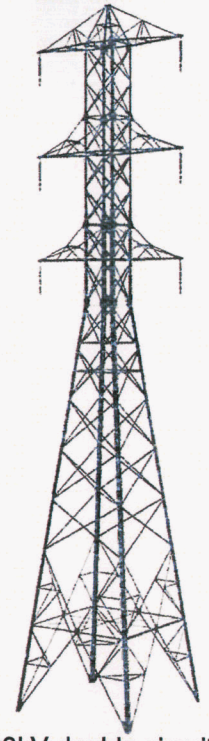
Typical 230kV double-circuit lattice steel tower used in simulations. Proposed towers are simulated to match existing tower heights. Tower locations are conceptual.

Figure 5-4

Existing Condition - Transmission line corridor within open space/park image type adjacent to residential image type.
Photograph taken 1/22/04 at 12:23 pm using a 50mm focal length.

Viewpoint located in the city of Beaumont east of Oak View Drive, looking west-southwest towards proposed project. Viewpoint approximately 1/16 m ile from the tower in the center of view.

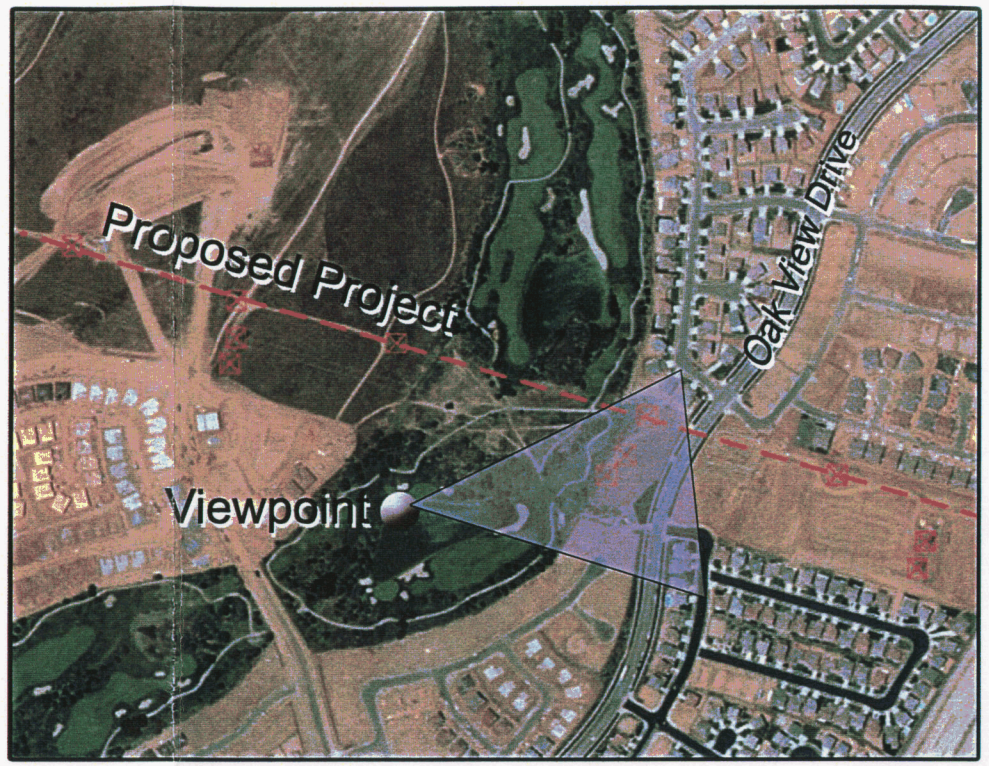
Simulation - Transmission line corridor with two 230kV single-circuit towers (lattice and H-frame) removed and proposed 230kV double-circuit lattice steel structure transmission line.
This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.



Typical 230kV double-circuit lattice steel tower used in simulations. Proposed towers are simulated to match existing tower heights. Tower locations are conceptual.

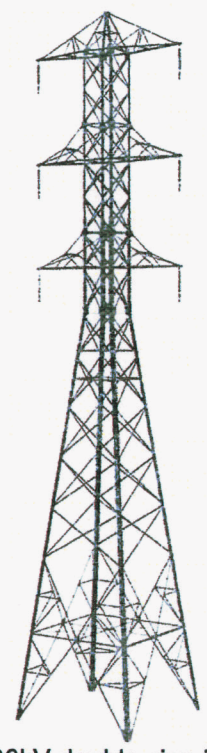
Figure 5-5

Existing Condition - Transmission line corridor within open space/park image type adjacent to residential image type.
Photograph taken 1/22/04 at 1:01 pm using a 50mm focal length.



Viewpoint located in the city of Beaumont at Oak Valley Golf Course south of transmission line, looking east-northeast towards proposed project. Viewpoint approximately 1/8 mile from the tower in the center of view.

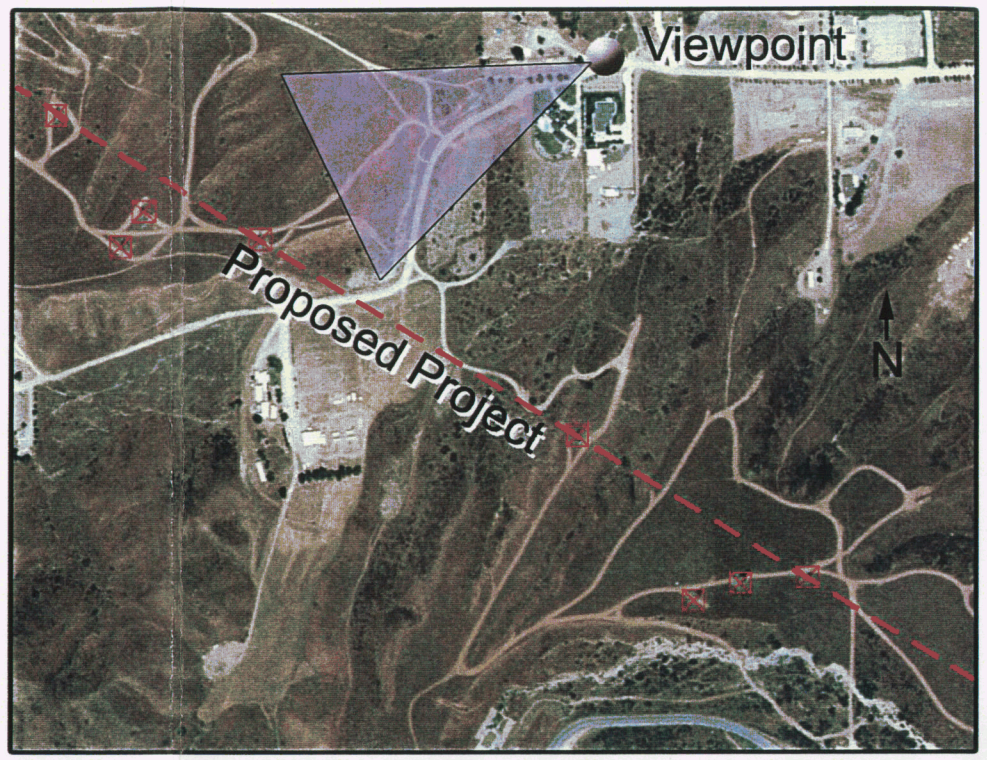
Simulation - Transmission line corridor with two 230kV single-circuit towers (lattice and H-frame) removed and proposed 230kV double-circuit lattice steel structure transmission line.
This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.



Typical 230kV double-circuit lattice steel tower used in simulations. Proposed towers are simulated to match existing tower heights. Tower locations are conceptual.

Figure 5-6

Existing Condition - Transmission line corridor within San Timoteo Canyon adjacent to residential image type.
Photograph taken 1/22/04 at 2:13 pm using a 50mm focal length.



Viewpoint located in the city of Calimesa off of San Timoteo Canyon Road north of transmission line, looking west-southwest towards proposed project. Viewpoint approximately 1/4 mile from the tower in the center of view.

Simulation - Transmission line corridor with two 230kV single-circuit lattice towers removed and proposed 230kV double-circuit lattice steel structure transmission line.
This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.

Typical 230kV double-circuit lattice steel tower used in simulations. Proposed towers are simulated to match existing tower heights. Tower locations are conceptual.

Figure 5-7

Where residential units occur immediately adjacent to the proposed 230kV transmission upgrade, adverse impacts may occur where the newly located towers could be situated in the unobstructed immediate foreground distance zone of individual residences (Link 102). Visual simulations depicting existing and proposed conditions from key residential areas are also shown on Figures 5-4 and 5-5.

Travelway Viewers

Less than significant impacts are expected along moderate or low sensitivity travel routes. The majority of the views of the proposed 230kV transmission upgrade corridor from these local travel routes are partially screened or screened by topography, vegetation and/or buildings.

Impacts to views from travelways are largely dependent upon distance, the setting, and orientation to the proposed transmission line corridor (i.e., either parallel or perpendicular to the roadway). A scenic highway, which offers scenic views to distant or local natural features such as the San Bernardino or San Jacinto mountains, constitutes high sensitivity travelways. The transmission line corridor crosses State Scenic Highway CA 62 west of the Devers Substation (Link 100), which provides access to Joshua Tree National Park. From I-10 northbound on CA 62, the contrast created by the line is negligible in this area because the proposed transmission upgrade would occur in an existing transmission line corridor and would consist of replacing an existing transmission line. The proposed route also crosses CA 62 at an approximately 90-degree angle, which results in a relatively short viewing duration. Impacts created by the proposed west of Devers 230kV transmission upgrade would be minimal or indiscernible to southbound travelers on CA 62 because of the existing utility corridor, in addition to the presence of wind generator towers scattered across the landscape, and the proposed perpendicular crossing.

West of Beaumont, the proposed transmission upgrade crosses I-10 (designated scenic) just west of Milepost 26. Impacts at the crossing would be less than significant, based on the existing

modified corridor setting, and the replacement of the existing transmission line with a double-circuit tower that matches the existing tower types.

Recreation/Open Space Viewers

Impacts to recreation viewers from golf courses and existing trails (including utility line trails in the cities of Beaumont, Banning, Calimesa, Redlands, and Loma Linda) are anticipated to be less than significant due to the full to partial localized screening associated with the presence of the highly modified corridor setting. In addition selective cities have incorporated the existing utility corridor in their open space trails network. Open space views associated with cemeteries and parkland adjacent to the proposed transmission upgrade also would have less than significant impacts. Visual simulations depicting the existing conditions and proposed west of Devers 230kV upgrade from typical recreation use areas are shown on Figures 5-4 and 5-5.

Substantial Adverse Effect on Scenic Vistas

There are no state designated scenic vistas within the proposed west of Devers 230kV transmission upgrade study corridor. Therefore, impacts to scenic vistas would not occur.

Substantially Damage Scenic Resources Including, But Not Limited to, Trees, Rock Outcroppings, and Historic Buildings Within a State Scenic Highway.

Because the proposed west of Devers transmission upgrade would be constructed to span the highway, and towers would be installed on either side of the roadway, the impact on trees, rock outcroppings, and historic buildings or other sensitive features within the scenic highway would be less than significant.

Create a New Source of Substantial Light or Glare Adversely Impacting Views

Construction of the west of Devers 230kV transmission upgrade would normally occur during daylight hours. No additional sources of light would be created and glare would not adversely impact views, as non-specular conductors would be utilized and the finish on towers would be dulled.

5.2.12 Cultural Resources

Archaeology

A Class III archaeological survey of the 300-foot-wide project APE within the proposed west of Devers 230kV study corridor identified two archaeological resources within the APE (Eckhardt and Walker 2004b). These resources are P33-13429 and P33-13430. Neither P33-13429 nor P33-13430 appear eligible for the NRHP. No impacts to NRHP eligible archaeological resources are anticipated as a result of construction and operation of the proposed west of Devers transmission upgrade.

Ethnography

Apart from the recorded archaeological sites and the portion of the west of Devers corridor that crosses the Morongo Indian Reservation, there are no known areas of ethnographic sensitivity within the project APE. In addition, Native American groups have an interest in the disposition of prehistoric archaeological sites as evidence of the presence of their ancestors.

Construction and operation of the proposed transmission upgrade is not expected to have effects on Native American TCPs or other resources of cultural value. BLM staff has indicated that they would consult with appropriate Native American groups regarding this process in the context of

the BLM's government-to-government responsibility with Native American tribes (personal communication, Wanda Raschkow 2004).

History

The Class III archaeological survey of the 300-foot-wide project APE resulted in the identification of nine historic-era sites in the APE: RIV-7462H/P33-13427, P33-13428, RIV-2262H, RIV-4768H/SBR-7168H/P36-007168, SBR-11624H/P36-011624, P33-13431, P33-13434, P33-007888, P36-020240. Three of these resources—RIV-4768H/SBR-7168H/P36-007168, RIV-2262H, and P33-007888—are assessed potentially eligible for listing on the NRHP (Eckhardt and Walker 2004b). These resources are subject to potential effects from project construction and operation.

Paleontology

Between Devers and Vista substations (Links 100, 101, 102, 103, and 104) the proposed west of Devers corridor traverses approximately 25.9 miles of high or undetermined areas of paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium in Links 102 and 103, Canebrake Conglomerate or Palm Springs Formation in Link 102, and San Timoteo Formation in Links 102 and 103. Potentially significant paleontological specimens may be impacted by excavation of tower footings and grading of access spur roads in these areas (Scott 2003).

5.2.13 Public Health and Safety

5.2.13.1 Hazardous Materials

The potential for impacts to public health and safety from hazardous materials that could occur during construction or operation of the proposed transmission upgrade west of Devers, and the means by which SCE would attempt to minimize those potential impacts, would be the same as described in Section 5.1.13.1.

5.2.13.2 School Facilities

Project construction and operations would not occur on any school sites. There would be a very low risk of emitting hazardous materials, substances, or waste within ¼ mile of an existing or proposed school. There are eight existing schools located within approximately ¼ mile of the existing west of Devers right-of-way, as identified in Section 4.2.13.1 (Table 4-55). Impacts to school facilities that would result from construction and operation of the proposed west of Devers transmission upgrade would be less than significant.

5.2.13.3 Airport and Airstrip Operations

The proposed west of Devers 230kV transmission line upgrade would not impact west of Devers operation of any airport or private airstrip. Construction and operation of the proposed upgrade would be located within an existing right-of-way, and would therefore not create a new safety hazard for people residing or working in the project area.

5.2.13.4 Emergency Response or Evacuation Plans

Construction or operation of the proposed west of Devers transmission upgrade would not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan.

5.3 SUBALTERNATE TRANSMISSION LINE ROUTES

5.3.1 Land Use

5.3.1.1 Harquahala-West Subalternate Route

The majority of the approximately 21.1-mile-long Harquahala-West Subalternate Route crosses vacant/undeveloped land as it parallels section lines to the existing El Paso Natural Gas pipeline corridor, where it turns northwest and parallels the pipeline corridor to the existing DPV1 corridor next to the Wenden Pump Station 4126. As the subalternate route crosses approximately 4.5 miles of land subdivided as Eagle Ranch, potential impacts could occur if the plots were sold for residential use. Immediately west of the Harquahala Switchyard, the subalternate route crosses approximately 3 miles of agricultural land. Approximately 14 new single-circuit, tubular steel poles would be constructed through the agricultural land, which would result in a loss of approximately 0.03 acre of agricultural land. Farming operations could resume after construction. Tubular steel poles also would be used for approximately ½ mile west of the agricultural land.

The subalternate route would utilize the existing access road within the pipeline corridor. Approximately 9 miles of new access road would be constructed for the subalternate route, disturbing approximately 17.8 acres of undeveloped land. The total permanent disturbance along the Harquahala-West Subalternate Route would be approximately 18.9 acres. Table 5-9 shows the estimated amount of potential ground disturbance for the Harquahala-West Subalternate

Route compared to the proposed Devers-Harquahala route from Harquahala to a common endpoint, as indicated on Map 3-2a. The subalternate route would not physically divide any established community and would not conflict with existing general plans for the study corridor. The El Paso Natural Gas pipeline corridor is identified in the Lower Gila South RMP as a designated BLM utility corridor.

TABLE 5-9
PERMANENT GROUND DISTURBANCE FOR THE PROPOSED DEVERS-HARQUAHALA ROUTE AND HARQUAHALA-WEST SUBALTERNATE ROUTE

	Structure Footprint (acres)	Access and Spur Roads (acres)	Total Disturbance (acres)
Proposed Devers-Harquahala Route	1.1	5.0	6.1
Harquahala-West Subalternate Route	0.6	17.8	18.9

Notes:
1. Harquahala Switchyard and the junction with DPV1 near Wenden Pump Station are used as common endpoints for the proposed and subalternate routes.
2. Disturbance areas estimate based on tower span distances: Lattice towers—3.4 towers per mile, tubular steel poles—4 per mile.
3. Lattice towers permanent disturbance—0.01 acre, tubular steel poles permanent disturbance—100 square feet.
4. Access road permanent disturbance estimate based on 14-foot-wide roadway.

During construction, temporary construction and laydown areas along the first 3 miles of the subalternate route could potentially impact agricultural lands. Assuming 0.4 acre of disturbance per mile for pulling/tensioning and splicing sites, and approximately 0.9 acre at each new structure location, approximately 12 acres of agricultural land could be temporarily disturbed during construction. Including temporary disturbance to undeveloped and agricultural land, a total area of approximately 18.9 acres could be disturbed during construction.

5.3.1.2 Palo Verde Subalternate Route

The majority of the Palo Verde Subalternate Route would be located adjacent to the existing DPV1 transmission line right-of-way within the designated BLM utility corridor. The remainder of the subalternate route, which crosses undeveloped state and private land, is located in an

existing 500kV utility corridor. A total of approximately 50 lattice steel towers would be constructed for the 15-mile subalternate route, or 27 more towers than the proposed Devers-Harquahala 500kV route. Existing access along the DPV1 transmission line corridor would be utilized for construction and maintenance. Overland travel would be used to access tower locations via extensions of spur roads from the existing DPV1 access road. During construction, temporary construction and laydown areas and structure assembly sites would potentially disturb approximately 8.9 acres. The Palo Verde Subalternate Route would result in approximately 2 acres of permanent ground disturbance.

5.3.2 Socioeconomics, Population, and Housing

5.3.2.1 Harquahala-West and Palo Verde Subalternate Routes

The construction of either of the subalternate routes would not impact the population or housing of the area through which they pass. As noted in Section 5.1.3.1, some of the labor force would likely be drawn from the greater Phoenix area, in which case the workers would commute and would not require housing. Labor force statistics described in Section 5.1.3.1 would be applicable to these subalternates.

5.3.3 Geology and Soils

5.3.3.1 Harquahala-West Subalternate Route

No significant impacts to geology and soils are expected from the construction or operation of the Harquahala-West Subalternate Route. Approximately 15 acres of disturbance would occur to soils during the construction of approximately 9 miles of access roads. Impacts to soils would be mitigated using erosion control measures described in Section 6.1.4.

5.3.3.2 Palo Verde Subalternate Route

Impacts to geology and soils are expected to be less than significant from the construction or operation of the Palo Verde Subalternate Route. A minimal level of new access would be required along the subalternate route, as existing access would be used for construction and operation. Impacts to soils would be mitigated using erosion control measures described in Section 6.1.4.

5.3.4 Hydrology

5.3.4.1 Harquahala-West and Palo Verde Subalternate Routes

The construction and operation of either of the subalternate routes would not be expected to violate water quality standards or waste discharge requirements. No groundwater would be used for construction or operation of either subalternate route; therefore, no impacts are expected to aquifer volume. Washes would be spanned where possible; therefore, impacts to washes are expected to be less than significant.

5.3.5 Air Quality

5.3.5.1 Harquahala-West and Palo Verde Subalternate Routes

Impacts to air quality from the construction and operation of the proposed project using either of the subalternate routes would be similar to the impacts described for the Arizona portion of the proposed Devers-Harquahala route in Section 5.1.6.1.

5.3.6 Traffic and Transportation

5.3.6.1 Harquahala-West and Palo Verde Subalternate Routes

Impacts to traffic and transportation from the construction and operation of the subalternate routes would be less than significant. Impacts to the project from either of the subalternates would be similar to the impacts described for the Arizona portion of the proposed route in Section 5.1.7.1.

5.3.7 Biology

5.3.7.1 Harquahala-West Subalternate Route

Vegetation

Construction and operation of the Harquahala-West Subalternate Route would result in the removal of, or damage to, a number of species of native plants. Construction of spur roads would cause the removal of shrubs, cacti, and, possibly, some trees. Vegetation also is likely to be crushed in at tower site construction areas, in pulling areas, and in equipment storage and laydown areas.

Sensitive Plant Species

There are no federally listed threatened or endangered plant species that have been documented within the study corridor for this subalternate route. A number of plant species that are listed under the ANPL are present within the corridor, however it is highly unlikely that any plant species listed as Highly Safeguarded Protected Native Plants are present. Crested or fan-top forms of saguaro cactus could be present; however, no individuals of this form were observed

during site reconnaissance. There are a number of Salvage Restricted Protected Native Plants present including all agaves, cacti, and ocotillo. Salvage Assessed and Harvest Restricted species present include ironwood, blue and foothill paloverde, and mesquite. Plants protected under the ANPL, other than those that are highly safeguarded, can be offered for salvage, or salvage assessed.

Wildlife

Permanent impacts such as injury, mortality, and permanent displacement of wildlife during construction of tower footings, spur roads, crane pads, and staging areas could occur. Temporary impacts such as disturbance and temporary displacement of wildlife also could occur during construction.

Sensitive Wildlife

No federally listed species are likely to be present within the Harquahala-West Subalternate Route study corridor. There is some possibility of the southwestern willow flycatcher being present along wooded washes during spring or fall migration, but there is no possibility of the species nesting within the corridor due to lack of acceptable habitat. The loggerhead shrike, a federal species of concern and BLM sensitive species, may be present within the corridor occasionally. The California leaf-nosed bat, also a federal species of concern and BLM sensitive species, could be present within the corridor during nocturnal foraging. However, because this species does not generally forage far from its roost in caves or mines, such roosts would have to be immediately adjacent to the project corridor for this species to be present. The pale big-eared bat, a federal species of concern, could be present as a nocturnal forager along the portion of the corridor that skirts the Eagletail Mountains if suitable mine or cave roost habitat is present. Desert bighorn sheep, a big game species in Arizona, resides in the Eagletail Mountains and may occasionally wander downslope within the vicinity of the corridor.

The burrowing owl, a federal species of concern and a BLM sensitive species, is recorded in Maricopa County and could be present anywhere within the corridor where suitable habitat is present, including the agricultural and ruderal areas at the east end of the study corridor.

Other sensitive species that are likely to occur within the Harquahala-West study corridor include Sonoran population desert tortoises, Arizona chuckwalla, banded Gila monster, and desert rosy boa. The desert tortoise and chuckwalla are most likely to be found in rocky upland areas along the eastern slope of the Eagletail Mountains, and the Gila monster may be present anywhere within the native desert lands along the corridor, particularly in the vicinity of washes.

Indirect Impacts

Indirect impacts associated with the construction of the Harquahala-West Subalternate Route transmission line could include an increase in non-native weed establishment and recruitment, particularly at tower sites, crane pads, materials stockpile yards, and concrete batch plant sites.

Overall impacts to sensitive plant and animal species on the Harquahala-West Subalternate Route are expected to be less than significant.

5.3.7.2 Palo Verde Subalternate Route

Vegetation

Construction of the Palo Verde Subalternate Route would result in the removal of, or damage to, a number of species of native plants. Construction of spur roads would cause the removal of shrubs, cacti, and, possibly, some trees. Vegetation is also likely to be crushed in at tower site construction areas, in pulling areas, and in equipment storage and laydown areas.

Sensitive Plant Species

There are no federally listed threatened or endangered species of plants that have been documented in the Arizona portion of Devers-Harquahala study corridor, including the study corridor for the Palo Verde Subalternate Route. Sensitive plants known or likely to be found include straw-top cholla (*Opuntia echinocarpa*) and the suite of species listed under the ANPL.

Wildlife

Permanent impacts including injury, mortality, and permanent displacement of wildlife during construction of tower footings, spur roads, crane pads, and staging areas could occur. Temporary impacts such as disturbance and temporary displacement also are likely to occur during construction.

Sensitive Wildlife

Sensitive reptile species that may be present within the study corridor of the Palo Verde Subalternate Route include Sonoran desert tortoise (*Gopherus agassizi*), Arizona chuckwalla (*Sauromalus ater*), and desert rosy boa (*Charina trivirgata gracia*). All three of these reptiles may be encountered in rocky, upland areas as opposed to lowland, alluvial sites. Among birds, there is a remote possibility that burrowing owls (*Athene cunicularia hypugaea*) could occur within the corridor. It also is possible that the federally listed southwestern willow flycatcher (*Empidonax traillii extimus*) could be present in dense mesquite growth along Winters Wash during periods of spring or fall migration. Sensitive mammals that may be present within the corridor from time to time include California leaf-nosed bat (*Macrotus californicus*) and desert bighorn sheep (*Ovis canadensis mexicana*).

Indirect Impacts

Indirect impacts associated with construction within this proposed corridor could include an increase in non-native weed establishment and recruitment, particularly at tower sites, crane pads, materials stockpile yards, and concrete batch plants. It is at these sites that soil surface disturbance is likely to be greatest, thus encouraging establishment of invasive, weedy species.

Impacts to sensitive plant and animal species on the Palo Verde Subalternate Route are expected to be less than significant.

5.3.8 Noise

5.3.8.1 Harquahala-West and Palo Verde Subalternate Routes

Construction or operation of the transmission line along either of the subalternate routes would result in less than significant noise impacts. Both of the subalternate routes are located in rural areas with no immediately adjacent residences. Construction and operation of either of the subalternate routes would comply with local noise standards, as described in Section 5.1.9.1.

5.3.9 Public Services and Utilities

5.3.9.1 Harquahala-West and Palo Verde Subalternate Routes

Impacts to public services and utilities from the construction or operation of either of the subalternate routes would be less than significant. Impacts expected are similar to those for the proposed route, as described in Section 5.1.10.1.

5.3.10 Visual

5.3.10.1 Harquahala-West Subalternate Route

Several residences occur within 1 mile of the Harquahala-West Subalternate Route with open views of the subalternate transmission line (Link HW, Mileposts 8 and 9). Because this route would not parallel an existing vertical linear facility, the impacts to those residential viewers would be potentially significant. Additional impacts could occur to sensitive viewers using the trail in the Eagletail Wilderness. However, the views of the subalternate route are partially screened and backdropped, and would occur approximately 1 mile away from the trail, resulting in less than significant impacts. A simulation was prepared to depict the project as it would appear from the trail viewpoint (Figure 5-8). Impacts to scenic quality are anticipated to be minimal because the subalternate route would occur in a Class C landscape.

5.3.10.2 Palo Verde Subalternate Route

Impacts to residential viewers (one residence) adjacent to this subalternate route would be less than significant because the transmission line along this subalternate route would parallel two existing 500kV transmission lines at the viewpoint. Additional impacts would occur to travelers on the Salome Highway, but would be minimal because the new line would parallel existing 500kV transmission lines. Impacts to scenic quality (primarily Class C landscape) are anticipated to be minimal because the existing conditions along the route include existing transmission lines and the associated access road.

5.3.11 Cultural Resources

5.3.11.1 Harquahala-West Subalternate Route

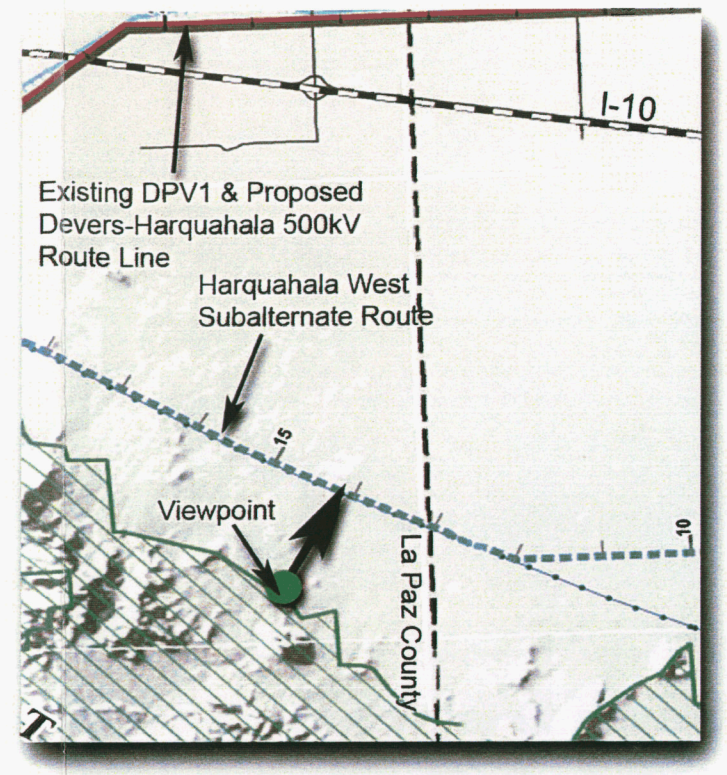
Archaeology

In addition to the records search, a Class II sample archaeological survey was conducted within the study corridor for this subalternate route. No NRHP eligible or potentially eligible archaeological resources were identified in the 300-foot-wide corridor (Luhnow 2004). The discovery of only two isolated archaeological occurrences in the areas of the 2-mile-long survey transects suggests that the archaeological sensitivity of this area is only moderate, and potential impacts to NRHP eligible resources would be less than significant.

Ethnography

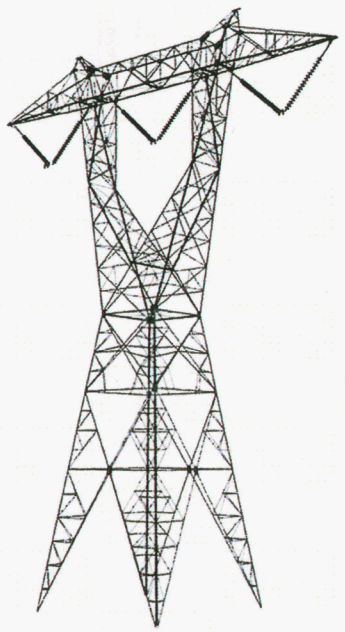
No TCPs or potential TCPs have been identified within the project APE (defined as the 300-foot-wide study corridor for the Class II study). Apart from archaeological sites that may occur within the APE, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by the project. BLM staff has indicated that they would consult with appropriate Native American groups regarding project effects on traditional cultural values within the context of the BLM's government-to-government responsibility with Native American tribes (personal communication, Wanda Raschkow 2004).

Existing Conditions - Looking northeast across the Harquahala Plain.
Photograph taken 7/26/04 at 1:06 p.m. using a 50mm focal length.



Viewpoint located just north of Courthouse Rock looking northeast approximately 1.5 miles from the Harquahala-West subalternate route.

Simulation - Harquahala-West subalternate route for Devers-Palo Verde No. 2, 500kV lattice steel structure transmission line looking northeast across the Harquahala Plain.
This image is most accurately viewed at a distance of approximately 11 inches from the page to match the actual field of view.



Typical 500kV single-circuit lattice steel tower used in simulations.

Figure 5-8

History

The Class 1 records search and the Class II sample survey of the Harquahala-West Subalternate Route resulted in the identification of no historic-era sites and one isolated historic-era occurrence (a rock cairn that may be associated with a mining claim) within the 300-foot-wide project corridor (Luhnow 2004). At this time there are no known historic-era resources in the project area that are listed on or potentially eligible for listing on the NRHP (ibid). Therefore, there are no known NRHP eligible historic-era resources in the APE threatened by potential construction and operation effects of the Harquahala-West Subalternate Route.

Paleontology

Virtually the entire length of the Harquahala-West Subalternate Route crosses undifferentiated Pleistocene older alluvium and Holocene alluvium in the Harquahala Plain. The Pleistocene older alluvium has a high paleontological sensitivity ranking (Scott 2003).

5.3.11.2 Palo Verde Subalternate Route

Archaeology

Seven archaeological sites have been identified within the project APE; AZ S:12:35 (ASM), AZ T:9:12 (ASM), AZ T:9:13 (ASM), AZ T:9:21 (ASM), AZ T:9:64 (ASM), AZ T:9:86 (ASM), and AZ T:9:87 (ASM). Of these sites, AZ T:9:12 (ASM), AZ T:9:13 (ASM), AZ T:9:21 (ASM), and AZ T:9:64 (ASM) are assessed NRHP eligible or potentially eligible.

Ethnography

Because the Palo Verde Subalternate Route would be constructed adjacent to existing transmission lines, indirect effects to TCPs or potential TCPs are considered negligible. No TCPs or potential TCPs have been identified within the project APE (defined as within 100 feet of project tower pads and access roads). Apart from archaeological sites within the APE, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by the project. BLM staff has indicated that they would consult with appropriate Native American groups regarding project effects on traditional cultural values within the context of the BLM's government-to-government responsibility with Native American tribes (personal communication, Wanda Raschkow 2004).

History

Three historic-era sites were identified in the Class III survey as occurring within or immediately adjacent to the project APE (defined as a 300- to 600-foot-wide corridor encompassing the proposed tower and access road locations). These resources are recorded as AZ T:9:65 (ASM), AZ S:12:32 (ASM), and AZ S:12:36 (ASM). All three are recommended not eligible for the NRHP. Potential effects could occur to AZ T:9:65 (ASM) as a result of construction and operation of the Palo Verde Subalternate Route.

Paleontology

Approximately 8 miles of the Palo Verde Subalternate Route traverse areas of high paleontological sensitivity. Potentially significant paleontological specimens may be impacted by excavation of tower footings and grading of access spur roads in these areas (Scott 2003).

5.3.12 Public Health and Safety

5.3.12.1 Harquahala-West and Palo Verde Subalternate Routes

Hazardous Materials

The potential for impacts to public health and safety from hazardous materials that could occur during construction or operation of either subalternate route, and the means by which SCE would attempt to minimize those potential impacts would be the same as described in Section 5.1.13.1.

School Facilities

Project construction and operation would not occur on any school sites. There would be a very low risk of emitting hazardous materials, substances, or waste within ¼ mile of an existing or proposed school. No schools were identified within ½ mile of either of the subalternate routes, and no temporary construction areas would be located within ¼ mile of any existing school sites.

Airport and Airstrip Operations

Disturbance resulting from construction or operation of the transmission line located on either of the subalternate routes would not impact operation of any airport or private airstrip. Neither of the subalternate routes would create a new safety hazard for people residing or working in the project area.

Emergency Response or Evacuation Plans

The potential for impacts to emergency response or evacuation plans that could occur during construction or operation of either of the subalternate routes would be less than significant.

5.4 MIDPOINT SUBSTATION ALTERNATIVES

5.4.1 Land Use

Impacts to land use are expected from the construction and operation of the Midpoint Substation, at the preferred site or either of the alternative sites, would be less than significant. As shown on Map 4-3c, all three sites are located on vacant/undisturbed land, and construction of the Midpoint Substation would not conflict with general plans.

5.4.2 Socioeconomics, Population, and Housing

Impacts to socioeconomics, population, or housing as a result of construction and operation of the Midpoint Substation preferred or alternative sites would be less than significant. Tax revenue contributions to Riverside County would represent a negligible portion of the county's assessed valuation.

5.4.3 Geology and Soils

Impacts to geology and soils are expected from the construction or operation of the Midpoint Substation at any of the preferred or alternative sites would be less than significant. Approximately 44 acres of permanent ground disturbance would occur on the footprint of the substation, and additional temporary ground disturbance would occur in construction areas. Less

than 1 acre of permanent disturbance from construction of an access road would occur at the Wiley Well site. Permanent disturbance resulting from the access road at the preferred site would be about 10 acres, and about 15 acres at the Mesa Verde site. Impacts to soils would be mitigated using erosion control measures described in Section 6.1.4.

5.4.4 Hydrology

The construction and operation of the Midpoint Substation at the preferred or alternative sites would not be expected to violate water quality standards or waste discharge requirements. No groundwater would be used; therefore, impacts to washes are expected to be less than significant.

5.4.5 Air Quality

Less than significant impacts to air quality are expected from the construction or operation of the Midpoint Substation at the preferred or alternative sites. Impacts to air quality would be mitigated using measures described in Section 6.1.6.

5.4.6 Traffic and Transportation

Impacts to traffic and transportation from the construction and operation of the Midpoint Substation at the preferred site or alternatives would be less than significant. Impacts resulting from the Midpoint Substation would be similar to those of the proposed route as described in Section 5.1.7.

5.4.7 Biology

Impacts to biological resources would be expected to be less than significant for the preferred Midpoint Substation site or either of the alternatives.

5.4.7.1 Sensitive Plant Species

There are no federally listed threatened or endangered species of plants that have been documented in the vicinity of the preferred site or alternative sites. Harwood's milkvetch, a CNPS List 2 species, was documented in the area during surveys in April 2004. No other sensitive species were found.

5.4.7.2 Wildlife

Permanent impacts including injury, mortality, and permanent displacement of wildlife during construction could occur. Temporary impacts such as disturbance and temporary displacement are also likely to occur during construction.

Sensitive Wildlife

The only sensitive species that is likely to occur on the preferred site at either of the alternative sites is the Colorado Desert fringe-toed lizard. This species would utilize aeolian sands within the project area. The sands are too fine to comprise good habitat for the desert tortoise.

5.4.7.3 Indirect Impacts

Indirect impacts associated with construction of the Midpoint Substation could include an increase in non-native weed establishment and recruitment, especially in areas of soil disturbance.

5.4.8 Noise

Equipment operation is the primary noise source associated with construction activities. Noise levels are dependent on several factors including the number of machines operating within an area at a given time and the distance between the source(s) and receiving properties. Typically, noise generated from construction activities ranges between 80 and 90 dBA 500 feet from an active construction area. The nearest residential properties are located approximately 1 mile east of the preferred site, and greater than 1 mile from either of the alternative sites, and therefore would not likely be impacted by noise from operation of the substation.

5.4.9 Public Services and Utilities

Impacts to public services and utilities from the construction and operation of the Midpoint Substation at the preferred site or either of the alternatives would be less than significant. Impacts expected are similar to those for the proposed Devers-Harquahala line, as described in Section 5.1.10.2.

5.4.10 Visual Resources

5.4.10.1 Preferred Site

Visual impacts associated with the Midpoint Substation are not anticipated to occur except to the single residential viewer located about 1 mile east of the preferred site. However, because the resident's view of the site would be from a lower elevation, the impact is anticipated to be less than significant. Impacts to scenic quality are anticipated to be minimal because the preferred site is located on Class C landscape. The Midpoint Substation preferred site would comply with the VRM designation of Class 4.

5.4.10.2 Mesa Verde Alternative

Impacts to viewers from I-10 would be less than significant. This alternative site is approximately 1 mile from I-10 and would be partially screened by existing desert vegetation. Impacts to scenic quality are anticipated to be less than significant because the site would be located on Class C landscape.

5.4.10.3 Wiley Well Alternative

Potentially significant impacts could occur to travelers along I-10 with this site alternative. The site is located about ½ mile from I-10, resulting in unobstructed foreground views to the site in a landscape with little modification. Impacts to scenic quality are anticipated to be less than significant because the site is located on Class C landscape. The Wiley Well alternative site would comply with the VRM designation of Class 4.

5.4.11 Cultural Resources

5.4.11.1 Preferred Site

Archaeology

Archaeological survey identified three archaeological sites within the preferred substation site boundaries—RIV-775T, P33-13659, and P33-13660—and all of these resources appear potentially eligible to the NRHP. Earth-disturbing project construction and operation activities, such as site preparation grading and digging, could result in impacts to these resources but would be mitigated to less than significant levels.

Ethnography

Apart from the recorded archaeological sites there are no known areas of ethnographic sensitivity within the preferred substation site. Native American groups have expressed interest in the disposition of prehistoric archaeological sites as evidence of the presence of their ancestors.

Construction or operation of a substation on the preferred site is not expected to have effects on Native American TCPs or other resources of cultural value. BLM staff has indicated that they would consult with appropriate Native American groups regarding this process in the context of the BLM's government-to-government responsibility with Native American tribes.

History

An archaeological survey of the preferred Midpoint Substation site resulted in the identification of no historic-era resources. Therefore, no historic-era resources would be subject to direct effects from construction or operation of the substation at the preferred site.

Paleontology

The preferred site is located on Pleistocene older alluvium, which is considered to have a high paleontological sensitivity ranking (Scott 2003). Rock units composed of Holocene alluvium are located on either side of the site. Pleistocene alluvium has a low paleontological sensitivity ranking (ibid). Potentially significant paleontological specimens may be impacted by grading and excavation activities associated with site preparation and construction of the substation. A paleontological field survey would be conducted on the site prior to the start of any construction activities to determine the presence or extent of lithic units of high paleontological sensitivity in the project area.

5.4.11.2 Mesa Verde Alternative

Archaeology

Archaeological survey of the Mesa Verde alternative substation site resulted in the discovery of one previously unrecorded archaeological resource within the alternative site boundaries (P33-13672). P33-13672 is a lithic scatter of petrified wood flakes and is potentially eligible to the NRHP. Earth-disturbing project construction and operation activities, such as site preparation grading and digging, could result in impacts to this resource but would be mitigated to less than significant levels.

Ethnography

Apart from the recorded archaeological site, there are no known areas of ethnographic sensitivity within the Mesa Verde alternative site. Native American groups have expressed interest in the disposition of prehistoric archaeological sites as evidence of the presence of their ancestors.

Construction or operation of a substation on the Mesa Verde alternative site is not expected to have effects on Native American TCPs or other resources of cultural value. BLM staff has indicated that they would consult with appropriate Native American groups regarding this process in the context of the BLM's government-to-government responsibility with Native American tribes.

History

An archaeological survey of the Mesa Verde alternative site resulted in no historic-era resource discoveries. There are no known historic-era resources within the alternative site boundaries are expected to be subject to impacts from construction and operation of the proposed substation.

Paleontology

The Mesa Verde alternative site is located on Holocene alluvium and Holocene dune sand geological units. Neither of these geological units is conducive to the formation or preservation of fossils, and this alternative substation site is therefore given a low paleontological sensitivity ranking (Scott 2003). Potentially significant paleontological specimens may be impacted by grading and excavation activities associated with site preparation and construction of the new substation. No potentially significant paleontological specimens are expected on this site.

5.4.11.3 Wiley Well Alternative

Archaeology

An archaeological survey of the Wiley Well alternative site resulted in the identification of no known archaeological resources. Therefore, no archaeological resources are expected to be subject to impacts from construction or operation of the proposed substation.

Ethnography

Construction or operation of a substation on the Wiley Well alternative site is not expected to have effects on Native American TCPs or other resources of cultural value. BLM staff has indicated that they would consult with appropriate Native American groups regarding this process in the context of the BLM's government-to-government responsibility with Native American tribes.

History

An archaeological survey of the alternative site resulted in no resource discoveries within the site boundaries. No historic-era resources are therefore expected to be subject to impacts from construction or operation of the substation on the Wiley Well alternative site.

Paleontology

The Wiley Well alternative site is located on Holocene alluvium and Holocene dune sand geological units. Neither of these geological units is conducive to the formation or preservation of fossils, and this proposed substation site is therefore given a low paleontological sensitivity

ranking (Scott 2003). Potentially significant paleontological specimens may be impacted by grading and excavation activities associated with site preparation and construction of the new substation. No potentially significant paleontological specimens are expected on this site.

5.4.12 Public Health and Safety

5.4.12.1 Hazardous Materials

The potential for impacts to public health and safety from hazardous materials that could occur during construction or operation of the substation at the preferred site or at any of the alternative sites, and the means by which SCE would attempt to minimize those potential impacts would be the same as described in Section 5.1.13.1.

5.4.12.2 School Facilities

Project construction or operation would not occur on any school sites. There would be a very low risk of emitting hazardous materials, substances, or waste within ¼ mile of an existing or proposed school. No schools were identified within ½ mile from the preferred or alternative sites, and no temporary construction areas would be located within ¼ mile of any existing school sites.

5.4.12.3 Airport and Airstrip Operations

Construction or operation of the Midpoint Substation at the preferred site, or either of the alternative sites, would not impact operation of any airport or private airstrip. The sites are located in an existing right-of-way adjacent to the existing DPV1 transmission line, and would

therefore not create a new safety hazard for people residing or working in the project area. In addition, no airports or airstrips are located within 2 miles of the preferred or alternative sites.

5.4.12.4 Emergency Response or Evacuation Plans

Construction or operation of the preferred site or either of the alternative substation sites would not impair implementation of or physically interfere with an adopted emergency response or evacuation plan.

CHAPTER 6.0
SIGNIFICANT AND POTENTIALLY SIGNIFICANT IMPACTS AND MITIGATION OF THE PROPOSED PROJECT

6.1 DEVERS-HARQUAHALA 500kV TRANSMISSION LINE

6.1.1 Introduction

The BLM Right-of-Way Grant CA-17905/AZ-23805 Exhibit B (1989) was used in compiling mitigation measures for the resources addressed in this document. The mitigation measures in the following sections were drawn from the mitigation measures appended to the Right-of-Way Grant. In some instances, additional mitigation measures also are provided. The measures will be applied to federal, state, and private lands crossed by the proposed project. The Right-of-Way Grant is included in this PEA as Appendix B.

6.1.2 Land Use

6.1.2.1 Arizona

No significant impacts to existing or planned land uses would result from construction and operation of the Arizona portion of the Devers-Harquahala transmission line. Mitigation measures as required by the BLM Right-of-Way Grant will be implemented during construction of the transmission line on public lands.

Construction of the first mile of the line on Link 1a, east of the Harquahala Switchyard, would cross agricultural land. Less than 0.1 acre of prime and unique cropland would be permanently removed from production by the tower structure foundations.

Impacts corresponding to crossing of the KOFA NWR (Link 2) would be minimized through utilization of existing utility access (gas and transmission) roads during the construction and operational phases of the project. All vehicular traffic would be limited to approved access or spur roads. Impacts would not be significant after mitigation is incorporated.

The following mitigation measures as specified in the BLM Right-of-Way Grant (under Access Roads) would be applied to reduce impacts to land use:

1. Although the Holder may restore and maintain existing access roads, they cannot be either widened or upgraded without approval of the Authorized Officer.

2. New access road construction will be kept to a minimum.

Where feasible, the following additional mitigation measures would be implemented:

- Matching of tower spans
- Aligning towers adjacent or parallel to agricultural field boundaries
- Using tubular steel pole structures in agricultural fields instead of lattice steel towers to reduce the footprint of the structure
- Specific tower placement to avoid/span sensitive features

6.1.2.2 California

No significant impacts to existing or planned land use would result from construction and operation of the California portion of the Devers-Harquahala transmission line. Mitigation measures as required by the BLM Right-of-Way Grant would be implemented during construction of the transmission line on public lands.

Construction of 10.5 miles of the proposed line along Link 10 in the Palo Verde Valley would permanently displace prime farmland. The H-frame structures, similar to the existing DPV1 structures, would be installed in this segment to reduce the amount of farmland permanently removed from production and minimize impacts to farm operations. Where feasible, additional mitigation measures would include matching tower spans, and aligning towers adjacent or parallel to field boundaries.

In the agricultural area of the Palo Verde valley, towers would be located to allow for canal dredging by the Palo Verde Irrigation District. This also could include canal modifications.

Link 10 crosses an (unoccupied) single-family dwelling unit at Milepost 5.3. Two additional single-family dwelling units and one mobile home would be impacted due to the alignment of Link 10 at Milepost 6.2. Mitigation measures would include purchase of the parcel and relocation or, if practical, adjusting the transmission line alignment and placing towers to avoid the affected dwelling units.

Link 14 crosses an open pit gravel operation. Potential impacts would be mitigated during construction by coordinating with the owner/operator to avoid critical mining periods and high volume earth-moving days. Operational mitigation would include spanning the mine.

6.1.3 Socioeconomics, Population, and Housing

No potentially significant impacts were identified for socioeconomics, population, and housing.

6.1.4 Geology and Soils

No potentially significant impacts were identified for geology and soils.

6.1.4.1 Arizona and California

Mitigation measures as required by the BLM Right-of-Way Grant would be implemented during construction of the transmission line on public lands to reduce impacts to geology and soils as follows.

Geology

1. The line will be located to minimize the disruption of any active mining operations.

2. Transmission towers will not be sited on nor straddle the mapped traces of any known fault that has been designated active or potentially active. In areas where known faults are present, the Holder will visually check the tower site area before clearing, and will check the tower footing holes for any trace of a previously unmapped fault. If manifestations of a fault are found, construction will immediately stop at that site and the Holder will consult with the BLM Authorized Officer. The BLM Authorized Officer will determine if it is a fault trace and if so, will ascertain if it is active, potentially active, or inactive.

3. Towers will be located so that the line will span the surface traces of active and potentially active faults such that a relative lateral surface displacement would shorten the span between towers, and thus avoid potential line breaks. Where this is not feasible, the Holder will incorporate slack spans to bridge the fault(s) such that the projected lateral

surface displacement, as forecast by the Holder's geologist and accepted by the BLM Authorized Officer, will not structurally affect the associated towers.

4. Appropriate tower design will be used to mitigate the potential for very strong seismic ground shaking. In general, an appropriate tower design which accounts for lateral wind loads and conductor loads during line stringing exceeds any credible seismic loading (ground shaking).

5. Towers will be located to avoid areas of highly sensitive dune sand areas. Where these areas cannot be avoided, towers will be located to minimize disturbance to the deposits at a site approved by the BLM Authorized Officer.

6. Wherever possible to minimize the potential for slope instability, towers will be located to avoid gullies or active drainages, and over-steepened slopes.

7. The Authorized Officer may require, on a site-specific basis, helicopter assisted construction in sensitive areas. Sensitive areas are those that exhibit both (1) high erosion potential and/or slope instability; and (2) a lack of existing access roads within a reasonable distance of the tower site (generally no more than ¼ mile), or existing access that is not suitable for upgrading to accommodate conventional tower construction or line stringing equipment, and where it is determined that, after field review, the issues of erosion and/or slope instability cannot be successfully mitigated through implementation of accepted engineering practices.

8. Mitigation of potentially significant impacts to the western end of the proposed transmission line due to (1) potential surface fault rupture along the Banning, Mission Creek, and Mecca Hills faults, and (2) potential for severe seismic shaking can be achieved by standard design methods listed below:

a. Towers will be sited so as not to straddle active fault traces.

b. The alignment will be designed to cross an active fault such that future rupture on the fault would not cause excessive stress on the line or the towers.

c. Standard foundation and structural design measures will be utilized to minimize the impact from severe seismic shaking.

9. Appropriate design of tower foundations will be used to reduce the potential for settlement and compaction.

Soils

1. New access roads and soil disturbance will be avoided or minimized in all areas designated as having high erosion hazards or potential slope instability. If the Authorized Officer, after consultation and review of alternatives (including helicopter or helicopter assisted construction), deems the proposed new access road feasible, design plans must be submitted for approval, in writing, prior to construction.

2. New access roads, which are required, will be designed to minimize ground disturbance from grading. They will follow natural ground contours as closely as possible and include specific features for road drainage, including water bars on slopes over 25 percent. Other measures could include drainage dips, side ditches, slope drains, and velocity reducers. Where temporary crossings are constructed, the crossings will be restored and repaired as soon as possible after completion of the discrete action associated with construction of the line in the area.

3. Side casting of soil during grading will be minimized. Excess soil will be properly stabilized or, if necessary, end-hauled to an approved disposal site.

6.1.5 Hydrology

No potentially significant impacts were identified for hydrology.

Mitigation measures as required by the BLM Right-of-Way Grant would be implemented during construction of the transmission line on public lands to reduce impacts to hydrological resources as follows:

1. During the first year following construction, potential soil erosion sites will be inspected by the Holder after each major rainstorm as access permits. For the purpose of this measure, a major rainstorm is defined as any singular storm where the total precipitation exceeds the arithmetic mean for similar events in the area and results in flooding. Examples include cloudbursts (high quantity – short duration) or storms where saturated soils produce runoff (high quantity – long duration).

2. Construction equipment will be kept out of flowing stream channels except when absolutely necessary to construct crossings.

3. Erosion control and hazardous material plans will be incorporated into the construction bidding specifications to ensure compliance.

4. Appropriate design of tower footing foundations, such as raised foundations and/or enclosing flood control dikes, will be used to prevent scour and/or inundation by a 100-year flood.

5. Towers will be located to avoid active drainage channels, especially downstream of steep hillslope areas, to minimize the potential for damage by flash flooding and mud and debris flows.

6. Diversion dikes will be required to divert runoff around a tower structure if (a) the location in an active channel cannot be avoided; and (b) where there is a very significant flood scour/deposition threat, unless specifically exempted by the BLM Authorized Officer.

7. Runoff from roadways will be collected and diverted from steep, disturbed, or otherwise unstable slopes.

8. Ditches and drainage concourses will be designed to handle the concentrated runoff, will be located to avoid disturbed areas, and will have energy dissipations at discharge points.

9. Cut and fill slopes will be minimized by a combination of benching and following natural topography where possible.

6.1.6 Air Quality

Potentially significant impacts for air quality could occur depending on the phasing of the project construction. The following mitigation measures would be applied, where appropriate, to reduce impacts to air quality:

- Heavy duty off-road diesel engines would be properly tuned and maintained to manufacturers' specifications to ensure minimum emissions under normal operations.

- Water or chemical dust suppressants would be applied to unstabilized disturbed areas and/or unpaved roadways in sufficient quantity and frequency to maintain a stabilized surface.

- Water or water-based chemical additives would be used in such quantities to control dust on areas with extensive traffic including unpaved access roads; water, organic polymers, lignin compounds, or conifer resin compounds would be used depending on availability, cost, and soil type.

- Surfaces permanently disturbed by construction activities would be covered or treated with a dust suppressant after completion of activities at each site of disturbance.

- Vehicle speeds on unpaved roadways would be restricted to 15 miles per hour.

- Vehicles hauling dirt would be covered with tarps or by other means.

- Site construction workers would be staged off-site at or near paved intersections and workers would be shuttled in crew vehicles to construction sites. As part of the construction contract, SCE would require bidders to submit a construction transportation plan describing how workers would travel to the job site.

- Emissions credits would be purchased to offset any emissions levels which are over the emissions thresholds.

6.1.7 Traffic and Transportation

No potentially significant impacts were identified for traffic and transportation.

6.1.8 Biology

The following discussion presents mitigation measures for the proposed Devers-Harquahala 500kV transmission line that are specified in the BLM Right-of-Way Grant, Exhibit B (1989). References to specific mitigation measures listed in the right-of-way grant are annotated as either vegetation (V#), or wildlife (W#). The right-of-way grant is provided in Appendix B. Table 6-1 summarizes mitigation measures for resources potentially affected by the construction and operation of the proposed Devers-Harquahala 500kV transmission line.

TABLE 6-1
A SUMMARY OF POTENTIAL IMPACTS AND MITIGATION MEASURES FOR THE DEVERS-HARQUAHALA 500KV TRANSMISSION LINE

Impact Types – Arizona	Mitigation Measures
Vegetation removal	Span washes, careful tower placement, transplant cacti, avoid large trees, minimize access road construction
Sonoran desert tortoise	Avoid upland areas, monitor construction, provide pre-construction education to workers
Desert bighorn sheep	Limit construction activities in lambing areas during lambing season
Native plants	Avoid large ironwood, paloverde, and mesquite trees, avoid barrel cacti and saguaros, minimize access road construction, adjust tower locations
Impact Types – California	**Mitigation Measures**
Vegetation removal	Span washes, careful tower placement, transplant cacti, avoid large trees, minimize access road construction
Mohave desert tortoise	Monitor construction activities, provide pre-construction education to workers, minimize access/spur road construction in tortoise habitat, limit construction vehicle speeds to 25 mph or less, keep construction and other work areas clean to avoid attracting ravens, provide habitat compensation pursuant to latest BLM requirements
Flat-tailed horned lizard	Minimize access road construction in potential habitat, limit construction vehicle speeds to 25 mph, provide pre-construction education to workers
Coachella Valley fringe-toed lizard	Minimize access road construction in potential habitat, do not place concrete batch plants or materials storage site in suitable habitat, monitor construction in suitable habitat, provide habitat compensation pursuant to latest BLM or Coachella Valley MSHCP requirements
Least Bell's vireo	Conduct pre-construction surveys in suitable habitat, avoid removal of riparian vegetation, site towers to avoid potential habitat, avoid construction in suitable habitat during the nesting season
Coastal California gnatcatcher	Conduct pre-construction surveys in suitable habitat, avoid removal of coastal sage scrub habitat, avoid construction in suitable habitat during the nesting season
Stephens' kangaroo rat	Minimize access road construction, keep construction vehicles on existing roads to the extent practicable, provide habitat compensation pursuant to latest Riverside County HCP requirements
Sensitive native plants	Avoid known populations by spanning, minimize ground disturbing activities, minimize access road construction, conduct pre-construction surveys for Coachella Valley milkvetch

6.1.8.1 Arizona

Impacts to sensitive plants and wildlife are expected to be less than significant. The application of appropriate mitigation measures as required by the BLM Right-of-Way Grant would provide additional reductions in impacts associated with construction of the proposed Devers-Harquahala transmission line in Arizona.

Links 1a and 1b - Potential impacts on plants and wildlife on Links 1a and 1b of the proposed Devers-Harquahala transmission line would be less than significant. There is potential tortoise habitat present, primarily at the southern end of the Big Horn Mountains, a BLM Category 3 area for desert tortoise. However, tortoise densities in this area are very low. Direct temporary impacts could include collapse of tortoise burrows and disturbance and removal of existing native vegetation that provides food and shelter for tortoises. Bighorn sheep present could be disturbed by human presence and construction noise. Some loss to avian nesting habitat along washes could occur. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Mitigation efforts to reduce potential impacts could include careful local adjustment in tower foundation placement (V1), minimizing access road construction (V7;W10), avoiding upland areas of desert tortoise habitat (W17), imposing seasonal limitations on construction activities to minimize impacts to bighorn sheep (W13), and possibly, transplanting cacti (particularly smaller saguaros) (V4). Potential impacts to desert tortoise could be reduced by identifying site-specific occurrences (W9) and by having an SCE contracted biological monitor certified by USFWS present during construction activities that involve earth-moving equipment (W5). The monitor would move any tortoises (in burrows, cover-sites, or free-roaming on the surface) that could be impacted (W5;8). An SCE contracted tortoise biologist would present a pre-construction class on tortoise ecology and mitigation to project personnel (W4). The first approximately 3 miles of this link cross agricultural lands where no impacts to any sensitive species would occur.

Link 2 - Potentially adverse impacts to wildlife are possible on this segment, primarily associated with the known and expected occurrences of desert bighorn sheep in the KOFA NWR. There is a known high-density bighorn population and movement corridor between the New Water Mountains and the KOFA Mountains through which a portion of this link would traverse (Milepost 18.0 and Milepost 34.0). Additionally, due to the presence of bighorn ewes throughout the year in the Livingston Hills, south of the corridor from Mileposts 29.0-34.0, it is assumed that the Livingston Hills are utilized as a lambing area (Henry 2003). However, mitigation measures would be effective in minimizing impacts. While this link lies in a BLM Category 2 area for desert tortoise, recent field observations indicate that actual densities of desert tortoise are low in this area. Highly diverse wash complexes (primarily at Alamo and Tyson washes), and other wash crossings that provide avian nesting habitat and resources for a variety of wildlife species, would not be substantially impacted by construction or operation of the proposed transmission line.

Direct temporary impacts could include disturbance to bighorn sheep from human presence and construction related noise, collapse of tortoise burrows, disturbance and removal of existing native vegetation that provides food and shelter for tortoises, and loss of some avian nesting habitat along washes. Impacts to native vegetation would include clearing of vegetation from tower sites and some disturbance of vegetation at wire-pulling and splicing sites. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site and therefore would be less than significant.

Mitigation to reduce potential impacts could include imposing seasonal limitations on construction activities to minimize conflict with bighorn sheep, specifically during lambing season (January 1 through April 30) (W13). However, the lambing areas in the Livingston Hills are approximately 1 mile southwest of the proposed transmission line right-of-way, and should not be impacted by construction noise or human presence. Additionally, careful local adjustment in tower foundation placement (V1), minimizing access road construction (V7;W10), avoiding

upland areas of desert tortoise habitat (W17), and possibly, transplanting cacti (particularly smaller saguaros) (V4) would minimize impacts. Potential impacts to desert tortoise could be reduced by identifying site-specific occurrences (W9) and by having an SCE contracted biological monitor certified by USFWS present during construction activities that involve earth-moving equipment (W5). The monitor would move any tortoises (in burrows, cover-sites, or free-roaming on the surface) that could be impacted (W5;8). An SCE contracted tortoise biologist would present a pre-construction class on tortoise ecology and mitigation to project personnel (W4).

Additionally, within the KOFA NWR (Milepost 9.0 to Milepost 34.1), no destruction or damage would be allowed to any saguaro, barrel cacti, mesquite, or ironwood trees, either during construction or maintenance of the transmission line. Some clearing of vegetation, at the direction of the compliance officer, may require use of hand tools to protect resources (V6). Scalping of topsoil and removal of low-growing vegetation would be permitted only under the direction of the compliance officer (V6).

Link 6 - A potentially significant impact exists on this link, primarily associated with a low-density bighorn area at Copper Bottom Pass in the Dome Rock Mountains. Additionally, bighorn lambing areas are present between Milepost 0.0 through 6.0. Potential habitat for desert tortoise exists for approximately the first 8.4 miles of this link (Milepost 0.4 to Milepost 8.8). This area is designated a Category 3 area for desert tortoise by the BLM, but tortoise density in this area is very low. Vegetation is about equally divided between creosote bush-bursage scrub and mixed paloverde-creosote scrub.

Direct temporary impacts could include disturbance to bighorn sheep from human presence and construction related noise, collapse of tortoise burrows, disturbance and removal of existing native vegetation that provides food and shelter for tortoises, and loss of some avian nesting habitat along washes. Impacts to native vegetation would include clearing of vegetation from tower sites and some disturbance of vegetation at wire-pulling and splicing sites. Direct

permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Mitigation to reduce impacts could include imposing seasonal limitations on construction activities to minimize conflict with bighorn sheep, specifically during lambing season (January 1 through April 30) (W13). Additionally, careful local adjustment in tower foundation placement (V1), minimizing access road construction (V7;W10), and avoiding upland areas of desert tortoise habitat (W17) would reduce impacts. Potential impacts to desert tortoise could be reduced by identifying site-specific occurrences (W9) and by having an SCE contracted biological monitor certified by USFWS present during construction activities that involve earth-moving equipment (W5). The monitor would move any tortoises (in burrows, cover-sites, or free-roaming on the surface) that could be impacted (W5;8). An SCE contracted tortoise biologist would present a pre-construction class on tortoise ecology and mitigation to project personnel (W4). Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Link 8 - This section of the line would cross the Colorado River. Wildlife present here would be limited primarily to some birds, principally waterfowl, which are attracted to the water in the river. However, at the crossing point, the river is channelized and lined with riprap. This has precluded the development of riparian and emergent vegetation that could provide nesting and cover for waterfowl species. Vegetation along this section consists of creosote-bursage scrub on the foothills east of the river, descending to medium height salt cedar and mesquite riparian thicket on the current floodplain, and continuing west of the river as agricultural fields in California.

Direct temporary impacts for this section of the transmission line would include clearing of vegetation from access, spur roads, and tower sites. Due to the short distance of this link, wire-pulling and splicing sites could be placed outside the area of influence to the Colorado River, and would not contribute to disturbance in this area. Some minor unavoidable long-term collision

hazard for birds (especially waterfowl) would be present where the line crosses the Colorado River. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site. No impacts to aquatic species should occur from the construction or operation of this transmission line.

Mitigation to reduce potential impacts could include careful local adjustment in tower foundation placement (V1) and minimizing access road construction in riparian habitats (V7;W10). Due to the large size of the 500kV conductor wire bundles, the potential collision hazard this presents for birds is less than significant. Matching the spans and conductor heights between the proposed Devers-Harquahala towers and the existing DPV1 towers would reduce the potential for bird impacts (W1) at the river crossing. The Colorado River can be successfully spanned at this crossing due to its relatively narrow width at this point, and no mitigation for any aquatic species present would be required (V1;8;W2).

6.1.8.2 California

Impacts to sensitive plants and wildlife are expected to be less than significant. The application of appropriate mitigation measures as required by the BLM Right-of-Way Grant would provide additional reductions in impacts with construction of the proposed Devers-Harquahala transmission line in California. SCE will compensate for loss of tortoise habitat via monetary contribution to an appropriate fund.

Link 10 - The first 11 miles of this section traverse existing agricultural lands. This link crosses numerous irrigation canals in this area, some of which support permanent stands of cattail and other aquatic vegetation. The remaining portion of this section (Milepost 11.0 to 17.9) is through sandy soils in creosote bush-bursage scrub habitat. This latter section is potential habitat for the flat-tailed horned lizard.

Direct temporary impacts to wildlife in the agricultural lands portion of this link could occur where the line crosses irrigation canals. Impacts would be limited to disturbance of waterfowl by human presence and construction noise. Direct temporary impacts to flat-tailed horned lizard habitat would occur to approximately 31 acres from ground-disturbing activities at tower sites, and wire-pulling and splicing sites between Milepost 11.0 and Milepost 17.9 based on ground disturbance estimates noted in Table 3-5, Chapter 3. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Since the irrigation canals are no more than 20 feet in width, potential impacts to these areas would be avoided by siting towers to span the canals (V1;8;W2). The ground disturbance impacts to the creosote-bursage habitat in the western portion of this link are reversible by post-construction reseeding efforts and naturally occurring erosional process of wind and water on the sandy soils present in the area. The BLM has established planning boundaries for the flat-tailed horned lizard, but none of these are within the Devers-Harquahala study corridor, and do not require specific mitigation. The resulting level of impact for this link would be less than significant.

Link 12 – This short section (2.9 miles) of the transmission line traverses creosote-bursage habitat for its full length. Potential for significant impacts to wildlife species and habitat exist on this segment, and are associated with the presence of desert tortoise and its habitat, and potential flat-tailed horned lizard habitat.

This proposed transmission line could result in potentially significant impacts to the desert tortoise if impacts are not adequately mitigated. The transmission line passes through critical habitat for the Mojave desert tortoise in the Chuckwalla Desert Wildlife Management Area (DWMA) of the Eastern Colorado Recovery Unit established by the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994). The entire Link 12 is considered Category 1 habitat for desert tortoise by the BLM.

Direct temporary impacts would occur primarily during construction and could result in the loss of habitat including collapse of tortoise burrows and disturbance and removal of existing native vegetation that provides food and shelter for tortoises. Loss of individual desert tortoises could also occur. However, because the proposed Devers-Harquahala transmission line would parallel the existing DPV1 line, no new access roads are expected to be created and, thus, no additional collection or mortality of desert tortoises by private individuals related to new access is expected. Since most operation and maintenance activities for the two lines would be performed concurrently, additional operations and maintenance impacts to the tortoise from the proposed transmission line are expected to be less than significant. A significant impact in the decline of the desert tortoise has been due to the increase in the presence of ravens in tortoise habitat. Although the proposed Devers-Harquahala transmission line would provide additional perch and nesting sites for ravens, raven predation of young desert tortoises should not be a significant problem in desert tortoise habitat along the line. Research has indicated that the largest concentrations of ravens occur in areas that provide food opportunities, such as sanitary landfills, sewage disposal facilities, agricultural fields, and along heavily used major roads. With the exception of I-10, the proposed Devers-Harquahala transmission line would not pass near any such facilities within desert tortoise habitat. No additional impacts are expected to occur, however, because studies indicate that desert tortoise populations are generally depleted within 1 mile of major, paved roads (Nicholson 1978) such as I-10, and the proposed Devers-Harquahala and existing DPV1 500kV lines are close to I-10.

Approximately 13 acres of this habitat would be impacted by ground-disturbing activities during construction of tower sites based on ground disturbance estimates noted in Table 3-5, Chapter 3. Because Link 12 is only 2.9 miles long, wire-pulling and splicing sites are unlikely to be needed along this transmission line link. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site and therefore would be less than significant.

Potential impacts for Link 12 would be reduced by spanning washes (V1;8;W2), careful local adjustment in tower foundation placement (V1), minimizing construction access in xeroriparian wash woodlands (V7;W10), and identifying site-specific occurrences of sensitive species (W9). Potential impacts to desert tortoise could be reduced by identifying site-specific occurrences (W9) and by having an SCE contracted biological monitor certified by USFWS present during construction activities that involve the use of earth-moving equipment in desert tortoise habitat (W5). The monitor would move any tortoises (in burrows, cover-sites, or on the surface) that could be impacted (W5;8). An SCE contracted tortoise biologist would present a pre-construction class on tortoise ecology and mitigation to project personnel (W4). A maximum 25 mph speed limit would be in effect along all access roads associated with the project (W6).

The BLM has established planning boundaries for the flat-tailed horned lizard, but none of these are within the proposed Devers-Harquahala transmission line study corridor, and do not require specific mitigation. Mitigation for this section would be limited to post-construction reseeding of affected areas (W12).

Application of the mitigation measures as stated would reduce impacts for this link to less than significant.

Link 13 - Potentially significant impacts to plant and wildlife species and habitat may occur on this link, and are associated with the presence of desert tortoise and its habitat, flat-tailed horned lizard habitat, xeroriparian wash woodlands, wash crossings, and occurrences of Alverson's pincushion cactus, Coachella Valley milkvetch, California silverbush, and California barrel cactus. However, mitigation measures should be effective in reducing any impacts to these resources on this link to less than significant.

Potentially significant impacts to the desert tortoise may occur if impacts are not adequately mitigated. The proposed Devers-Harquahala transmission line passes through critical habitat for

the Mojave desert tortoise in the Chuckwalla DWMA of the Eastern Colorado Recovery Unit established by the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994). The lands through which the proposed transmission line passes on this link are classified by the BLM as Category 1 desert tortoise habitat between approximately Milepost 0.0 to Milepost 7.0 and Milepost 23.0 to Milepost 69.5. Milepost 7.0 to Milepost 23.0 are placed in the BLM Category 3 habitat. Potential impacts to desert tortoise would be the same as discussed for Link 12 above.

Habitat for desert tortoise is present for the full length of this link, and approximately 310 acres of this habitat could be impacted by ground-disturbing activities during construction of tower sites, based on ground disturbance estimates noted in Table 3-5, Chapter 3. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Habitat for the flat-tailed horned lizard is present between Milepost 0.0 and Milepost 5.0, and Milepost 55.8 to Milepost 61.0 of this link. Direct temporary impacts to flat-tailed horned lizard habitat would occur to approximately 45 acres from ground-disturbing activities at tower sites, and wire-pulling and splicing sites. This assumes that neither a materials storage facility, nor a concrete batch plant would be placed within these short distances. There could be some minor loss of avian nesting habitat along washes due to the removal of trees and other vegetation. Impacts to Alverson's pincushion cactus, California silverbush, California barrel cactus, and other native vegetation would include clearing of vegetation from tower sites and crane pads, and some disturbance of vegetation at wire-pulling and splicing sites. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Potential impacts on this segment would be reduced by spanning washes (V1;8;W2), careful local adjustment in tower foundation placement (V1), minimizing construction access in xeroriparian wash woodlands (V7;W10), and identifying site-specific occurrences of sensitive species (W9). Potential impacts to desert tortoise could be reduced by identifying site-specific

occurrences (W9) and by having a SCE contracted biological monitor certified by USFWS present during construction activities that involve the use of earth-moving equipment in desert tortoise habitat (W5). The monitor would move any tortoises (in burrows, cover-sites, or on the surface) that could be impacted (W5;8). An SCE contracted tortoise biologist would present a pre-construction class on tortoise ecology and mitigation to project personnel (W4). A maximum 25 mph speed limit would be in effect along all access roads associated with the project (W6).

The BLM has established planning boundaries for the flat-tailed horned lizard, but none of these are within the proposed Devers-Harquahala study corridor, and do not require specific mitigation. However, ground-disturbance impacts to flat-tailed horned lizard are reversible by post-construction reseeding efforts (W12) and naturally occurring erosional process of wind and water on the sandy soils present in the area. Where applicable, impacts to California barrel cactus and Alverson's pincushion cactus would be reduced by transplanting in areas where these plants occur on tower sites or access roads (V4). In the case of California silverbush, it may be necessary to adjust tower site locations to avoid larger populations of this plant (V1). Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Direct temporary impacts could include removal of plants and disturbance of habitat of the Coachella Valley milkvetch. The Coachella Valley milkvetch is known within the area of Mileposts 27.9-30.2, with additional habitat for the species present between Mileposts 26.5-27.9 and Mileposts 30.2-31.8. Additionally, ground-disturbing activities could encourage establishment of invasive non-native plants that could compete with the Coachella Valley milkvetch. However, the Coachella Valley milkvetch would probably benefit from the kinds of soil disturbance associated with the construction of a transmission line. Pre-construction surveys for Coachella Valley milkvetch would need to be completed prior to construction of towers to minimize impact to this species (V2). Post-construction reseeding efforts (W12), along with the naturally occurring erosional process of wind and water on the sandy soils present in the area, would help restore the habitat for this species.

Application of appropriate mitigation measures would reduce potentially significant impacts on this link to less than significant.

Link 14 - Potentially significant impacts to wildlife are possible on this segment, primarily associated with the known and expected occurrences of the Coachella Valley milkvetch, suitable habitat for the Coachella Valley fringe-toed lizard, and the presence of desert tortoise and its habitat. This segment of the line passes through suitable habitat for the Coachella Valley fringe-toed lizard in the Coachella Valley Preserve and other areas. Presence of desert tortoises and suitable tortoise habitat are present for approximately 7.5 miles of this segment (Milepost 0.0 to Milepost 7.5). There is potential habitat for the flat-tailed horned lizard in areas of creosote bush scrub. Suitable habitat for California barrel cactus is present for approximately the first 7 miles of this segment. Palm oases are located north of the centerline of the project, but are not close enough to be affected by the construction of the transmission line.

The Coachella Valley fringe-toed lizard could be impacted by taking of individuals and disturbance of habitat during construction operations. Other impacts could include collapse of tortoise burrows and disturbance and removal of existing native vegetation that provides food and shelter for tortoises. Additional concerns for the desert tortoise would be similar to those discussed for Link 13 above.

Direct temporary impacts could include removal of plants and disturbance of habitat of the Coachella Valley milkvetch. Impacts and mitigation would be similar to those discussed for Link 13 above.

Direct temporary impacts to flat-tailed horned lizard habitat would occur to approximately 108 acres from ground-disturbing activities at tower sites, and wire-pulling and splicing sites between Milepost 7.5 and Milepost 31.8, based on ground disturbance estimates noted in Table 3-5, Chapter 3. Impacts to California barrel cactus and other native vegetation would include clearing of vegetation from tower sites and crane pads, materials storage sites, and some disturbance of

vegetation at wire-pulling and splicing sites. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

A qualified SCE contracted biological monitor certified by USFWS would be present with construction crews on a daily basis to clear areas for the Coachella Valley fringe-toed lizard, flat-tailed horned lizard, and other sensitive species in the Coachella Valley Preserve and other sand dune communities within this link between Milepost 7.6 and Milepost 31.8 (W11). Despite crossing designated critical habitat for the Coachella Valley fringe-toed lizard, construction impacts of this segment would be less than significant by avoiding habitat occupied by this species (W2;10). These areas would be delineated in pre-construction surveys (V2).

The USFWS issued a Section 10(a) incidental take permit in 1986 for the Coachella Valley fringe-toed lizard that allowed take of this species during land use development provided the requirements of the Coachella Valley Habitat Conservation Plan were met. The compensation for right-of-way take mitigation is currently $600/acre for previously undisturbed land that is cleared during land use development projects (California Regulatory Notice Register 2001; Barrows 2003).

The proposed California Desert Conservation Area Plan Amendment for the Coachella Valley and FEIS does not describe mitigation measures for any specific special status species other than desert bighorn sheep (BLM 2002a). This document states that the BLM will defer to recommendations from available recovery plans, research information and data, and other documents on special status species in establishing management prescriptions and guidelines for these species. The goal of the management prescriptions selected should be to prevent additional listings of sensitive species in the Coachella Valley. Because of the lack of specific mitigation guidelines in the Coachella Valley amendment, and the deference to existing plans and methods, the following mitigation measures from the Northern and Eastern Colorado Desert Coordinated

Management Plan FEIS, Appendix D (BLM 2002c), would be an appropriate application for the Coachella Valley region.

Mitigation measures for desert tortoise that apply to all construction and maintenance of power transmission lines are as follows:

- Surveys - When access along the utility corridor already exists, pre-construction surveys for transmission lines should provide 100 percent coverage for any areas to be disturbed and within a 100-foot buffer around the areas of disturbance. When access along the utility corridor does not already exist, pre-construction surveys for transmission lines should follow standard protocol for linear projects.

- Access - To the maximum extent possible, access for transmission line construction and maintenance should occur from public roads and designated routes.

- Disturbed Areas - To the maximum extent possible, transmission pylons and poles, equipment storage areas, and wire-pulling sites should be sited in a manner that avoids desert tortoise burrows.

- Restoration - Whenever possible, spur and access roads and other disturbed sites created during construction should be recontoured and restored.

- Ravens - All transmission lines should be designed in a manner that would reduce the likelihood of nesting by common ravens. Each transmission line company should remove any common raven nests that are found on its structures. Transmission line companies must obtain a permit from the USFWS's Division of Law Enforcement to take common ravens or their nests.

Potential impacts to desert tortoise could be reduced to less than significant by identifying site-specific occurrences (W9) and by having a SCE contracted biological monitor certified by USFWS present during construction activities that involve the use of earth-moving equipment in desert tortoise habitat (W5). The monitor would move any tortoises (in burrows, cover-sites, or on the surface) that could be impacted (W5;8). Additionally, careful local adjustment in tower foundation placement during construction could minimize impacts (V1). An SCE contracted tortoise biologist would present a pre-construction class on tortoise ecology and mitigation to project personnel (W4). A maximum 25 mph speed limit would be in effect along all access roads associated with the project (W6).

The BLM has established planning boundaries for the flat-tailed horned lizard, but none of these are within the Devers-Harquahala study corridor, and do not require specific mitigation. Other areas to be avoided are occurrences of California barrel cactus and desert tortoise habitat, which could be identified once tower sites and spur road alignments have been established in the field.

Application of the appropriate mitigation measures on this link would reduce impact levels to less than significant.

Link 16 - Potentially significant impacts to plants and wildlife are possible on this segment, and are associated with suitable habitat for Coachella Valley milkvetch, Coachella Valley fringe-toed lizard, and probable habitat for flat-tailed horned lizard. However, these impacts could be reduced to less than significant by implementation of the efforts discussed below. Vegetation is mostly creosote bush scrub with a sand dune community present between Milepost 1.2 and Milepost 2.4. Wash crossings are vegetated with white burrobrush, a few smoketrees, and other associated vegetation.

Direct temporary impacts could include removal of plants and disturbance of habitat of the Coachella Valley milkvetch. Additionally, ground-disturbing activities could encourage

establishment of invasive non-native plants that could compete with the Coachella Valley milkvetch. However, the Coachella Valley milkvetch would probably benefit from the kinds of soil disturbance associated with the construction of a transmission line. The Coachella Valley fringe-toed lizard could be impacted by crushing of individuals and disturbance of habitat during construction operations. Direct temporary impacts to flat-tailed horned lizard habitat would occur to approximately 13 acres from ground-disturbing activities at tower sites, and wire-pulling and splicing sites between Milepost 0.0 and Milepost 3.0, based on ground disturbance estimates noted in Table 3-5, Chapter 3. Direct permanent impacts would be limited to minor habitat loss from the placement of tower foundations, but would not exceed 0.01 acre per tower site.

Pre-construction surveys for Coachella Valley milkvetch would be completed prior to construction of towers to minimize impact to this species (V2). Post-construction reseeding efforts (W12), along with the naturally occurring erosional process of wind and water on the sandy soils present in the area, would help restore the habitat for this species. An SCE contracted biological monitor certified by USFWS would be present with construction crews on a daily basis to clear areas for the Coachella Valley fringe-toed lizard, flat-tailed horned lizard, and other sensitive species in sand dune communities in this link between Milepost 0.0 and Milepost 5.0 (W11). Despite crossing designated critical habitat for the Coachella Valley fringe-toed lizard, construction impacts of this segment would be minimized by avoiding habitat occupied by this species. These areas could be delineated in pre-construction surveys (V2). Reducing impacts to populations of the Coachella Valley fringe-toed lizard could be aided by avoiding any activities that would tend to create wind barriers that might result in sand stabilization and by spanning areas of windblown sand where possible (W18). The BLM has established planning boundaries for the flat-tailed horned lizard, but none of these are within the proposed Devers-Harquahala transmission line study corridor, and do not require specific mitigation. It is likely that avoidance of Coachella Valley fringe-toed lizard habitat would also avoid impacts to the flat-tailed horned lizard because of their similar habitat requirements.

Application of the appropriate mitigation measures on this link would reduce impact levels to less than significant.

In addition to significance determinations and mitigation measures to be developed through the Section 7 Consultation process and utilization of BLM measures from the Right-of-Way Grant, the following mitigation and minimization measures from the Coachella Valley Multiple Species Habitat Conservation Plan (California Department of Fish and Game, et al. October 15, 2004 – Public Review Draft) would be followed:

- Avoid the introduction of noxious weeds and/or other invasive species through standard noxious weed measures. This will benefit most of the species covered by the plan.

- Vehicular travel must be on established roads to the maximum extent practicable. Any off-road vehicle use should be strongly discouraged. This will benefit many of the species covered by the plan.

- Avoid sand compaction at all sites in the Coachella Valley. This will benefit such species as the giant sand treader cricket, Coachella Valley Jerusalem cricket, and Coachella Valley milkvetch.

- Avoid vehicular travel in washes to protect triple-ridged milkvetch.

- No activities whatever should occur in wetland areas.

- No clearing of or other disturbance to riparian habitats. If unavoidable, riparian habitats must be replaced or restored. This action will benefit several riparian bird species including summer tanager, yellow warbler, yellow breasted chat, least Bell's vireo, and southwestern willow flycatcher.

- Avoid impact to mesquite-dominated habitats to protect crissal thrasher.

- Minimize impact to or removal of creosote bush to benefit LeContes's thrasher.

- Avoid any alterations to the vegetation structure of Washington fan palm oases to benefit southern yellow bat.

- Avoid any alterations of mesquite hummock habitat to benefit the Coachella valley round-tailed ground squirrel.

6.1.9 Noise

Noise impacts expected to occur from construction or operation of the proposed Devers-Harquahala transmission line would be less than significant.

The proposed construction would comply with local noise ordinances. Typical municipal ordinances stipulate that activities producing ambient noise should not exceed 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at residential property lines or sensitive areas. However, exemptions include temporary construction during daytime hours except on Sundays and federal holidays. There may be a need to work outside of the aforementioned local ordinances in order to take advantage of low electrical draw periods during the nighttime hours. SCE would comply with variance procedures requested by local authorities if required.

6.1.10 Public Services and Utilities

No potentially significant impacts were identified for public services and utilities.

6.1.11 Visual Resources

Visual impacts are expected to be less than significant as a result of construction and operation of the proposed Devers-Harquahala 500kV transmission line.

Significant visual impacts can occur where the visual contrast resulting from construction disturbances (e.g., roads and vegetation clearing) and the presence of the transmission line would substantially alter the scenic quality of the landscape and dominate views from sensitive viewpoints resulting in high impacts to these viewers. These conditions occur in areas where the transmission line would be in the immediate foreground zone, with no existing transmission facilities obstructing or dominating views from sensitive viewpoints, in previously undisturbed landscapes. Other areas of potentially significant impact include locations where the transmission line would cross previously undisturbed, highly scenic landscape (Class A), or conflict with the existing or planned future image type(s). Because the proposed transmission line would be constructed within an existing utility corridor, impacts to highly scenic landscapes and sensitive viewers would be less than significant.

Following is a summary of potential impacts as defined by CEQA, and mitigation measures that would be effective in reducing impacts for the proposed transmission project.

6.1.11.1 Arizona and California

Substantially Degrade the Existing Visual Quality of the Site and its Surroundings

While the proposed 500kV transmission line crosses areas designated as Class A scenery, agricultural, and other developed lands (e.g., residential areas), the potential impacts to scenic quality visual image types and sensitive viewers are anticipated to be less than significant. The new facilities would be constructed and maintained within a modified utility corridor, requiring

no additional long-term disturbance outside of this corridor. Mitigation measures that avoid and minimize new access in the corridor would further reduce impacts.

Adversely Impact Scenic Vistas

There are no state-designated scenic vistas located within or adjacent to the Devers-Harquahala study corridor, and therefore no scenic vistas would be impacted by the proposed upgrade.

Adversely Affect State Scenic Roads

The proposed 500kV transmission line would not cross or be located adjacent to any state-designated scenic roads, and therefore no scenic road would be impacted.

Create a New Source of Substantial Light or Glare Adversely Impacting Views

Impacts resulting from the presence of conductors and transmission line towers will be less than significant, as non-specular conductors will be utilized and the finish on structures will be dulled.

Mitigation Measures

The following mitigation measures including those identified in the BLM Right-of-Way Grant Exhibit B, in Appendix B, would be implemented to reduce potential visual impacts:

1. Non-specular conductors will be used to reduce glare and visual contrast.

3. At all highway and recreation routes-of-travel crossings, including the Colorado River, towers will be placed at the maximum feasible distance, and when feasible, except in locations where matching existing tower spacing is deemed appropriate (see Mitigation Measure 2).

4. Improvements to existing access and new access will be accomplished according to Mitigation Measures 1 and 2 as identified under soils.

8a. Standard tower spacing would be modified to correspond with spacing of existing transmission line towers where feasible and within limits of standard tower design to reduce visual contrast.

8b. Towers would be placed so as to avoid features and/or to allow conductors to clearly span the feature (within limits of standard tower design) to minimize the amount of sensitive feature disturbed and/or reduce visual contrast (e.g., avoiding skyline situations through placement of tower to one side of a ridge or adjusting tower location to avoid highly visible locations and utilize screening of nearby landforms).

The following mitigation measure was also included in the BLM right-of-grant, Exhibit B Appendix B:

2. For the proposed alignment, tower spacing will correspond to the spacing of the existing transmission line structures. Additionally, new tower heights will be adjusted such that the top elevations of each set of towers (new and existing) are horizontal with each other. This will coordinate perceptions of towers and conductors as one element. Site-specific conditions will determine when such mitigation is feasible. Other exceptions to these two measures are where towers will be sited to avoid sensitive features and/or to allow conductors to clearly span features.

SCE will comply with the above mitigation measure to the extent possible. However, the ISO has specified that the capacity of the line be 2700 amps under normal conditions and 3600 amps under emergency conditions. This capacity rating is an increase from the 1988 DPV2 capacity rating. This capacity rating necessitates that the heights of some of the proposed Devers-Harquahala towers be slightly taller than, and in some locations tower spacing may not correspond to the adjacent DPV1 structures, to provide adequate ground clearance.

6.1.12 Cultural Resources

Cultural resource impacts are expected to be less than significant from construction and operation of the proposed Devers-Harquahala 500kV transmission line. The following sections describe potential impacts and mitigation measures that would be effective in minimizing impacts to archaeological, ethnographic, historic, and paleontological resources.

Impacts to significant or potentially significant cultural resources result from earth-disturbing effects of project construction and operation. The impacts are most likely associated with tower pad or access road grading, digging of tower footings, tower erection, or conductor pulling and splicing. As specified in the BLM Right-of-Way Grant, measures to mitigate these effects include:

1. Prior to construction and all other surface disturbing activities, the Holder shall have conducted and submitted for approval by the Authorized Officer an inventory of cultural resources within the project's APE. The nature and extent of this inventory shall be determined by the Authorized Officer in consultation with the appropriate State Historic Preservation Officer (SHPO) and shall be based upon project engineering specifications.

2. As part of the inventory, the Holder shall conduct field surveys of sufficient nature and extent to identify cultural resources that would be affected by tower pad construction,

access road installation, and transmission line construction and operation. At a minimum, field surveys shall be conducted along newly proposed access roads, new construction yards, and any other projected impact areas outside of the previously surveyed corridor. Site-specific field surveys also shall be undertaken at all projected areas of impact within the previously surveyed corridor that coincide with previously recorded cultural resource locations. The selected right-of-way shall be staked prior to the cultural resource field surveys.

3. As part of the inventory report, the Holder shall evaluate the significance of all affected cultural resources and provide recommendations with regard to their eligibility for the NRHP. Determinations of NRHP eligibility will be made by the Authorized Officer in consultation with the appropriate SHPO.

4. Upon approval of the inventory report by the Authorized Officer, the Holder shall prepare and submit for approval a cultural resource treatment plan for NRHP eligible cultural resources to mitigate identified impacts. Avoidance, recordation, and data recovery will be used as mitigation alternatives.

5. The Authorized Officer may require the relocation of the line, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values.

6. If avoidance of specific cultural resources is not feasible, treatment shall be carried out as determined by the Authorized Officer in consultation with the appropriate SHPO.

7. When necessary to relocate the proposed line, ancillary facilities, temporary facilities, or work areas as a result of inventory, on-site avoidance decisions, or the Holder's approved request for relocation, the Holder shall inventory the proposed new locations for cultural resources and provide inventory results to the Authorized Officer prior to construction.

Any mitigation deemed necessary by the Authorized Officer shall be completed prior to undertaking any surface disturbing activities.

8. All cultural resource work undertaken by the Holder on public lands shall be carried out by qualified professionals designated on a currently valid Cultural Resource Use Permit for the appropriate state.

9. Notices to proceed will be issued following completion, and approval by the Authorized Officer, of any fieldwork determined necessary through the inventory, evaluation, and consultation process described above.

10. Vehicles and equipment shall be confined and operated only within areas specified by the Authorized Officer.

11. Unauthorized collection of artifacts or other cultural materials on or off the right-of-way by the Holder, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate state and federal laws. Unauthorized collection may constitute grounds for the issuance of a stop work order.

6.1.12.1 Arizona

Archaeology

No NRHP eligible or potentially eligible archaeological resources appear threatened by impact from the proposed project. Therefore, no mitigation measures are offered.

Ethnography

Because the project is proposed to be constructed adjacent to an existing high voltage transmission line, indirect effects to TCPs are considered negligible. No TCPs or potential TCPs have been identified within the project APE (defined as within 100 feet of project tower pads and access roads). Apart from archaeological sites within the APE, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by the project. Therefore, no site specific mitigation is offered for ethnographic resources. As a generic mitigation measure, however, the applicant has, at the suggestion of BLM staff, agreed to undertake an appropriate update of the landmark ethnographic study Persistence and Power (Bean and Vane 1978), which was prepared for the DPV1 project.

History

No NRHP eligible or potentially eligible archaeological resources have been identified in the project APE. Therefore, no mitigation measures are offered.

Paleontology

Approximately 88.7 miles of high or undetermined areas of paleontological sensitivity are crossed by the proposed transmission line between Harquahala and the California border. Impacts to significant paleontological resources will be mitigated by conducting a preconstruction survey in areas of high or undetermined paleontological sensitivity to identify and collect surface specimens that could be affected by project construction. Paleontological monitoring of earth-disturbing construction activities and salvage of significant specimens will occur in areas of high sensitivity.

6.1.12.2 California

Archaeology

Eighteen NRHP eligible or potentially eligible archaeological resources have been identified within the project APE. These resources are designated RIV-53T(c), RIV-53T(d), RIV-250T, RIV-343T(b), RIV-343(c), RIV-650T, RIV-673T, RIV-1119, RIV-1383, RIV-1813, RIV-1814, RIV-1815, RIV-1816, RIV-1819, RIV-1821, RIV-1822, P33-13574, and P33-13576. These resources may be affected by project construction and operation. Project impacts to these resources can be mitigated to acceptable levels by avoiding these resources through minor adjustments to the location of earth-disturbing project activities, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these methods combined. In accordance with federal regulations at 36 CFR 800, an Historic Properties Management Plan (HPMP) will be prepared for the project addressing resource management issues. The HPMP will be consummated by preparation and execution of a two-party agreement document between the BLM and California SHPO.

Ethnography

Because the proposed 500kV transmission line would be constructed adjacent to an existing high voltage transmission line, indirect effects to TCPs are considered negligible. Only one TCP or potential TCP has been identified with the project APE (defined as within 100 feet of the project tower pads and access roads). This resource is Edom Hill forming the northwestern end of the Indio Hills. Edom Hill is considered sacred to the Agua Caliente Indian Tribe. The project corridor crosses approximately 3 miles of the lower slopes of Edom Hill including 0.1 mile of Agua Caliente Indian Reservation land. Incremental effects to the Agua Caliente Native American belief system from construction and operation of the proposed project are thought to be minimal due to the presence of the DPV1 transmission line and a gas pipeline in the same

area. Native Americans also have expressed a general concern regarding archaeological sites within the APE.

No site specific mitigation has been identified for ethnographic resources in the project APE. As a generic mitigation measure, however, the applicant has at the suggestion of BLM staff agreed to undertake an appropriate update of the landmark ethnographic study Persistence and Power (Bean and Vane 1978), which was prepared for the DPV1 project.

History

Thirteen NRHP eligible or potentially eligible historic-era resources have been identified within the project APE. These resources are designated RIV-1117H(a), RIV-1117H(b), RIV-1809H, RIV-1818H, RIV-7489H, RIV-7490, P33-13588, P33-13596, P33-13598, P33-13600, P33-13601, P33-13602, P33-13603. These resources could be affected by project construction and operation. Project impacts to these resources could be mitigated to acceptable levels by avoiding these resources through minor adjustments to the location of earth-disturbing project activities, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these mitigation measures combined. In accordance with federal regulations at 36 CFR 800, an HPMP would be prepared for the project addressing resource management issues. The HPMP would be consummated by preparation and execution of a two party agreement document between the BLM and California SHPO.

Paleontology

Between the California border and Devers, the proposed transmission line would traverse approximately 31 miles of high or undetermined areas of paleontological sensitivity. Project impacts to significant paleontological resources would be mitigated by conducting a

preconstruction survey in areas of high or undetermined paleontological sensitivity to identify and collect surface specimens that could be affected by project construction. Paleontological monitoring of earth-disturbing construction activities and salvage of significant specimens would occur in project areas of high sensitivity.

6.1.13 Public Health and Safety

No potentially significant impacts to public health and safety are anticipated.

6.2 WEST OF DEVERS 230kV TRANSMISSION UPGRADE

6.2.1 Introduction

Mitigation measures for the proposed west of Devers 230kV transmission upgrade would be similar to the measures previously listed under Section 6.1.

6.2.2 Land Use

Impacts to existing or planned land uses from construction and operation of the proposed west of Devers transmission upgrade would be less than significant.

Potential impacts where Link 102 crosses Summit Cemetery would be avoided by installation of new towers to match the spans with the existing towers within the existing utility corridor.

Two sand and gravel mines are crossed along Link 101, resulting in potential impacts. Impacts would be mitigated during construction to avoid critical mining periods and high volume earth-moving days. Operational mitigation would include spanning the mine.

Link 100 crosses the Pacific Crest National Trail, causing a potential temporary impact during construction. Temporary impacts also may occur where Link 102 crosses Noble Creek Regional Park and the Oak Valley Golf Course. Mitigation for construction includes avoiding high use periods and holidays. Mitigation for operation would require construction using structures placed parallel to existing structures to span and avoid displacement of recreational facilities.

6.2.3 Socioeconomics, Population, and Housing

No potentially significant impacts were identified for population and housing.

6.2.4 Geology and Soils

No potentially significant impacts were identified for geology and soils.

The following general mitigation measures would be applied to reduce impacts to geology and soils:

- The line would be located to minimize the disruption of any active mining operations.
- Appropriate tower design would be used to mitigate the potential for impacts from very strong seismic ground shaking. In general, an appropriate tower design which accounts for lateral wind loads and conductor loads during line stringing exceeds any credible seismic loading (ground shaking).

- Wherever possible to minimize the potential for slope instability, towers would be located to avoid gullies or active drainages, and over-steepened slopes.

New access roads, where required, would be designed to minimize ground disturbance from grading. They would follow natural ground contours as closely as possible and include specific features for road drainage, including water bars on slopes over 25 percent. Other measures could include drainage dips, side ditches, slope drains, and velocity reducers. Where temporary crossings are constructed, the crossings would be restored and repaired as soon as possible after completion of the discrete action associated with construction of the line. Side casting of soil during grading would be minimized. Excess soil would be properly stabilized or, if necessary, hauled to an approved disposal site.

6.2.5 Hydrology

No potentially significant impacts were identified for hydrological resources.

The following general mitigation measures would be applied to reduce impacts to hydrological resources:

- Construction equipment would be kept out of flowing stream channels except when absolutely necessary to construct crossings.

- Erosion control and hazardous material plans would be incorporated into the construction bidding specifications to ensure compliance.

- Appropriate design of tower footing foundations, such as raised foundations and/or enclosing flood control dikes, would be used to prevent scour and/or inundation by a 100-year flood.

- Towers would be located to avoid active drainage channels, especially downstream of steep hillslope areas, to minimize the potential for damage by flash flooding and mud and debris flows.

- Diversion dikes would be required to divert runoff around a tower structure if (a) the location in an active channel cannot be avoided, and (b) where there is a very significant flood scour/deposition threat.

- Runoff from roadways would be collected and diverted from steep, disturbed, or otherwise unstable slopes.

- Ditches and drainage concourses would be designed to handle the concentrated runoff, would be located to avoid disturbed areas, and would have energy dissipations at discharge points.

- Cut and fill slopes would be minimized by a combination of benching and following natural topography where possible.

6.2.6 Air Quality

Potentially significant impacts for air quality could occur depending on the phasing of the project construction. The following mitigation measures would be applied, where appropriate, to reduce impacts to air quality:

- Heavy duty off-road diesel engines would be properly tuned and maintained to manufacturers' specifications to ensure minimum emissions under normal operations.

- Apply water or chemical dust suppressants to unstabilized disturbed areas and/or unpaved roadways in sufficient quantity and frequency to maintain a stabilized surface.

- Water or water-based chemical additives would be used in such quantities to control dust on areas with extensive traffic including unpaved access roads; water, organic polymers, lignin compounds, or conifer resin compounds would be used depending on availability, cost, and soil type.

- Surfaces permanently disturbed by construction activities would be covered or treated with a dust suppressant after completion of activities at each site of disturbance.

- Vehicle speeds on unpaved roadways would be restricted to 15 miles per hour.

- Vehicles hauling dirt would be covered with tarp or other means.

- Site construction workers would be staged off-site at or near paved intersections and workers would be shuttled in crew vehicles to construction sites.

- As part of the construction contract, SCE would require bidders to submit a construction transportation plan describing how workers would travel to the job site.

- Emissions credits would be purchased to offset any emissions levels which are over the emissions thresholds.

6.2.7 Traffic and Transportation

No potentially significant impacts were identified for traffic and transportation.

6.2.8 Biology

Potentially significant impacts to desert tortoise, Coastal California gnatcatcher, least Bell's vireo, and Stephens' kangaroo rat were identified in Chapter 5, Section 5.2.8 with the indication that such impacts could be mitigated to less than significant with application of the appropriate mitigation measures.

For impacts to desert tortoise habitat affected by the proposed west of Devers transmission upgrade, the mitigation measures identified in Section 6.1.8.2, would be appropriate.

Mitigation for the coastal California gnatcatcher should include protocol-driven pre-construction surveys. If gnatcatchers are found to be present, suitable habitat should be avoided, including relocating towers and access. If habitat cannot be avoided, SCE should either restore damaged habitat, as at the Weapons Support Facility, Fallbrook Detachment, San Diego County (Soil Ecology and Research Group 2004), or participate in land set-aside programs such as the Natural Community Conservation Planning program (NCCP). Another potential mitigation action would be that of assisting in the provision of funding for monitoring programs that may be undertaken through the Western Riverside County Multiple Species Habitat Conservation Plan.

For least Bell's vireo, suitable habitat would be completely avoided by relocating tower sites and/or associated access roads. There would be approximately 0.8 acre of suitable habitat potentially affected by the proposed west of Devers 230kV upgrade; this small area should be entirely avoided. If avoidance is not possible and the habitat is damaged or lost, SCE should

participate in habitat banking programs or provide funding through the Western Riverside County Multiple Species Habitat Conservation Plan for plan-related monitoring of this species.

Stephens' kangaroo rat habitat would be avoided, where possible.

6.2.9 Noise

No potentially significant noise impacts are expected to occur from construction or operation of the proposed west of Devers 230kV transmission upgrade.

The proposed construction would comply with local noise ordinances. Typical municipal ordinances stipulate that activities producing ambient noise should not exceed 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at residential property lines or sensitive areas. However, exemptions include temporary construction during daytime hours except on Sundays and federal holidays. There may be a need to work outside of the aforementioned local ordinances in order to take advantage of low electrical draw periods during the nighttime hours. SCE would comply with variance procedures established by local authorities if a variance is needed.

6.2.10 Public Service and Utilities

No potentially significant impacts were identified for public service and utilities.

6.2.11 Visual Resources

Construction and operation of the proposed west of Devers 230kV transmission line upgrade would result in less than significant impacts to visual resources.

Significant visual impacts can occur where the visual contrast resulting from construction disturbances (e.g., roads and vegetation clearing) and the presence of the transmission line would substantially alter scenic quality and dominate views from sensitive viewpoints. For example, significant impacts could occur where the transmission line would be seen in the foreground to middleground distance zones in previously undisturbed landscapes, or where the transmission line would traverse previously undisturbed, highly scenic landscape (Class A), or conflict with the existing or planned future image type(s). Because the proposed 230kV upgrade would be limited to an existing, highly modified corridor, and the proposed transmission upgrade would result in a net decrease in the number of structures and conductors present in this existing corridor, visual impacts to visual quality, scenic vistas, and scenic roads are anticipated to be less than significant. In addition, the proposed upgrade would not create a new source of substantial light or glare.

Following is a discussion of potential impacts as defined by the CEQA significance criteria.

Substantially Degrade the Existing Visual Quality

The proposed 230kV transmission upgrade corridor does not cross areas designated as Class A scenery. Potential impacts to scenic quality visual image types and sensitive viewers are anticipated to be less than significant as new facilities would be constructed and operated within an existing, highly modified utility corridor, requiring no additional long-term disturbance outside of this corridor. Mitigation measures proposed for construction of the upgrade facilities would further minimize the potential for visual impacts, and are listed below.

Adversely Impact Scenic Vistas

There are no state-designated scenic vistas located within or adjacent to the west of Devers study corridor, and therefore no scenic vistas would be impacted by the proposed upgrade.

Adversely Affect State Scenic Roads

The proposed west of Devers transmission upgrade would be parallel to existing transmission facilities and span the roadway at the location where the corridor crosses CA 62, minimizing impacts. Therefore, impacts to scenic roads would be less than significant.

Create a New Source of Substantial Light or Glare Adversely Impacting Views

Impacts resulting from the presence of conductors and transmission line towers would be less than significant, as non-specular conductors will be utilized and the finish on structures would be dulled.

Implementing mitigation measures as proposed for construction of the upgrade facilities could reduce visual impacts that may result from the proposed west of Devers 230kV transmission upgrade. Visual mitigation would reduce the visibility of the proposed new transmission facilities from sensitive viewers and reduce visual contrast associated with the towers, conductors, and insulators. The following mitigation measures would generally apply for the proposed transmission upgrade, and would minimize impacts along the entire proposed transmission corridor to less than significant.

- The proposed steel lattice towers would be constructed using a dulled galvanized steel finish, which would result in visual contrast reduction.

- Non-specular conductors would be used to reduce glare and resulting visual contrast.

- Towers would be located adjacent to existing structures where feasible. Exceptions are at locations where the tower heights and/or spans would be modified based on terrain features allowing for adequate conductor clearance to ground and other facilities within the right-of-way.

- At all highway and recreation routes-of-travel crossings, including the I-10 crossing, towers would be placed at the maximum feasible distance, except in locations where matching existing tower spacing is deemed appropriate, and when feasible, at 90 degree angles from the crossing.

6.2.12 Cultural Resources

No potentially significant cultural resource impacts are expected to occur from construction and operation of the proposed west of Devers 230kV transmission upgrade. The following sections describe potential impacts and mitigation measures that would be effective in minimizing impacts to archaeological, ethnographic, historic, and paleontologic resources.

6.2.12.1 Archaeology

Class I records search data identified eight previously recorded prehistoric archaeological sites and one isolated occurrence potentially within the 1-mile-wide study corridor for the proposed west of Devers 230kV transmission upgrade. Two of these sites (RIV-179 and RIV-197), and one isolated occurrence, appeared to be potentially within the 300-foot-wide project APE. Based on the Class III archaeological survey of the 300-foot-wide project APE, RIV-179 could not be

relocated, RIV-197 was found to be outside the APE, and two new sites were recorded (P33-13429, and P33-13430) (Eckhardt and Walker 2004b).

6.2.12.3 Ethnography

Apart from the recorded archaeological sites and the portion of the proposed transmission upgrade that crosses the Morongo Indian Reservation, there are no known areas of ethnographic sensitivity with the project APE. In addition, Native American groups have an interest in the disposition of prehistoric archaeological sites as evidence of the presence of their ancestors. Construction and operation of the proposed project is not expected to have effects on Native American TCPs or other resources of cultural value. Therefore, impacts to traditional cultural properties would be less than significant, and no site-specific mitigation is offered.

6.2.12.4 History

The Class III archaeological survey of the 300-foot-wide project corridor resulted in the identification of nine historic-era sites in the APE (RIV-7462H/P33-13427, P33-13428, RIV-2262H, RIV-4768H/SBR-7168H/P36-007168, SBR-11624H/P36-011624, P33-13431, P33-13434, P33-007888, and P36-020240). Three of these resources (RIV-4768H/SBR-7168H/P36-007168, RIV-2262H, and P33-007888) are assessed potentially eligible for listing on the NRHP. These resources are subject to potential effects from project construction and operation.

Project effects to RIV-4768H/SBR-7168H/P36-077168, RIV-2262H, and P33-007888 could be mitigated to acceptable levels by avoiding these resources through minor adjustments to the location of earth-disturbing project elements, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these methods combined. In accordance with federal regulations at 36 CFR 800, a HPMP would be prepared for the project

addressing resource management issues. The HPMP would be consummated by preparation and execution of a two-party agreement document between the BLM and California SHPO.

6.2.12.5 Paleontology

The proposed 230kV transmission upgrade corridor traverses approximately 26 miles of high or undetermined areas of paleontological sensitivity. The undetermined or high-sensitivity areas include Pleistocene older alluvium in Links 102 and 103, Canebrake Conglomerate or Palm Springs Formation in Link 102, and San Timoteo Formation in Links 102 and 103. Potentially significant paleontolgical specimens could be impacted by excavation of tower footings and grading of access spur roads in these areas.

Impacts to significant paleontological resources will be mitigated by conducting a preconstruction survey in areas of high or undetermined paleontological sensitivity to identify and collect surface specimens that could be affected by project construction. Paleontological monitoring of earth-disturbing construction activities and salvage of significant specimens will occur in project areas of high sensitivity.

6.2.13 Public Health and Safety

No potentially significant impacts were identified for public health and safety.

6.3 SUBALTERNATE TRANSMISSION LINE ROUTES

6.3.1 Introduction

Mitigation measures applied to the alternatives would be similar to those applied to the proposed Devers-Harquahala transmission line. Mitigation measures specific only to the subalternate routes are presented in the following sections.

6.3.2 Land Use

No potentially significant impacts were identified for land use on the Harquahala-West and Palo Verde subalternate routes. Potential impacts could occur to agricultural land affected by the Harquahala-West Subalternate Route. Tubular steel poles would be placed adjacent or parallel to agricultural field boundaries where possible to minimize ground disturbance.

Other mitigation measures to be applied to the subalternate routes are described in Section 6.1.2.

6.3.3 Socioeconomics, Population, and Housing

No potentially significant impacts to the subalternate routes were identified for socioeconomics, population, and housing.

6.3.4 Geology and Soils

No potentially significant impacts to the subalternate routes were identified for geology and soils.

Mitigation measures to be applied to the subalternate routes are described in Section 6.1.4.

6.3.5 Hydrology

No potentially significant impacts to the subalternate routes were identified for hydrology.

Mitigation measures to be applied to the subalternate routes are described in Section 6.1.5.

6.3.6 Air Quality

No potentially significant impacts to the subalternate routes were identified for air quality.

Mitigation measures to be applied to the subalternate routes are described in Section 6.1.6.

6.3.7 Traffic and Transportation

No potentially significant impacts to the subalternate routes were identified for traffic and transportation.

6.3.8 Biology

6.3.8.1 Harquahala-West Subalternate Route

Potential impacts to vegetation and wildlife on the Harquahala-West Subalternate Route would be less than significant. The corridor bypasses Category 2 desert tortoise habitat in the Eagletail Mountains and vegetation types likely to be affected are not sensitive. Some vegetation removal would probably occur between the Harquahala switchyard and CAP lateral canal, since access would be constructed or upgraded.

Mitigation actions that would be effective include careful tower placement to avoid large, mature trees and cacti, similar placement of new access and spur roads, spanning xeroriparian habitat along washes, and transplanting rather than bulldozing small saguaro cacti.

6.3.8.2 Palo Verde Subalternate Route

Potentially significant impacts on the Palo Verde Subalternate Route could occur to Sonoran desert tortoise as a result of construction. Impacts could take the form of tortoise burrow crushing, crushing of tortoises themselves, and loss of habitat via vegetation removal. There are also habitat components present for cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) in the form of saguaro cacti, ironwood, mesquite, and paloverde trees. Surveys for cactus ferruginous pygmy-owl conducted for the Harquahala-Hassayampa 500kV transmission line proved negative, however. Although there are habitat components present for this species, it is highly unlikely that the area is occupied by this species.

Mitigation to reduce potential impacts includes pre-construction tortoise surveys and monitoring of construction activities within Category 2 Desert Tortoise habitat. Mitigation for cactus

ferruginous pygmy-owl habitat would include careful tower and construction access placement to avoid removal of potential owl habitat components.

6.3.9 Noise

No potentially significant impacts to the subalternate routes were identified for noise.

Mitigation measures to be applied to the subalternate routes are described in Section 6.1.9.

6.3.10 Public Services and Utilities

No potentially significant impacts to the subalternate routes were identified for public services and utilities.

6.3.11 Visual Resources

6.3.11.1 Harquahala-West Subalternate Route

Significant impacts to residential viewers would occur within the Harquahala-West Subalternate corridor. Mitigation of potentially significant impacts to residential viewers, as described in Section 4.2.11, would not be adequate to reduce the impacts.

6.3.11.2 Palo Verde Subalternate Route

There would be no potentially significant impacts to viewers or scenic quality for this subalternate route.

6.3.12 Cultural Resources

6.3.12.1 Harquahala-West Subalternate Route

Archaeology

In addition to the records search, only a Class II sample archaeological survey was conducted for the Harquahala-West Subalternate Route. No NRHP eligible or potentially eligible archaeological resources were identified in the 300-foot-wide study area corridor. The discovery of only two isolated archaeological occurrences in the areas of the 2-mile-long survey transects suggests that the archaeological sensitivity of this area is only moderate, and potential impacts to NRHP eligible resources are minimal.

Prior to construction of the Harquahala-West Subalternate Route, a Class III archaeological survey would be conducted of the project tower sites, access roads, pull sites, laydown areas, and any other ground-disturbing activities. If NRHP eligible archaeological resources are identified in the project APE, impacts to these resources would be mitigated to acceptable levels by avoiding these resources through minor adjustments to the location of earth-disturbing project elements, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these methods combined. In accordance with federal regulations at 36 CFR 800, a HPMP would be prepared for the project addressing resource management issues. The HPMP would be consummated by preparation and execution of a two-party agreement document between the BLM and the Arizona SHPO.

Ethnography

No TCPs or potential TCPs have been identified within the project APE (defined as the 300-foot-wide study corridor for the Class II study). Apart from archaeological sites that may occur within the APE, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by the project. Therefore, no site specific mitigation is offered. As a generic mitigation measure for Native American resources, the applicant has, at the suggestion of BLM staff, agreed to undertake an appropriate update of the landmark ethnographic study Persistence and Power (Bean and Vane 1978), which was prepared for the DPV1 project.

BLM staff has indicated that they will consult with appropriate Native American groups regarding project effects on traditional cultural values within the context of the BLM's government-to-government responsibility with Native American tribes (personal communication, Wanda Raschkow 2004).

History

The Class I records search and Class II sample survey of the Harquahala-West Subalternate Route resulted in the identification of no historic-era sites and one isolated historic-era occurrence (a rock cairn that may be associated with a mining claim) within the 300-foot-wide project corridor. At this time there are no known historic-era resources in the project area that are listed on or potentially eligible for listing on the NRHP. Therefore, there are no known NRHP eligible historic-era resources in the APE threatened by potential project construction and operation effects.

Prior to construction of this subalternate route, a Class III archaeological survey would be conducted of the project tower sites, access roads, pull sites, laydown areas, and any other

ground-disturbing activities. If NRHP eligible historic-era resources are identified in the project APE, impacts to these resources would be mitigated to acceptable levels by avoiding these resources through minor adjustments to the location of earth-disturbing project elements, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these methods combined. In accordance with federal regulations at 36 CFR 800, a HPMP would be prepared for the project addressing resource management issues. The HPMP would be consummated by preparation and execution of a two party agreement document between the BLM and Arizona SHPO.

Paleontology

Virtually the entire length of the Harquahala-West Subalternate Route crosses undifferentiated Pleistocene older alluvium and Holocene alluvium in the Harquahala Plain. The Pleistocene older alluvium has a high paleontological sensitivity ranking.

Impacts to significant paleontological resources would be mitigated by conducting a preconstruction survey in areas of high or undetermined paleontological sensitivity to identify and collect surface specimens that could be affected by project construction. Paleontological monitoring of earth-disturbing construction activities and salvage of significant specimens would occur in project areas of high sensitivity.

6.3.12.2 Palo Verde Subalternate Route

Archaeology

Four of the seven archaeological sites identified within the project APE (AZ T:9:12 [ASM], AZ T:9:13 [ASM], AZ T:9:21 [ASM], and AZ T:9:64 [ASM]) are assessed NRHP eligible or

potentially eligible, and the portion of AZ T:9:64 (ASM) that contains the important data does not appear to be located within the project APE. All four sites appear NRHP eligible or potentially eligible.

Project impacts to these resources could be mitigated to acceptable levels by avoiding these resources through minor adjustments to the location of earth-disturbing project elements, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these methods combined. In accordance with federal regulations at 36 CFR 800, a HPMP would be prepared for the project addressing resource management issues. The HPMP would be consummated by preparation and execution of a two party agreement document between the BLM and Arizona SHPO.

Ethnography

Because the project is proposed to be constructed adjacent to an existing high voltage transmission line, indirect effects to TCPs or potential TCPs are considered negligible. No TCPs or potential TCPs have been identified within the project APE (defined as within 100 feet of project tower pads and access roads). Apart from archaeological sites within the APE, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by the project. Therefore, no site-specific mitigation is offered. As a generic mitigation for Native American resources, the applicant has, at the suggestion of BLM staff, agreed to undertake an appropriate update of the landmark ethnographic study Persistence and Power (Bean and Vane 1978), which was prepared for the DPV1 project.

BLM staff has indicated that they will consult with appropriate Native American groups regarding project effects on traditional cultural values within the context of the BLM's

government-to-government responsibility with Native American tribes (personal communication, Wanda Raschkow 2004).

History

Three historic-era sites were identified in the Class III survey as occurring within or immediately adjacent to the project APE. These resources are recorded as AZ T:9:65 (ASM), AZ S:12:32 (ASM), and AZ S:12:36 (ASM), and not recommended eligible for NRHP listing.

Paleontology

Approximately 8 miles of the 15-mile Palo Verde Subalternate Route traverses areas of high paleontological sensitivity. Potentially significant paleontological specimens may be impacted by excavation of tower footings and grading of access spur roads in these areas.

Impacts to significant paleontological resources would be mitigated by conducting a preconstruction survey in areas of high or undetermined paleontological sensitivity to identify and collect surface specimens that could be affected by project construction. Paleontological monitoring of earth-disturbing construction activities and salvage of significant specimens would occur in project areas of high sensitivity.

6.3.13 Public Health and Safety

No potentially significant impacts would occur as a result of construction and operation of the Harquahala-West or Palo Verde subalternate routes.

6.4 MIDPOINT SUBSTATION ALTERNATIVES

6.4.1 Introduction

Mitigation measures that may be applied to the construction and operation of the Midpoint Substation at the preferred site, or either of the alternative sites, would be similar to those applied to the proposed Devers-Harquahala 500kV transmission line with respect to construction on BLM lands. Site-specific mitigation measures also are described for specific resources as follows.

6.4.2 Land Use

No potentially significant impacts were identified for land use.

Mitigation measures to be applied to the alternatives are described in Section 6.1.2.

6.4.3 Socioeconomics, Population, and Housing

No potentially significant impacts were identified for socioeconomics, population, and housing.

Mitigation measures to be applied to the alternatives are described in Section 6.1.3.

6.4.4 Geology and Soils

No potentially significant impacts were identified for geology and soils.

Mitigation measures to be applied to the alternatives are described in Section 6.1.4.

6.4.5 Hydrology

No potentially significant impacts were identified for hydrology as a result of construction and operation of the Midpoint Substation at the preferred or alternative sites.

Mitigation measures to be applied to the alternatives are described in Section 6.1.5.

6.4.6 Air Quality

No potentially significant impacts were identified for air quality as a result of construction and operation of the Midpoint Substation at the preferred or alternative sites.

Mitigation measures to be applied to the alternatives are described in Section 6.1.6.

6.4.7 Traffic and Transportation

No potentially significant impacts were identified for traffic and transportation as a result of construction and operation of the Midpoint Substation at the preferred or alternative sites, and no mitigation would be offered.

6.4.8 Biology

Potential impacts to vegetation and wildlife on the preferred or alternative sites would be less than significant. Surveys for desert tortoise would be conducted on site prior to initiating any construction activities. Depending on survey results, additional mitigation may be required. It also is possible that surveys for flat-tailed horned lizards would have to be conducted. Mitigation to compensate for impacts to Harwood's milkvetch could include purchasing land to set aside for conservation purposes based upon a percentage of land disturbed.

6.4.9 Noise

No potentially significant impacts were identified for noise as a result of construction and operation of the Midpoint Substation at the preferred or alternative sites.

Mitigation measures to be applied to the alternatives are described in Section 6.1.9.

6.4.10 Public Services and Utilities

No potentially significant impacts would occur to public services and utilities as a result of construction and operation of the Midpoint Substation at the preferred or alternative sites.

6.4.11 Visual Resources

6.4.11.1 Preferred Site

Construction and operation of the Midpoint Substation at the preferred site would result in less than significant impacts to visual resources.

Mitigation measures are described in Section 6.1.11.

6.4.11.2 Mesa Verde Alternative

Construction and operation of the Midpoint Substation at the Mesa Verde alternative site would result in less than significant impacts to visual resources.

Landscape screening could reduce the visibility of this alternative, thus lowering potentially adverse impacts to sensitive viewers.

6.4.11.3 Wiley Well Alternative

Construction and operation of the Midpoint Substation at the Wiley Well alternative site would result in potentially significant impacts to viewers, primarily travelers on I-10.

Landscape screening could reduce the visibility of the substation at this alternative site, thus lowering potentially adverse impacts to sensitive viewers.

6.4.12 Cultural Resources

6.4.12.1 Preferred Site

Archaeology

Archaeological surveys identified three archaeological sites within the preferred substation site boundaries (RIV-775T, P33-13659, and P33-13660), and all of these resources appear potentially eligible to the NRHP. Earth-disturbing project construction and operation activities, such as site preparation grading and digging, could result in impacts to these resources. Project impacts to RIV-775T, P33-13659, and P33-13660 could be mitigated to acceptable levels by avoiding these resources through minor adjustments to the location of earth-disturbing project activities, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these methods combined. In accordance with federal regulations at 36 CFR 800, a HPMP would be prepared for the project addressing resource management issues. The HPMP would be consummated by preparation and execution of a two party agreement document between the BLM and California SHPO.

Ethnography

Apart from archaeological sites within the preferred site boundaries, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by construction and operation of the substation. Therefore, no site-specific mitigation is offered. As a generic mitigation for Native American resources, the applicant has, at the suggestion of BLM staff, agreed to undertake an appropriate update of the landmark ethnographic study Persistence and Power (Bean and Vane 1978), which was prepared for the DPV1 project.

History

No historic-era resources have been identified on the preferred site, and therefore no historic-era resources are subject to project impacts. No mitigation is therefore offered.

Paleontology

No potentially fossil-bearing lithic units have been identified at the preferred site, and no potentially significant paleontological specimens are expected to be affected by project construction or operation in this location. No mitigation is therefore offered.

6.4.12.2 Mesa Verde Alternative

Archaeology

Archaeological survey of the Mesa Verde alternative site resulted in the discovery of one previously unrecorded archaeological resource within the alternative switching station site boundaries (P33-13672). P33-13672 is a lithic scatter of petrified wood flakes and is potentially eligible to the NRHP. Earth-disturbing project construction and operation activities, such as site preparation grading and digging, could result in impacts to this resource. These impacts could be mitigated to acceptable levels by avoiding P33-13672 through minor adjustments to the location of earth-disturbing project activities, institution of protection measures, application of appropriate data recovery archaeological methods, or several of these mitigation measures combined. In accordance with federal regulations at 36 CFR 800, a HPMP would be prepared for the project addressing resource management issues. The HPMP would be consummated by preparation and execution of a two party agreement document between the BLM and California SHPO.

Ethnography

Apart from the archaeological site identified within the Mesa Verde alternative site boundaries, about which Native Americans have expressed a general concern, no significant ethnographic values have been identified that could be affected by construction and operation of the switching station. Therefore, no site-specific mitigation is offered. As a generic mitigation for Native American resources, the applicant has, at the suggestion of BLM staff, agreed to undertake an appropriate update of the landmark ethnographic study Persistence and Power (Bean and Vane 1978), which was prepared for the DPV1 project.

History

No historic-era resources have been identified on the Mesa Verde alternative site, and therefore no historic-era resources are subject to project impacts. No mitigation is therefore offered.

Paleontology

No potentially fossil-bearing lithic units have been identified at the Mesa Verde alternative site, and no potentially significant paleontological specimens are expected to be affected by project construction or operation in this location. No mitigation is therefore offered.

6.4.12.3 Wiley Well Alternative

Archaeology

No archaeological resources have been identified on the Wiley Well alternative site, and therefore no archaeological resources are subject to project impacts. No mitigation is therefore offered.

Ethnography

No significant ethnographic values have been identified that could be affected by construction and operation of the Midpoint Substation at the Wiley Well site. Therefore, no site-specific mitigation is offered. As a generic mitigation for Native American resources, the applicant has, at the suggestion of BLM staff, agreed to undertake an appropriate update of the landmark ethnographic study Persistence and Power (Bean and Vane 1978), which was prepared for the DPV1 project.

History

No historic-era resources have been identified on the Wiley Well alternative site, and therefore no historic-era resources are subject to project impacts. No mitigation is therefore offered.

Paleontology

No potentially fossil-bearing lithic units have been identified at the Wiley Well alternative site, and no potentially significant paleontological specimens are expected to be affected by project construction or operation in this location. No mitigation is therefore offered.

6.4.13 Public Health and Safety

No significant impacts to public health or safety are expected to occur with construction or operation of the Midpoint Substation at the preferred or either of the alternative sites.

CHAPTER 7.0
CUMULATIVE IMPACTS OF THE PROPOSED PROJECT

7.1 INTRODUCTION

Cumulative impact is the incremental impact on the environment that results from the impact of the proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes them. Cumulative impacts are interdisciplinary, multi-jurisdictional, and usually do not conform to political boundaries. When cumulative significant impacts on the environment are anticipated, CEQA requires that such impacts be described. These potential cumulative impacts are discussed in detail in the following section.

To determine the cumulative effects in the analysis area, past, present, and future actions within the same geographic region were evaluated. These actions predominantly include transmission lines and other utilities and future development projects.

7.2 EXISTING AND PROPOSED ELECTRICAL FACILITIES

7.2.1 Existing Facilities

Numerous existing transmission lines, power distribution lines, and other linear facilities are located throughout the project area. The existing transmission lines of most significance are located in the utility corridor that contains the proposed Devers-Harquahala 500kV transmission line and west of Devers 230kV transmission upgrade route and are listed in Table 7-1 and summarized below:

- DPV1 500kV transmission line (Arizona and California)
- Harquahala-Hassayampa 500kV transmission line (Arizona)

- Various 230kV transmission lines (California)
- Various 115kV transmission lines (California)

7.2.2 Proposed Electrical Facilities

The BLM has designated utility corridors in Arizona and California through its RMP process. The proposed Devers-Harquahala transmission line would cross BLM, state, and private land and be located within a 1-mile-wide BLM-designated utility corridor for approximately 110 miles of the route. The west of Devers portion is a rebuild of existing 230kV transmission lines in an existing utility corridor.

The STEP group, CAISO, as well as various merchant power plant and transmission line representatives, have included in their preliminary screening studies a second 500kV line from Harquahala to Devers.

The DSWTP is a proposed 500kV or 230kV transmission line that would be constructed from the Blythe Power Plant substation west of Blythe, California, to the Devers Substation northwest of Palm Springs within the proposed Devers-Harquahala transmission line corridor.

In addition to the existing DPV1 and the proposed Devers-Harquahala 500kV lines, the proposed APS Palo Verde Hub to TS-5 500kV transmission line would add a third line for approximately 5.5 miles within the eastern portion of the BLM-designated utility corridor, crossing I-10 west of Tonopah. The Palo Verde Subalternate Route addressed in this study, if utilized, would potentially add a fourth 500kV transmission line for a distance of about 9 miles of that corridor from PVNGS to the junction at the existing Harquahala-Hassayampa line, the DPV1 line, and the proposed APS Palo Verde Hub to TS-5 500kV transmission line.

SCE also is planning to construct the Oak Valley System Project in northern Riverside County, which would include a 220/115/12kV substation and four 115kV transmission lines. A specific

location for the substation has not been identified, although the substation site and transmission lines would be located in the vicinity of SCE's existing Devers-Vista utility corridor between San Timoteo Road, in Calimesa, and a point about 1.7 miles east of Highland Springs Road in Beaumont. The project would be needed by 2008.

7.2.3 Summary of Cumulative Impacts

The discussion of potential cumulative impacts of the electrical facility projects by resource category is provided below.

7.2.3.1 Land Use

Most cumulative impacts to land uses are not expected to be significant with the addition of DPV2. Small areas of rangeland used for grazing and forage and agricultural land would be permanently removed from production by tower foundations and spur roads, where necessary. These impacts would accumulate with construction of a third 500kV transmission line west of Blythe, California (i.e., the proposed DSWTP), although the total area lost from production would be small in the context of the region. The Devers-Harquahala 500kV transmission line would be installed within the designated 1-mile-wide utility corridor on lands administrated by BLM, thus consolidating transmission lines in a planned location, which is consistent with the RMP.

7.2.3.2 Socioeconomics

Cumulative impacts to socioeconomics are generally only a concern if they would overextend public services and accommodations in the project area. Construction and operation of the proposed Devers-Harquahala transmission line would be a beneficial cumulative impact to the

southern California region, including increased availability of lower cost electricity. Beneficial cumulative impacts also include revenues realized due to construction activities, and potential property tax revenues received by the affected counties in Arizona and California.

7.2.3.3 Geology, Soils, Hydrology, and Minerals

It is anticipated that the cumulative effects on earth resources would not be measurably different than the additive effects of the proposed DPV2 project. The potential for soil erosion, stream-bank degradation, and sedimentation in water bodies, dependent on the mitigation implemented, could be increased with the construction of the DSWTP in some areas. Ground disturbance would be, in general, incrementally less for the Devers-Harquahala transmission line or a third line. Ground disturbance is generally low for DPV2 since the majority of the proposed route parallels an existing transmission line(s) and associated access roads. The cumulative effects of two or three transmission lines would likely be somewhat more than any single project.

7.2.3.4 Air Quality

It is anticipated that the power transmitted over the proposed DPV2 would come from existing capacity generated in the PVNGS region. A potential indirect cumulative impact associated with the transmission line is increasing emissions from natural gas fueled power generation, such as those facilities listed in Section 7.3. The change could be additive or may decrease in Arizona or California, depending on the location of the sources and direction of power flow.

Cumulative air quality impacts also would result from construction activities for the proposed electrical facilities identified above. The incremental effects of vehicular emissions would be expected to increase, generally according to the number of transmission line miles constructed during the same period, but it is unlikely that more than one major construction project would take place simultaneously in the same location. If concurrent construction of more than one

project was to occur, the amount of airborne particulates resulting from construction vehicle use on unpaved roads could be reduced where existing access or spur roads are used for multiple projects within the same corridors. In most cases, mitigation measures to control emissions would be effective in reducing emissions, and cumulative impacts would be temporary and not significant.

7.2.3.5 Traffic and Transportation

Cumulative impacts to traffic and transportation are not anticipated to be permanent, but rather temporary, occurring during construction. If the construction of both the DSWTP and DPV2 projects, for example, overlap or occur in the same time frame, the potential for traffic impacts would increase, but would result in less than significant impacts.

7.2.3.6 Biology

Cumulative biological impacts would be generally additive, and usually be directly proportional to the amount of ground disturbed. Cumulative effects also depend, to some extent, on whether or not DPV2 construction activities are concurrent or overlapping in a given area. If construction is occurring concurrently, a higher volume of traffic may result and possibly greater amounts of ground disturbance (erosion, etc.) would occur. Overlapping activity, on the other hand, may create disturbance to wildlife for a longer period of time, resulting in prolonged or permanent displacement of wildlife from crucial habitats. Where designated corridors are used, access roads may serve more than one line and would therefore minimize ground disturbance and the amount of increased access in some areas.

A third line in the proposed Devers-Harquahala corridor would likely produce similar impacts. Cumulative impacts associated with the existing DPV1, DPV2, and either the DSWTP or Palo

Verde Hub to TS-5 500kV lines in one corridor would likely produce impacts that are of a slightly higher degree and possibly longer duration, but would be less than significant.

7.2.3.7 Noise

With the addition of the Devers-Harquahala line, cumulative impacts associated with corona-generated audible noise would be additive, but is expected to be less than double the existing levels of noise caused by operation of the existing DPV1 line due to the use of polymer insulators on the proposed Devers-Harquahala line. The increased noise level at the edge of the right-of-way may be discernible or audible during wet-weather conditions, although line noise would most often be masked by naturally occurring sounds at locations beyond the right-of-way, and would not be significant.

7.2.3.8 Visual

Cumulative visual impacts would increase with effects to views from highways, residences, recreational areas, and on natural scenic quality. The first transmission line built in a natural setting usually would cause the most noticeable incremental change because of the contrast of form, line, color, and texture to the surroundings. Each successive change, when added in an existing corridor, would be less noticeable than the first. However, the new combination of all the changes (e.g., form, line, color, and texture) is more evident. With the addition of a third or fourth transmission line, such as the proposed DSWTP or Palo Verde Hub to TS-5, the resulting multi-line corridor would be more visible than two transmission lines at greater distances because of the cumulative contrast with the natural landscape. Where existing access could be utilized for both the proposed Devers-Harquahala line and the DSWTP, it would avoid exposing lighter colored surface and vegetative removal. In areas where new access and vegetative removal are required, mitigation that would be effective in reducing visual impacts would include the reclamation of areas disturbed by construction-related activities. Therefore, the effect

of the proposed Devers-Harquahala transmission line would contribute a small increment of visual impact that would be less than significant.

Cumulative visual impacts that would be likely to result from the west of Devers 230kV transmission upgrade would be beneficial. Because approximately two structures would be removed for every new structure installed in the existing utility corridor, and the new double-circuit towers would be compatible with the existing 230kV double-circuit towers, an overall reduction in visual contrast would result in the majority of locations.

7.2.3.9 Cultural Resources

Cumulative impacts to cultural resources could result over time from repeated incremental damage caused by motorized vehicles. Indirect impacts on cultural resources can result from degrading the setting of a significant cultural feature, and incidental destruction of cultural sites or traditional cultural properties by motorized vehicles, due to new access roads. However, the proposed DPV2 project would not require a substantial level of new access, therefore reducing cumulative impacts to cultural resources. The presence of multiple transmission lines would not likely contribute measurably to this type of a cumulative effect more so than a new single transmission line. Therefore, impacts to cultural resources would be less than significant.

7.2.4 Conclusions

Based on this analysis, the incremental impact of the proposed action would be minimal when added to other past, present, and reasonably foreseeable future actions. Construction and operation of the proposed Devers-Harquahala transmission line and west of Devers upgrade would not cause significant cumulative impacts on the environment.

7.3 FUTURE DEVELOPMENT

The proposed DPV2 project crosses primarily rural, undeveloped areas within four counties in California and Arizona. As addressed in the socioeconomics, population, and housing sections of Chapter 4 (4.1.3 and 4.2.3), portions of the route are experiencing substantial growth, while others are not. Population growth is a good indicator of the level of current and planned land development, which contributes to cumulative impact.

In Arizona's Maricopa County, for example, the projected population increase from 2002 to 2025 is 50 percent. (It is noted that the proposed route is located in the far western portion of a very large county that contains the rapidly growing Phoenix metropolitan area.) Growth in La Paz County, Arizona, is similar with projections of 51 percent population growth in the same time frame, though the county is substantially less populated.

The two towns in Arizona closest to the proposed route are Buckeye, located approximately 25 miles to the east of the Harquahala Switchyard, and Quartzsite farther to the west and approximately 8 miles to the north of the proposed Devers-Harquahala line. Buckeye is a rapidly growing town to the west of Phoenix projected to more than triple in population between 2000 and 2010. Also, Buckeye has continued to annex land to the west. The population of Quartzsite is projected to increase by 9 percent from 2000 to 2010.

The third county crossed by the proposed Devers-Harquahala transmission line is Riverside, California, which has a projected population increase of 71 percent from 2002 to 2020. There are 10 cities/towns in Riverside County close to the proposed Devers-Harquahala and west of Devers corridors. Their projected population increases for 2002 to 2020 range from 15 to 35 percent. Population growth in the fourth county, San Bernardino County, California, was 20 percent between 1990 and 2000, much lower than the 56 percent growth in the previous decade.

General plans for the various counties and municipalities within or near the project area are summarized in Tables 4-4, 4-10, and 4-42.

Table 7-1 describes activities (existing and proposed, or future) that may cumulatively affect resources of concern for the project.

TABLE 7-1
ACTIVITIES LIST - CUMULATIVE EFFECTS

Activities	Location/Description	Status
Proposed Action – DPV2 Transmission Project		
Devers-Harquahala 500kV Transmission Line	The 500kV transmission line would connect at the Harquahala Switchyard located 60 miles west of Phoenix, Arizona, and continue to the Devers Substation, located 10 miles northwest of Palm Springs, California, a distance of approximately 230 miles.	Future
West of Devers 230kV Transmission Line	The upgrade of a 230kV line from single to double circuit from the Devers to Vista substations, with an interconnection at the San Bernardino Generating Station Switchyard.	Future
Utilities/Public Services		
Arizona-California		
DPV1 Transmission Line	A 500kV line that connects at the PVNGS Switchyard 60 miles west of Phoenix, Arizona, and terminates at the Devers immediately north of the Palm Springs, California, city limits.	Existing
Southwest Powerlink Transmission Line	A 500kV line that begins at PVNGS, connects to the North Gila Substation in Yuma and Imperial Valley Substation near El Centro, California, and terminates at the Miguel Substation in San Diego, California.	Existing
I-10	This major interstate highway lies in an east-west direction in both Arizona and California.	Existing
Pipelines	Numerous pipelines occur along and near the proposed corridor.	Existing
Arizona		
Harquahala Generating Station and 500kV Transmission Line	The Harquahala Station is located approximately 17 miles northwest of the PVNGS. A 500kV transmission line connects the Harquahala Power Plant and the Hassayampa Switchyard.	Existing
Hassayampa 500kV Switchyard	Located south of the PVNGS. Numerous 500kV lines interconnect at this switchyard.	Existing
PVNGS Switchyard	Located near PVNGS with numerous 500kV lines interconnecting at this switchyard.	Existing
PVNGS-Kyrene 500kV Transmission Line	PVNGS-Kyrene 500kV transmission line originates at the PVNGS Switchyard, ending at the Kyrene Substation in Tempe.	Existing
Palo Verde Hub to TS-5 500kV Transmission Line (APS)	Proposed 500kV transmission line from Hassayampa Switchyard, or other Palo Verde Hub switchyard, to a planned substation northeast along the CAP Canal.	Future
Planned PVNGS to Saguaro 500kV Transmission Line	The 500kV transmission line would start at PVNGS and terminate at the Saguaro Power Plant, paralleling the existing PVNGS-Kyrene 500kV line.	Future
Proposed Sonora-Arizona Interconnection 345kV(two) transmission lines	The two 345kV transmission lines would start at either PVNGS or Hassayampa Switchyard and terminate in Sonora, Mexico.	Future

TABLE 7-1 ACTIVITIES LIST - CUMULATIVE EFFECTS		
Activities	**Location/Description**	**Status**
Planned Hassayampa to Jojoba 500kV Transmission Line	The 500kV transmission line would connect the Hasssayampa Switchyard near PVNGS to the Jojoba Switchyard south of Buckeye, Arizona, a distance of approximately 20 miles.	Future
Southwest Valley Transmission Line	A 500kV transmission line that originates at the PVNGS Switchyard and terminates at the Rudd Substation in Avondale, Arizona.	Present
Proposed Hassayampa to Pinal West 500kV Transmission Line	The Hassayampa to Pinal West 500kV transmission line is proposed to connect at the Hassayampa Switchyard south of PVNGS and terminate at a proposed new substation near Mobile, Arizona.	Future
PVNGS to West Wing	A 500kV transmission line from PVNGS to the West Wing Substation.	Existing
Pipelines	El Paso Natural Gas pipelines connect to the various gas-fired generation facilities in the region around PVNGS as well as Haraquahala.	Existing
Palo Verde Nuclear Generating Station	Located in the unincorporated Arlington Valley, Arizona. Numerous 500kV lines interconnect at the PVNGS Switchyard.	Existing
Mesquite Power Plant and 500kV Transmission Line	The Mesquite Power Plant is located south of PVNGS and west of the Hassayampa Switchyard. The transmission line starts at the plant and connects at the Hassayampa Switchyard.	Existing
Redhawk Power Plant and 500kV Transmission Line	The Redhawk Power Plant is located south of PVNGS and southeast of the Hassayampa Switchyard. The transmission line starts at the plant and terminates at the Hassayampa Switchyard.	Existing
La Paz Power Plant	The proposed La Paz Power Plant would be located in La Paz County approximately 70 miles west of PVNGS.	Future
Arlington Power Plant	Arlington Power Plant is located south of PVNGS and west of the Mesquite Power Plant. A 500kV transmission line connects the Arlington Power Plant and the Hassayampa Switchyard.	Existing
I-10 and Highway 95	I-10 is both paralleled and crossed by the proposed project in Arizona. Highway 95 is crossed by the proposed project	Existing
Canals	The CAP Canal and various other canals are located in the project area.	Existing
California		
Proposed Desert Southwest 500/230kV Transmission Project	The DSWTP is a proposed 500/230kV transmission line project from the Blythe Power Plant Substation west of Blythe, California, to the Devers northwest of Palm Springs.	Future
North Baja Pipeline Project	A gas pipeline from the California-Mexico border to the Blythe, California/Ehrenberg, Arizona, area for a distance of approximately 80 miles.	Future
Blythe Energy 1 Generating Station	The Blythe Power Plant is located approximately 4.5 miles west of Blythe, California.	Existing
Blythe Energy 2 Generating Station	The Blythe Energy 2 would be a proposed 520 MW plant.	Future
Wildflower-Indigo Power Plant	The Wildflower-Indigo Power Plant is located north of Palm Springs and the existing corridor.	Existing
Ocotillo Peaker Power Plant	The proposed Ocotillo Peaker Power Plant of 450 MW is located north of Palm Springs and the existing corridor.	Future
West of Devers		
Inland Empire Energy Center	The Inland Empire Energy Center is a proposed 670 MW plant located south of the Vista Substation.	Future

TABLE 7-1 ACTIVITIES LIST - CUMULATIVE EFFECTS		
Activities	**Location/Description**	**Status**
Mountainview Power Project	The Mountainview Power Project (1,056 MW) is an expansion project approved by the CEC in 2001, located in San Bernardino County, now under construction.	Future
Oak Valley System Project	SCE is proposing a new 230/115/12kV substation and associated 115kV transmission lines in northern Riverside County.	Future
Residential		
Rural and suburban residential development	Throughout project area.	Existing, Future
Agriculture and Grazing		
Farming	Cultivated private land throughout the project area.	Existing
Grazing	Throughout project area.	Existing
Parks, Preservation, Recreation		
Arizona		
KOFA NWR	The KOFA NWR is crossed by the proposed Devers-Harquahala segment and is located east of U.S. Highway 95 between the town of Quartzsite and the city of Yuma.	Existing
California		
Coachella Valley National Wildlife Refuge and Fringe-toed Lizard Preserve	The USFWS and The Nature Conservancy preserve is crossed by the proposed Devers-Harquahala segment and located southeast of the Devers.	Existing
Chuckwalla Desert Wildlife Management Area (DWMA) and Desert Tortoise Critical Habitat	The DWMA and Critical Habitat is crossed by the proposed Devers-Harquahala segment south of I-10 and east of Devers.	Existing

CHAPTER 8.0
GROWTH INDUCING EFFECTS

CEQA requires the analysis of a proposed project's potential to induce growth. Specifically, Section 15126.2(d) requires that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..." Growth inducing impacts can occur if a project would induce growth either directly or indirectly in the surrounding environment. Section 15126.2(d) also states that it cannot be assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment.

A project's potential to induce growth does not automatically mean that it will result in growth. This potential growth-inducing effect is regulated by local governments in California through the development, adoption, and implementation of land use plans and policies intended to avoid or minimize the growth inducing potential or pressure created by projects, both individually or cumulatively. Growth occurs through capital investment in new economic opportunities from both public and private entities. Development occurs as a result of economic investment in a particular region. New economic (i.e., employment) opportunities will naturally create the need for infrastructure to support an increased population.

The DPV2 project could be considered growth inducing if growth results from the direct and indirect employment needed to construct, operate, and maintain the project, and/or if growth results from the electric power that would be transmitted by the proposed project.

As documented in the project description (Chapter 3), the construction and operation of the proposed project would not significantly affect employment in the project area. SCE anticipates that contract workers would construct the project. Contract workers would not cause growth in the area due to the temporary nature of their employment. Operation of the proposed DPV2 project would require no additional full time personnel. Routing inspection and maintenance activities would occur periodically and would involve two patrols per year.

Typically, the growth inducing potential of a project would be considered significant if it fosters growth or a population concentration above what is assumed in local and regional land use plans or in projections made by regional planning groups such as the SCAG. Significant growth impacts also could occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local plans and/or policies.

However, the proposed project is not anticipated to induce growth. The project would not materially increase electrical consumption in California. Rather, it will allow SCE to provide lower cost electric service and to displace higher cost generation in California. Construction of the project may also encourage the displacement of older, less-efficient generation in the Southwest. These impacts are not expected to be growth inducing. For a further discussion of the purpose of the project, see Chapter 2.

CHAPTER 9.0
INDIRECT EFFECTS

CEQA Guidelines (Section 15358(a)(2)) and PEA Guidelines require discussion of potential indirect impacts of a proposed project. Indirect impacts, also referred to as secondary impacts, are impacts caused by a project that occur later in time or are farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing impacts and the impacts that result from this growth related to a change in the pattern of land use, population density, or growth rate and the resulting effects on air and water and other natural systems. Specific examples of an indirect impact are the traffic, air quality, and noise impacts of an automobile traveling to and from the project construction site for which no significant impacts would result.

As noted in Chapter 8, the proposed project is not anticipated to induce growth. Rather, it will allow SCE to reduce costs to customers and provide increased reliability of supply, insurance value against extreme events, and flexibility in operating California's transmission grid. Because the proposed DPV2 project would be constructed within established utility corridors and utilize existing generating sources and substations, land use patterns would not be affected by construction and operation of the project.

CHAPTER 10.0
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http://www.ci.beaumont.ca.us/
www.ecopac.org
www.cityofgrandterrace.org
http://www.ci.loma-linda.ca.us

CHAPTER 11.0
LIST OF PREPARERS

11.1 SOUTHERN CALIFORNIA EDISON

Name	Responsibility
Marco Ahumada	Project Manager
Daniel Pearson	Manager, Natural and Cultural Resources, Environment, Health, and Safety
Gary Dudley	Project Coordinator
Thomas Taylor	Cultural Resources, Paleontology
Andrew Wiederin	Transmission Engineer
Alicia Lopez	Project Engineer
Stuart Hemphill	Director, Resource Planning & Strategy
Darell Holmes	Transmission Planning Manager, Resource Planning & Strategy
Michael Whatley	Integrated Planning Manager, Resource Planning & Strategy
Gil Tam	Director, Grid Contracts
Brian Frazee	Manager of Projects and Programs, Transmission and Distribution Business Unit
Dana Cabbell	Manager of Regional Transmission Planning, Transmission and Distribution Business Unit

11.2 CONSULTANTS

Name	Responsibility
EPG, Inc.	
Garlyn Bergdale	Principal-in-Charge
Michael Siegel	Project Manager
Newton DeBardeleben	Project Coordinator; Geology, Soils, Hydrology, Land Use
Paul Trenter	Visual Resources
Marc Schwartz	Visual Resources, Simulations
Randall Palmer	Visual Resources
Michael Doyle	Land Use
Matt Militello	Land Use, Air Quality, Noise
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Robert Pape	Biology
Locana de Souza	Biology
Glenn Darrington, PhD	Cultural Resources
Kris Dobschuetz	Cultural Resources
Robert Mott	Socioeconomics
David C. Clark	Socioeconomics
Lauren Weinstein	Cumulative Impacts
Scott Woods	GIS and Information Technology

Name	Responsibility
Rasmuss Hansen	GIS
Joe Dickinson	GIS
Lyndy Long	Population Housing, Traffic and Transportation, QA/QC; Technical Editing
Kristie James	Document Production, QA/QC
Shirley Wiley	Technical Editing
Anna Franz	Graphics
Sarah Homuth	Graphics and CAD
ALICE KARL AND ASSOCIATES	
Alice Karl	Biology
BIORESOURCE CONSULTANTS	
Carl Thelander	Biology

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) for a Certificate of Public Convenience and Necessity Concerning the Devers-Palo Verde No. 2 Transmission Line Project	)	Application No. 05-04-015 (Filed April 5, 2005)

PROPONENT'S ENVIRONMENTAL ASSESSMENT

DEVERS-PALO VERDE NO. 2 TRANSMISSION LINE PROJECT

VOLUME II - APPENDICES

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Dated: April 5, 2005

APPENDIX A
CEQA INITIAL STUDY CHECKLIST

From Appendix G of CEQA Guidelines

APPENDIX A
CEQA INITIAL STUDY CHECKLIST
FROM APPENDIX G, CEQA GUIDELINES

1. Project title:

Devers-Palo Verde No. 2 Transmission Line Project (DPV2)

2. Lead agency name and address:

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

3. Contact person and phone number:

Mr. Thomas Burhenn
Manager of Regulatory Operations
Southern California Edison Company
(626) 302-9652

Mr. Daniel C. Pearson
Manager, Natural and Cultural Resources
Environment, Health & Safety
Southern California Edison Company
(626) 302-9562

4. Project location:

Southern California Edison Company (SCE) proposes to construct a new high-voltage electric transmission line between California and Arizona known as the Devers-Harquahala 500 kilovolt (kV) transmission line. The proposed line would extend from Devers Substation (Devers), located near Palm Springs, California to the Harquahala Generating Station switchyard (Harquahala), west of Phoenix, Arizona. The proposed line would extend for 230 miles, of which 102 miles would be located in Arizona and 128 miles would be located in California. The majority of the proposed route would parallel SCE's existing Devers-Palo Verde No. 1 (DPV1) 500kV transmission line. Two subalternate routes were identified for the termination point in Arizona.

Operation of the proposed line would require that upgrades be made to certain of SCE's existing electrical transmission facilities, west from Devers to the Vista and San Bernardino substations

in the City of Redlands. The upgrades would involve approximately 47 miles of existing transmission lines. The proposed Devers-Harquahala line and associated transmission facility upgrades are referred to as the Devers-Palo Verde No. 2 project (DPV2).

SCE is considering an interconnection request that would include the construction of a 500kV substation called the Midpoint Substation. The preferred location for Midpoint Substation is about 10 miles southwest of Blythe. Two alternative sites for the substation have been identified and are evaluated in this PEA: the Mesa Verde site is located 4.5 miles northwest of the preferred location; and the Wiley Wells site is located 17 miles west of Blythe.

5. Project sponsor's name and address:

Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, CA 91770

6. General plan designations:

In California, the proposed DPV2 project occurs within the general plan areas of the following jurisdictions:

City of Banning
City of Beaumont
City of Calimesa
City of Cathedral City
City of Coachella
City of Colton
City of Desert Hot Springs
City of Grand Terrace
City of Indio
City of Loma Linda
City of Palm Springs
City of Redlands
City of San Bernardino
Riverside County
San Bernardino County

These planning areas contain numerous land use designations, which are summarized below in item 9.

7. Zoning:

The proposed DPV2 project would be constructed within existing utility corridors. The majority of the proposed transmission line project construction would be located within SCE fee-owned rights-of-way or easements granted to SCE. The proposed DPV2 project would not conflict with any existing zoning designations.

8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

Construction of the proposed Devers-Harquahala 500kV transmission line would utilize the same four types of structures as the existing DPV1 and Harquahala-Hassayampa 500kV transmission lines. Of the approximately 784 structures required, approximately 709 would be four-legged, single-circuit lattice steel towers. To reduce potential impacts to agricultural operations, approximately 39 two-legged (or H-frame) single-circuit towers would be used in the Palo Verde Valley south of Blythe, California. Where feasible, structures would be constructed next to the existing DPV1 towers. In anticipation of the eventual construction of DPV2, during construction of DPV1 conductors for a 3-mile portion of the DPV2 line were installed on 13 double-circuit towers constructed for the DPV1 line to minimize impact to bighorn sheep habitat in the Copper Bottom Pass of the Dome Rock Mountains in Arizona. Approximately 23 new tubular steel poles would be constructed parallel to the existing Harquahala-Hassayampa 500kV line east of Harquahala, in Arizona.

Because the majority of the Devers-Harquahala line would be constructed within the utility corridor that contains the existing DPV1 line and existing access for line maintenance, construction of new main access roads would not be needed in most locations. Spur roads would be extended from the existing DPV1 main access roads to provide construction access for the proposed Devers-Harquahala 500kV line.

The existing 230kV transmission line system west of Devers consists of one set of double-circuit tower lines and two separate sets of single-circuit lines between Devers and San Bernardino Junction. San Bernardino Junction is the intersection of 230kV transmission line corridors located 3.4 miles south of the San Bernardino Substation. The proposed 230kV system upgrade would require the following activities between Devers and San Bernardino Junction: removal of an existing single-circuit 230kV tower line on wood H-frame structures, removal of an existing single-circuit 230kV tower line on lattice steel structures; replacement with a new double-circuit 230kV line; and reconductoring and modification of the existing double-circuit 230kV tower line.

Also, the 230kV system upgrade would require reconductoring of both circuits on an existing double-circuit 230kV tower line between Vista Substation and San Bernardino Junction. In addition, one circuit on each of the two existing double-circuit 230kV tower lines between San Bernardino Junction and San Bernardino Substation would be reconductored. Intersetting structures, or raising existing structures, would be necessary at some locations. Existing access roads would be utilized wherever possible for construction and line maintenance.

Construction of new support facilities would include: a new Optical Repeater facility located approximately 3 miles west of Blythe within the DPV2 right-of-way; a proposed California series capacitor bank located just north of and adjacent to the existing DPV1 series capacitor bank, approximately 64 miles east of Devers and 0.4 mile south of I-10; and a 500kV shunt line reactor bank and associated disconnect switches within Devers Substation. A 500kV Static VAR Compensation (SVC) would terminate into the 500kV switchrack.

9. Surrounding land uses and setting: Briefly describe the project's surroundings.

Along the proposed Devers–Harquahala 500kV transmission line, federal land and associated uses dominate the study corridor. Areas designated by federal agencies for preservation, conservation, and/or recreation include wilderness areas (WAs), areas of critical environmental concern (ACECs), Joshua Tree National Park and the Coachella Valley NWR/Preserve. The Agua Caliente Indian Reservation is the only Native American land in the study corridor located near the proposed DPV2 route.

Private land can be found primarily within the Coachella Valley north of Palm Springs and south of Blythe. Other existing and future land uses within the study corridor include vacant/undeveloped and grazing, agriculture, open space, recreation, rural residential, low- and medium-density residential, industrial/commercial, energy related industrial, utility and transportation infrastructure, and extraction/mining.

Along the proposed 230kV system upgrades west of Devers, private land predominates. A small amount of BLM land is present, including the Whitewater Canyon Area of Critical Environmental Concern. The Morongo Indian Reservation is within the west of Devers study corridor. The proposed route involves ten incorporated areas. Other population centers include unincorporated communities (White Water, Cabazon, and Cherry Valley), and large-lot rural residential areas.

Existing and future land uses within the proposed upgrade corridor include vacant/undeveloped and grazing, agriculture, open space, recreation, rural residential, low-, medium-, and high-density residential, industrial/commercial, energy related industrial, transportation and utility infrastructure, and extraction/mining.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

Encroachment permits, and notifications and letters of permission, may be required for crossings over water-supply features, utility corridors, and transportation corridors. California Department of Fish and Game Section (CDFG) 1600-1616 et seq. notification and permitting (stream and lake alteration agreement), and Corps of Engineers Section 404 notification and permitting,

respectively, may be required for potential direct affects to State and federal jurisdictional waters. If endangered species issues arise during project implementation, incidental take permitting through coordination with the U.S. Fish and Wildlife Service, and Memorandum of Understanding permitting through coordination with the CDFG, may become necessary.

SCE will submit an application to the BLM for an Amended Right-of-Way Grant and, if approved, the BLM would issue a Notice to Proceed, allowing construction to be administered by the BLM in California and Arizona. The Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) and the Arizona Corporation Commission (ACC) are responsible for the environmental review on state-jurisdictional land in Arizona; and the BLM has jurisdiction for environmental review for federal land. The ACC siting process in Arizona is comparable to CEQA review, and thus, pursuant to Arizona Revised Statute 40-360, et. seq., the ACC will conduct the environmental review of the Arizona portion of the project.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by the project, involving at least one impact that is a "Potentially Significant Impact" are:

__ Aesthetics	__ Agriculture Resources	__ Air Quality
__ Biological Resources	__ Cultural Resources	__ Geology /Soils
__ Hazards & Hazardous Materials	__ Hydrology / Water Quality	__ Land Use / Planning
__ Mineral Resources	__ Noise	__ Population / Housing
__ Public Services	__ Recreation	__ Transportation/Traffic
__ Utilities / Service Systems	__ Mandatory Findings of Significance	

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

— I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

— I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

— I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

— I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

— I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____

Signature Date

_____ _____

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and
   b) The mitigation measure identified, if any, to reduce the impact to less than significance

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impact on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☒	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☒	☐
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
IV. BIOLOGICAL RESOURCES- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means/	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
VI. GEOLOGY AND SOILS – Would the project?				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on an expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐		☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working the project area?	☐	☐	☐	☒

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐
VIII. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐
X. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐
XI. NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working the project area to excessive noise levels?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
XII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIII. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	☐	☐	☐	☒
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
XIV. RECREATION –				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XV. TRANSPORTATION/TRAFFIC – Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Result in inadequate parking capacity?	☐	☐	☐	☒

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☒	☐
XVI. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)	☐	☐	☒	☐

Sample Question	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

SOURCES AND EXPLANATIONS OF ANSWERS:

Sources and explanations of answers in the checklist regarding the DPV2 project are included below.

I. AESTHETICS

The existing visual conditions include the presence of the DPV1 500kV transmission line that would be paralleled by the proposed Devers-Harquahala 500kV line (DPV2). West of Devers, the existing conditions include four lines of transmission structures from Devers–San Bernardino Junction. The proposed upgrades would remove one line of existing wooden H-frame structures and another line of existing steel lattice structures and replace those two lines with a new double-circuit line on steel lattice structures that would match the existing structure line.

The west of Devers transmission upgrade corridor crosses a state scenic highway, but would not impact resources within the scenic highway. The proposed existing and new tower lines would span the roadway at all highway crossings, and actually reduce the number of transmission line structures within the existing utility corridor. No state-designated scenic vistas would be affected by the proposed project.

Construction and operation activities for the DPV2 project would occur within an existing utility corridor and would not damage any scenic resources.

As a result of the existence of parallel transmission line(s), the DPV2 project would have a Less Than Significant Impact on the existing visual character or quality of the project corridor. The new line would have a Less Than Significant Impact regarding new sources of substantial light or glare.

II. AGRICULTURE RESOURCES

Construction and operation of the proposed DPV2 project would have an impact of Less Than Significant With Mitigation Incorporated on state-designated or locally important farmlands. Within the Palo Verde Valley, 39 new two-legged single-circuit towers, also referred to as H-frames, would be used to cross farmland to minimize impacts to farming operations. There would be Less Than Significant Impacts on zoning for agricultural use, Williamson Act contracts, or conversion of farmland to non-agricultural use due to the minimal amount of farmland that might be affected.

III. AIR QUALITY

The proposed DPV2 project would have an impact of Less Than Significant With Mitigation Incorporated regarding implementation of air quality plans, existing air quality standards and non-attainment areas. Mitigation measures are described in Section 6.1.6 in the PEA. During construction, potentially significant impacts for air quality could occur from fugitive dust and vehicles emissions. Currently, all of Riverside County is identified as non-attainment for particulate matter based on California Air Resources Board Standards. The Federal EPA also identifies the Coachella Basin and South Coast Air Basin as non-attainment for particulate matter. Best Available Controls Measures would be used to control dust and vehicle emissions; emissions credits would be purchased to offset any emissions levels that exceed the emissions thresholds.

The project would have a Less Than Significant Impact on exposing sensitive receptors to substantial pollutant concentrations and will not create objectionable odors.

IV. BIOLOGICAL RESOURCES

Construction and operation of the DPV2 project would have an impact of Less Than Significant with Mitigation Incorporated upon sensitive species, riparian habitats, or other sensitive natural communities. A discussion of mitigation measures is found within Sections 6.1.8.2 and 6.2.8 of the PEA. Possible impacts to cushion foxtail cactus, desert tortoise, Coachella Valley fringe-toed lizard and Palm Springs round-tailed ground squirrel are considered to be potentially significant and would have to be mitigated in order to reduce them to less than significant. Impacts to sensitive reptile species are also considered potentially significant and would have to be mitigated to reduce them to less than significant levels. It is anticipated that the USFWS would provide mitigation recommendations as part of the Section 7 Consultation process for the DPV2 project.

Specific strategies for mitigating impacts to desert tortoise include identifying site-specific occurrences and having an SCE contracted biological monitor, certified by the USFWS, present during construction activities that include the use of earth-moving equipment in desert tortoise habitat. The monitor would remove any tortoises (in burrow, cover-sites, or on the surface) that could be impacted. An SCE contracted tortoise biologist would present a pre-construction class on tortoise ecology and mitigation to project personnel. A maximum 25 mph speed limit would be in effect along all access roads associated with the project. Other practices would be implemented to mitigate impacts to desert tortoise, including surveys, use of existing access routes, avoidance of burrows in disturbed areas, restoration, and discouraging/removing raven nests. SCE would compensate for loss of tortoise habitat through monetary contributions to an appropriate fund.

Potentially significant impacts to riparian and sensitive communities are associated with xeroriparian wash woodlands, wash crossings, and occurrences of Alverson's pincushion cactus, Coachella Valley milkvetch, California silverbush and California barrel cactus. These impacts would be reduced to Less Than Significant With Mitigation Incorporated, by spanning washes, careful local adjustment in tower foundation placement, minimizing construction access in xeroriparian wash woodlands, and identifying site-specific occurrences of sensitive species. Where applicable, impacts to plants located on tower sites or access roads would be reduced either by transplanting plants or by adjusting tower site locations.

Within the Coachella Valley Preserve and other sand dune communities, a qualified SCE contracted biological monitor certified by the USFWS would be present with construction crews on a daily basis to clear areas for sensitive species. Impacts would also be reduced by avoiding: habitat occupied by sensitive lizard communities; activities that tend to create wind barriers that might result in sand stabilization; and by spanning areas of windblown sand where possible.

West of Devers, potential impacts to the California Coastal gnatcatcher, least Bell's vireo and Stephens' kangaroo rat are Less Than Significant With Mitigation Incorporated. Mitigation activities would include avoidance of habitat, including relocation of tower sites and/or access roads. In those situations where loss or damage to habitat cannot be avoided, off-site restoration activities would be undertaken or funding would be provided for monitoring programs.

DPV2 project impacts to protected wetlands, species' migrations, wildlife corridors, or local policies and ordinances protecting biological resources would be Less Than Significant.

Project impacts on established or pending conservation plans would be Less Than Significant With Mitigation Incorporated. Specific mitigation measures would include those identified within the Coachella Valley Multiple Species Habitat Conservation Plan.

V. CULTURAL RESOURCES

Within the preferred DPV2 corridor, twenty-one National Register of Historic Places eligible or potentially eligible archaeological resources have been identified, along with thirteen National Register of Historic Places eligible or potentially eligible historic-era resources. The project corridor passes along three miles of the lower slopes of Edom Hill, which is an existing or potential traditional cultural property. The proposed project traverses approximately 27 miles of high or undetermined areas of paleontological sensitivity.

During construction of the proposed DPV2 project, impacts would be Less Than Significant with Mitigation Incorporated, as described in Section 6.1.12 of the PEA. For archeological and historic-era resources, mitigation efforts would include minor adjustments to the locations of

earth-disturbing project activities, implementation of protection measures, and/or application of appropriate data recovery archeological methods. As a general mitigation measure for ethnographic resources, the applicant would undertake an appropriate upgrade of the landmark ethnographic study Persistence and Power (Bean and Vane 1978). For paleontological resources, mitigation would include a preconstruction survey in areas of high or undetermined paleontological sensitivity to identify and collect surface specimens that could be affected by project construction, as well as paleontological monitoring of earth-disturbing construction activities and salvage of significant specimens.

VI. GEOLOGY AND SOILS

Project construction and operation would have a Less Than Significant Impact upon people and structures regarding the effects of earthquake fault rupture, strong seismic ground shaking, ground failure, erosion, expansive and collapsible soils, subsidence, or landslides.

VII. HAZARDS AND HAZARDOUS MATERIALS

Project construction activities would involve the operation of heavy equipment and support vehicles. The presence of hazardous materials or wastes within the project area could pose a threat to the environment only if substances were improperly stored or handled, if construction equipment were to leak or spill petroleum or hydraulic fluids, or if hazardous materials were encountered during excavation of foundations resulting in inadvertent releases to the environment.

Regarding the possibility of site locations on hazardous material sites, impacts would be Less Than Significant, as described in Section 5.1.13.1 of the PEA. The majority of the proposed transmission line project construction would be located within SCE fee-owned rights-of-way or easements granted to SCE. Within areas subject to new right-of-way acquisition, SCE will conduct an Environmental Site Assessment (ESA). The ESA (also known as a Phase I review) includes a review of published information, aerial photographs, and environmental databases; interviews with persons knowledgeable about the area; and site inspections to identify sites located within or near the designated area of construction that have a potential to release hazardous materials to the subsurface in actionable concentrations. Further investigation in the form of a Preliminary Site Investigation would be performed within areas of concern, if and where warranted by the findings of the ESA.

Project construction and operation would have a Less Than Significant Impact regarding: hazards associated with the transport, use, and disposal of hazardous materials; reasonably foreseeable upset and accident conditions causing the release of hazardous materials; emitting or

handling hazardous materials within one-quarter mile of an existing or proposed school; residing or working in the project area within the vicinity of a private airstrip; or causing wildland fires or urban interface fires.

There would be no project impacts associated with residing or working in the project area within two miles of a public or public use airstrip, or impairing an adopted emergency response or evacuation plan.

Measures to avoid and/or minimize impacts from hazards and hazardous materials would be included as part of the project design or would be incorporated per regulation and SCE standard construction, operation, and maintenance procedures. A hazardous substance management, handling, storage, disposal, and emergency response plan would be prepared, implemented, and kept on site (or in vehicles) during construction and maintenance of the project. To minimize, avoid and/or clean up any hazardous material, should an unforeseen spill occur, SCE and its contractors would be responsible for following SCE's Storm Water Pollution Prevention Plan.

VIII. HYDROLOGY AND WATER QUALITY

The construction and operation of the proposed DPV2 project would have Less Than Significant Impacts regarding violation of water quality standards or waste discharge requirements, increased erosion and/or siltation, increased surface water runoff, other degradation of water quality, or placement of structures within a mapped 100-year flood hazard area. Erosion and flood control measures, required by the BLM Right-of-Way Grant, would be implemented during construction of the transmission line on public lands to reduce impacts to hydrological resources.

The project would have No Impact regarding placement of housing within a mapped 100-year flood hazard area, flooding as a result of structural failure, or inundation by seiche, tsunami, or mudflow.

IX. LAND USE AND PLANNING

The proposed DPV2 project would not physically divide an established community. Project construction and operation would have a Less Than Significant Impact regarding conflicts with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Project impacts upon established or pending conservation plans would be Less Than Significant with Mitigation Incorporated, as described in Section 6.1.8.2. of the PEA. Specific mitigation measures would include those identified within the Coachella Valley Multiple Species Habitat Conservation Plan.

X. MINERAL RESOURCES

Impacts from the DPV2 project on the availability of mineral resources would be Less Than Significant.

XI. NOISE

Noise levels associated with construction activities within the project corridor would be Less Than Significant and would vary according to the type and number of machinery and vehicles used. Typical noise levels associated with construction equipment fall in the range of 80 to 100 dBA, at a range of 50 feet from the active construction site.

Construction of the proposed project would comply with local noise ordinances. Typically, these stipulate that activities producing ambient noise should not exceed 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.), at residential property lines or sensitive areas. However, exemptions are allowed for temporary construction except on Sundays and federal holidays. There may be a need to work outside of the local ordinance standards in order to take advantage of low electrical draw periods during the nighttime hours. SCE would comply with variance procedures established by local authorities, if a variance is required.

XII. POPULATION AND HOUSING

The DPV2 project would have a Less Than Significant Impact on population and housing, and would not induce substantial population growth. No residents or existing housing would be displaced as a result of the project.

XIII. PUBLIC SERVICES

The proposed project would have no adverse impacts on public services.

XIV. RECREATION

The DPV2 project would neither increase use of local and regional parks or other recreational facilities nor would it include or require the construction or expansion of recreational facilities.

XV. TRANSPORTATION/TRAFFIC

Project construction activities would involve the operation of heavy equipment and support vehicles. This would result in Less Than Significant Impacts regarding increases in traffic, exceeding a level of service standard for designated roads or highways, increases in hazards, inadequate emergency access, and conflicts with alternative transportation programs. The project would result in No Impacts to changes in air traffic patterns or levels of parking capacity.

XVI. UTILITIES AND SERVICE SYSTEMS

Construction and operation of the DPV2 project would have a Less than Significant Impact in regards to new storm water drainage facilities, landfill capacity for solid waste disposal, and compliance with federal, state, and local regulations related to solid waste disposal. The proposed project would have no impacts pertaining to wastewater treatment requirements, facilities or existing capacity, and water supply.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE

The proposed DPV2 project is located within an existing utility corridor, parallel to one or more existing transmission lines. The project is not expected to substantially degrade the environment. Any Potentially Significant Impacts associated with project construction and operation would be addressed with mitigation measures that reduce the impact to Less Than Significant with Mitigation Incorporated. These impacts and mitigation measures are identified and described in the preceding sections addressing air quality, biological resources, cultural resources, hazardous materials and wastes, and land use planning.

Based on the analysis provided in Chapter 7.0, the incremental impact of the proposed DPV2 project would be minimal when added to other past, present and reasonably foreseeable future actions. Construction and operation of the proposed Devers-Harquahala transmission line and west of Devers transmission upgrade would not cause significant cumulative impacts on the environment.

The proposed project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. As described in preceding sections, impacts to agriculture, air quality, hazardous materials and wastes, and land use planning, would be Less Than Significant With Mitigation Incorporated.

APPENDIX B
RECORD OF DECISION AND RIGHT-OF-WAY GRANT

Record of Decision approving the BLM preferred alternative (proposed action) for the Devers-Palo Verde No. 2 Transmission Line Project (February 21, 1989)

BLM Right-of-Way Grant
BLM California State Office (August 11, 1989)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
CALIFORNIA STATE OFFICE
2800 Cottage Way
Sacramento, California 95825

179
CA-930.1

MAR 6 1989

Mike Spear, Regional Director
US Fish and Wildlife Service
PO Box 1306
Albuquerque, NM 87103

Dear Mr. Spear:

Please find enclosed the Record of Decision approving the BLM preferred alternative (proposed action) on the Devers-Palo Verde No. 2 Transmission Line Project.

Sincerely,

Ed Hastey
State Director

Enclosure
As Stated

cc: SCE (Chuck Richards)
SD, Arizona
DM, CDD
OEPR (Libby Stone)
WO (200), Room 5454, MIB

RECORD OF DECISION
DEVERS-PALO VERDE NO. 2 TRANSMISSION LINE PROJECT

Southern California Edison Company (SCE) in concert with other western utility companies proposes to construct a 500 kV transmission line from the vicinity of the Palo Verde Nuclear Generating Station (PVNGS), about 40 miles west of Phoenix, Arizona to the Devers Substation, near Palm Springs, California. The project participants includes SCE, members of the Southern California Public Power Authority (SCPPA) and the Modesto-Santa Clara-Redding Public Power Agency (M-S-R). The SCPPA has entitlements in PVNGS and M-S-R has entitlements in San Juan Unit 4, located in New Mexico. Both SCPPA and M-S-R need transmission line from the Phoenix area to California to deliver power from the two out-of-state energy resources.

The proposed transmission line was analyzed in a Supplemental Environmental Impact Statement (SEIS). A draft supplemental EIS was released for 60-day public review on May 8, 1987 and ended July 8, 1987. A complete description of the proposed project, including maps and diagrams of proposed facilities such as transmission lines and towers were included in that document and are included in this Record of Decision (ROD) by reference.

The Final SEIS was published and made available to the public on December 16, 1988 by a Notice of Availability published in the Federal Register. A thirty day period ended January 16, 1989.

The SEIS evaluated five alternatives, one of which included a no-action alternative:

1. Proposed Project: The proposed route would parallel SCE's existing 238-mile 500 kV Devers-Palo Verde No. 1 transmission line of which 112 miles is in Arizona and 126 miles is located in California.

2. Northern Alternative 1: This alternative's alignment parallels the proposed project and is parallel to DPV No. 1, for the first 51 miles in Arizona. From the proposed route (about 12 miles east of the Kofa National Wildlife Area), it turns northwesterly towards the town of Brenda, and through the Plomosa Mountains. The route then turns westerly through the southern portions of the Colorado Indian Reservation. Crossing the Colorado River, the route skirts the northern edge of Palo Verde Valley and rejoins the proposed route 12 miles west of Blythe. The remainder of the route is the same as proposed project.

3. Northern Alternative 2: This alternative departs the proposed alignment about 12 miles east of the Kofa NWR and proceeds towards Brenda. Southeast of Brenda, the route parallels I-10 through the Plomosa Pass. Then the alignment turns southwesterly along the edge of the mountains to a point about nine miles southwest of Quartzite where it rejoins the proposed route.

4. Southern Alternative: This alternative leaves the proposed route east of the Colorado River and turns southwest and crosses the river and lower Palo Verde Valley about 15 miles southwest of Blythe: it then heads northwest and rejoins the proposed route about 15 miles west of Blythe.

The no-action alternative considered the consequences of denying the proposa entirely.

The route alignment proposed by SCE is the preferred route of the Bureau of Land Management. It is also the environmentally preferred alternative for the following reasons. The route is utilized for interstate pipelines and transmission lines; impacts are confined to a utility corridor where environmental disturbances have already taken place. The original decision to route Devers-Palo Verde (DPV) No. 1 transmission line, which DPV No. 2 parallels, through the Kofa NWR was based on the greater potential for significant impact to bighorn sheep along the other alternatives. Detailed studies before, during and after construction of DPV No. 1 have not identified any significant adverse effect, and DPV No. 2 is expected to result in a similar negligible effects.

U.S. Fish and Wildlife Service is preparing a compatibility statement on the Kofa NWR segment, and has concurred with the Bureau's proposed action.

Northern Alternative 1, Northern Alternative 2, and Southern Alternative routes would require an additional 74 miles, 47 miles, and 32 miles, respectively, of new rights-of-way. The new and additional surface disturbance would involve greater environmental impact than the proposed route, particularly in soil disturbance, biological resources, visual quality, cultural resources, Native American cultural values and land[illegible].

All practical means to avoid adverse impact have been adopted. Construction monitoring will be conducted by the appropriate District Office in each stat to ensure compliance with the mitigation measures identified in Appendix A the SEIS. The U.S. Fish and Wildlife Service will monitor the Kofa NWR segment.

The right-of-way grant will be given a different serial number for Californ and Arizona. The term of the grant will be perpetuity and will be renewabl

Ed Hastey
California State Director

Feb 21 1983
Date

ENTAL

For and in consideration of the rights granted, the Holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer. Provided, however, that the annual rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices. The estimated rental for the public lands in California for eight (8) months in the 1989 calendar year is $5,703.00 subject to final determination of length as derived from as-built drawings. For the public lands in Arizona, the estimated rental for eight (8) months in the 1989 calendar year is $5,518.00 subject to final determination of length as derived from as-built drawings.

TERMS AND CONDITIONS

A. This grant is issued subject to the holder's compliance with all applicable regulations contained in 43 CFR 2800.

B. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in the attached stipulations or as directed by the authorized officer.

C. Each grant issued pursuant to Title V of the Act (FLPMA) and 43 CFR 2800 for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided however, that a right-of-way granted herein may be reviewed at any time deemed necessary by the authorized officer.

D. The stipulations, plans, maps, or designs set forth in Exhibits A, B, and C, attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

E. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The following documents are by this reference incorporated into and made a part of this grant:

A. The stipulations set forth in Exhibits A and B attached.

B. The route's legal description in Exhibit C attached.

VAULT COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
E-2841 Federal Office Building
2800 Cottage Way
Sacramento, California 95825

RIGHT-OF-WAY GRANT

Serial Number: CA-17905 / AZ-23805

Pursuant to Title V of the Federal Land Policy and Management Act of 1976, 43 U.S.C. 1761, and the regulations in Part 2800, Title 43, Code of Federal Regulations, the United States of America hereby grants to Southern California Edison Co. a right-of-way across Federal lands for the construction, operation, maintenance, and termination of one 500 kV Transmission Line and its Appurtenances. The location of the transmission line is indicated in Exhibit C.

NATURE OF THE GRANT

By this instrument, Holder receives a nonpossessory, nonexclusive right to use certain Federal lands as depicted in the legals referred to in Exhibit C, for the limited purpose of construction, operation, maintenance and termination of a 500 kV Transmission Line and its Appurtenances specified in this instrument.

WIDTH OF RIGHT-OF-WAY

The nominal width of the right-of-way is 130 feet. The right-of-way contains 57.2 miles of public land in California and 92.7 miles of public land in Arizona.

DURATION OF GRANT

A. The grant hereby made shall be in perpetuity from the effective date hereof, at noon, California time, unless it is relinquished, abandoned, modified or otherwise terminated pursuant to the provisions of this grant or of any applicable Federal law or regulation.

B. Not withstanding the expiration of this grant, its earlier relinquishment, abandonment, or other termination, the provisions of this grant, to the extent applicable, shall continue in effect and shall be binding on the Holder, its successors or assigns, until they have fully performed their respective obligations and liabilities occuring before or on account of the expiration, or the prior termination, of the grant.

VAULT COPY

AUTHORITY TO ENTER AGREEMENT

The Holder represents and warrants to the United States that it is duly authorized and empowered under the applicable laws of the State of its incorporation and by its charter and by-laws to enter into and perform this agreement in accordance with the provisions hereof.

IN WITNESS WHEREOF,

The parties hereto have duly executed this agreement as of the date written.

UNITED STATES OF AMERICA

State Director, Arizona
Bureau of Land Management

AUG 1 1989
Date

Ed Hastey
State Director, California
Bureau of Land Management

8/11/89
Date

Southern California Edison Co

R. W. Bray
Title
Manager of
Real Properties and
Administrative Services

7/14/89
Date

APPROVED AS TO FORM:
JOHN R. BURY
Vice President General Counsel
By J.N. Bray
Attorney

1989

APPROVED	
BY	DATE
WJ20	5/1/89
JK	5/3/89
JLC	7/3/89
[illegible]	7-8
[illegible]	7/11
[illegible]	7/12
[illegible]	7/14

VAULT COPY

EXHIBIT A

GENERAL STIPULATIONS

A-1. Definitions

As used in these stipulations and elsewhere in this grant, the following terms have the following meanings:

A. "Authorized Officer" means the State Director, District Manager and his field compliance officer.

B. "Line" means the electrical transmission line.

C. "Holder" means: Southern California Edison Co. and its successors and assigns.

D. "Notice to Proceed" means an authorization to initiate the transmission line construction.

E. "Cultural Resources" means those fragile and nonrenewable remains of human activity, occupation, and endeavor as reflected in district, sites, structures, artifacts, objects, ruins, works of art, architecture, and natural features that were of importance in human events.

F. "Natural Resources" means all remains of natural origin including wildlife, vegetation, fish, geologic remains, paleontological fossils and remains, soil aesthetics, and open space values.

G. "Waste" means all discarded matter, including but not limited to human waste, trash, garbage, refuse, barrels and drums, petroleum products, ashes and equipment.

Responsibilities

Holder shall ensure full compliance with the terms and conditions of this grant, including these stipulations, (Exhibits A,B,C), by its agents, employees and contractors (including subcontractors at any level), and the employees of each of them. Failure or refusal of Holder's agents, employees, contractors, subcontractors, or their employees to comply with said stipulations shall be deemed to be the failure or refusal of Holder.

Notices to Proceed

A. Holder shall not initiate any construction on the Federal land in each respective state without the prior written authorization of the respective Authorized Officer in California and Arizona. Such authorization shall be given solely by means of a written Notice to Proceed issued by the respective Authorized Officer.

B. The Holder shall contact the authorized officer at least 15 days prior to the anticipated start of construction and/or any surface disturbing activities. The authorized officer may require and schedule a preconstruction conference with the Holder prior to the holder's commencing construction and/or surface disturbing activities on the right-of-way. The Holder and/or his representative shall attend this conference. The Holder's contractor, or agents involved with construction and/or any surface disturbing activities associated with the right-of-way, shall also attend this conference to review the stipulations of the grant including the plan(s) of development.

C. The Authorized Officer may revoke in whole or in part any Notice to Proceed which has been issued when unforeseen conditions arise

D. Each application for a Notice to Proceed shall be supported by:

Construction specifications.

A detailed network analysis diagram for the construction segment will be provided to the Authorized Officer, including: Holder's work schedules; permits required by State and Federal agencies and their interrelationships; design and review periods; data collection activities; and construction sequencing. The detailed network analysis diagram shall be updated by Holder as required to reflect current status of the project.

Thirty (30) days will be allowed for field review of any dat or plans prior to the issuance of a Notice to Proceed.

Centerline surveys of the route location.

A-4. Liabilities of Holder

A. The Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2803.1-4. The Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from fire or soil movement (including landslides and slumps, as well as wind and water-caused movement of particles) caused or substantially aggravated by any of the following within the right-of-way or permits area:

1. Activities of the Holder including, but not limited to, construction, operation, maintenance, and termination of the transmission line.

2. Activities of other parties including, but not limited to:

a. Land clearing and logging.

b. Earth-distrubing and earth-moving work.

c. Blasting.

d. Vandalism and sabotage.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from the negligent acts or omissions of the United States.

A-5. Reservation of Certain Rights to the United States

The United States reserves and shall have a continuing right of access to any part of the lands (including the subsurface of, and the air space above, such lands) that are subject to the right-of-way, and reserves the right to issue additional use authorization to third parties for compatible uses on, over, under or adjacent to the lands subject to the right-of-way.

A-6. Reimbursement of Department Expenses

A. Holder shall reimburse the United States for all costs incurred by the BLM for monitoring the construction, operation, maintenance, and termination of authorized facilities on the right-of-way and for the protection and rehabilitation of the lands involved. Such reimbursement shall be made as follows:

1. At least 30 days before the beginning of each quarter of each Federal fiscal year, the Authorized Officer shall submit an itemized statement of projected costs to Holder of the reimbursable work to be performed by the United States during the ensuing quarter, together with a bill for payment of the cost of such work. Holder shall pay the billed amount in full no later than 15 days from receipt of the bill. If the advance payment for a quarter exceeds the actual cost of the work performed during that quarter, the overpayment shall be credited to Holder in the next billing after the Authorized Officer has determined the amount of the overpayment. If the advance payment for a quarter is less than the actual cost of the work performed during that quarter, the amount of the difference shall be included in the amount due in the next billing after the Authorized Officer has determined the amount of underpayment.

2. If Holder decides to dispute any item of a statement that shall be rendered in accordance with this section, Holder shall so notify the Authorized Officer within 15 days of receipt of the statement. If the dispute involves only the amount owed the United States but not the need for the work to be done, Holder shall not withhold payment of the disputed amount, but shall pay it under protest. If the dispute pertains to the need for, or relevance to the project of the work, proposed work to be undertaken by the Authorized Officer, such work shall not be initiated until the dispute is resolved. The Authorized Officer shall meet with Holder promptly in an effort to resolve the dispute and shall thereafter rule on the matter and make appropriate adjustment of Holder's account.

B. The Holder shall have the right to conduct, at its own expense, reasonable audits by auditors or accountants, designated by the Holder, of the books, records, and documents of the Department and of its independent consultants and/or contractors relating to the items on any particular statement that shall be submitted, at the places where such books, records, and documents are usually maintained, and at reasonable times; provided, however, that written notice of a desire to conduct such an audit must be given the Authorized Officer:

1. At least fifteen (15) days prior to such audit.

2. By not later than the 75th day after the close of the quarter for which the books, records, and documents are sought to be audited, and provided further, that any such audits shall be completed within ninety (90) days after receipt by the Holder of the statement containing the items to be audited.

A-7. Right of United States to Perform

If, after thirty (30) days, or in an emergency such shorter period as shall be reasonable, following the making of a demand therefore by the Authorized Officer, Holder, or its agents, employees, contractors, or subcontractors, shall fail or refuse to perform any of the actions required by Section A-4.A of this grant, the United States shall have the right, but not the obligation, to perform any or all of such actions at the sole expense of Holder.

A-8. Liens

The Holder shall, with reasonable diligence, discharge any lien against Federal lands that results from any failure or refusal on its part to pay or satisfy any judgment or obligation that arises out of or is connected in any way with the construction, operation, maintenance, or termination of all or any part of the line.

A-9. Transfer

Holder shall not, without obtaining the prior written consent of the Authorized Officer transfer in whole or in part any right, title, or interest in this right-of-way grant.

A-10. Nondiscrimination and Equal Employment Opportunity

In the construction, operation and maintenance of the line and its appurtenances there shall be no discrimination against any employee or applicant for employment because of race, creed, color, sex or national origin and all subcontractors shall include an identical provision.

A-11. Partial Invalidity

If any part of this grant is held invalid or unenforceable, the remainder of this grant shall not be affected and shall be valid

A-12. Termination of Use

Upon revocation or termination of this grant or termination of use of any part of the transmission line located on Federal lands, Holder shall remove all improvements and equipment, except as otherwise approved in writing by the Authorized Officer, and shall restore the land to a condition that is satisfactory to the Authorized Officer.

A-13. Improvements

Holder shall protect existing telephone, telegraph, and transmission lines, roads, trails, fences, ditches, and like improvements during construction, operation, maintenance, and termination of the line. Holder shall not permanently obstruct any road or trail without the prior approval of the Authorized Officer. Damage permanently caused by Holder to public utilities and improvements shall be promptly repaired by Holder to a condition which is satisfactory to the Authorized Officer.

A-14. Survey Maps

Ninety (90) days after completion of construction the Holder shall furnish as-built centerline survey plats showing the location of the transmission line and its appurtenances, furnish a statement stating all restoration stipulations have been complied with, and provide proof of construction on forms approved by the Director, to the Authorized Officer.

A-15. General Requirements

A. The Holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the Authorized Officer or his delegate to ensure construction in accordance with the plan of development. If stakes are disturbed, they shall be replaced before proceeding with construction.

B. The Holder shall survey and clearly mark the centerline and/or exterior limits of the right-of-way, as determined by the authorized officer.

C. The Holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.

A-16. Construction Requirements

A. At least 30 calendar days in advance of beginning construction activities on the public lands, the Holder shall submit in writing a timetable of construction to the Authorized Officer. (If construction is to begin upon receipt of the permit, the Holder shall immediately contact the District Manager to advise him of the immediate construction, and to discuss the timetable of construction).

B. The Holder will assume all liabilities including, but not limited to, soil and geologic stability, design, operations thereto, and maintenance liable for identifying, prior to construction, all activities that may jeopardize human welfare or equipment that can be rectified through coordination with the Authorized Officer.

C. The Authorized Officer reserves the right to approve, disapprove, limit, or specify given types of motorized equipment to be used within the right-of-way per se, or access roads, for the purpose of construction, restoration, or maintenance.

D. No preconstruction, construction, post-construction, or maintenance activities shall commence on public lands or lands that may have archaeological, cultural or paleontological values without prior approval of the Authorized Officer.

E. Only certified employees shall use explosives or explosive materials and the transportation and use of explosives shall be in compliance with local, State and Federal regulations.

A-17. Roads and Access Requirements

A. Holder shall permit free unrestricted public access to and upon the right-of-way for all lawful purposes except for those specific areas designated as restricted by the Authorized Officer to protect the public, wildlife, livestock, or construction of the right-of-way.

B. The Holder shall provide for the safety of the public entering the right-of-way. This includes, but is not limited to, barricades for open trenches, flagmen/women with communication systems for single-lane roads without intervisible turnouts, and attended gates for blasting operations.

C. Construction-related traffic shall be restricted to routes approved by the Authorized Officer. New access roads or cross-country vehicle travel will not be permitted unless prior written approval is given by the Authorized Officer. Authorized roads used by the Holder shall be rehabilitated or maintained when construction activities are complete as approved by the Authorized Officer.

D. The Holder shall construct waterbars on all disturbed areas to the spacing and cross sections specified by the Authorized Officer. Waterbars are to be constructed to: (1) simulate the imaginary contour lines of the slope (ideally with a grade of one or two percent); (2) drain away from the disturbed area; and (3) begin and end in vegetation or rock whenever possible.

E. Existing roads and trails on public lands that are blocked as the result of the construction project shall be rerouted or rebuilt as directed by the Authorized Officer.

F. The Holder shall construct low-water crossings in a manner that will prevent any blockage or restriction of the existing channel. Material removed shall be stockpiled for use in rehabilitation of the crossings.

A-18. Air Quality and Noise

A. Dust control measures, such as watering, will be implemented on road-distrubed areas as determined by the Authorized Officer, during periods of heavy vehicular traffic, and in areas identified as powdery soil conditions.

B. Holder will use fugitive dust control measures during construction, which may include water spraying with dust suppression additives, as determined by the Authorized Officer.

A-19. Use of Pesticides and Disposal of Waste Material

A. Use of pesticides shall comply with the applicable Federal and State laws and regulations concerning the use of pesticides and other toxic substances (i.e., insecticides, herbicides, fungicides, rodenticides and other similar substances) in all activities/operations under this grant. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the Holder shall obtain from the Authorized Officer written approval of a plan showing the type and quantity of material to be used, pest, insect, fungus, etc., to be controlled; the method of application; the location for storage and disposal of containers; and any other information deemed necessary by the Authorized Officer. The plan should be submitted no later than December 1 of any calendar year that covers the proposed activities for the next fiscal year (i.e., December 1 1989, deadline for a fiscal year 1990 action). Emergency use of pesticides shall be approved in writing by the Authorized Officer prior to such use. Pesticides shall not be permanently stored on public lands authorized for use under this grant.

B. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of (contained and hauled away to approved disposal areas) promptly at an appropriate waste disposal site.

C. A litter policing program shall be implemented by the Holder and approved in writing by the Authorized Officer, covering all roads and sites associated with the right-of-way.

D. If facilities authorized for construction under this right-of-way grant use Polychlorinated Biphenyls (PCBs), such use shall be in a totally enclosed manner in accordance with provisions of the Toxic Substances Control Act of 1976 as amended (see 40 CFR Part 761). Additionally, any release of PCBs (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by law. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any hazardous material shall be furnished to the Authorized Officer within 5 working days of the occurrence of the spill or release.

A-20. Survey Monuments

The Holder shall protect all survey monuments found within the right-of-way. Survey mounments include, but are not limited to, General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the Holder shall immediately report the incident, in writing, to the Authorized Officer and the respective installing authority if known. Where General Land Office or Bureau of Land Management right-of-way monuments or references are obliterated during operations, the Holder shall secure the services of a registered land surveyor or a Bureau cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the Manual of Surveying Instructions for the Survey of the Public Lands of the United States, latest edition. The Holder shall record such survey in the appropriate county and send a copy to the Authorized Officer. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monument, the Holder shall be responsible for survey costs.

A-21. Miscellaneous

Within ninety (90) days of completion of construction of the line, holder shall submit a maintenance plan to the Authorized Officer for approval. The plan shall specify the types and frequency of recurring activities to be conducted by Holder within and along the right-of-way. Either party may request that the maintenance plan be updated to meet changing conditions. Amendments and revisions of the maintenance plan shall be approved by the Authorized Officer.

EXHIBIT B

MITIGATION MEASURES

B-1. Access Roads

1. Although the holder may restore and maintain existing access roads, they cannot be either widened or upgraded without approval of the Authorized Officer.

2. New access road construction will be kept to a minimum.

B-2. Geology

1. The line will be located to minimize the disruption of any active mining operations.

2. Transmission towers will not be sited on nor straddle the mapped traces of any known fault that has been designated active or potentially active (see Figure 4.2-1 in the CPUC Draft EIR). In areas where known faults are present the holder will visually check the tower site area before clearing, and will check the tower footing holes for any trace of a previously unmapped fault. If manifestations of a fault are found, construction will immediately stop at that site and the holder will consult with the BLM Authorized Officer. The BLM Authorized Officer will determine if it is a fault trace and if so, will ascertain if it is active, potentially active, or inactive.

3. Towers will be located so that the line will span the surface traces of active and potentially active faults such that a relative lateral surface displacement would shorten the span between towers, and thus avoid potential line breaks. Where this is not feasible, the holder will incorporate slack spans to bridge the fault(s) such that the projected lateral surface displacement, as forecast by the holder's geologist and accepted by the BLM Authorized Officer, will not structurally affect the associated towers.

4. Appropriate tower design will be used to mitigate the potential for very strong seismic ground shaking. In general, an appropriate tower design which accounts for lateral wind loads and conductor loads during line stringing exceeds any credible seismic loading (ground shaking).

5. Towers will be located to avoid areas of highly sensitive dune sand (see Map 10-AZ in the Draft EIS and Figure 4.5.1 in the CPUC Draft EIR). Where these areas cannot be avoided, towers will be located to minimize disturbance to the deposits at a site approved by the BLM Authorized Officer.

6. Wherever possible to minimize the potential for slope instability, towers will be located to avoid gullies or active drainages, and oversteepened slopes .

7. The Authorized Officer will require, on a site specific basis, helicopter assisted construction in sensitive areas. Sensitive areas are those that exhibit both: 1) High erosion potential and/or slope instability; and 2) A lack of existing access roads within a reasonable distance of the tower site (generally no more than 1/4 mile), or existing access that is not suitable for upgrading to accommodate conventional tower construction or line stringing equipment, and where it is determined that after field review the issues of erosion and/or slope instability cannot be successfully mitigated through implementation of accepted engineering practices.

8. Mitigation of potentially significant impacts to the western end of the proposed transmission line due to (1) potential surface fault rupture along the Banning, Mission Creek, and Mecca Hills faults, and (2) potential for severe seismic shaking can be achieved by standard design methods listed below:

   a. Towers will be sited so as not to straddle active fault traces

   b. The alignment will be designed to cross an active fault such that future rupture on the fault would not cause excessive stress on the line or the towers.

   c. Standard foundation and structural design measures will be utilized to minimize the impact from severe seismic shaking.

9. Appropriate design of tower foundations will be used to reduce the potential for settlement and compaction.

B-3. Soils

Mitigation measures to reduce adverse impacts on soil resources are:

1. New access roads and soil disturbance will be avoided or minimized in all areas designated as having high erosion hazards or potential slope instability (see Map 9-AZ, Appendix F in the Draft EIS; and Figures 4.2-1 and 4.3-1 in the Devers-Palo Verde #2 EIR). If the Authorized Officer, after consultation and review of alternatives (including helicopter or helicopter assisted construction) deems the proposed new access road feasible, design plans must be submitted for approval, in writing, prior to construction.

2. New access roads which are required will be designed to minimize ground disturbance from grading. They will follow natural ground contours as closely as possible and include specific features for road drainage, including water bars on slopes over 25 percent. Other measures could include drainage dips, side ditches, slope drains, and velocity reducers. Where temporary crossings are constructed, the crossings will be restored and repaired as soon after completion of the discrete action associated with construction of the line in the area as possible.

3. Side casting of soil during grading will be minimized. Excess soil will be properly stabilized or, if necessary, end-hauled to an approved disposal site.

B-4. Hydrology

1. During the first year following construction, potential soil erosion sites will be inspected by the holder after each major rain storm as access permits. For the purpose of this measure, a major rain storm is defined as any singular storm where the total precipitation exceeds the arithmetic mean for similar events in the area and results in flooding. Examples include cloudburst (high quantity - short duration) or storms where saturated soils produce runoff (high quantity - long duration).

2. Construction equipment will be kept out of flowing stream channels except when absolutely necessary to construct crossings.

3. Erosion control and hazardous material plans will be incorporated into the construction bidding specifications to insure compliance

4. Appropriate design of tower footing foundations, such as raised foundations and/or enclosing flood control dikes, will be used to prevent scour and/or inundation by a 100-year flood.

5. Towers will be located to avoid active drainage channels, especially downstream of steep hillslope areas, to minimize the potential for damage by flash flooding and mud and debris flows

6. Diversion dikes will be required to divert runoff around a tower structure if: a) the location in an active channel cannot be avoided; and b) where there is a very significant flood scour/deposition threat, unless specifically exempted by the BLM Authorized Officer.

7. Runoff from roadways will be collected and diverted from steep, disturbed, or otherwise unstable slopes.

8. Ditches and drainage concourses will be designed to handle the concentrated runoff, will be located to avoid disturbed areas, and will have energy dissipations at discharge points.

9. Cut and fill slopes will be minimized by a combination of benching and following natural topography where possible.

B-5. Biological Resources

Vegetation.

1. Avoid direct disturbance of highly sensitive features (as identified in E. Linwood Smith's [1985] Impact Assessment/Mitigation Planning Chart; see Appendix E) with spanning and careful local adjustment in tower footing placement.

2. Provide additional detailed surveys and tower-specific adjustment as needed prior to construction for major sensitive feature sites (e.g., concentrations of sensitive plants, individual palm trees, woody dune or wash communities) which cannot be easily avoided by spanning. (See appendix B of the Devers-Palo Verde #2 EIR and Appendix E of the SEIS.) The methodologies and results of these surveys must be submitted to and approved in writing by the BLM Authorized Officer.

3. Minimize the area needed for equipment operation and material storage and assembly.

4. Initiate transplant efforts for Ferocactus and Coryphantha as soon as probable losses can be determined. Any plans for transplanting must be developed in consultation with a BLM botanist and approved in writing by the BLM Authorized Officer.

5. The right-of-way Holder will have the Arizona State Department of Agriculture and Horticulture identify native plants that would otherwise be destroyed by construction and sell them to the Holder.

6. The Authorized Officer may require vegetation in certain areas be cleared by hand tools. Scalping of top soil and removal of low growing vegetation will not be allowed unless authorized by the Authorized Officer.

7. Where possible, towers or access roads will be located so as to avoid sensitive plants or plant communities. Where this is not feasible, affected individual plants will be transplanted. Towers will also be placed so that the lines will span critical wildlife habitat.

8. Tower sites will be selected to allow maximum spanning of sensitive features.

Wildlife.

1. In the vicinity of the Colorado River, existing tower spacings and conductor heights will be matched to the extent practical. This would reduce the potential for bird collisions with the powerline.

2. Wash communities along the entire route and sand dune communities in the Coachella Valley (see Map 10-AZ in the Draft SEIS and Figure 4.5-1 in the CPUC Draft EIR) will be spanned to the extent possible.

3. The Holder will be required to purchase lands to compensate or enhance lands or conduct studies for the disturbance of public lands that are within areas of moderate to high value desert tortoise habitat. This will include disturbance caused by tower pad clearance and new access roads. Acquired lands will be in a nearby area of good tortoise density, within tortoise crucial habitat, and within an area where tortoise conservation is a priority (e.g., Chuckwalla Bench ACEC). Compensation utilizing land acquisition will be for disturbance of desert tortoise habitat in California only. The land to be acquired is estimated to be between 92 acres and 197 acres based upon a pre-construction review. BLM and the Holder will conduct a field inspection of the disturbed areas after completion of construction of the transmission line to determine the exact acreage. The Department of Fish and Game and the Desert Tortoise Council must also be consulted. The lands purchased will be transferred to the United States and be administered by the BLM.

4. Prior to construction activites, the Holder shall have a qualified tortoise biologist present a class or briefing to construction workers. Subjects addressed shall include tortoise sensitivity to human disturbance, daily and seasonal activity patterns, and proper handling for removal from roadways.

5. The Holder shall hire a qualified tortoise biologist to conduct daily inspections of roads and work areas within tortoise habitat during the tortoise season of activity (February 15 to June 15, July 15 to October 15). Tortoises found to be in jeopardy will be removed to a nearby site. Tortoises may be held for short periods, if judged necessary, to allow construction crews to pass through an area. The Holder will provide proper facilities for such temporary holding.

6. The Holder shall restrict the speed on all roads within tortoise habitat to a maximum of 25 miles per hour. The Holder is responsible for ensuring compliance with this limit by its employees.

7 Within tortoise habitat in California, spur roads shall not be bladed except where necessary to allow access for construction vehicles. Required vehicles shall enter on one pathway which is flagged and developed only by the passage of vehicles crushing vegetation. The spur shall be flagged by a qualified tortoise biologist prior to use. The spur shall avoid tortoise burrows and large perennial plants, yet be as short as possible within these requirements. Due to the presence of silty soils in Arizona, blading may occur.

8. Any desert tortoise observed on access roads or work areas will be moved immediately 100 yards away from the roadway into safe areas.

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- In areas considered to comprise suitable tortoise habitat, or other areas where tortoise are observed, all access roads and tower construction sites will be surveyed by a qualified biologist to delineate burrows or individuals for protection. Burrows near construction sites will be clearly delineated on the ground. Road, footing, and work area alignments should be modified to the extent possible to avoid adversely affecting any tortoise burrows encountered during these surveys. Where tortoise burrows will be unavoidably destroyed, they should be excavated carefully using hand tools, under the supervision of a field biologist with demonstrated prior experience with this species. See Map 11-AZ in Appendix F in the Draft EIS and Figure 4.5-2 in the Devers-Palo Verde #2 EIR. Also see Appendix E for link and milepost descriptions and mitigation measures.

10. If possible, no new roads, tower sitings, or spur roads will be built in blow sand areas. However, if new spur roads are required through wind-blown sand habitat, the road will be returned to natural conditions and effectively closed (gated or bermed) following construction. Pre-construction surveys will identify wind-blown sand dune habitats.

11. Where the project crosses through the Coachella Valley Preserve, the Holder will cooperate with the preserve in closing (gating) existing access roads. a) A qualified biologist will also be present with work crews to survey and clear work areas daily for Coachella Valley fringe-toed lizard (CVFTL), flat-tailed horned lizard (FTHL), and other sensitive species in the Preserve and sand dune communities from Link 14 (milepost 7.6) to Link 16 (milepost 5.0) to identify if any additional areas of occupied CVFTL and FTHL habitat are present along the route or at construction staging areas. b) This survey will be conducted during appropriate seasons (March 15 to May 15) and conditions for species identification. For any areas of suitable habitat, mitigation measure number 11 will apply.

    In the Coachella Valley, compacted soils should be scarified and seeded with a mix of native plant seeds, including bugseed (Dicoria canescens), to promote revegetation of plant species valuable to the lizard.

    Construction activity and surface disturbance will be prohibited during the period from January 1 to March 31 for the protection of the bighorn sheep lambing areas. These areas along the proposed route include link 2 (milepost 29.0 to 34.0) and link 6 (milepost 0.0 to 6.0).

5. Interstate 10 Crossing (Link 13, Milepost 65). Where feasible, new towers will be aligned such that the top alignment of the towers is horizontal to the eye. To the extent possible, towers immediately adjacent to the highway at the crossing will be placed at right angles to the existing towers and as parallel to the Interstate as possible to avoid a "scalloping" effect of the conductors crossing over the highway.

6. Holder shall provide for the protection and enhancement of aesthetic values in the planning, construction, and maintenance of the line. Support facilities will be constructed in a manner that harmonizes with their natural setting or as otherwise approved by the Authorized Officer.

7 The Authorized Officer may require any additional reasonable measures he deems necessary to protect the aesthetic values in critical areas.

8. Several general mitigation measures to reduce the visual impact of the proposed project have been suggested by the holder in the PEA. These measures are listed below:

   a. Standard tower spacing would be modified to correspond with spacing of existing transmission line towers where feasible and within limits of standard tower design to reduce visual contrast.

   b. Towers would be placed so as to avoid features and/or to allow conductors to clearly span the feature (within limits of standard tower design) to minimize the amount of sensitive feature disturbed and/or reduce visual contrast (e.g., avoiding skyline situations through placement of tower to one side of a ridge or adjusting tower location to avoid highly visible locations and utilize screening of nearby landforms).

   c. Conductors will be nonspecular.

9. Where the existing corridor crosses Interstate 10, or where the line is close to residential areas, non-specular wire would be used to decrease the visibility of the conductors. In the few locations where new construction access may be required, grading would be done to minimize visual impacts; and where roads are not required for maintenance, they would be returned to pre-construction conditions.

B-7. Park and Recreation Area

1. Construction will be curtailed during heavy recreational use periods, including major holidays, at the discretion of the Authorized Officer. The Holder will be notified by the Authorized Officer 30 days in advance of construction curtailment.

2. Schedule construction activities to avoid major holiday periods where the route crosses Indio Palm's State Park in Link 14.

15. Holder shall take all necessary precautions to protect wildlife species. By advance written notice from the Authorized Officer, key wildlife areas may be closed to construction activities for specified periods of time to protect designated wildlife species. No firearms shall be allowed on the project under any circumstance(s), and employees shall be instructed to refrain from needlessly harming wildlife. The advance written notice to the Holder shall be within 30 days after submittal by the Holder of the final preconstruction wildlife surveys.

16. The Holder, its contractors or employees are requested to report to the District Biologist observations of any threatened or endangered animals, through the Holder's biologist.

17. Avoid upland areas where desert tortoises might occur and/or have a biologist present during construction activities that involve earth moving in order to move any tortoises (in burrows or cover-sites, or on the surface) that would likely be impacted.

18. Avoid construction activities that would tend to create wind barriers that might result in sand stabilization in order to minimize impacts to populations of the Coachella Valley fringe-toed lizard.

B-6. Visual

1. Nonspecular conductors will be used.

2. For the proposed alignment, tower spacing will correspond to the spacing of the existing transmission line, except where other resource concerns warrant. Additionally, new tower heights will be adjusted such that the top elevations of each set of towers (new and existing) are horizontal with each other. This will visually coordinate perceptions of towers and conductors as one element. Site specific conditions will determine when such mitigation is feasible. Other exceptions to these two measures are where towers will be sited to avoid sensitive features and/or to allow conductors to clearly span the features.

3. At all highway and recreation routes-of-travel crossings, including the Colorado River, towers will be placed at the maximum feasible distance, and when feasible at right angles, from the crossing.

4. Orocopia Mountains (Link 13, Milepost 52 to 53.5). As depicted in Figure 5.7-4 of the Devers-Palo Verde #2 EIR, existing access road and fill areas which create a significant visual impact will be treated with Eonite or similar treatments. This will reduce the visual contrast created by the light-valued disturbed soils with the darker-valued, vegetated surroundings. The Holder will consult with the Authorized Officer on a site by site basis for the use of Eonite. No new access roads will be constructed or upgraded. No widening or upgrading of existing roads will be undertaken. New towers in this section will ideally be constructed downhill from existing towers to avoid the potential for skylining. Towers will be placed to avoid sensitive features.

B-8. Acoustic Considerations

Construction Noise. To substantially reduce the short-term noise impacts during construction, the mitigatiion measures are as follows:

1. Limit the hours of construction occurring within 500 feet of noise sensitive receptors (human occupied facilities such as residences and hospitals) to between 7:00 am and 5:00 pm during weekdays.

2. Locate construction yards at least 500 feet away from residences

3. Minimize the use of helicopters within 500 feet of residences

4. Notify residents within 500 feet of any upcoming noisy construction activities and schedule the activities, when possible, to minimize conflicts with the neighbors.

B-9. Cultural Resources

The following tasks shall be carried out to ensure compliance with applicable laws and regulations in accordance with Programmatic Memoranda of Agreement for California and Arizona among the BLM, the State Historic Preservation Officers (SHPO) and the Advisory Council on Historic Preservation (ACHP).

1. Prior to construction and all other surface disturbing activities, the Holder shall have conducted and submitted for approval by the Authorized Officer an inventory of cultural resources within the project's area of potential effects. The nature and extent of this inventory shall be determine by the Authorized Officer in consultation with the appropriate SHPO and shall be based upon project engineering specifications.

2. As part of the inventory, the Holder shall conduct field surveys of sufficient nature and extent to identify cultural resources that would be affected by/from tower pad construction, access road installation, and transmission line construction and operation. At a minimum, field surveys shall be conducted along newly proposed access roads, new construction yards, and any other projected impact areas outside of the previously surveyed corridor. Site-specific field surveys shall also be undertaken at all projected areas of impact within the previously surveyed corridor that coincide with previously recorded cultural resource locations. The selected right-of-way shall be staked prior to the cultural resource field surveys.

3. As part of the inventory report, the Holder shall evaluate the significance of all affected cultural resources and provide recommendations with regard to their eligibility for the National Register of Historic Places. Determinations of National Register eligibility will be made by the Authorized Officer in consultation with the appropriate SHPO.

4. Upon approval of the inventory report by the Authorized Officer, the Holder shall prepare and submit for approval a cultural resource treatment plan for National Register-eligible cultural resources to mitigate identified impacts. Avoidance, recordation and data recovery will be used as mitigation alternatives.

5. The Authorized Officer may require the relocation of the line, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values.

6. If avoidance of specific cultural resources is not feasible, treatment shall be carried out as determined by the Authorized Officer in consultation with the appropriate SHPO.

7. When necessary to relocate the proposed line, ancillary facilities, temporary facilities, or work areas as a result of inventory, on-site avoidance decisions, or the Holder's approved request for relocation, the Holder shall inventory the proposed new locations for cultural resources and provide inventory results to the Authorized Officer prior to construction. Any mitigation deemed necessary by the Authorized Officer shall be completed prior to undertaking any surface disturbing activities.

8. All cultural resource work undertaken by the Holder on public lands shall be carried out by qualified professionals designated on a currently valid Cultural Resource Use Permit for the appropriate state.

9. Notices to proceed will be issued following completion, and approval by the Authorized Officer, of any field work determined necessary through the inventory, evaluation and consultation process described above.

10. Vehicles and equipment shall be confined and operated only within areas specified by the Authorized Officer. Off-road travel by employees will not be allowed except in areas previously approved by the Authorized Officer.

11. Unauthorized collection of artifacts or other cultural materials on or off the right-of-way by the Holder, his representatives or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and Federal laws. Unauthorized collection may constitute grounds for the issuance of a stop work order.

B-10. Paleontological Resources.

1. Prior to construction and all other surface-disturbing activities, the Holder shall have conducted and submitted for approval an inventory of paleontological resources within highly sensitive areas that will be affected by the project as determined by the Authorized Officer.

2. As part of the inventory report, the Holder will evaluate the significance of the paleontological resources that will be affected

3. Upon approval of the inventory report by the Authorized Officer, the Holder shall prepare and submit for approval a plan to mitigate identified impacts. Avoidance, recordation and data recovery will be used as mitigation alternatives.

4. If avoidance of significant paleontological resources is not feasible or appropriate, treatment shall be carried out as determined by the Authorized Officer.

5. All paleontological work undertaken by the Holder on public lands shall be carried out by qualified professionals designated on a currently valid Paleontological Collecting Permit for the appropriate state.

6. Notices to Proceed will be issued following completion, and approval by the Authorized Officer, of any field work determined necessary through the inventory and evaluation process described above.

EXHIBIT "C"
Legal Description

PALM SPRINGS QUADRANGLE

T. 3 S., R. 5 E.
Sections: 30, 34; PORTION OF
T. 5 S., R. 7 E.
Sections: 2, 12; PORTION OF
T. 5 S., R. 8 E.
Sections: 22, 24; PORTION OF
T. 5 S., R. 9 E.
Sections: 28, 30, 34 ; PORTION OF

EAGLE MOUNTAIN QUADRANGLE

T. 6 S., R. 10 E.
Sections: 4, 6 ; PORTION OF
T. 6 S., R. 11 E.
Sections: 14, 18, 20, 22, 24 ; PORTION OF
T. 6 S., R. 12 E.
Sections: 12, 13, 14, 15, 18 ; PORTION OF
T. 6 S., R. 13 E.
Sections: 8, 10, 11, 12 ; PORTION OF
T. 6 S., R. 14 E.
Sections: 2, 3, 4, 6; PORTION OF
T. 5 S., R. 15 E.
Sections: 32, 33, 34, 35 ; PORTION OF
T. 5 S., R. 16 E.
Sections 31, 32, 33, 34, 35; PORTION OF
T. 6 S., R. 16 E.
Sections: 1, 2, 3; PORTION OF
T. 6 S., R. 17 E.
Sections: 6, 7, 8, 9, 10, 14, 15, 24; PORTION OF
T. 6 S., R. 18 E.
Sections: 19, 29, 30, 32, 33, 34 ; PORTION OF
T. 7 S., R. 18 E.
Sections: 2, 3 ; PORTION OF
T. 7 S., R. 19 E.
Sections: 4, 6 ; PORTION OF

BLYTHE QUADRANGLE

T. 7 S., R. 19 E.
Sections: 1, 2, 3, 4; PORTION OF
T. 7 S., R. 20 E.
Sections: 1, 2, 3, 4, 5, 6; PORTION OF
T. 7 S., R. 21 E.
Sections: 7, 8, 17, 21, 22, 25, 26; PORTION OF
T 7 S., R. 23 E.
Sections: 27, 28, 29; PORTION OF

BLYTHE

T. 2 N., R. 22 W.
Sections: 1, 2, 3, 4, 5, 6; PORTION OF
T. 3 N., R. 21 W.
Sections: 11, 13, 14, 15, 16 20, 21, 29, 30, 31; PORTION OF
T. 3 N., R. 20 W.
Sections: 18, 19, 20, 28, 29, 33, 34, 35, 36; PORTION OF
T. 3 N., R. 19 W.
Sections: 31, 32; PORTION OF
T. 2 N., R. 19 W.
Sections: 2, 3, 4, 5, 11, 12 ; PORTION OF

SALOME QUADRANGLE

T. 2 N., R. 14 W.
Sections: 10, 11, 12, 15, 16, 17, 18 PORTION OF
T. 2 N., R. 13 W.
Sections: 1, 7, 8, 9, 10, 11, 12; PORTION OF
T. 2 N., R. 12 W.
Sections: 1, 2, 3, 4, 5, 6, 7; PORTION OF
T. 2 N., R. 11 W.
Section: 6 ; PORTION OF
T. 3 N., R. 10 W.
Section: 24; PORTION OF
T. 3 N., R. 9 W.
Sections: 19, 20, 21, 22, 23, 25, 26; PORTION OF
T. 3 N., R. 8 W.
Sections: 30, 31, 32, 33, 34, 35; PORTION OF
T. 2 N., R. 8 W.
Sections: 2, 11, 12, 13, 24; PORTION OF

LITTLE HORN MOUNTAINS

T. 2 N., R. 8 W.
Sections: 24, 25; PORTION OF
T. 2 N., R. 7 W.
Section: 31; PORTION OF
T. 1 N., R. 7 W.
Sections: 6, 7, 8; PORTION OF

PHOENIX SOUTH

T. 1 N., R. 7 W.
Sections: 8, 16, 17, 21, 27, 28, 34, 35; PORTION OF
T. 1 S., R. 7 W.
Section: 1; PORTION OF
T. 1 S., R. 6 W.
Section: 4; PORTION OF

REVISED 7/3/89

DEVERS-PALO VERDE #2
TRANSMISSION LINE PROJECT
Southern California Edison Company

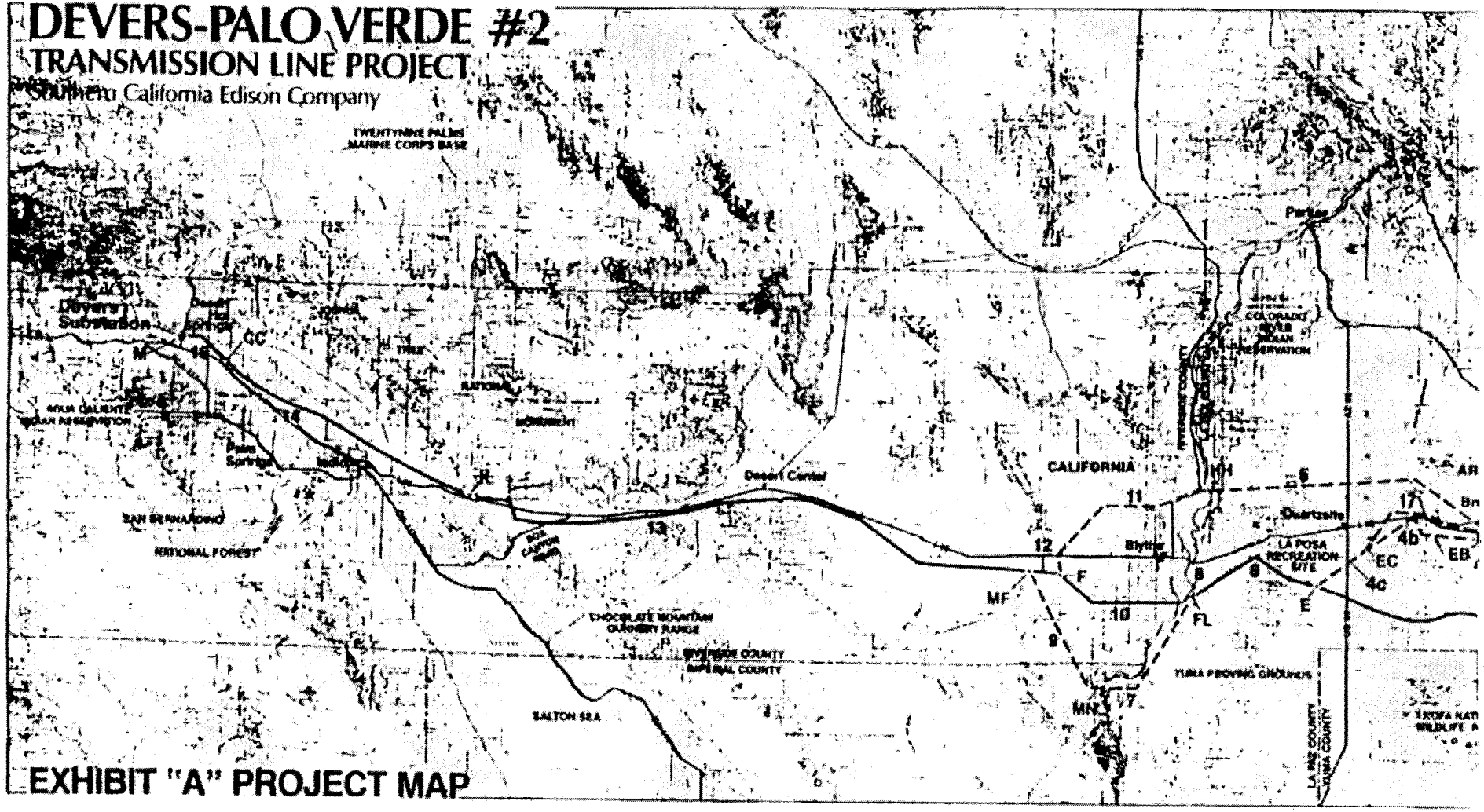
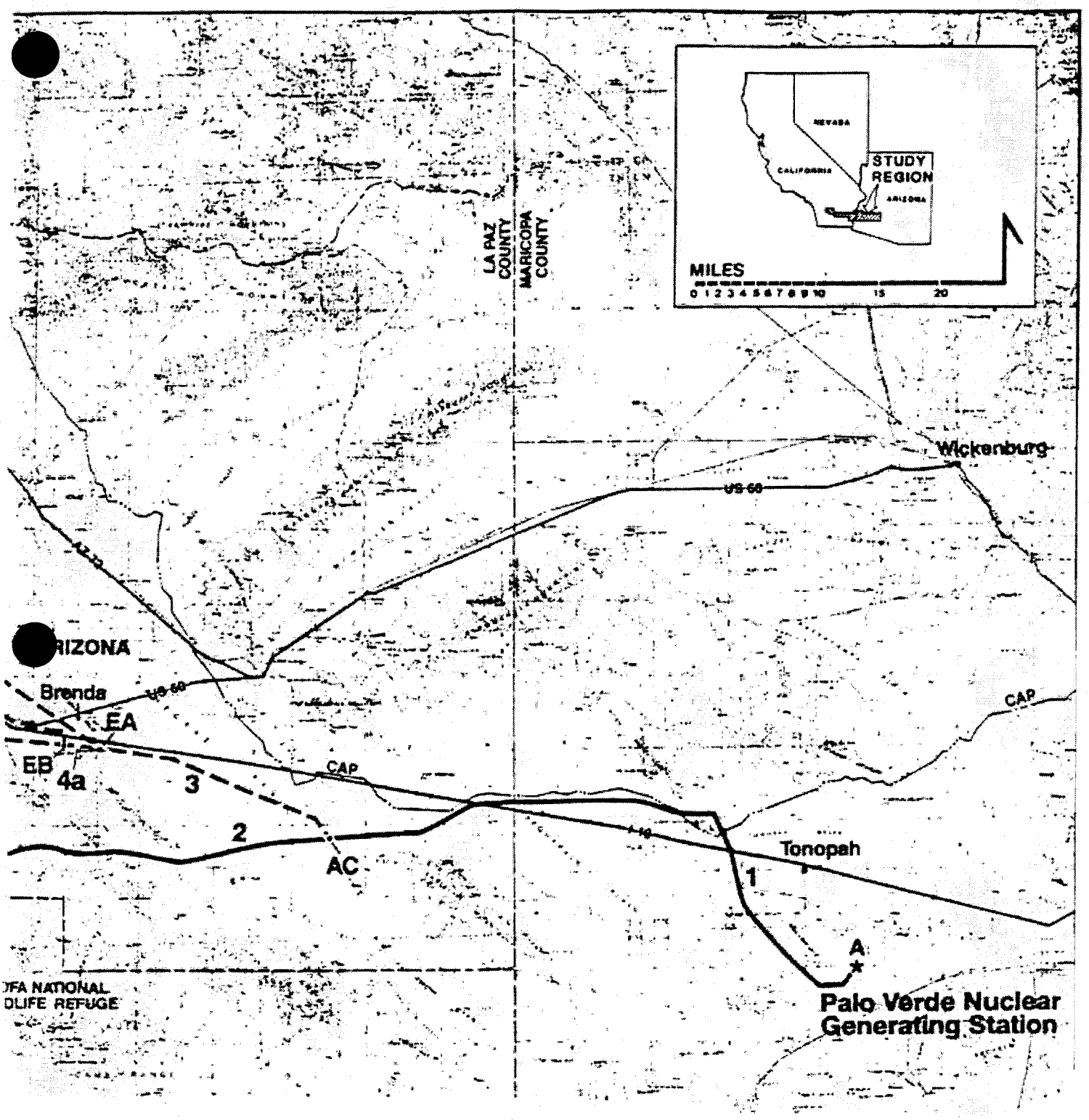


EXHIBIT "A" PROJECT MAP

Preferred Route

Subalternate Routes



FOR CALIFORNIA PUBLIC UTILITIES COMMISSION
FILING — GENERAL ORDER 131-B

DEVERS-PALO VERDE #2
500kV TRANSMISSION LINE PROJECT

Southern California Edison Company

APPENDIX C
CERTIFICATE OF RIGHT-OF-WAY COMPATIBILITY

KOFA National Wildlife Refuge

U.S. Fish and Wildlife Service (March 1, 1989)

LA-Arizona
Kofa NWR

CERTIFICATE OF RIGHT-OF-WAY COMPATIBILITY

WHEREAS, the U.S. Fish and Wildlife Service has received an application from Southern California Edison Company for a 500kV electrical transmission line across lands of the Kofa National Wildlife Refuge, Yuma County, Arizona.

WHEREAS, this Service is in the process of issuing a permit or easement for this right-of-way under the authority contained in the National Wildlife Refuge System Administration Act of October 15, 1966 (80 Stat. 926; 16 USC 668dd) as amended, and

WHEREAS, Section 4(d)(2) of this Act requires a determination (attached) "that such uses are compatible with the purposes for which these areas are established.

I, THEREFORE, NOW certify that this non-programmed use of the above area is compatible with the purpose for which the land was acquired subject to established mitigation measures and to the stipulation that no further above-ground utility development of this corridor be permitted after construction of this transmission

March 1, 1989
Date

Regional Director

Attachment

CERTIFICATE OF RIGHT-OF-WAY (ROW) COMPATIBILITY
KOFA NATIONAL WILDLIFE REFUGE

The proposed ROW under consideration for permit is the designated preferred alternative route for the Devers-Palo Verde #2 500kV Transmission Line depicted in the Supplementary Environmental Impact Statement prepared by the Bureau of Land Management, Riverside, California office. We have reviewed this ROW to determine its compatibility with the purposes for which the Kofa National Wildlife Refuge (Refuge) was established. These purposes, as set for in the Refuge's executive order of establishment, include "the conservation and development of natural wildlife resources...and natural forage resources." With emphasis given to the conservation and protection of the desert bighorn sheep Ovis canadensis mexicana, management of the Kofa Refuge also encompasses the similar conservation and protection of all flora and fauna of the desert community lying within its boundaries. The analysis of the ROW has found that, with certain stipulations, it would be compatible with those purposes. The following facts form the basis for our findings:

-- Since 1950, the proposed route has been used for interstate pipelines and transmission lines. These have been constructed both prior to and after the designation of the Kofa Refuge as a unit of the National Wildlife Refuge System with sole jurisdiction by the U.S. Fish and Wildlife Service. There are currently three natural gas pipelines and the initial 500kV transmission line occupying the proposed route traversing the Refuge. Therefore impacts of the proposed power line would be confined to an established ROW where environmental disturbances have already occurred.

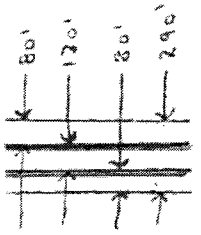
-- Previous findings of non-compatibility for the initial transmission line and the line currently under consideration were based on assumptions that a more northerly (off-refuge) route would be a feasible alternative. Because such a route would impact lands and resources contained within the Bureau of Land Management's New Waters Mountains Wilderness Study Area, it cannot be deemed a feasible alternative and has been eliminated from any further consideration.

-- Although the existing and proposed Devers-Palo Verde transmission lines are routed adjacent to proposed wilderness areas on the Kofa Refuge, they remain within the Crystal Hill-Coyote Peak Exclusion, an area specifically eliminated from consideration for wilderness designation because of its utility ROW development. As stated in the Environmental Impact Statement prepared for the 1974 wilderness proposal, wilderness designation would provide for continuation of existing rights-of-way, easements, and permits, and would not preclude additional routes on those lands excluded from wilderness designation if authorized under permit from this agency.

-- Construction of the transmission line facilities will be prohibited in or near bighorn sheep lambing areas from January 1 to March 31.

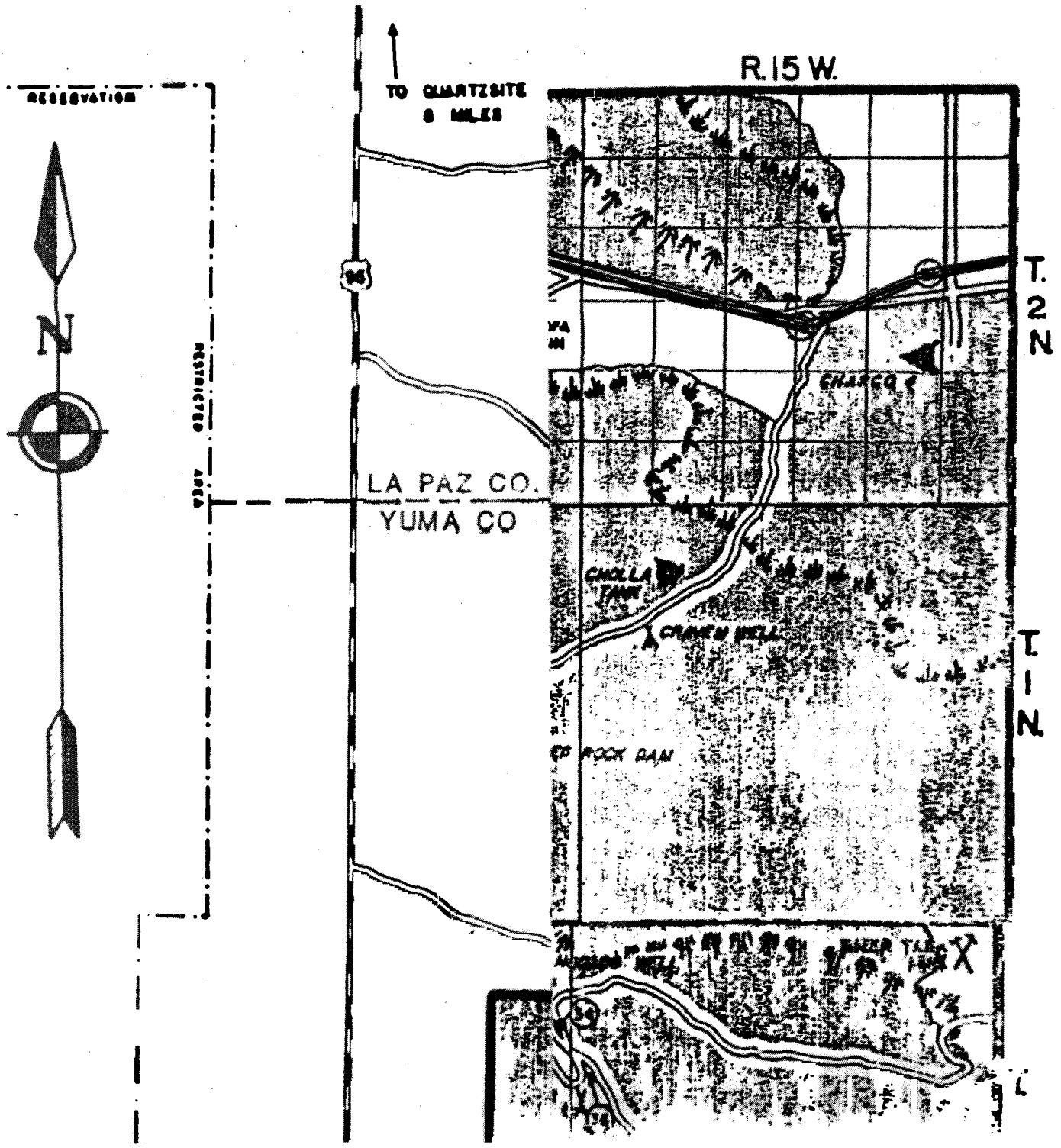
-- Determination of specific tower site and spur road locations will be coordinated with Refuge personnel in order to minimize habitat disturbance and/or the loss of valuable habitat features.

-- Data currently available do not indicate any discernable impact on movement of bighorn sheep across the existing single transmission line ROW. However, of critical importance to the herd integrity of the sheep population is the avoidance of any barrier across movement corridors and the fragmentation of sheep habitat. The bighorn sheep study conducted for the initial power line ROW documented the fact that sheep on the Refuge and north of the Refuge are components of the same population. There is considerable movement of these animals between the Kofa Mountains-Livingston Hills on the Refuge and the Plomosa Mountains lying to the immediate north. Sheep moving between these areas must cross the ROW occupied by the Devers-Palo Verde No. 1 and the proposed line. It is not known, nor can anyone predict, how many such parallel transmission lines would constitute a barrier to sheep movement. Nor is it known if detrimental impacts would be manifested only by restricting movement. Behavioral modification, hesitation, or increases in physiological stress prior to actual crossing may be detrimental factors resulting from increases in numbers of transmission lines. For this reason, in addition to spatial considerations to restrict development impinging on lands of the Kofa Refuge, we consider this second line to be the upper limit of utility development in this area. Maintenance and upgrading of facilities would be permitted, but, following the construction of Devers-Palo Verde No. 2 Transmission Line, no further above-ground utilities would be constructed in this area.



EXISTING 500 KV TRANSMISSION LINE

PROPOSED 500 KV TRANSMISSION LINE



APPENDIX D
DPV2 AMENDED PEA
ALTERNATIVES ANALYSIS

Devers-Palo Verde No. 2 500kV Transmission Line
Amended Proponent's Environmental Assessment (August 1988)
Chapter 10, Section 10.4

DEVERS-PALO VERDE #2

500 kV TRANSMISSION LINE

AMENDED PROPONENT'S ENVIRONMENTAL ASSESSMENT

AUGUST 1988

SOUTHERN CALIFORNIA EDISON

CHAPTER 10, SECTION 10.4

however, foregone benefits from additional transmission service sales to others impose an enormous penalty on this strategy. The annual net benefits of these two strategies are compared on Figure 10-6.

10.4 ROUTING ALTERNATIVES

10.4.1 Route Selection Study Process

Studies leading to the determination of the preferred transmission line route were conducted utilizing a systematic consideration of engineering, right of way, and environmental parameters. Optimally, the route selected would be one which can be constructed and reliably operated and maintained at an acceptable cost to the consumer, result in minimal adverse environmental and social impact, and meet the constraints and planning requirements of all affected governmental agencies. Toward this end, the following study goals were established:

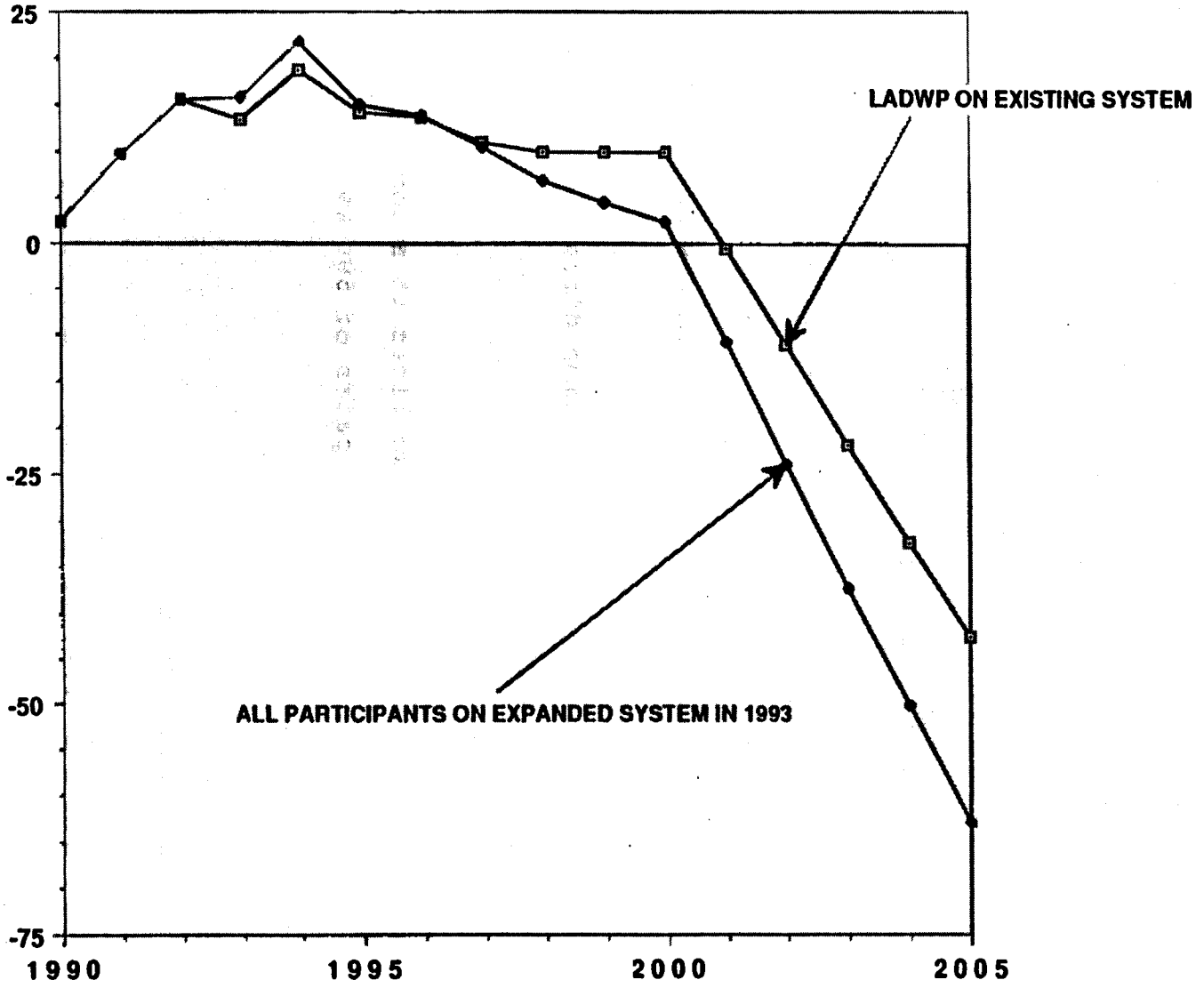
1. The studies should provide an environmental framework within which engineering and right of way decisions can be made.

2. The studies should quantify the environmental consequences of certain engineering decisions, identify areas of important environmental concern, and direct attention toward mitigation of sensitive problems and significant impacts identified in the study effort.

3. The studies should include inputs from local, state and federal agencies and appropriate private entities to augment the compatability of engineering decisions with overall resource planning and management within the study area.

NET BENEFITS - EXISTING VS. EXPANDED SYSTEM

FIGURE 10-6



4. The environmental studies should represent a comprehensive data base and evaluation system for governmental bodies to utilize in their decision-making processes.

Also, the studies were conducted utilizing general engineering and environmental guidelines as follows:

Engineering Guidelines

1. The transmission system would be designed to meet Western Systems Coordinating Council (WSCC) reliability criteria for system design.

2. Minimum centerline separation distances for 500 kV lines would be:

   a 130 feet between two lines in a common corridor.
   b 2,000 feet between pairs of 500 kV transmission lines

Environmental Guidelines

1. Maximum utilization would be made of existing, approved, or proposed transmission corridors and utility right of way and access roads in the

selection and routing of the transmission line, subject to reliability considerations

2. Crossings of, and routings parallel to, major or scenic highways will be avoided or minimized.

3. Population centers will be avoided, where practicable.

4. The study will be conducted in accordance with the requirements of the National Environmental Policy (NEPA), the National Historic Preservation Act of 1966, Executive Order 11593, Title 36 CFR Part 800 et. seq., the California Environmental Quality Act (CEQA), State of California Public Utilities Commission Rules of Practice and Procedure, as well as the WSCC, and the U.S Interior and Agriculture Departments Environmental Criteria for Electric Transmission Systems.

Given the transmission system described in Chapter 3, it was necessary to locate the best route for a transmission line from the PVNGS switchyard to the Devers Substation. An acceptable route was defined as the shortest route between the points of

origin and termination that meets all applicable regulations, avoids major constraints, and protects inherent environmental values.

Since the line had the same start and end points as existing Devers-Palo Verde #1 transmission line, it was decided to (1) review the siting studies that were conducted for the existing line in 1976 and 1977; (2 update important siting information to the present; (3) identify currently existing sensitivities; and 4 develop preferred and alternate routes for the proposed Devers-Palo Verde #2 line

The methodology utilized in data collection and other pertinent information for the study process was comprised of the following:

1. A literature and site records search.

2. Limited field studies.

3. Low level helicopter reconnaissance.

4. Utilization of data previously collected for the Devers-Palo Verde #1, Kaiparowits, Vidal, Eagle Mountain-Hobson and Mohave-Red Lake Canyon projects.

5. Interviews with and data acquisition from applicable federal and Arizona and California state and local agency representatives and special interest and environmental groups.

The conclusions of this assessment of the potential transmission line routes is based on a synthesis of data gathered by these methods.

The data clearly indicated the most environmentally acceptable route between Devers and the PVNGS switchyard was one that paralleled the existing Devers-Palo Verde #1 line as much as possible, thus maximizing the use of existing access. However, it was also clear that there were several areas along the Devers-Palo Verde #1 line route that may be sensitive to the construction of a second line. These sensitive areas are the KOFA National Wildlife Refuge in Arizona and the Palo Verde Valley near Blythe, California. Therefore, the siting study focused on identifying routing options in these areas if sensitivities associated with current environmental conditions prove greater than they were when the Devers-Palo Verde #1 line was approved by the Bureau of Land Management (BLM), the California Public Utilities Commission (CPUC and the Arizona Transmission Line Siting Commission

Devers-Palo Verde #1 line route follows an El Paso Natural pipeline through the KOFA National Wildlife Refuge in Arizona in a corridor that divides two areas administratively endorsed as suitable for Wilderness Designation. The U.S. Fish Wildlife Service USFWS), who administers the KOFA, opposed the Devers-Palo Verde #1 line route through the KOFA. Their concerns were related to land use conflicts with the proposed wilderness area and scenic visual impacts to users of the KOFA. However, based on the evaluation of data presented in the BLM's Environmental Impact Statement (EIS) for the Devers-Palo Verde #1 line, the Arizona Transmission Line Siting Committee and subsequently the BLM approved the route through the KOFA. The USFWS has indicated opposition to the proposed project through the KOFA on the existing route

Sensitivities near Blythe, California within the Palo Verde Valley area are associated with crossing of farmlands by the proposed line. The Devers-Palo Verde #1 line route through the Valley was selected after an intensive study of a number of subalternate routes. The tower locations were selected to minimize loss of cropland. The line was placed on section lines to minimize potential conflicts with cropdusting activities. The BLM and the CPUC approved the route based on the results of a lengthy EIS/EIR process which included public hearings.

As stated before, initially, subalternate routing options identified in the Devers-Palo Verde #1 line siting studies were selected for the Devers-Palo Verde #2 line. Information on the #1 line subalternate routes was updated to include current uses and identify potential conflicts. Route modifications were investigated to improve subalternate suitability for location of the proposed project. As a result of these analyses, four subalternate routes were identified as follows:

- Subalternate 1: Points AC-EA-E; Links 3, 4a, 4b, and 4c

  Subalternate 2: Points AC-EA-HH-F; Links 3, 5, and 11
- Subalternate 3: Points FL-MN-MF; Links 7 and 9
- Subalternate 4: Points AC-EA-EB-EC-E; Links 3, 4a, 17, and 4c.

Numerous governmental agencies, groups, and persons were contacted (see Appendix G) by Edison representatives and the study team to collect information on the subalternates. Also, public information meetings were held in various communities see Appendix F Potential routing alignments within the study area were presented at the meetings and resource information and comments were requested. The intention of the public participation program was to contact all who might wish to have input to the proposed action. Several factors

identified in those contacts contributed to the early deletion of two other subalternate routes, shown on Map 19, as viable alternatives.

One of these eliminated routes would have proceeded north from the PVNGS switchyard. The route would traverse 186 miles before connecting with the preferred route approximately 4 miles west of Desert Center, California, at the base of the Eagle Mountains. The area through which the alignment would traverse contains several Wilderness Study Areas. Residents of the Tonopah Valley expressed strong opposition to this route at a public information meeting held on July 15, 1985 in Tonopah (See Appendix F The environmental costs associated with constructing over 22 miles of new access roads is a major constraint to the selection of this route as a viable subalternate when compared to the other routing options. Although this subalternate avoids both the KOFA and the Palo Verde Valley it appears to have significant sensitivities and disadvantages that the preferred route and Subalternates 1, 2, 3, and 4 do not have. Therefore it was eliminated from further study.

The second eliminated subalternate (points CC-K, Link 15 was selected to provide an alternate approach to the Devers Substation. However the route is highly visible to residents of Sky Valley and is not within the designated BLM transmission

corridor. Residents of Desert Hot Springs expressed strong opposition to this route at a public information meeting held in Desert Hot Springs on July 17, 1985 (see Appendix F). The subalternate has significant sensitivities that the preferred route does not have. The route does not present any advantages over the preferred route. Therefore, it also was eliminated from further study.

The four subalternate routes selected for consideration are considered viable routes if sensitivities associated with the preferred route in these areas are greater than currently known. Descriptions of the subalternate routes listing environmental sensitivities not associated with the preferred route are presented below.

Subalternate 1 (Points AC-AE-E; Links 3, 4a, 4b, and 4c) is of the "Brenda Route" that was evaluated in the BLM's EIS the Devers-Palo Verde #1 transmission line project. Subalternate 1 was selected for further evaluation for the proposed project since it would traverse north of the existing KOFA boundaries. However, it does cross a BLM WSA(AZ-2-125, New Water Mountain) and a USFWS proposed northern extension to the KOFA as it parallels I-10 to the south. Congress has to decide both on the suitability of the BLM WSA for designation

as wilderness and on the proposed extension before the line could be constructed on this subalternate. This makes Subalternate 1 an unlikely choice.

Subalternate 2 (Points AC-EA-HH-F; Links 3, 5 and 11) is a portion of Subalternate Route "P" which was evaluated in the BLM's EIS for the Devers-Palo Verde #1 line. Subalternate 2 selected for evaluation since it provides an alternate routing around the KOFA and north of Blythe. It does, however, cross the Colorado River Indian Reservation. The Colorado River Indian Reservation Tribal Council denied Edison a right of way for the Devers-Palo Verde #1 line and, in recent contacts, has indicated a right of way would not be approved the proposed project.

Subalternate 3 Points FL-MN-MF; Links 7 and 9 was not evaluated for the Devers-Palo Verde #1 line. It was included in this study since it crosses the Palo Verde Valley south of existing line and further south of Blythe. It avoids more agricultural lands than the preferred route. However, the route impacts several significant archaeological sites, including the Kipley Intaglios, and would result in high biological impact as it crosses the Colorado River.

Subalternate 4 (Points AC-EA-EB-EC-E; Links 3, 4a, 17 and 4c) is the same as Subalternate 1 except it crosses Interstate 10 I-10) twice and Arizona U.S. Highway 60 once to follow the Celeron/All American Pipeline corridor north of I-10. Subalternate 4 avoids crossing the KOFA. However, it does traverse an area north of I-10 that is identified in the BLM's Lower Gila Management Plan as being unsuitable for overhead transmission lines

Each of the four subalternate routes consists of a two-mile corridor with the centerline located in the middle of the corridor. The centerline is used in the descriptions which follow and in locating the corridors on the maps

10.4.2 Description of the Subalternate Routes

10.4.2.1 Subalternate 1: Points AC-AE-E; Links 3, 4a, 4b and 4c

Subalternate 1 departs the preferred route approximately 1-1/2 miles west of the Eagletail Mountains and 3 miles south of the Salome Emergency Airfield. The route then traverses in a northwesterly direction. Approximately 9 miles from the point of departure from the preferred route would be the location of series compensation facilities for this subalternate route

route then meets I-10 8 miles from the compensation facilities and then parallels I-10. It continues in a northwesterly direction below Bear Hills and towards the intersection of I-10 and US 60, and remains on the south side of I-10 while skirting the Plomosa Mountains. The route then leaves its parallel with I-10 at the western edge of the Plomosa Mountains and traverses in a southwesterly direction approximately 14 miles. The route passes 4-1/2 miles south of Quartzsite and crosses Arizona State Highway 95. The route joins the preferred route at the eastern edge of the Dome Rock Mountains.

10.4.2.2 Subalternate 2: Points AC-EA-HH-F; Links 3, 5 and 11

Subalternate 2 departs the preferred route approximately 1-1/2 miles west of the Eagletail Mountains and 3 miles south of the Salome Emergency Airfield. The route then traverses in a northwesterly direction. Approximately 9 miles from the point of departure from the preferred route would be the location of series compensation facilities for this subalternate route The route would then meet I-10 8 miles from the compensation facilities and then parallels I-10. The route would continue in a northwesterly direction below Bear Hills, crosses I-10 and passes along the southwesterly side of Bear Hills heading towards US 60. The route crosses Arizona US 60 approximately 4 miles northwest of the I-10 crossing. The route continues in

a northwesterly direction through the Plomosa Mountains then heads westerly at the western edge of the Plomosa Mountains approximately 5 miles north of I-10. The route crosses Arizona State Highway 95 at a point five miles north of Quartzsite. It then traverses through the Dome Rock Mountains and passes through the Colorado River Indian Reservation heading towards the Colorado River. After crossing the river, the route traverses approximately one mile of farmland and then crosses the main canal and the California U.S. 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 turns in a southwesterly direction for approximately 7 miles, where it crosses I-10, and joins the preferred route one mile south of I-10.

10.4.2.3 Subalternate 3: Points FL-MN-MF; Links 7 and 9

Subalternate 3 departs the preferred route 1/2 mile east of the Colorado River and heads in a southwesterly direction for approximately 14 miles. In this segment the route parallels the Colorado River. Located approximately 5 miles southwest of preferred route, Subalternate 3 crosses within 1/4 mile of northwest corner of the Yuma Proving Ground. One mile north of the Cibola National Wildlife Refuge the route turns west and crosses the Colorado River and traverses farmland.

The route continues west 1-1/2 miles past the River, then turns in a northwesterly direction towards the preferred route through the Mule Mountains. The route joins the preferred route approximately 1-1/2 miles south of I-10.

10.4.2.4 Subalternate 4: Points AC-EA-EB-EC-E; Links 3, 4a, 17 and 4c

Subalternate 4 departs the preferred route approximately 1-1/2 miles west of the Eagletail Mountains and 3 miles south of the Salome Emergency Airfield. It then traverses in a northwesterly direction. Approximately 9 miles from the point of departure from the preferred route would be the location of series compensation facilities for this subalternate route. The route then meets I-10 8 miles from the compensation facilities and parallels I-10. The route continues in a northwesterly direction below Bear Hills. Approximately 3 miles west of Bear Hills the route turns north and crosses I-10. The route then continues in a westerly direction towards Arizona U.S. Highway 60. After crossing Arizona U.S. Highway 60, the route skirts through the Plomosa Mountains north of Arizona U.S. Highway 60 and I-10. Approximately 2 miles west of the Plomosa Mountains, the route turns in a southwesterly direction and crosses I-10. The route has a small angle 4 miles southwest of Quartzsite. The route joins the preferred route at the eastern edge of the Dome Rock Mountains.

10.4.3 Existing Environmental Setting

10.4.3.1 Land Use

See Section 4.1 for a detailed description of the existing land use for the subalternate routes.

10.4.3.2 Cultural Resources

See Section 4.2 for a detailed description of the existing cultural resource setting for the subalternate routes. Cultural resource sensitivities for the subalternate routes are presented in Maps 8-AZ and 8-CA

10.4.3.3 Geologic and Pedologic Resources

Subalternate 1 (AC-EA-E; Links 3, 4a, 4b and 4c) The majority of this subalternate route alignment is underlain by Holocene to Pleistocene alluvial surfaces of the La Posa plain to the west and the Ranegras Plain to the east. The central portion of this route crosses the granitic and volcanic bedrock of the Plomosa Mountains. The alignment lies in the Eastern Mojave Desert and Sonoran Desert physiographic provinces. These provinces exhibit a low level of seismic activity and no recently active faults have been mapped in the vicinity of the proposed subalternate alignment

The soil associations which underlie the subalternate route consist of a thin Orthent cover over the Plomosa Mountains in the center of the alignment, flanked by Orthid and locally Argid alluvial fans emanating from the mountain slopes, with recent Fluvents and Psamments in the central La Posa and Ranegras Plains, along the Tyson and Bouses washes, respectively.

Based on the results of the field reconnaissance, the majority of the alignment is anticipated to exhibit moderate to low surface water runoff erosion sensitivity. Although potentially sensitive to water runoff erosion, the Entisols found in Tyson Wash are anticipated to have a low surface water runoff erosion sensitivity because the alignment crosses the wash at right angles. However, the alignment parallels the gradient of the upper Bouse Wash; thus, the Entisols found in that wash are anticipated to have a moderate sensitivity to surface water runoff erosion. Aridisols, occurring in the moderate relief hills of the Plomosa Mountains, are also anticipated to exhibit low water runoff erosion sensitivity. The soil in the vicinity of the alignment would have moderate to high sensitivity to consolidation and wind erosion during construction.

Subalternate 2 (AC-EA-HH-F; Links 3, 5, 11) - This subalternate route is underlain by Holocene alluvium and Pleistocene alluvial deposits derived from bordering mountains. The western portion of the route crosses small hills composed of

igneous and metamorphic bedrock near the edge of the McCoy and Maria Mountains; the eastern portion of the route crosses the Dome Rock and Plomosa Mountains.

route is in the Eastern Mojave Desert physiographic province, which is characterized by low levels of seismic activity. The route passes near the Blythe Graben; the fault associated with this structure displaces Pleistocene alluvium has not been shown to be the source of either recorded or historical seismicity.

soil associations which underlie this corridor are shown on Plate 9 in Edison's 1977 Environmental Report for the existing Devers-Palo Verde #1 transmission line. Soils to the west of Colorado River consist mostly of Entisols, although minor Orthid and Argid soils will be crossed on alluvial fans bordering the McCoy and Big Maria Mountains. East of the Colorado River, Orthids and Argids are extensive, with only local areas of Entisols occurring in the Palo Verde Valley and along the center of La Posa Plain along Tyson Wash.

Based on the results of the field reconnaissance, the majority the alignment is anticipated to have moderate to low surface water runoff erosion sensitivity. West of the Colorado River, predominant Entisols on low relief terrain are anticipated to exhibit moderate erosion sensitivity; east of the Colorado River, predominant Aridisols are anticipated to exhibit low

erosion sensitivity; in the vicinity of the Colorado River, highly erodible sediments are anticipated to be highly sensitive to surface water runoff erosion. The soil along the alignment would have moderate to low sensitivity to consolidation and wind erosion during construction.

Subalternate 3 (Points FL-MN-MF; Links 7 and 9 - The major portion of this subalternate route is underlain by Holocene alluvium and Pleistocene alluvial deposits. Approximately one mile of the northwest portion of the alignment crosses the igneous and metamorphic bedrock in the Mule Mountains. This subalternate route is located in the Eastern Mojave Desert physiographic province, which is characterized by a low level of seismic activity. This route does not cross any known active faults.

The alignment is mostly underlain by Orthid and local Argid soils which form the surfaces of dissected old alluvial fans that emanate from the Mule and Palo Verde Mountains to the west and the Dome Rock Mountains to the east. Locally these soils are underlain by soft erodible river and lacustrian fine silty and sandy deposits. Washes, slopes of washes, and the present Colorado River floodplain are underlain by young Entisols.

Based on the results of field reconnaissance, it is anticipated that the majority of the alignment will have high surface water runoff erosion sensitivity with moderate sensitivity in the

Mule Mountains. The portion of the alignment which crosses irrigated farmland in the Colorado River floodplain was designated as having low surface water runoff erosion sensitivity. In the same area, the soil is anticipated to have low sensitivity to consolidation and wind erosion during construction because of the existing agriculture. In areas outside the Colorado River floodplain, however, the soil sensitivity varies from low in old Aridisols to high in recent Fluvents.

Subalternate 4 (EA-EB-EC-E; Links 3, 4a, 17 and 4c - The majority of this subalternate route is underlain by Holocene to Pleistocene alluvial surfaces of the La Posa plain to the west and Ranegras Plain to the east. The central portion of this route crosses the granitic and volcanic bedrock of the Plomosa Mountains. The alignment lies in the Eastern Mojave Desert and Sonoran Desert physiographic provinces. These provinces exhibit a low level of seismic activity and no recently active faults have been mapped in the vicinity of the proposed subalternate alignment

The soil associations which underlie the subalternate route consist of a thin Orthent cover over the Plomosa Mountains in the center of the alignment, flanked by Orthid and locally Argid alluvial fans emanating from the mountain slopes

Based on the results of the field reconnaissance, the majority of the alignment is anticipated to exhibit moderate to low surface water runoff erosion sensitivity. Aridisols, occurring in the moderate relief hills of the Plomosa Mountains, are also anticipated to exhibit low water runoff erosion sensitivity. The soil in the vicinity of the alignment would have moderate to high sensitivity to consolidation and wind erosion during construction. Map 9-AZ shows the relative soil erosion ratings for this subalternate.

10.4.3.4 Meteorology, Climatology, Air Quality

See Section 4.4 for descriptions of the existing meteorology, climatology, and air quality which are applicable to the subalternate routes.

10.4.3.5 Hydrology

Subalternate 1 (AC-EA-E; Links 3, 4a, 4b and 4c) - This subalternate route crosses numerous small ephemeral drainages and washes. These drainages originate principally from the Plomosa Mountains and coalesce into the Tyson and Bouse washes which flow eventually into the Colorado River. The La Posa Plain and Ranegras Plain are groundwater basins.

Subalternate 2 (AC-EA-HH-F; Links 3, 5, 11) - This subalternate route crosses the Colorado River in the Palo Verde Valley and numerous small ephemeral drainages and washes which originate in the McCoy, Big Maria, Dome Rock, and Plomosa Mountains. These drainages flow either directly or indirectly into the Colorado River. The alignment crosses the Palo Verde Valley Palo Verde Mesa, and La Posa groundwater basins.

Subalternate 3 (FL-MN-MF; Links 7, 9 - This subalternate route crosses the Colorado River in Palo Verde Valley and crosses several small ephemeral drainages and washes which originate in the Mule, Palo Verde, and Dome Rock Mountains and which flow to the Colorado River. The Palo Verde Valley is underlain by the Palo Verde Mesa groundwater basin.

Subalternate 4 AC-EA-EB-EC-E; Links 3, 4a, 17 and 4c)) - This subalternate route crosses numerous small ephemeral drainages and washes which originate in the Plomosa Mountains.

10.4.3.6 Biology

The biological settings of the subalternate routes are similar to that described for the preferred route except for the significant differences discussed below.

Subalternate 1 (AC-EA-E; Links 3, 4a, 4b and 4c) - This subalternate route would cross less sensitive desert bighorn sheep habitat than the preferred route since it traverses the KOFA closer to the highway.

Subalternate 2 AC-EA-HH-F; Links 3, 5, 11 - This subalternate route differs from the preferred route where it crosses the Colorado River as it would traverse more riparian and wetland habitat than does the preferred route. This route has the potential for much greater impact to desert bighorn sheep as new access roads would have to be built into areas with high density bighorn populations. The result could be long term negative impact to sheep populations.

Subalternate 3 (FL-MN-MF; Links 7, 9) - This subalternate route is very similar to the preferred route with respect to flora, except that it crosses more major washes along the eastern shore of the Colorado River. Also, the Colorado River crossing of this route may involve more riparian habitat than the preferred route.

Subalternate 4 (AC-EA-EB-EC-E; Links 3, 4a, 17 and 4c. - This subalternate route crosses less sensitive desert bighorn sheep habitat that the preferred route since it traverses the KOFA closer to the highway.

10.4.3.7 Noise

Section 4.7 for a detailed description of the existing sonic environment. This information is applicable for all the subalternate routes

10.4.3.8 Visual

Section 4.8 for a detailed description of the existing visual environment. This information is applicable for the subalternate routes

10.4.3.9 Socioeconomics

of Subalternates 1 and 4 and portions of Subalternates 2 and 3 are located in La Paz County, Arixona. Subalternates 2 and 3 cross into Riverside County, California and a small segment of Subalternate 3 crosses into Imperial County. In general, the socioeconomic characteristics pertinent to evaluating these routes were discussed in Chapter 4, Section 4.10, but additional route-specific features are discussed below.

Subalternate 1 (AC-EA-E; Links 3, 4a, 4b, and 4c) - No communities are located along Link 3 in La Paz County, Arizona Located north of the preferred route, Link 3 is closer to Interstate 10 (I-10) and thus, more easily accessible.

4c would intersect the La Posa Recreation Long-Term Visitor Area on BLM land located approximately five miles south of Quartzsite along U.S. 95. With 6,600 undeveloped camping units the capacity of the La Posa Recreation Site is 13,200, which is slightly less than the 1984 permanent population of the entire La Paz County. Vacationers visit this area during the winter tourist season between October and May. Visitation averages 452,172 visitor-days per year according to BLM estimates.

Subalternate 2 (AC-EA-HH-F; Links 3, 5, 11) - Link 5 would cross 60 within two miles of Brenda, a small rural community of approximately 25 permanent residents.

Subalternate 3 (FL-MN-MF; Links 7, 9) - Link 7 parallels the Colorado River recreation corridor and crosses near the BLM's Oxbow Recreation Area. A small portion of Link 9 enters Imperial County. A baseline inventory of this area is presented in Human Environmental Resource Studies: Devers-Palo Verde #2 Transmission Line Project (Draft, 1985), prepared by Wirth Environmental Services for the project.

Subalternate 4 (AC-EB-EC-E; Links 3, 4a, 17, 4c) - Link 17 parallels I-10 and requires three road crossings. Link 4c passes through the La Posa Recreation Site.

subalternate routes do not parallel usable existing access roads, and traverse sparsely populated desert. New access roads would be required because only unimproved roads approach subalternate routes in many areas.

In Arizona, Links 4a, 4b, and 17 are accessible via I-10 and U.S. 60. Link 4c would be crossed by U.S. 95 south of Quartzsite. Link 5 would be crossed by U.S. 60 near Brenda and by AZ 95 north of Quartzsite. Improved roads through the Colorado River Indian Reservation would provide access to Link 5 near the Colorado River. Link 7 would be accessible from various roads south of Blythe in California see Table 10.1, Link 7).

In California, CA 78 crosses Link 9 south of the Palo Verde townsite but the western portion of this link is not accessible from any major travel routes. U.S. 95 and various roads proceeding north from Blythe approach the eastern portion of Link 11 while I-10 crosses this route to the west.

As stated in Section 3.4, construction of the line will require a total of 350 to 400 workers over an 18-month period. Construction will commence at both ends of the line simultaneously and proceed toward Blythe. A series of work crews will be responsible for various aspects of site

TABLE 10.1

MAJOR TRAVEL ROUTE USE VOLUME, SUBALTERNATE ROUTES

Link No.	Major Travel Route	Use Volume[1]
Arizona		
1	No. Wintersburg Road at entrance at PVNGS	3,325
1	Buckeye-Salome Road	
	South of Salome to I-10	200
	South of I-10	1,300
2,4c, 17	U.S. 95 (Arizona)	1,300
4a,4b,5, 17	Arizona 60 junction of I-10	1,600
5	Arizona 95	3,400
5	Poston Road north of I-10	4,195
1,3,,6,17	I-10 (Arizona)	
	Between Blythe and Quartzsite	19,000-12,000
	Between Quartzsite and junction AZ 60	9,900-9,000
4a,4b,4c	Between AZ 60 to exit for PVNGS	8,100-12,0000
California		
7	Neighbors Boulevard north of 36th Avenue	500*
	34th Avenue west of Neighbors	284*
	32nd Avenue east of Neighbors	209*
7,10	Arrowhead Boulevard	171-246
	California 78 between Imperial/Riverside County Line and Ripley	1,900-2,000
	26th Avenue east of Lovekin	259*
	28th Avenue east of Neighbors Boulevard	1,025*
7,10,11	Lovekin Boulevard	1,630-4,220*
	18th Avenue east of CA 78	227*
	South Broadway north of Vanita	1,708*
	22nd Avenue	217-331
	Rannells Boulevard	226-269
	24th Avenue east of CA 78	197*
	Intake Boulevard north of 36th Avenue	300*
10,11	C&D Boulevard	326*
	Defrain Boulevard	353-622*
	U.S. 95 (California) at 6th Avenue	1,800
	4th Avenue east of Lovekin	200*

TABLE 10.1 (continued)
Major Travel Route Use Volume, Subalternate Routes

Link No.	Major Travel Route	Use Volume
11	10th Avenue between DeFrain Boulevard and U.S. 95	282-338*
	6th Avenue	400-800*
	Midland Road northwest of Lovekin Road	300*
	8th Avenue west of C&D Boulevard	351*
11,12,13	I-10 (California)	
	Between junction Route 62 and Indio, junction Route 111	26,000-11,000
	Between junction Route 111 and junction 177 North	11,000-8,300
	Between junction 177 North and Blythe, Rivera Drive Interchange	8,300-11,500
13	CA 177 at Junction of I-10	2,200
	Box Canyon Road	500*
14	Mountain View Road north of Varner	2,600*
	1000 Palms Road north of Ramon	900*
14	Ramon Road	
	West of Bob Hope Drive	13,000*
	East of Kubic	3,600*
	Date Palm Drive southwest of Varner	2,00
	Washington Street north of Varner	500
	Bob Hope Drive	11,667*
	Varner Road	
	East of Mountain View Road	2,187*
	West of Mountain View Road	784*
	CA 111	
	Between junction I-10 and Jackson Street in Indio	3,000-14,800
16	Dillon Road north of Coachella	1,700*
16	Indian Avenue	7,100-7,200
	Little Morongo Drive north of Dillon	4,900*
	Pierson Boulevard east of CA 62	1,700*
	CA 62 between junction I-10 and Pierson Blvd.	7,700-7,200

[1] 1984 Traffic Volumes on the California State Highay System, 1983 Traffic Volumes of Arizona State Highways and County Highways; and Riverside County Traffic Counts for 1983 and 1984*

• Riverside County traffic counts are derived from a 24-hour count performed every two years on the same date.

preparation, erection of towers, stringing of the conductor, and clean-up. It is estimated the largest crew will include 100 workers and the average crew size will be 80 workers, equipped with heavy-duty cranes, trucks, hole diggers and conductor stringing equipment. The crews will work in sequence proceeding from six staging areas established along the route. Probable locations of staging yards have not been determined

Edison estimates the proposed project would not require movements of people or goods for operation. Occasional maintenance of the line would be needed and would require the transporting of maintenance crews, but these are not expected to be more frequent than that required by the existing line

10.4.3.11 Public Health and Safety

Section 4.10 presents a description of the existing environment for the subalternate routes.

10.5 IMPACT ASSESSMENT OF SUBALTERNATE ROUTES

The following discussion addresses the environmental impacts that could result from use of the four subalternate routes. Refer to Chapter 5.0 for a definition of the impact categories.)

10.5.1 Land Use Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
1. Conflict with the present land use of the area in which it will be located?		
Subalternate 1:	Potential	Potentially Significant

Link 4b crosses an industrial (extractive use (Milepost 6.9) Alignment to avoid or span the extractive site would mitigate the potentially significant impact.

Link 4c crosses in proximity to one single-family dwelling unit (Milepost 7.1 Siting the alignment to avoid the unit would effectively reduce the level of impact

	Impact	Significance
Subalternate 2:	Potential	Potentially Significant

Link 11 and a small section of Link 5 would cross irrigated cropland. Impacts to irrigated cropland would be potentially significant because the route does not parallel an existing transmission corridor and the resultant impacts would include removal of cropland from production and possible interference with farming operations. Alignments parallel or adjacent to field boundaries to the extent practicable would reduce impacts.

	Impact	Significance
Subalternate 3:	Potential	Potentially Significant

Links 7 and 9 would cross irrigated cropland. Impacts to irrigated cropland would be potentially significant because the route does not parallel an existing transmission line corridor (refer to Subalternate 2, above).

	Impact	Significance
Subalternate 4:	Potential	Potentially Significant

Link 4c crosses in proximity to one single-family dwelling unit (Milepost 7.1). Siting the alignment to avoid the unit would effectively reduce the level of impact.

2. Conflict with any elements of adopted environmental plans, policies, or goals of communities affected?

	Impact	Significance
Subalternates 1 and 4:	Potential	Potentially Significant

In Arizona, potentially significant impacts would occur where Links 17, 4a and 4b are located in a BLM utility corridor along I-10 that is identified in the BLM Final Lower Gila South Resource Management Plan, Environmental Impact Statement, Phoenix District, Arizona. The BLM, because of resource concerns, will have a restriction regarding overhead transmission lines due to the close proximity of important bighorn sheep lambing grounds north of I-10 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

Subalternate 2:	Potential	Potentially Significant

5 crosses 1.5 miles of an area designated as "Crop Area" by Colorado Indian Reservation General Plan. The impact of the alignment would be potentially significant if sited in conflict with future agricultural land use.

3. Conflict with established recreational, educational, religious, or scientific uses of the area?

	Impact	Significance
Subalternate 1:	Yes	Significant

Link 4b would cross an Arizona-Phoenix District BLM Wilderness Study Area. An interim management policy prohibits the location of a transmission corridor within a WSA during wilderness review and until Congress acts on WSAs. Thus, the impact would be unmitigably high and significant.

Link 4b-4c crosses the La Posa BLM Recreation Site and Long-Term Visitor Area. While mitigation measures would include alignments to avoid camping sites and avoidance of construction during holiday periods, the impact would remain significant.

	Impact	Significance
Subalternate 2:	Potential	Potentially Significant

Link 5 crosses a proposed Arizona Natural Area (Ehrenberg Mesquite Bosque) and the Colorado River and associated recreation uses. Link 11 crosses a BLM ACEC (Big Marias). Route alignments and tower placements which avoid sensitive features would effectively mitigate the impact in the proposed Arizona Natural Area, but a potentially significant impact would remain at the Colorado River and BLM ACEC because the route not follow any designated BLM utility corridor.

	IMPACT	SIGNIFICANCE
Subalternate 3:	Potential	Potentially Significant

Link 7 crosses a proposed Arizona natural area (Ripley) and Colorado River and associated recreation areas. Link 9 would cross Imperial County's Palo Verde Park. Mitigation efforts would include avoidance of construction during holiday periods and alignment to avoid sensitive features, but impacts to this park would remain potentially significant because the route not parallel an existing transmission corridor and would therefore impact existing recreation uses

	IMPACT	SIGNIFICANCE
Subalternate 4:	Potential	Significant

Link 4a crosses 0.3 miles of the area proposed for addition to the KOFA National Wildlife Refuge. Mitigation measures, such as avoiding sensitive features, would reduce impacts but impacts would still be potentially significant because the route does not follow an existing corridor.

Link 4c crosses a portion of the La Posa BLM recreation site and long-term visitor center. It is possible that mitigation measures which place towers to effectively re-route or span camping sites and avoid construction during holiday periods would reduce impact levels, but impacts would remain significant.

4. Occupy or affect any prime farmland?

	Impact	Significance
Subalternate 2:	Potential	Potentially Significant

Links 7 and 9 would cross prime irrigated farmland (impacts to specific irrigated farmland have been addressed in Section 4.1. Even assuming implementation of all recommended mitigation measures, such as placing the alignments along field section lines, impacts to irrigated cropland would be potentially significant because the route would not parallel an existing transmission corridor.

Subalternate 3:	Impact	Significance
	Potential	Potentially Significant

Link 11 would cross prime irrigated farmland. Even assuming implementation of mitigation measures, impacts to irrigated cropland would be potentially significant because the routes do not parallel an existing transmission line

	Impact	Significance
5. Encourage development of presently undeveloped areas or increase development sensitivity?	No	N/A

Since construction worker relocations will be temporary and workers are not expected to relocate with their families, the proposed project would not encourage development along the subalternate routes.

6. Affect any National Park, National Monument, National Seashore, National Recreation Area, Wildlife and Scenic River, State Park, State Beach, or State Recreation Area?

	Impact	Significance
Subalternates 1 and 4:	Potential	Potentially Significant

Link 4a-4b would cross an area proposed for addition to the KOFA National Wildlife Refuge. Impacts are potentially significant because, if incorporated within the KOFA National Wildlife Refuge, this area would be designated as an area of major sensitivity and no mitigation measures could effectively reduce the impact level.

10.5.2 Cultural Resource Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
7. Affect any site or area listed in or eligible for listing in the National Register of Historic Places?	Potential	Potentially Significant

The subalternate routes have not been subjected to a complete archaeological survey. Based on a records and literature search, potentially significant cultural resource properties may be encountered along any of these routes. A site specific

inventory would have to be undertaken to determine which, if any, of these resources may be subject to impact if the project is constructed utilizing any of the subalternate routes Additionally, many of the resources located along the subalternate routes will have to be assessed of their National Register of Historic Places (NRHP) eligibility. Tables C1 C2, Appendix C present a list of all cultural resource properties known to be located within the two-mile wide study corridor for each link of the subalternate routes. General locational information, distance to the subalternate centerline, USGS quadrangle, and presence or absence of a complete archaeological survey of the route segment in the area of a recorded resource, and registration status with regard to NRHP are also given in Tables C-1 and C-2, Appendix C.

Along Subalternate 1, areas of high sensitivity are the La Posa Plains and the Ranegras Plain.

Along Subalternate 2, areas of high sensitivity are the Ranegras Plain, the Colorado River terraces, and the Big Maria Mountains.

Along Subalternate 3, areas of sensitivity comprise virtually the entire route (Mule Mountain, Palo Verde Mesa and the Colorado River terrace except for the Colorado River flood plain which is currently under cultivation)

Three NRHP Districts are located within one mile of the Subalternate 3 corridor on the California side in the Palo Verde Mesa area between the Mule Mountains and the Colorado River

On the Arizona side of Subalternate 3, the Colorado River terraces are very sensitive with regard to cultural resources At least three major intaglio groups, one of which the Ripley Group is listed on the NRHP, and sixty other potentially significant archeological resources are present within or near the Subalternate 3 corridor. In addition, present access to this area of Arizona is quite limited. Construction of the proposed transmission line and access road through this area may directly and indirectly impact these resources. Adequate mitigation measures for these potential impacts may not be available.

Along Subalternate 4, one area of high sensitivity is present the Seven Palms Ranch/Willow Hole area.

10.5.3 Geologic and Pedologic Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
8. Alter or modify the topography or ground surface relief features?	Potential	Potentially Significant

All four subalternate routes would require the construction of new access roads, spur roads, and tower pads. All access roads would be 14 feet wide and bladed, but not paved. This would disturb the surface to a depth of approximately 6 inches as well as create a small berm of up to 1-1/2 feet in height on either side of the road. The movement of equipment over these roads would produce minor surficial compaction. In areas of low relief, minimal or no grading would be necessary for access and spur roads and for tower pads

In regions of moderate to high relief, such as the hills or mountains, or at drainage crossings encountered along all subalternate routes, some cuts and fills would be required for road and pad construction. Although potentially significant, the resulting cuts and fills would be generally small. To minimize cuts and fills, pad locations would be carefully

chosen to maximize naturally horizontal terrain, and road locations would be chosen to follow natural topographic contours while minimizing grades to the extent practicable. Although new construction would alter topography, proper construction techniques should minimize the impact.

	Impact	Significance
9. Alter or modify any unique geologic or physical features such as beaches, marshes, or tidelands?	Potential	Potentially Significant

The only geologic or physical features along the subalternate routes that might be referred to as unique are the desert pavements. These features can be destroyed by the scraping off of pebbles. The pebbles can also be dislodged by tracked vehicles and by travel at high speeds in rubber-tired vehicles. The impact would be limited to the 14-foot wide access roads and spur roads to the tower pads. Considering the vast size of the desert pavement areas in some of the study area, changes to them along the subalternate alignments are anticipated to have minimal overall impacts. Impacts can be minimized by not grading the pavements, limiting the use of tracked vehicles, limiting speeds in rubber-tired vehicles, and by restricting traffic to one narrow path.

	Impact	Significance
10. Contribute to the erosion potential of the site?	Potential	Potentially Significant

Construction of new access roads, spur roads, and tower pads may contribute to the erosion potential along all the subalternate routes. Wind erosion impacts are anticipated to be primarily associated with construction traffic and should subside after construction is completed.

Erosion due to surface water runoff appears to be a more long-term impact. However, the soil erosion along the existing Devers-Palo Verde #1 transmission line and its access road has been minimal. Maps 16-AZ and 16-CA show the relative soil erosion impacts for all of the subalternate routes. The erosion that has occurred is mainly the result of surface water runoff on local small fills and on local portions of the access road with steep gradients. The major portions of all the subalternate routes would cross relatively low relief terrain; therefore, the potential for surface water runoff is minimized However, there are many drainage crossings which have moderate relief where short sections of road will have steep gradients that can increase the potential for surface water runoff erosion. Proper construction techniques should reduce the impact to minimal significance.

	Impact	Significance
Cause or result in unstable earth or exposure of people or property to seismic or geologic hazards such as earthquakes, landslides, mudslides, or ground failure?		
Subalternate 4:	Yes	Potentially Significant

The components of the transmission line would not require any substantial change of the ground which would result in significant unstable slope conditions or public exposure to geologic hazards. However, Subalternate 2 crosses the active Banning and Mission Creek faults and the potentially active Mecca Hills fault. Towers along this alternative alignment would likely be subjected to severe seismic shaking within the lifetime of the proposed project. Impacts can be minimized by locating tower sites directly on the active fault traces, by crossing the fault at an angle that allows a change in span length when displacement occurs on the fault. Severe seismic shaking can be mitigated by using standard tower designs which allow for seismic shaking.

	Impact	Significance
12. Affect soil productivity?		
Subalternates 2 and 3:	Potential	Insignificant

The only sizable area along any of the four proposed subalternate routes that is currently under agricultural production is the Palo Verde Valley near Blythe, California. Subalternates 2 and 3 have potential for affecting soil productivity due to the construction of new access roads, spur roads, and tower pads. However, the permanent impact would be restricted to a single 14-foot wide access road. This would impact a very small percentage of the land surface; therefore, the impacts are considered to be insignificant. Whenever possible, pre-existing roads would be utilized for both access roads and spur roads in agricultural areas

10.5 4 Meteorologic, Climatologic, Air Quality Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
13. Violate or cause a violation of any federal, state, or local air quality standard?	No	N/A

No air quality standards would be violated. Emission sources during construction would be temporary and site specific and would be of short duration during operation and maintenance. Vehicular exhaust should be negligible and particulate emissions from vehicles traveling on dirt roads would be of a very large size, which would settle out quickly and not be in the respirable size range

	Impact	Significance
14. Result in substantial emissions of any air pollutant?	No	N/A

The proposed project would result in emissions of air pollutants, but only in a small or negligible amount. The construction and operation/maintenance of the proposed project would result in the emission of small, negligible amounts of vehicular exhaust emissions i.e., nitric oxide, carbon monoxide, and hydrocarbons) from the trucks and tractors used during construction and from service vehicles used during operation/maintenance.

The formation of minute quantities of ozone O_3) would occur during conditions when corona discharge occurs at the hardware/insulator assemblies. The quantities, however, would be negligible and, therefore, would not impact air quality in the project site vicinity.

	Impact	Significance
15. Affect ambient air quality?	Yes	Insignificant

The proposed project would result in emissions of only a small or negligible amount of air pollutants (See Question 14 above).

	Impact	Significance
Expose sensitive receptors to increased pollutant concentrations?	No	N/A

The proposed project would result in emissions of air pollutants, but only in a small or negligible amount. See Question 14 above for further discussion.

	Impact	Significance
17. Change prevailing air circulation patterns, moisture, temperature, or any other climatic condition?	No	N/A

proposed project would not result in any changes to air patterns, moisture, temperature, or other climatic conditions

	Impact	Significance
18. Cause objectionable odors?	No	N/A

The proposed project would not cause any objectionable odors.

10.5.5 Hydrologic Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
19. Violate or cause a violation of any federal, state or local water quality standard?	No	N/A

The proposed subalternate routes would not violate any federal, state, or local water quality standard.

	Impact	Significance
20. Result in the release of substantial effluent?	No	N/A

There would be no release of effluent as a result of the construction or operation of the proposed project.

	Impact	Significance
21. Affect existing water quality conditions?	Potential	Insignificant

There is the potential for increased erosion runoff and attendant sedimentation along the proposed subalternate routes. A reconnaissance of the existing access road and tower sites for the existing Devers-Palo Verde #1 transmission line revealed that only minor erosion in small limited areas had occurred since its construction in 1979. If typical construction techniques are utilized, the potential for increased erosion runoff and sedimentation would be insignificant.

	Impact	Significance
22. Affect any public water supply?	No	N/A

The public water supply along the subalternate routes would not be affected by the construction or operation of the proposed project.

	Impact	Significance
23. Affect the quantity or quality of ground waters?	No	N/A

The proposed project would not affect the quality or quantity of ground waters.

	Impact	Significance
24. Alter or affect existing drainage patterns?	Potential	Insignificant

There is the potential for altering existing drainage patterns. A reconnaissance of the existing Devers-Palo Verde #1 transmission line access road and tower sites revealed that typically most drainage patterns were not affected. In limited occurrences, some of the very small, very shallow drainages were directed into other drainages by the berms that resulted from grading the access road. However, these had no significant impact on the overall drainage pattern of the area. Locally new access roads, spur roads, and tower pads for the subalternate routes might impact similar small ephemeral drainages; however as with the existing line, these impacts are anticipated to be insignificant.

	Impact	Significance
25. Alter or affect any ocean, river, or stream or any channel, or shore?		
Subalternates 2 and 3:	Potential	Insignificant

These two subalternate routes would cross the Colorado River but would not affect the river. Their affect on the river banks would be insignificant

	Impact	Significance
Affect any flood-prone area?	No	N/A

proposed subalternate routes would not affect any flood-prone area

	Impact	Significance
27. Affect any water oriented recreation area?		
Subalternates 2 and 3:	Potential	Insignificant

These two subalternate routes would cross the Colorado kiver. Their affect on any water oriented recreation activities would be insignificant.

10.5.6 Biological Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
Affect any rare or endangered species or habitat thereof?	Potential	Potentially Significant

Subalternates 1, 2, 3 and 4 - All four routes have the potential for affecting sensitive species or habitats. The species encountered and the routes along which they may occur are as follows:

- Subalternates 1 and 4
  - Desert Bighorn Sheep
  - Desert Tortoise
  - Cereus greggii

- Subalternate 2
  - Desert Bighorn Sheep
  - Desert Tortoise
  - Cereus greggii
  - Coryphantha vivipara var. alversonii
  - Riparian Habitat

- Subalternate 3
  - Riparian Habitat

	Impact	Significance
29. Alter the diversity of species, or numbers of any species of plant or animal?	Yes	Insignificant

Subalternates 1, 2, 3 and 4 - Construction along any of three routes will, to some degree, result in a loss of individual animals and plants and will alter the diversity of extant flora and fauna. This effect, however, will not be significant.

	Impact	Significance
30. Create or remove a barrier to the migration or movement of any fish or wildlife species?	Potential	Insignificant

Subalternates 1, 2, 3 and 4 - All four routes have the potential for impacting the movement of wildlife species. In particular, Subalternates 1, 2 and 4 have a potentially greater adverse impact to bighorn sheep than does the preferred route. The reason for this is that these routes will require the development of new access into previously inaccessible areas. This would provide a significant adverse impact to bighorn sheep along these subalternate routes. Bird collision impacts are not expected to differ from those anticipated for the preferred route.

	Impact	Significance
31. Affect any highly productive habitat of wildlife species of sport, spectator, commercial or education value?	Potential	Insignificant

Subalternates 1, 2, 3 and 4 - All four routes have the potential to affect the habitat of this sort. However, this impact would not be significant.

	Impact	Significance
Affect any relatively undisturbed or unique vegetation communities?	Yes	Potentially Significant

Subalternates 1, 2, 3 and 4 - All four routes will impact relatively undisturbed habitat types and may affect unique vegetative communities. Of particular importance along these routes are riparian communities traversed by Subalternates 2 and 3 at the Colorado River.

	Impact	Significance
Affect any areas of low revegetation potential?	Yes	Insignificant

Subalternates 1, 2, 3 and 4 - All four routes traverse creosotebush scrub habitat, a habitat type of known low reproductive potential.

	Impact	Significance
34. Reduce the acreage of any agricultural crop?	Yes	Potentially Significant

Subalternates 2 and 3 traverse agriculture. Some crops would be affected by the towers but this would be minimized by the use of two-legged H-frame towers in agricultural areas.

	Impact	Significance
35. Cause the removal of any mature tree from urban locations?	No	N/A

10.5.7 Sonic Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
36. Violate or cause a violation of any federal, state, or local noise standard?	No	N/A

The proposed project would not cause any federal, state, or local noise standard to be violated.

	Impact	Significance
37. Increase existing noise levels in the area?	Yes	Insignificant

Construction of the proposed transmission line system would result in localized noise from construction equipment and vehicles but would not violate any noise standards and would temporarily increase existing noise levels in the area. There would be an insignificant impact on noise levels. The maximum construction noise level is expected to be 80 to 100 dBA at a distance of 50 feet from the source.

10.5.8 Visual Impacts

the proposed subalternate routes either directly or indirectly:

	Impact	Significance
38. Affect any resources of unique scenic value, or result in obstruction of any scenic vista?	Yes	Significant

Impacts to scenic quality from alternative routes would result from construction activities, ground disturbance, and strong project contrast related to establishment of a new corridor Areas of Class A and B scenic quality would receive significant impacts to their scenic value. These areas are listed below:

Subalternate 1 - Northern portion of the Plomosa Mountains and its foothills Link 4b).

Subalternate 2 - Northern portion of the Plomosa Mountains and its foothills (Link 5); northern portion of the Dome Rock Mountains (Link 5); Colorado River riparian area (Link 5 ; agricultural lands in the Palo Verde Valley Link

Subalternate 3 - Colorado River riparian area Links 7 and 9); agricultural lands in the Palo Verde Valley Link 7 and 9

Potentially significant impacts to scenic value could occur to Class C scenic quality landscapes

Subalternate 1 - La Posa Plains (Links 4b and 4c)

Subalternate 4 - Plomosa Pass (Link 17)

Other significant impacts to scenic value would result from short duration views from highways resulting from road crossings or parallel alignments and strong project contrasts related to construction in a new corridor. Significant impacts to highway views would result from the following road crossings:

Subalternate 1 - U.S. 95 in La Posa Plains (Link 4c).

Subalternate 2- I-10 South of Bear Hill Link 5); AZ 95 in La Posa Plains (axial views of crossing) Link 5); U.S. 60 west of Brenda, AZ Link 5); Poston Road north of Ehrenberg, AZ Link 5); Midland Road north of Blythe, CA Link 11); U.S. 95 north of Blythe, CA (Link 11) (eligible Riverside County Scenic Highway I-10 west of Blythe Airport (Link 11 (eligible Riverside County Scenic Highway

Subalternate 3 - CA 78, south of Ripley, CA Link 9).

Subalternate 4 - U.S. 95 in La Posa Plains (Link 4c); two crossings of I-10, east and west of the Plomosa Mountains Link 17 U.S. 60, southwest of Brenda, AZ Link 17

Significant impacts to highway views resulting from parallel alignment with I-10 occur from Links 3, 4b, 4c, and 17 Subalternates 1 and 4 Refer to Appendix B for a photosimulation depicting visual impacts resulting from close

parallel alignment to I-10. Most significant would be the paralleling of Link 17 because of its proximity to the highway and rugged terrain. The nature of the terrain provides potential for skylining of towers and allows greater visibility of ground disturbance from access roads in an area where a transmission line is not now sited.

Impacts to scenic quality and to scenic vistas near the Colorado River can be reduced by maximizing the distance between the edge of the river and the first structure. Further, the structures siting should take advantage of terrain or vegetative screening to reduce skylining and general structure visibility. In areas of steep terrain, landform and vegetation contrasts may be reduced by applying appropriate mitigation developed in consultation with the authorizing officer. This could include measures such as constructing access roads that follow the landform contour, and revegetating cut and fill slopes where they occur.

Visual impacts to scenic quality as a result of crossing the northern portion of the Plomosa and Dome Rock Mountains can be reduced by sensitive tower placement to avoid skylining and to take advantage of the visual absorption of the mountain backdrop. Additionally, the existing access road would only be refurbished when necessary. Widening or major upgrading, or any other unnecessary grading work undertaken that would increase landform or vegetation contrasts would be avoided.

Impacts to views from scenic highways and other major travel routes can be reduced by locating towers back as far as possible from the roadway on both sides. Sensitive tower placement, taking advantage of terrain features, should be utilized to reduce structure contrasts and visibility.

	Impact	Significance
39. Affect the view from any public recreation areas, parklands, residential areas?	Yes	Significant

Significant viewer impacts to residences would result from proximity of the transmission line, strong project contrasts from establishing a new corridor, and high visibility (foreground views or skylining. Areas where residents' views would be significantly impacted include:

Subalternate 1 - Residences in the central portion of the Plomosa Mountains (Link 4b); dispersed residential area near Eight-Mile Well in La Posa Plains (Link 4c).

Subalternate 2 - Residents in and near Brenda, AZ Link 5 along the Colorado River (Link 11 in the Palo Verde Valley (Link 11).

Subalternate 3 - Residences along the Colorado River (Links 7 and 9); on the Palo Verde Mesa (Link 9

Subalternate 4 - Residences in Brenda, AZ Link dispersed residential area near Eight-Mile Well Link 4c).

Potentially significant impacts to residents' views are the result of middleground views of the project and include:

Subalternate 1 - Residences west of the Upper Bouse Wash (Link 3

Subalternate 2 - Residences on the Palo Verde Mesa west of the Big Maria Mountains (Link

Subalternate 3 - Residences along the Colorado River (Links 7 and 9 the town of Palo Verde (Link 9); dispersed residences in the southern portion of the Palo Verde Valley (Links 7 and 9); residences located on the Palo Verde Mesa north of the Mule Mountains (Link 11).

Subalternate 4 - Residences west of the Upper Bouse Wash (Link 3).

Significant visual impacts to recreation would occur primarily along the Colorado River Subalternates 2 and 3 resulting from skyline views from parallel alignment to and/or crossing of the river and strong project contrasts resulting from establishment of a new corridor. Other significant impacts to dispersed recreation areas from corridor crossings include:

Subalternate 1 - Crossing La Posa Recreation site (Links 4b 4c); crossing WSA 2-125 (Link 4b); crossing the proposed addition to the KOFA National Wildlife Refuge (Link 4b).

Subalternate 2 - Parallel alignment to WSA 321 (Link 11); crossing of the BLM ACEC (Big Marias) (Link 11).

Subalternate 3 - Parallel alignment to Oxbow Recreation Site (Link 7 ; parallel alignment to Colorado River impacting county parks located on the river (Link 7)

Subalternate 4 - Crossing of La Posa Recreation Site (Links 4c and 17)

Potentially significant impacts may occur to dispersed recreation areas WSA 350 and WSA 352 from Link 9 (Subalternate 3), Link 17's alignment in foreground views of WSA 2-125, and the proposed addition to the KOFA National Wildlife Refuge (Subalternates 1 and 4)

Impacts to residential and park and recreation viewpoints can be reduced by slight routing modifications to maintain a minimum separation from the project, and through sensitive tower placement to take advantage of terrain features for screening backdropping, or general reduction in visibility. Access roads in steep terrain should follow the landform contours to reduce scarring from excess earthwork

	Impact	Significance
40. Affect the setting of any feature of unusual architectural significance?	No	

No features of architectural significance were observed during field reconnaissance and none are known to exist in the area.

10.5.9 Socioeconomic Impacts

Will the proposed subalternate routes either directly or indirectly:

	Impact	Significance
41. Divide or disrupt present population patterns?	No	N/A

Since most workers will maintain permanent residences in the Phoenix metropolitan area or near the Coachella Valley, no disruption of population patterns is expected. At most, influx of transient workers will comprise less than 3% of the population of Blythe, CA.

	Impact	Significance
42. Alter migrational trends including migrational trends of different socioeconomic groups, into and out of the area?	No	N/A

Since relocation by construction workers will be temporary, no impact on migrational trends is anticipated. In California and in Arizona, a relatively large construction labor force exists, Therefore, no workers are expected to migrate to the study area for employment with this project

	Impact	Significance
43. Affect neighborhood character or stability?	Yes	Potentially Significant

Neighborhood disruption during construction and presence of the line could adversely affect the following residential settlements:

Subalternate 1 - Scattered residential area near La Posa Long-Term Visitor Area (Link 4

Subalternate 2 - Community of Brenda, Arizona Link 5); scattered residential areas along Colorado River (Link 5).

Subalternate 3 - Scattered residential areas along Colorado River (Links 7, 9).

Subalternate 4 - Scattered residential area near La Posa Long-Term Visitor Area (Link 4c

	IMPACT	SIGNIFICANCE
44. Affect property values or the local tax base?	Yes	Insignificant

Property tax payments to Riverside and Imperial counties would comprise a small portion less than 1%) of each county's total property tax revenues. In La Paz county, which currently has a small tax base, property taxes on the project would comprise over 20 percent of the 1987 total property tax revenues, representing a significant positive impact on the county. Estimated property tax revenues or additions to assessed value do not vary significantly between the different subalternates Over the entire line, revenues range from $3,556,623 for Subalternate 2 to $3,803,535 for Subalternate 3.

	IMPACT	SIGNIFICANCE
Affect local industry or commerce?	Yes	Insignificant

Worker expenditures represent a small, short-term benefit to some businesses in the vicinity of the subalternate routes. In Blythe, California, where most of the purchases would be made, expenditures would comprise less than 2.5% of taxable sales.

	IMPACT	SIGNIFICANCE
Affect existing housing or housing demand?	Yes	Insignificant

Workers are expected to maintain permanent residences in the urban areas at either end of the line until line construction progresses toward Blythe, California. Although the Blythe area numerous temporary accommodations in hotels, motels, trailer parks, and campgrounds, construction worker demand for housing could conflict with tourist demand during the winter season. As discussed in section 6.9, impacts on housing demand could be significant if construction of the PacTex pipeline coincides with construction of the proposed project. However, the future of this project is uncertain. Two years after permitting, construction has still not begun.

Temporary housing demand may also affect Parker, Arizona if Subalternate 2 is constructed. As a recreational center, adequate temporary accommodations should be available in Parker

	IMPACT	SIGNIFICANCE
Affect any community facility such as medical, educational, scientific, or recreational?	No	N/A

Since most community facilities are provided to local residents and since employee relocation will be temporary, no impacts on these facilities are anticipated. Services to construction workers would not exceed the level provided to visitors or temporary workers in the area.

	IMPACT	SIGNIFICANCE
Affect community services such as police, fire, emergency, etc.?	Yes	Insignificant

Community services in Brenda (Links 5 and 17 and in Palo Verde (Links 7 and 9) are limited and may be strained by any problems arising during construction. However, construction of the proposed project will not require additional services in these areas. The La Paz County Sheriff's Department is concerned that

lines close to I-10 could interfere with transmission from emergency vehicles on I-10. The radio transmission facility is located on Cunningham Peak.

	IMPACT	SIGNIFICANCE
Affect other utility services?	Potential	Unquantified Impact

Pipeline companies and irrigation canal managers have expressed concerns regarding the positioning of transmission lines in relation to the alignments of their structures. In addition, community of Quartzite is planning a 12" underground water line near the line, but not close enough to be affected by the project. Edison will consult with concerned parties and develop appropriate mitigation measures

10.5.10 Traffic and Transportation Impacts

Will the proposed subalternate routes either directly or indirectly:

	IMPACT	SIGNIFICANCE
Affect existing transportation systems?	Yes	Potentially Significant

Since access roads do not exist along the subalternate routes, existing transportation systems may require new roads or upgrading to enable line construction. Transportation corridors limited along Subalternate routes 2, 3, and 4.

	IMPACT	SIGNIFICANCE
51. Alter present patterns of circulation for movement of people or goods?	Yes	Insignificant

Construction crews working on the proposed line would alter current patterns of circulation. However, the effect would be a short-term, insignificant impact since the work crews are small and work would proceed progressively along the route.

	IMPACT	SIGNIFICANCE
52. Generate additional traffic?	Yes	Insignificant

Since the work force would be divided into small crews working on different portions of the line, the additional traffic generated in any one area would be small and would occur for a short period of time

	IMPACT	SIGNIFICANCE
53. Increase traffic hazards to motor vehicles, bicyclists, or pedestrians?	yes	Insignificant

To the extent that construction truck traffic would use residential streets to access the site, some minor hazards to bicyclists or pedestrians could occur. Since the construction traffic in a given area would be small and would occur over a short period of time, this hazard is considered insignificant

	IMPACT	SIGNIFICANCE
54. Increase or promote the use of off-the-road vehicles?	Yes	Potentially Significant

Off-road vehicle use could increase in areas where new access roads are constructed for subalternate routes. Potentially significant impacts could occur in those park, recreation, or preservation areas that would be impacted by the construction of new roads.

	IMPACT	SIGNIFICANCE
55. Increase or decrease access to areas?	Yes	Potentially Significant

Access could increase in areas where new roads are constructed Potentially significant impacts could occur in those park recreation, or preservation areas that would be sensitive to increased access.

10.5.11 Public Health and Safety Impacts

Will the proposed subalternate routes either directly or indirectly:

	IMPACT	SIGNIFICANCE
56. Affect public health or expose people to potential health hazards?	No	

The proposed subalternate routes would not affect public health or expose people to potential health hazards.

	IMPACT	SIGNIFICANCE
57. Increase any public safety risks?	No	

The proposed subalternate routes would not significantly increase any public safety risk

APPENDIX E
SCE PUBLIC INVOLVEMENT PROGRAM

PUBLIC INFORMATION MATERIALS DISTRIBUTED BY SCE

PROJECT FACT SHEET

INVITATIONS TO OPEN HOUSES

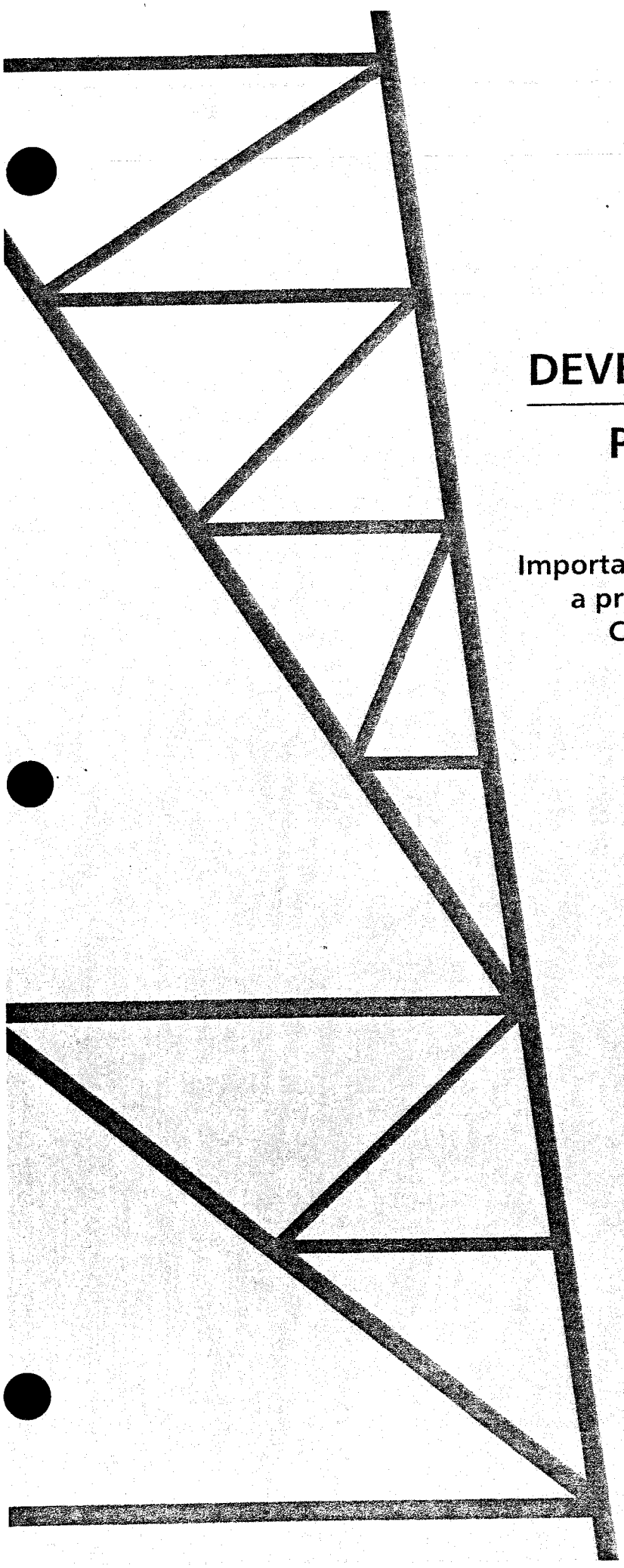
August 26, 2004
September 7, 2004
September 15, 2004
September 23, 2004
September 28, 2004

PROJECT UPDATE

August 2004

FREQUENTLY ASKED QUESTIONS

November 2004



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DEVERS – PALO VERDE NO. 2

PROJECT FACT SHEET

Important community information concerning a proposed Southern California Edison Construction Project in your area

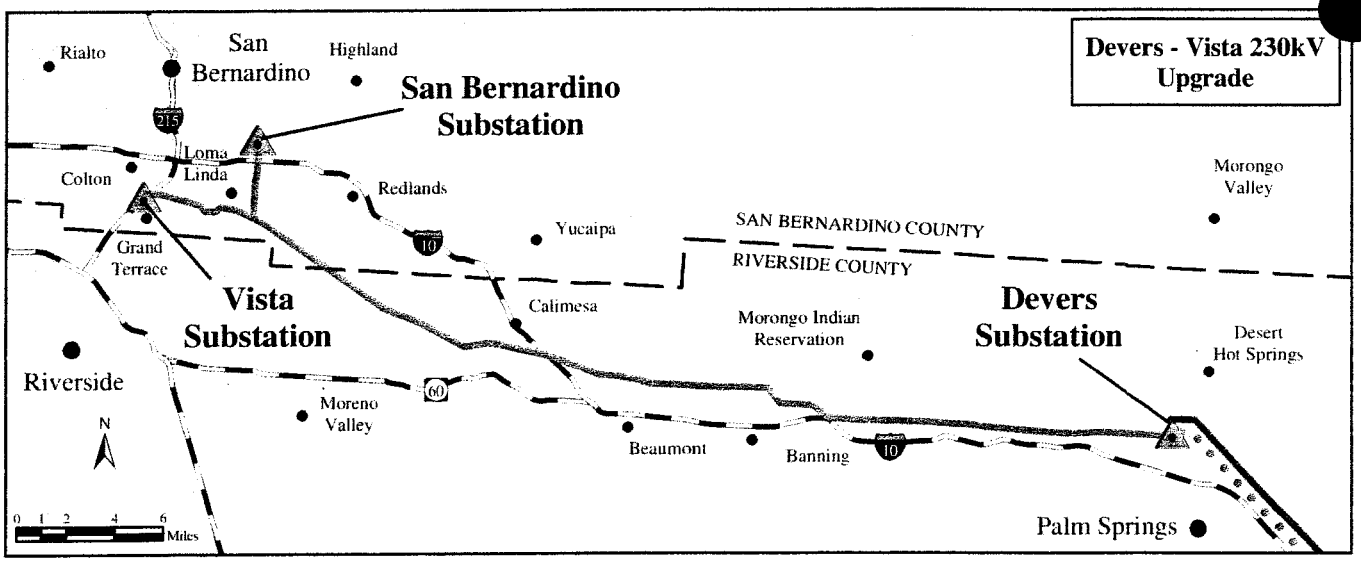

Diagram 1

INTRODUCTION

Southern California Edison Company (SCE) is planning now for the future needs of a growing population. Our highest priority in the coming years is to strengthen the transmission and distribution systems that deliver electricity to our customers and connect us to neighboring utilities.

In our continuing efforts to strengthen the transmission system, SCE is proposing a new 230-mile long transmission line between California and Arizona which will parallel an existing transmission line. Upgrades to some of SCE's existing electrical transmission facilities within California would also be required. The project is known as Devers Palo - Verde No. 2 (DPV2).

This fact sheet provides a project overview to property owners located within 300 feet of the proposed project, to local elected and appointed officials along the proposed route in California and Arizona, and to other parties who may be interested in this project. SCE will provide project updates to individuals and organizations who are interested in this project.

PURPOSE OF THE PROJECT

The primary goal of this project is to improve the ability to transfer electricity from Arizona to California. This provides California customers with increased access to existing and future sources of cost-effective electricity in Arizona.

Additional benefits include:

- Several generating plants in or near Arizona have excess capacity. Connecting customers with underutilized sources of electricity may moderate the price of electrical generation for California customers. This project will increase the customer's access to these sources of electricity.
- Improving the ability to transfer electricity between Arizona and California may provide customers access to more sources of electrical generation. This is especially important if current sources of generation become limited due to drought or unplanned outages or are more expensive due to increases in the price of fossil fuels.

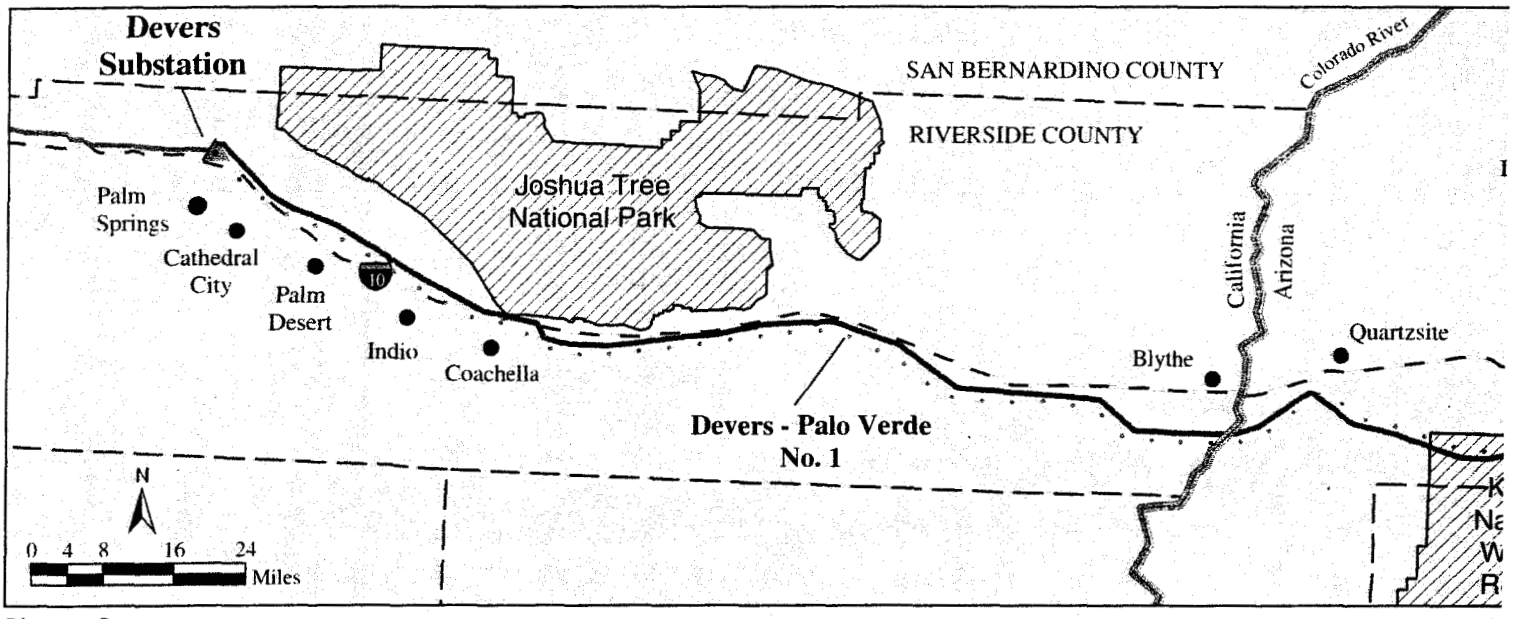

Diagram 2

PROJECT SCOPE

SCE proposes to build a new 500,000 volt (500 kV) transmission line connecting SCE's existing Devers Substation located approximately 10 miles north of Palm Springs, California to the existing Harquahala Switchyard located approximately 40 miles west of Phoenix, Arizona. Further project planning may result in SCE extending the proposed line 15 miles further east to terminate in the Palo Verde/Hassayampa area. The majority of the transmission line between Devers and Harquahala will be constructed within existing SCE transmission line corridors. However, SCE will need to acquire additional property rights in some locations.

The proposed transmission line route between Devers and Harquahala parallels SCE's existing Devers – Palo Verde No. 1 (DPV1) 500 kV transmission line for 230 miles (of which 126 miles are in California and 104 miles are in Arizona). Where feasible, SCE proposes to construct the 500 kV transmission line on single-circuit lattice steel towers similar to the existing DPV1 towers. See Figure 1.

Additionally, upgrades to four existing SCE 230,000 volt (230 kV) transmission lines will be required. These lines are located within an existing 47 mile transmission corridor from SCE's Devers Substation to SCE's San Bernardino and Vista Substations. The San Bernardino and Vista Substations are located approximately 2 miles from the City of San Bernardino. The proposed upgrades include the replacement of some transmission towers with new towers and the replacement of the existing electrical wires. These upgrades would generally be constructed within existing SCE transmission line corridors. However, SCE will need to acquire additional property rights in some locations.

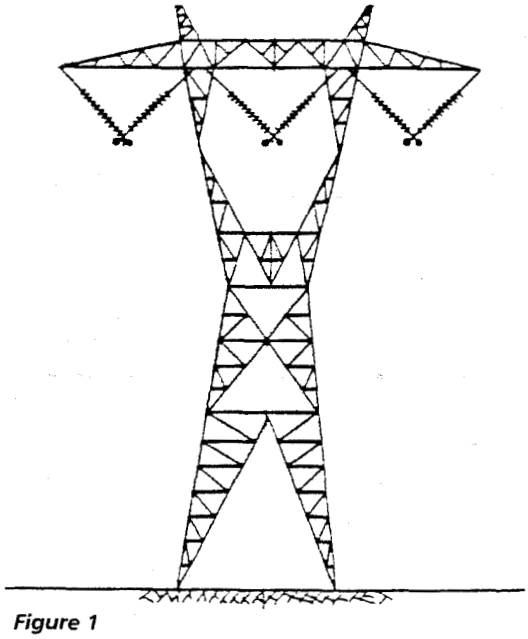

Figure 1

HOW YOU CAN FIND OUT MORE ABOUT THIS PROJECT

This proposed project is in the planning stage. As planning continues and additional information becomes known, SCE will make project updates available to the public. If you are interested in this project and want to learn more about it, please contact us directly. You may visit our website at www.sce.com click on About SCE, and select Strengthening SCE's Electric Network.

Listed below are the names of SCE employees who are located in the communities along the proposed project line route. Beside each name, SCE has identified the geographic area that each represents. Please feel free to contact the SCE representative listed below who is located closest to you:

SERVICE CENTER	CITIES/COUNTIES COVERED	CONTACT
SCE Palm Springs Service Center 36100 Cathedral Canyon Drive Cathedral City, CA 92234	Palm Springs Cathedral City Palm Desert	**Kathleen DeRosa** **760-202-4211**
SCE Redlands Service Center 287 Tennessee Street Redlands, CA 92373	San Bernardino City San Bernardino County Colton Highland Rialto	**Ray Gonzalez** **909-307-6726**
DPV2 Arizona Office 4350 East Camelback Road, Suite G200 Phoenix, AZ 85018	Quartzsite La Paz County Maricopa County	**Robert Jensen** **602-499-9888**
SCE San Jacinto Valley Service Center 26100 Menifee Road Romoland, CA 92380	Riverside City Riverside County Blythe	**Robert Lopez** **909-928-8208**
SCE Redlands Service Center 287 Tennessee Street Redlands, CA 92373	Banning Beaumont Grand Terrace Calimesa Loma Linda Redlands Yucaipa	**Beverly Powell** **909-307-6742**

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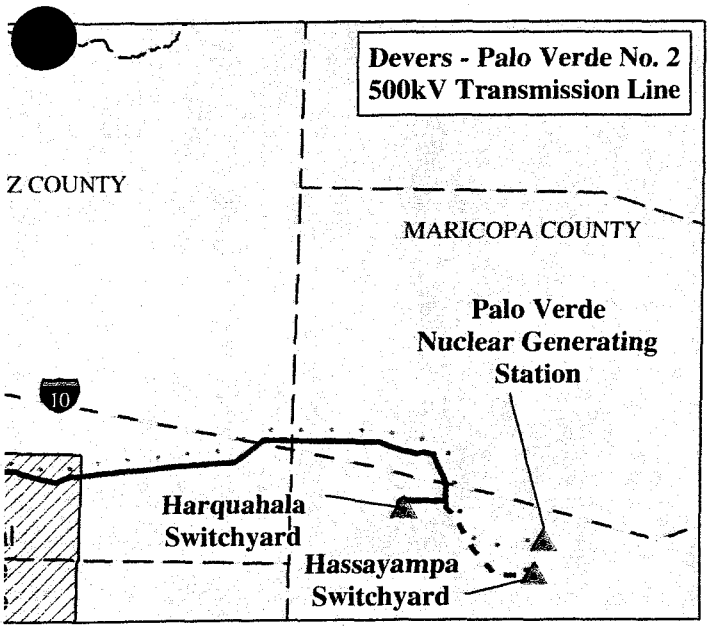
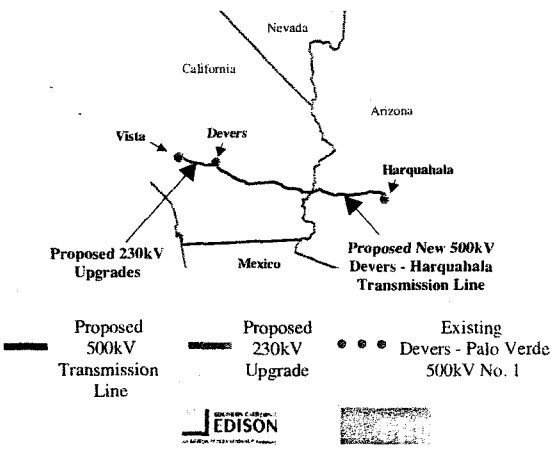


VICINITY MAP

Devers - Palo Verde No. 2
Transmission Line Project



PROJECT REVIEW AND APPROVAL PROCESS

When SCE determines that electric system modifications with regional impact are necessary, SCE coordinates its findings with the appropriate regional planning organizations. For the DPV2 project, SCE will coordinate its efforts with the California Independent System Operator, the Western Electricity Coordinating Council, and the Western Arizona Transmission Study Group to refine the scope of the project.

SCE will submit applications to state regulatory agencies for authority to construct the project. These applications include an assessment of the potential environmental impacts of the project and its alternatives as well as project need, technical feasibility, economic justification, and compatibility with existing uses. Final approval for the DPV2 project will be made by the California Public Utilities Commission (CPUC), the Arizona Corporation Commission (ACC) and the United States Bureau of Land Management (BLM).

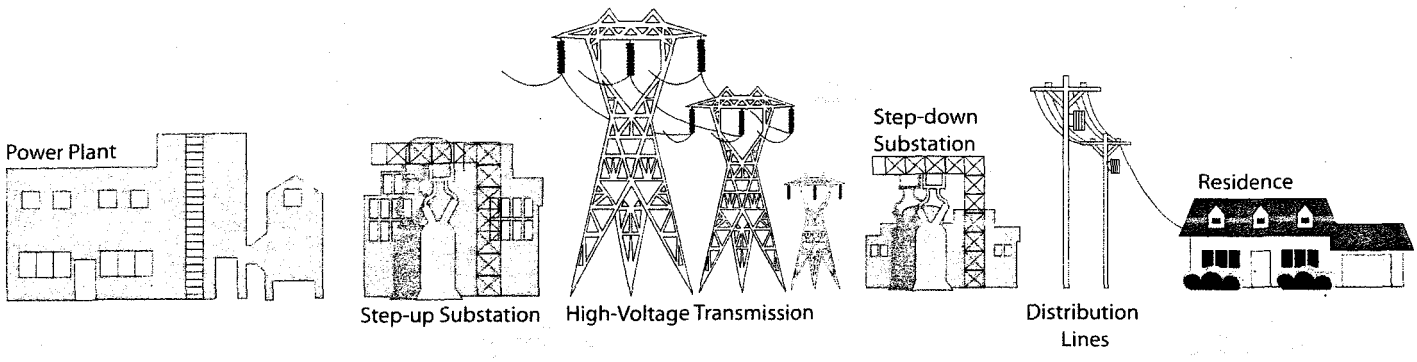
As part of its project planning, SCE will consult and coordinate with, and obtain any necessary approvals from, Native American Tribes along the proposed project route.

SCE'S PUBLIC OUTREACH ACTIVITIES

SCE seeks input from local residents, area businesses, elected and appointed officials, organized interest groups, and other key parties as part of its project planning. This fact sheet has been developed to help inform potentially interested parties about the proposed DPV2 project. Through its outreach and communication efforts, SCE hopes to identify the issues that are of interest or potential concern to the public in order to respond to these issues whenever possible during project planning.

PROJECT SCHEDULE

SCE anticipates that it will submit its applications to the permitting agencies (the CPUC, ACC, and BLM) in early 2004. These agencies will review SCE's applications, and either approve, deny, or approve the project with modifications. If the agencies approve the project, SCE anticipates that project construction activities would commence in 2006.



THE PATH OF ELECTRICITY

Electricity is generated using a variety of sources, including natural gas, coal, oil, nuclear fission, water, biomass, wind and sun. In most cases, it leaves the generator at 13,800 volts and goes to transformers where it is "stepped up" to as much as 500,000 volts of electricity suitable for transmission.

Transmission towers support inch-thick, high voltage cables that carry large volumes of electricity to substations.

Upon reaching a substation, the electricity is "stepped down" from high transmission voltages to lower sub-transmission and distribution voltages for residential areas (12,000 volts) and commercial areas (66,000 volts).

The power then travels along a distribution line until it passes through a transformer, mounted on a pole or on the ground, which converts the distribution voltage to a service voltage (240/120 volts).

Once converted, the electricity travels through a service line to individual customers.

OPEN HOUSE

Southern California Edison Company (SCE) is proposing to construct a new 230-mile, high-voltage electric transmission line between California and Arizona, parallel to an existing transmission line. The project is known as Devers – Palo Verde No. 2 (DPV2). The proposed DPV2 transmission line will be on the south side of Interstate Highway 10 (I-10) from the Colorado River west to the Desert Center area. In the Palo Verde Valley, south of Blythe CA, the proposed DPV2 transmission line will parallel the existing line between 22nd and 24th Avenues. The new line would also require upgrades to some of SCE's existing electrical transmission facilities in California.

SCE invites you to attend an Open House to discuss the proposed DPV2 project

Thursday, August 26

Open House begins at 4 p.m. and continues until 8 p.m.

Blythe Community Center
235 North Broadway • Blythe, CA

For additional information contact Robert Lopez (909) 928-8208

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OPEN HOUSE

Southern California Edison Company (SCE) is proposing to construct a new 230-mile, high-voltage electric transmission line between California and Arizona, parallel to an existing transmission line. The project is known as Devers – Palo Verde No. 2 (DPV2). The proposed upgrades in your area will be made to existing transmission lines. Beginning in the City of Redlands south of and parallel to San Timoteo Canyon Road, the lines continue west crossing the Cities of Loma Linda, Colton and Grand Terrace enroute to Vista Substation near Interstate 215 and Mount Vernon Avenue. In addition, upgrades are proposed to existing transmission lines, west of Mountain View Avenue, that run south from San Bernardino Avenue in Redlands to Beaumont Avenue in Loma Linda.

SCE invites you to attend an Open House to discuss the proposed DPV2 project

Tuesday, September 7

Open House begins at 4 p.m. and continues until 8 p.m.

Loma Linda Senior Center

25541 Barton Road • Loma Linda, California

For additional information contact Beverly Powell (909) 307-6742

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SCE invites you to attend an Open House to discuss the proposed DPV2 project

Wednesday, September 15

Open House begins at 4 p.m. and continues until 8 p.m.

Plantation on the Lake Recreation Center
10961 Desert Lawn Drive • Calimesa, California

For additional information contact Beverly Powell (909) 307-6742

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OPEN HOUSE

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SCE invites you to attend an Open House to discuss the proposed DPV2 project

Thursday, September 23

Open House begins at 4 p.m. and continues until 8 p.m.

Beaumont High School
1591 Cherry Avenue • Beaumont, California

For additional information contact Lin Juniper (760) 202-4231

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OPEN HOUSE

Southern California Edison Company (SCE) is proposing to construct a new 230-mile, high-voltage electric transmission line between California and Arizona, parallel to an existing transmission line. The project is known as Devers – Palo Verde No. 2 (DPV2). The proposed DPV2 transmission line will be on the south side of Interstate Highway 10 (I-10) from Blythe, through Desert Center to a point just east of the Cactus City Rest Stop. The lines then cross to the north side of I-10, and continue northwest between I-10 and the Indio Hills to Devers Substation.

SCE invites you to attend an Open House to discuss the proposed DPV2 project

Tuesday, September 28

Open House begins at 4 p.m. and continues until 8 p.m.

Joslyn Senior Center

73-750 Catalina Way • Palm Desert, California

For additional information contact Kathleen DeRosa (760) 202-4211

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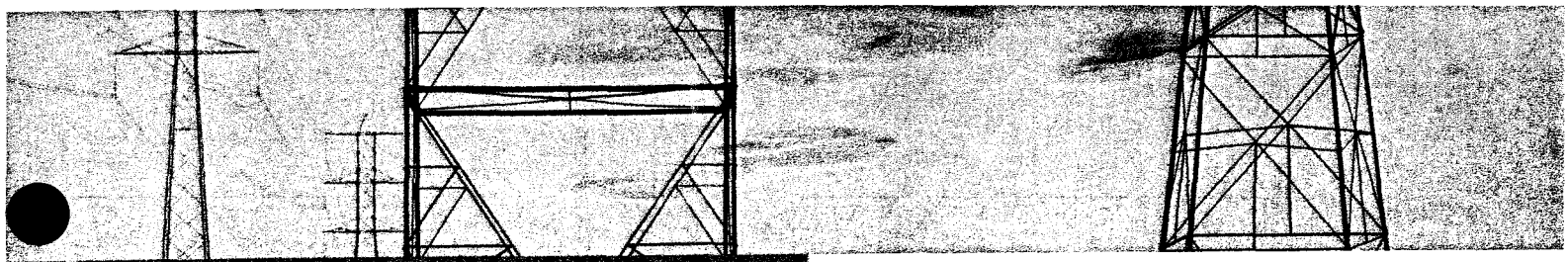
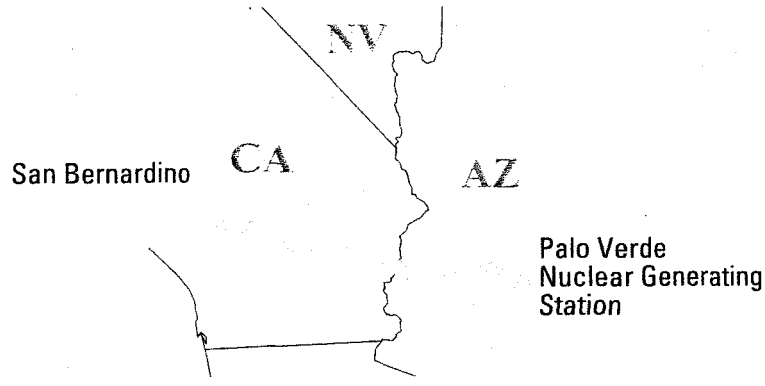


Devers – Palo Verde No. 2 Project Update August 2004

Important community information concerning a proposed Southern California Edison construction project in your area

PROJECT OVERVIEW

Southern California Edison Company (SCE) is proposing to construct a new 230-mile, high-voltage electric transmission line between California and Arizona, within SCE's existing transmission corridor, parallel to an existing transmission line. The new line would also require upgrades to some of SCE's existing electrical transmission facilities in California. The project is known as Devers-Palo Verde No. 2 (DPV2).



PURPOSE OF THIS PROJECT UPDATE

This *Project Update* has been developed by SCE, the DPV2 project sponsor. It is intended to provide current project information to owners of property located near the proposed project, local governments along the proposed route, to other parties, and respond to several questions raised by members of the community. This *Project Update* provides an overview of the planning process and SCE's regulatory compliance activities for DPV2.

Please refer to the end of this *Project Update* for information on how to be added to the DPV2 project mailing list.

SCE'S APPROACH TO TRANSMISSION PLANNING

SCE's integrated approach to meeting the future electrical energy needs of its customers includes the following elements:

- Encouraging energy-efficient use of electricity, which reduces the need for new electrical facilities;
- Increasing SCE's procurement of renewable energy, for example, solar and wind;
- Accessing cost-effective sources of electricity, including power sources located inside and outside of California; and
- Building and maintaining reliable electrical transmission and distribution systems to deliver power to customers.

The proposed DPV2 project is one element of this integrated approach and would provide increased access to lower-cost electricity from the southwestern states.

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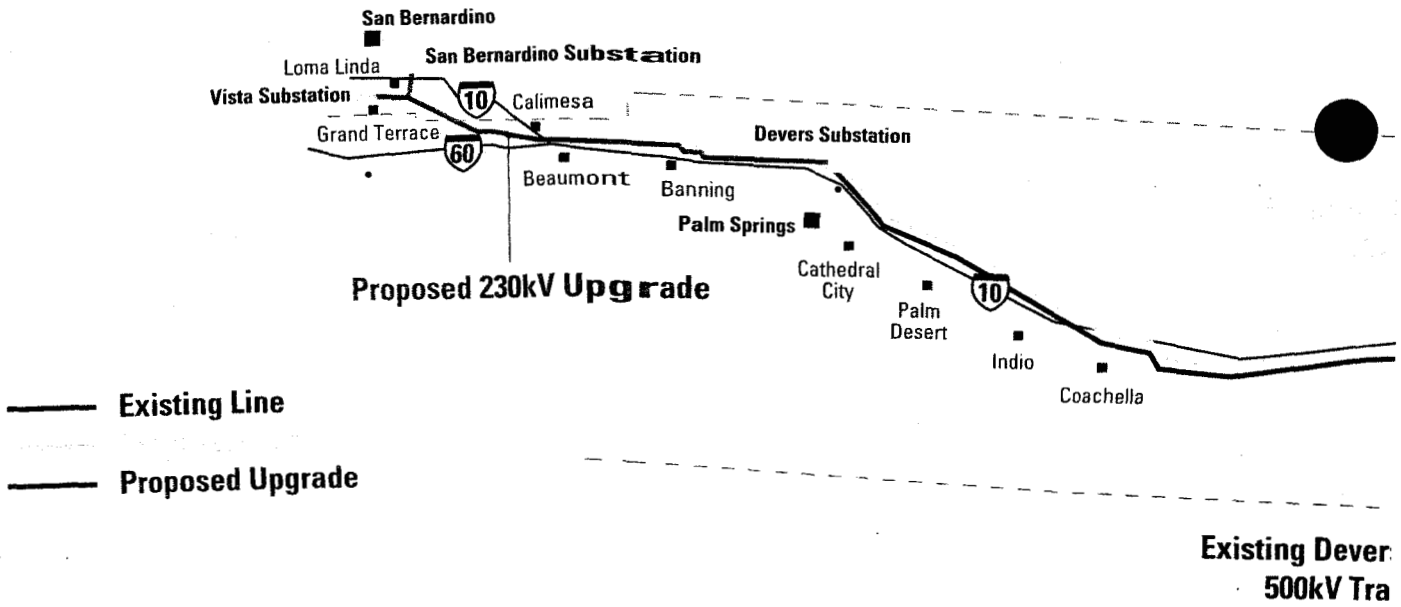


PROJECT NEED

Construction of DPV2 would add transmission facilities needed to import additional lower-cost electricity into California.

DPV2 is expected to lower the cost of electricity purchased to serve California customers. This project would also increase energy producers' access to the California energy market and would provide an incentive for new generation development. The project is also expected to increase competition among energy suppliers, which should lower California's electricity costs. In addition, DPV2 would help offset price increases that could result from events such as droughts that reduce supplies of low-cost hydroelectricity and heat waves that create high peak demand for electricity.

PROJECT APPROVAL PROCESS

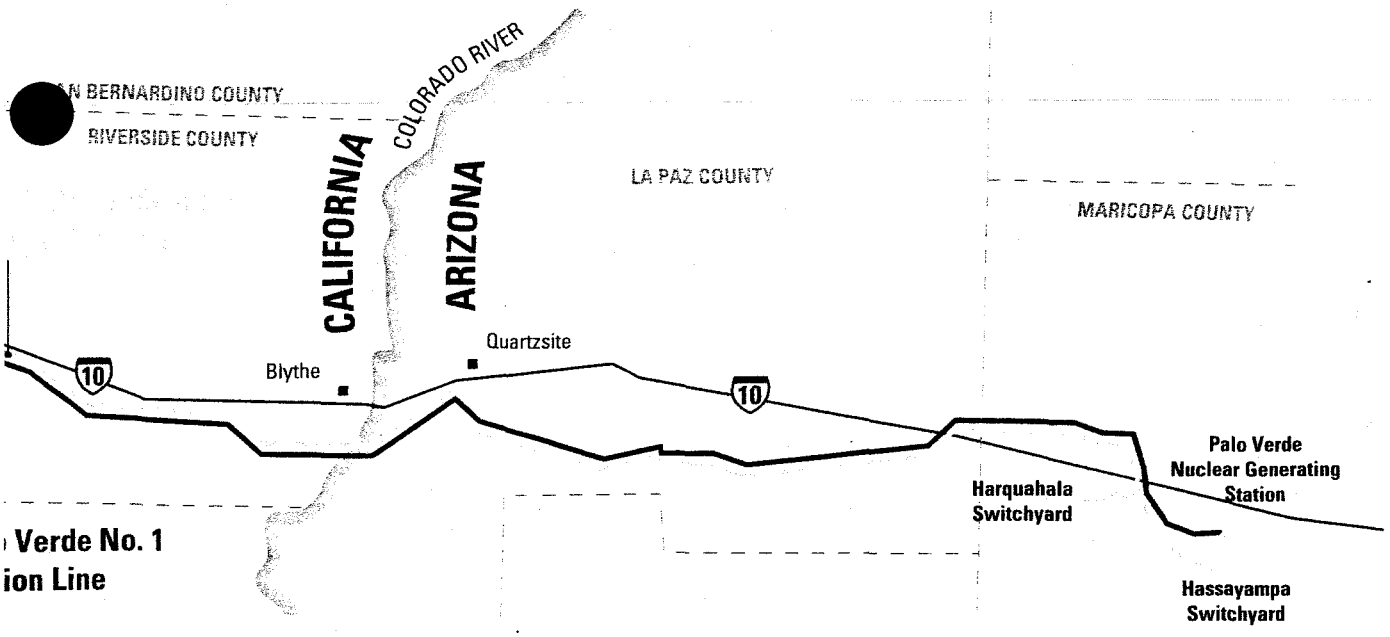
SCE must collect and evaluate environmental, technical, and financial data required by the state and federal regulatory agencies that must approve the project before it can be built. This information is analyzed and presented in SCE's applications requesting authorization from each of the regulatory agencies to construct the project.

The lead state and federal agencies with approval authority for DPV2 are listed below. These agencies will review SCE's application and will either approve the project as filed, deny the project, or approve it with modifications.

- California Public Utilities Commission (CPUC) – Reviews project for compliance with California environmental laws, analyzes project purpose and need, and determines cost effectiveness.
- Bureau of Land Management (BLM) Reviews project for compliance with federal environmental laws.
- Arizona Corporation Commission (ACC) – Reviews project for compliance with Arizona environmental laws and analyzes project purpose and need.

In addition, the following organizations must review and/or approve the project:

- California Independent System Operator (CAISO) – Reviews and approves technical and economic aspects of the project as part of its responsibility for managing the California electric power grid.
- Western Electricity Coordinating Council (WECC) – Reviews project reliability and other technical issues as part of its electric power grid oversight function for the western United States, Canada, and Mexico.
- Western Arizona Transmission System (WATS) – Reviews project reliability and other technical issues as part of its electric power grid oversight function for western Arizona.



CURRENT PROJECT STATUS

Environmental – SCE has completed environmental studies for the preferred and alternate project routes. The preferred route is technically feasible and is expected to provide the greatest level of environmental protection in a cost-effective manner. Alternate routes may also be technically feasible but have greater environmental impacts and are potentially more costly.

Current activities include the preparation of environmental documents in compliance with environmental laws such as the California Environmental Quality Act. The environmental documents will be included in SCE's applications to the CPUC, BLM and the ACC and will be thoroughly and independently reviewed by these agencies as part of their overall review of the project as described in the "PROJECT APPROVAL PROCESS" section of this Project Update. The environmental review process will also include a review of the project by applicable resource agencies such as the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the Arizona Game and Fish Department.

Technical and Economic – SCE has submitted a DPV2 technical report to the WECC and WATS. The report demonstrates how the DPV2 project complies with the regional guidelines for operation of transmission projects and that it meets electricity reliability standards. The report also contains detailed studies demonstrating that the project is compatible with existing and planned transmission facilities. WECC and WATS reviews are expected to be completed by summer 2005.

The project's technical feasibility and economic benefits are being reviewed by the CAISO, which is expected to approve the project in September 2004.

PUBLIC OUTREACH AND COMMUNICATIONS

Public outreach and communications are critical elements of SCE's planning process for DPV2. In the fall of 2003, SCE conducted interviews with residents, local officials, area business owners, and others who potentially could be affected by the DPV2 project. These interviews were conducted in communities along the proposed project route in order to learn more about the issues and concerns that area residents and others might have regarding this project. SCE is focusing its public outreach and communication activities on the issues identified in the interviews and based upon the experience it has gained from similar past projects.

SCE has notified city, county, and state agencies, as well as the federal government of its intent to file applications with the CPUC, ACC, and BLM for authority to construct DPV2. SCE has also notified the planning staff of the Morongo Band

Continued on next page

Continued from previous page

of Mission Indians' tribal government about the portion of the project proposed to be built on the Morongo Reservation. SCE continues to have on going contact with state, federal, tribal, and local officials regarding the status of the project.

NEXT STEPS

Beginning in late summer and extending into fall 2004, SCE will host a series of open houses. These informal gatherings will provide the public an opportunity to learn more about DPV2 and to talk to SCE project team members. The open houses will be held in communities located near the proposed DPV2 transmission line route. SCE will mail open house invitations to everyone on the DPV2 mailing list, will inform local governments, and will publish announcements in local newspapers.

PROPOSED PROJECT TIMELINE

Late Summer and Fall 2004 – DPV2 open houses

Late Fall 2004 – SCE submits applications to the CPUC and BLM

2005 – SCE submits application to the ACC

2006 – CPUC, BLM and ACC conclude permitting activities

2006 – Start construction of DPV2 upon receipt of all required approvals

2009 – Complete construction of DPV2

If you have any questions or comments about the project, would like to be added to the project mailing list, or have suggestions about future communications, please contact the SCE representative listed below for the area located closest to you.

Coachella, Indian Wells, Indio, La Quinta, Palm Desert, Rancho Mirage
Kathleen DeRosa
(760) 202-4211
SCE Palm Springs Service Center
36100 Cathedral Canyon Drive
Cathedral City, CA 92234

Banning, Beaumont, Cathedral City, Desert Hot Springs, Palm Springs
Lin Juniper
(760) 202-4231
SCE Palm Springs Service Center
36100 Cathedral Canyon Drive
Cathedral City, CA 92234

City of San Bernardino, San Bernardino County
Ray Gonzalez
(909) 307-6726
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

Quartzsite, La Paz County, Maricopa County
Robert Jensen
(602) 499-9888
DPV2 Arizona Office
4350 East Camelback Road, Suite G200
Phoenix, AZ 85018

Riverside County, Blythe
Robert Lopez
(909) 928-8208
SCE San Jacinto Valley Service Center
26100 Menifee Road
Romoland, CA 92380

Grand Terrace, Calimesa, Loma Linda, Redlands, Yucaipa
Beverly Powell
(909) 307-6742
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

For further information about the DPV2 project, visit SCE's Web site at www.sce.com, click on "About SCE", and select "Strengthening SCE's Electric Network."

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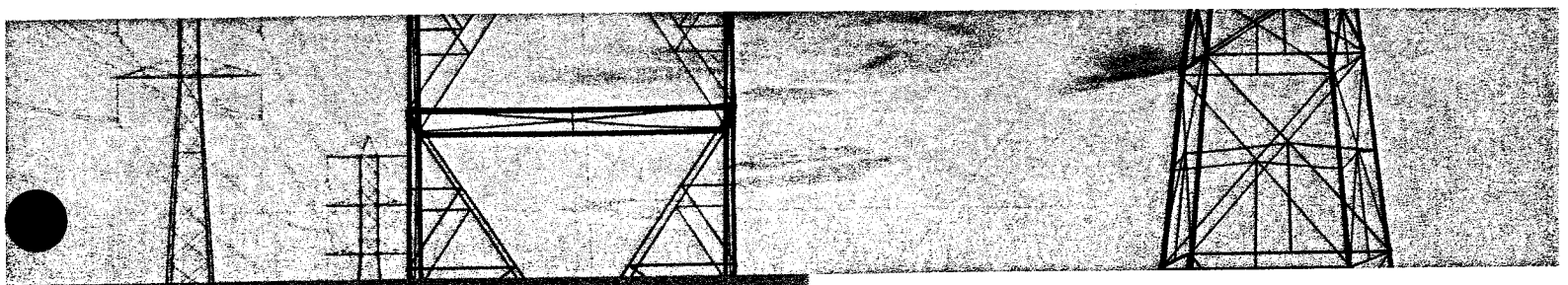

Devers – Palo Verde No. 2 FAQs

November 2004

Important community information concerning a proposed Southern California Edison construction project in your area

FREQUENTLY ASKED QUESTIONS (FAQs)

Southern California Edison Company (SCE) is proposing to construct a new 230-mile, high-voltage (500,000 volts) electric transmission line between California and Arizona, within an existing transmission corridor, parallel to SCE's existing transmission line for 225 miles. The new line would also require upgrades to some of SCE's existing electrical transmission facilities in California. The project is known as Devers-Palo Verde No. 2 (DPV2).

Public outreach and communications are critical elements of SCE's planning process for DPV2. In the fall of 2003, SCE sent out a Project Fact Sheet and conducted interviews with residents, local officials, area business owners, and others who potentially could be affected by the DPV2 project. These interviews were conducted in communities along the proposed project route in order to learn more about the issues and concerns that area residents and others might have regarding this project.

This year, SCE has met with, and also mailed a Project Update to, residents, local officials, area business owners, and others along the DPV2 route. SCE also hosted five "Open Houses" along the route where the public had an opportunity to learn more about DPV2 and to talk to SCE project team members.

During the public outreach process, SCE has developed this list of Frequently Asked Questions (FAQs) based on the questions we received from residents, local officials, area business owners, and others along the DPV2 route.

If you have any additional questions, contact your local SCE representative listed on the back page of this FAQs.

PURPOSE AND NEED

Q. Why is the project needed and what are the benefits to local California area communities?

A. Construction of DPV2 would add transmission facilities needed to import, additional lower-cost electricity into California.

DPV2 is expected to lower the cost of electricity purchased to serve California customers. This project will also increase energy producers' access to the California energy market and would provide an incentive for new generation development. The project is also expected to increase competition among energy suppliers, which should lower California's electricity costs. In addition, DPV2 would help offset price increases that could result from events such as droughts that reduce supplies of low-cost hydroelectricity and heat waves that create high peak demand for electricity.

Q. Will SCE coordinate the construction of DPV2 with other projects in the area

A. Yes, SCE attempts to coordinate its planning activities for proposed projects with all other projects the company is aware of while planning is underway. Several different types of energy projects are currently being discussed or proposed in the same geographic area as the DPV2 project. Where SCE

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is aware of specific projects, it seeks to determine what, if any, coordination is appropriate. Additionally, all utility projects are reviewed by regulatory agencies and other organizations for their compatibility with existing and proposed projects.

Q. How will DPV2 impact my electricity rates?

A. Electricity rates in California will be lower with DPV2 than they would be without DPV2, because the new transmission line will expand access to lower cost out-of-state generation. Rates have both transmission and energy cost components. The cost of the new transmission line will slightly raise the transmission rate component, but studies show that these increases will be more than offset by reductions in energy costs. As part of their review process, regulatory agencies will ensure that overall the benefits of the project are greater than the costs of the project.

ENVIRONMENTAL

Q. What environmental laws must SCE comply with, and which agencies enforce them?

A. • The California Public Utilities Commission (CPUC) will review this project for compliance with the California Environmental Quality Act.

- The Bureau of Land Management will review the project for compliance with the National Environmental Policy Act.
- The Arizona Corporations Commission, through its Arizona Siting Committee, will review potential environmental impacts in accordance with Arizona law.

The agencies listed above will ensure project compliance with applicable laws and regulations, such as:

- Clean Water Act
- California and Federal Endangered Species Acts
- National Historic Preservation Act
- Archaeological Resources Protection Act

Q. What actions will SCE take to protect wildlife habitat and corridors during construction of this transmission line?

A. SCE continues to work with state and federal resource agencies to ensure that the proposed project will not adversely affect wildlife and that no wildlife movement corridors are cut off. In order to minimize project-related impacts, SCE will locate the new facilities adjacent to existing towers, where feasible. A variety of mitigation measures will be built into the project plan. SCE will limit construction during specific times to avoid sensitive periods of wildlife activity in the vicinity of the transmission line.

Concerns may exist for the California gnatcatcher, which is a federally threatened species. Where nests are found in close proximity to the project, curtailment of construction activity may be timed to avoid the nesting season. If this is not feasible, additional mitigation measures may be adopted. Monitors will be present during all construction activity to ensure mitigation measures are observed. A worker education program will be developed and implemented to ensure that all workers are aware of sensitive species in the area and to provide them with proper procedures to follow in order to minimize impacts to all natural resources, especially sensitive plant and ani[illegible] species.

CONSTRUCTION

Q. What construction activities are planned in my area and how will they impact me?

A. The upgrades to SCE's 230 kV transmission lines west of Devers Substation will require construction activities within an existing transmission corridor over a period of three years. This transmission line corridor passes through the cities of Grand Terrace, Colton, Loma Linda, Redlands, Calimesa, Banning, and Beaumont. The corridor also passes through the tribal lands of the Morongo Band of Mission Indians and unincorporated sections of San Bernardino and Riverside counties. SCE will provide periodic Project Updates to property owners and o[illegible] interested parties.

Transmission line construction usually consists of the phases shown below. At any given location, construction may last a few days to several weeks or months:

- Survey the new transmission line route and structure locations.
- Improve the transmission line access roads, as required.
- Remove the old towers if necessary.
- Install new foundations. This step consists of digging the foundation holes, inserting steel frames and pouring concrete. Large equipment and concrete trucks will used in this step.
- Assemble transmission towers. Th[illegible] step will require the use of la[illegible]

cranes to aid in the assembly of the towers.

- Install new wires. This step will require the use of helicopters and large trucks to pull the wires.
- Site cleanup and restoration.

In the cities of Loma Linda and Redlands, due south of the San Bernardino Airport, SCE plans to replace the existing single wires with "bundles" of two wires on towers located east of Mountain View Avenue. This section extends from San Bernardino Avenue in Redlands to Beaumont Avenue in Loma Linda. No tower modifications are planned for this section.

In the cities of Grand Terrace and Colton, SCE plans to replace the existing single wires with "bundles" of two wires at the same locations on the existing towers. In selected areas, a few towers will be replaced with stronger towers, and a few others will be raised with tower extensions to achieve the proper ground clearance for the wires. Only a few new towers will be constructed or modified in this segment. At the remaining locations, construction is limited to removing the old wires and installing the new wires.

In the following locations, SCE plans to remove two sets of tower lines, construct a new tower line, and replace the existing single wires with "bundles" of two wires on the remaining 230kV transmission towers:

- City of Loma Linda south of Beaumont Avenue;
- City of Redlands along San Timoteo Canyon Rd;
- City of Calimesa near Brookside Avenue and Interstate Hwy 10;
- City of Beaumont south of Brookside Avenue;
- City of Banning south of the National Forest; and
- Tribal Lands of the Morongo Band of Mission Indians north of Interstate Hwy 10.

SCE is currently assessing the potential construction impacts and will include a discussion of these impacts and proposed measures to reduce or eliminate these impacts, as appropriate, in its applications for this project.

CORPORATE REAL ESTATE

Q. How does SCE maintain the existing transmission easement?

A. SCE maintains its access roads and electrical facilities within easement areas based on good utility practices and standards. SCE also maintains the easement area, as necessary to protect and access its electric facilities. For example, tree branches are periodically trimmed or removed to maintain transmission line operational safety. Underlying property owners are responsible for maintaining their property in accordance with applicable governmental regulations.

ELECTRIC MAGNETIC FIELDS

Q. What are electric and magnetic fields (EMF)?

A. Electric and magnetic fields (EMF) surround every wire that carries electricity; including those in electric power lines, electrical machinery, and common household and office appliances.

- Electric fields are created by voltage.
- Magnetic fields occur wherever electrical current flows.
- The strength of these fields decreases rapidly with distance from the voltage or current source.

Q. What are the potential health effects of EMF?

A. There is not a clear answer.

An aggressive international EMF research effort over the past 30 years has not established that a human health hazard exists. That research has resolved many questions about specific diseases. However, questions remain as to whether EMF exposure at home or work is linked to some diseases such as childhood leukemia, certain adult cancers, and miscarriages. As a result, some major health authorities, including the International Agency for Research on Cancer (IARC) and the California Department of Health Services, have classified magnetic field exposures as a possible human carcinogen, although they acknowledge that additional research will be necessary before a more definitive conclusion can be made. While scientific research is continuing, a quick resolution of the remaining scientific uncertainties is not expected.

Q. What is SCE doing about EMF from electric power lines?

A. SCE is aware that there is public concern about the potential health effects of EMF. SCE recognizes and takes seriously its responsibility to help address these EMF concerns. In order to better understand EMF and to respond to the current uncertainty, SCE will continue to:

- Assist the California Public Utilities Commission (CPUC) and other appropriate local, state, and federal governmental agencies in the development and implementation of reasonable, uniform regulatory guidance.
- Provide balanced, accurate information to employees, customers and public agencies, including EMF measurements and consultation to customers upon request.
- Take appropriate no-cost and low-cost steps to minimize field exposures from new facilities and continue to consult and advise customers with respect to existing facilities, subject to CPUC guidance.
- Support appropriate research programs to resolve the key scientific questions about EMF.
- Research and evaluate occupational health implications and provide employees who work near energized facilities with timely, accurate information about field exposures in their work environment.

Q. Will EMF levels increase or decrease as a result of this project?

A. In general, there will be an overall increase in magnetic field levels if the DPV2 project is constructed as SCE has proposed. Net increases or decreases in magnetic field levels in any specific location are determined by a number of factors including electrical load, distance from the power lines, and the type of existing facilities. Adding a new line to an existing power line corridor can present an opportunity to reduce magnetic fields strengths, or to minimize the magnitude of an increase, because magnetic fields can cancel each other out based on the configuration of the line conductors.

SCE prepares an EMF "field management plan" for all new projects to determine the optimum feasible configuration of the lines to reduce EMF based on the design guidelines that SCE has established to comply with CPUC requirements. This field management plan will be included in the SCE application to the CPUC for approval of the project.

SCE representatives can provide additional information as to EMF levels in different locations along the project corridor.

Q. What do I do if I want more information on EMF?

A. SCE's EMF information center can be reached at 800-200-4723 (outside of California, call 626-812-7545). SCE also has additional information regarding EMF, including its EMF policy, available on its website, www.sce.com. The site includes links to information from the CPUC, the California Department of Health Services, and other authoritative agencies and organizations that may be helpful in better understanding EMF. To access this site, enter "EMF" in the "Search" box.

If you have any additional questions or comments about the project, would like to be added to the project mailing list, or have suggestions about future communications, please contact the SCE representative listed below for the area located closest to you.

Banning, Beaumont
Lin Juniper
(760) 202-4231
SCE Palm Springs Service Center
36100 Cathedral Canyon Drive
Cathedral City, CA 92234

Grand Terrace, Calimesa, Loma Linda, Redlands, Yucaipa
Beverly Powell
(909) 307-6742
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

City of San Bernardino, San Bernardino County, Colton
Ray Gonzalez
(909) 307-6726
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

For further information about the DPV2 project, visit SCE's Web site at www.sce.com/dpv2

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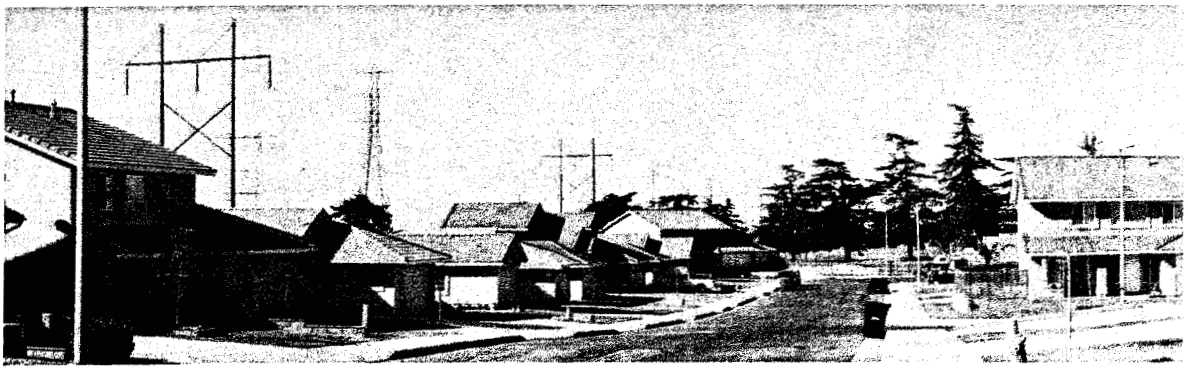
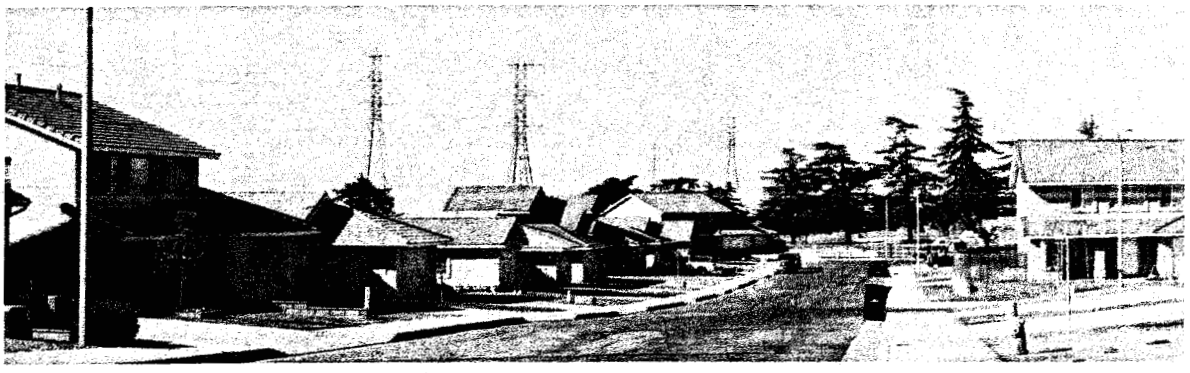
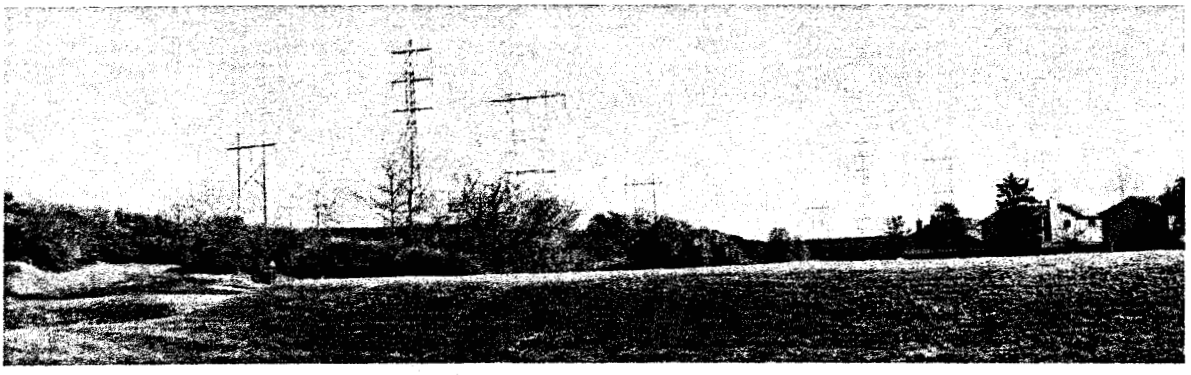
Devers – Palo Verde No. 2



Existing Condition – Transmission line corridor adjacent to residences



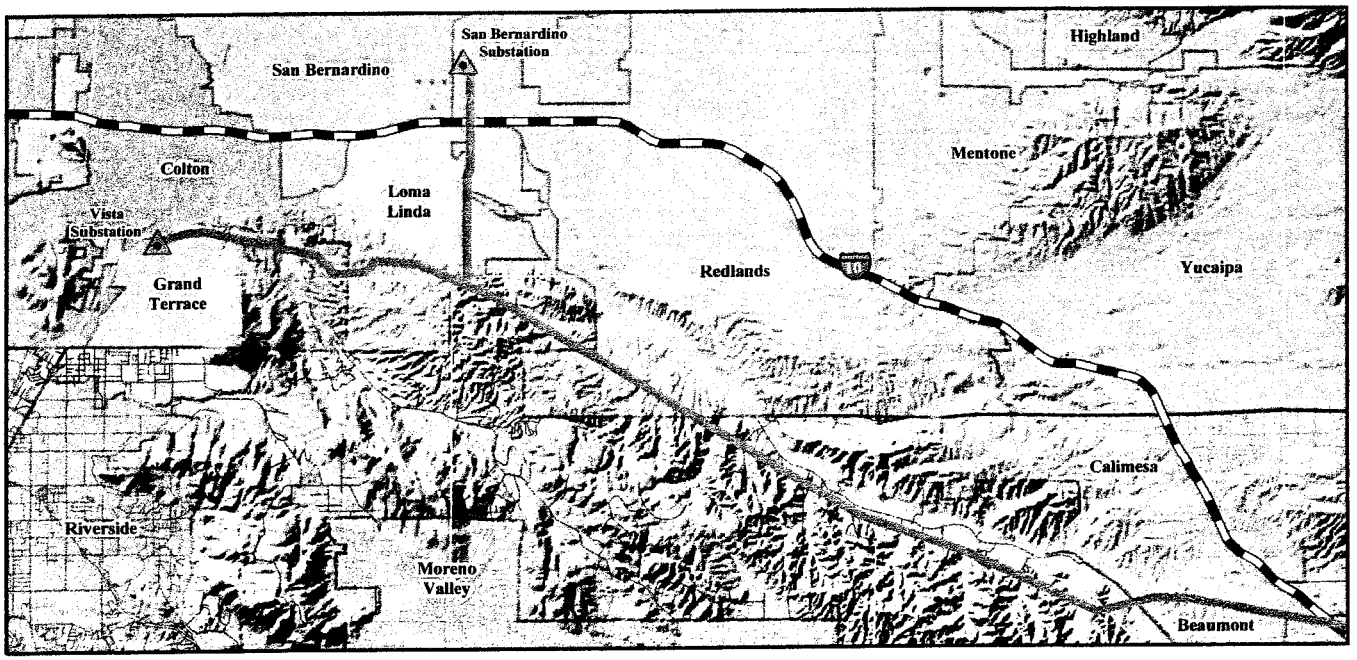
Simulation – Transmission line corridor with two 230kV single-circuit lattice towers removed and proposed 230kV double-circuit steel lattice structure transmission line

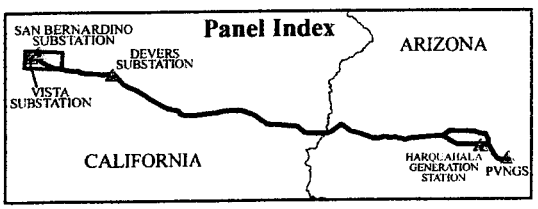


Existing Condition – Transmission line corridor within open space/park setting adjacent to residences

Simulation – Transmission line corridor with two 230kV single-circuit towers (lattice and H-frame) removed and proposed 230kV double-circuit steel lattice structure transmission line

Devers – Palo Verde No. 2



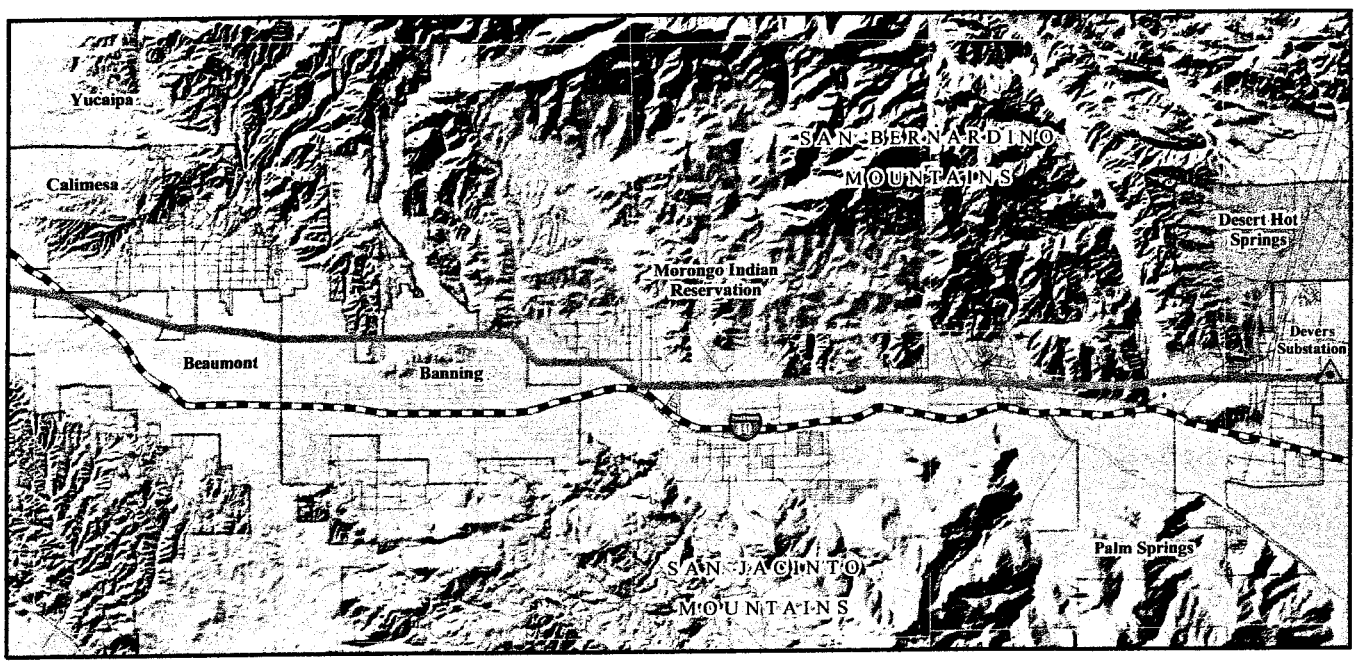


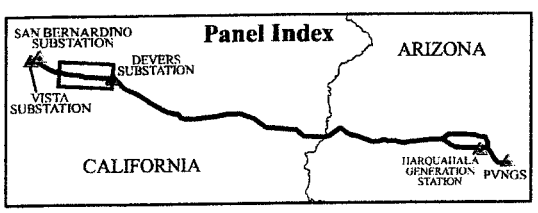
Proposed Devers to Vista 230kV Upgrade

Devers - Palo Verde No. 2 Transmission Line Project

N

0 1 2 4 Miles





Proposed Devers to Vista 230kV Upgrade

Devers - Palo Verde No. 2 Transmission Line Project

N

0 1 2 4 Miles

APPENDIX F
PROPERTY OWNER LIST

Owners within 300 feet (on each side) of the proposed project right-of-way. The lists are provided by segment and include the property owner name, address, and applicable assessor parcel numbers (APNs).

A copy of the undated Notice of Application for a Certificate of Public Convenience and Necessity (Notice) is also included. SCE will be using a dated copy of the Notice for the DPV2 Project in accordance with General Order 131-D, Section XI.

NOTICE OF APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

DEVERS - PALO VERDE NO. 2 PROJECT

Reference: CPUC Application No. 05-04-XXX

Date:

Proposed Project: Southern California Edison Company (SCE) proposes to construct a new 230-mile, high-voltage electric transmission line between California and Arizona known as the Devers - Harquahala 500 kilovolt (kV) transmission line. Operation of the proposed line would require that upgrades be made to some of SCE's existing electrical transmission facilities in California. The proposed line and transmission facility upgrades are known as the Devers - Palo Verde No. 2 project (DPV2). DPV2 would be constructed within existing SCE rights-of-way and those to be acquired. Construction of DPV2 would add transmission facilities necessary to import additional lower-cost electricity into California.

Devers - Arizona

The proposed Devers - Harquahala 500 kV transmission line would be constructed from SCE's Devers Substation (Devers) located near Palm Springs, California to the Harquahala Generating Station Switchyard (Harquahala), located near the Palo Verde Nuclear Generating Station (PVNGS) west of Phoenix, Arizona. The proposed line would be 230 miles of which 102 miles would be located in Arizona and 128 miles would be located in California. The preferred route would parallel SCE's existing Devers-Palo Verde No. 1 500 kV transmission line.

The proposed Devers - Harquahala 500 kV transmission line would be constructed on approximately 784 single- and double-circuit structures. Four types of 500 kV structures would be utilized for the proposed 500 kV transmission line:

- Approximately 709, four-legged, single-circuit lattice steel towers (typically 150 feet tall)
- Approximately 39, two-legged (or H-frame) single-circuit towers in the Palo Verde Valley (typically 144 feet tall)
- Thirteen existing double-circuit lattice steel towers in the Copper Bottom Pass of the Dome Rock Mountains in Arizona (typically 241 feet tall)
- Approximately 23 tubular steel poles parallel to the existing Harquahala - Hassayampa 500 kV pole line east of Harquahala (typically 140 feet tall)

The proposed 500 kV transmission line would be strung with two-conductor bundled 2156 kcmil conductor (approximately 1 3/4" in diameter) with nonspecular finish.

At Harquahala, a new 145-foot-high by 100-foot-wide dead-end structure, circuit breakers, and disconnect switches would be installed in the existing switchyard. Equipment necessary to provide substation control and data acquisition would be installed.

At Devers, a new 133-foot-high by 90-foot-wide dead-end structure, circuit breakers and disconnect switches would be installed in the existing switchyard. A 500 kV Static VAR Compensator would be installed north of the 500 kV switchyard on approximately two acres within the existing Devers property.

A new 500 kV shunt reactor bank and associated disconnect switches would be installed on approximately two acres of property adjacent to the proposed Devers - Harquahala 500 kV transmission line right-of-way immediately north of Harquahala.

A new 500 kV series capacitor bank would be installed within the transmission line right-of-way on a two acre site approximately 55 miles west of Harquahala in Arizona.

A new 500 kV series capacitor bank on a two acre site would be installed within the transmission line right-of-way approximately 64 miles east of Devers in California.

Installation of optical fiber on new transmission line structures, construction of a new microwave communications facility at an existing microwave site at Harquahala Mountain in Arizona, and construction of an optical repeater facility approximately 5 miles west of Blythe, California would be required for the DPV2 project. Approximately 3 miles of existing groundwire would be replaced with a single optical fiber ground wire on the double-circuit tower line through Copper Bottom Pass. In addition, microwave and synchronous optical network equipment would be installed at the following existing SCE and Arizona Public Service (APS) communication facilities: Devers, DPV2 California series capacitor station, Cunningham Communication Site (APS), Smith Peak Communication Site (APS), DPV2 Arizona series capacitor station, and Harquahala.

West-of-Devers

Upgrades to SCE's existing 230 kV transmission system between Devers and SCE's Vista and San Bernardino substations in San Bernardino County would include the following:

- Removal of an existing 40-mile, single-circuit wood H-frame 230 kV line between Devers and San Bernardino Junction. San Bernardino Junction is the intersection of 230 kV transmission line corridors located 3.4 miles south of the San Bernardino Substation.
- Removal of an existing 40-mile, single-circuit lattice steel 230 kV line between Devers and San Bernardino Junction.
- Construction of a new 40-mile, double-circuit 230 kV line between Devers and San Bernardino Junction on approximately 152 lattice steel towers (typically 150 feet tall) within the existing right-of-way.
- Reconductoring of and modification to the existing 40-mile, double-circuit lattice steel 230 kV tower line between Devers and San Bernardino Junction. A number of existing towers may be raised and/or reinforced. Additional structures may be interset between existing structures at some locations.
- Reconductoring both circuits on an existing 4.8-mile, double-circuit 230 kV lattice steel tower line between Vista Substation and San Bernardino Junction. A number of structures may be interset between existing structures. Some structures will be replaced. Some structures may be raised.
- Reconductoring one circuit on each of the two existing 3.4-mile, double-circuit 230 kV lattice steel tower lines between San Bernardino Substation and San Bernardino Junction.

The proposed west of Devers 230 kV transmission line upgrades would utilize two-conductor bundled 1033 kcmil conductors (approximately 1 1/4 " in diameter) with nonspecular finish.

Environmental Assessment: SCE has prepared a Proponent's Environmental Assessment (PEA) which includes analysis of potential environmental impacts that could be created by the construction and operation of the proposed project. The PEA concludes that all potential environmental impacts associated with the proposed project would be mitigated to less than significant levels through the implementation of mitigation measures.

EMF Compliance: The California Public Utilities Commission (CPUC) requires utilities to employ "no cost" and "low cost" measures to reduce public exposure to electric and magnetic fields (EMF). In accordance with SCE's "EMF Design Guidelines for New Electrical Facilities: Transmission Substation and Distribution", filed with the CPUC in compliance with CPUC Decision 93-11-013, SCE will implement the following measure(s) for this project:

Devers-Harquahala

- Utilize a typical horizontal 500 kV tower height of 150 feet.
- Install 500 kV transposition towers near the same locations as existing transposition towers for the Devers – Palo Verde No. 1 500 kV transmission line. The transposition towers are special towers

used to physically rearrange the phases of conductors on a transmission line, and they enable magnetic field reduction in addition to phase impedance equalization across the line route.
- Utilize the existing right-of-way.

West-of-Devers

- Replace single-circuit towers with double-circuit 230 kV towers.
- Utilize a typical double-circuit 230 kV tower height of 150 feet.
- Position equally loaded circuits on the same towers for maximum magnetic field cancellation effects.
- Change phasing sequences for existing transmission lines to further reduce the magnetic field levels.
- Utilize the existing right-of-way.

Public Review Process: SCE has applied to the CPUC for a Certificate of Public Convenience and Necessity for this project. Pursuant to the CPUC Rules of Practice and Procedure, any affected party may, within 30 days of the date on this notice, i.e. no later than *[30 calendar days after the CPCN Notice date],* protest and request that the CPUC hold hearings on the application. If the CPUC as a result of its investigation determines that public hearings should be held, notice shall be sent to each person or entity who is entitled to notice or who has requested a hearing.

All protests must be mailed to the CPUC and SCE concurrently and should include the following:

1. Your name, mailing address and day-time telephone number.
2. Reference to the CPUC Application Number and Project Name identified above.
3. A clear and concise description of the reason for the protest.

Protests for this Application must be mailed WITHIN 30 CALENDAR DAYS to:

California Public Utilities Commission
Docket Office, Room 2001
505 Van Ness Avenue
San Francisco, CA 94102

AND

Southern California Edison Co.
Law Dept. - Exception Mail
2244 Walnut Grove Avenue
Rosemead, CA 91770
Attention: Ms. R. Sweet

AND

California Public Utilities Commission
Director, Energy Division
505 Van Ness Avenue, 4th Floor
San Francisco, CA 94102

For assistance in filing a protest, please call the CPUC Public Advisor in San Francisco at (415) 703-2074, or in Los Angeles at (213) 576-7057.

To review a copy of SCE's Application, or to request further information, please contact:

Coachella, Indian Wells, Indio,
La Quinta, Palm Desert,
Rancho Mirage
Kathleen DeRosa
(760) 202-4211
SCE Palm Springs Service Center
36100 Cathedral Canyon Drive
Cathedral City, CA 92234

Banning, Beaumont, Cathedral City, Desert Hot Springs, Palm Springs
Lin Juniper
(760) 202-4231
SCE Palm Springs Service Center
36100 Cathedral Canyon Drive
Cathedral City, CA 92234

City of San Bernardino, San Bernardino County, Colton
Ray Gonzalez
(909) 307-6726
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

Quartzsite, La Paz County,
Maricopa County
Vincent Haydel
(602) 499-9888
DPV2 Arizona Office
4350 East Camelback Road, Suite G200
Phoenix, AZ 85018 Riverside County,

Blythe
David Ramirez
(760) 922-9158
Blythe Service Center
505 W. 14th

Blythe, CA 92225

Grand Terrace; Calimesa, Loma Linda,
Redlands, Yucaipa
Beverly Powell
(909) 307-6742
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

APPENDIX G
SCE REPORT TO CAISO

G-1—Update to SCE's April 7th Report to the CAISO (March 17, 2005)
G-2—Cost Effectiveness Report (April 7, 2004)

Update to SCE's April 7th Report to the CAISO entitled "Devers-Palo Verde No. 2 Cost-Effectiveness Report"

March 17, 2005

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Update Summary

SCE based its April 7th, 2004 "Devers-Palo Verde No. 2 Cost-Effectiveness Report" (Original Report) on assumptions found in SCE's 2003 Long Term Procurement Plan (LTPP). SCE has since filed its 2004 LTPP with the California Public Utilities Commission (CPUC)[1] and has updated its economic analysis of DPV2 using 2004 LTPP assumptions. This update communicates the results of this updated economic analysis which have changed since the Original Report due to the new assumptions[2].

Most of the April 7th, 2004 "Devers-Palo Verde No. 2 Cost-Effectiveness Report" (Original Report) contains current information; SCE's methodology and description of analyzing the economics of new transmission projects for example. Those results that have changed however are shown below as updates to sections in the Original Report. For example, if results have changed in section II D of the Original Report, the change will be found in section II D of this update. If this update does not show a section found in the Original Report, then the information contained in that section is still current.

III Methodology

D 2. a) Benefits Due to Cost Savings (Change in Total Production Costs):

Benefits due to cost savings have been revised as follows: SCE updated load, natural gas prices, and available hydro generation assumptions, extended the number of production simulations from 2009 to 2014 from 2009 to 2012, and updated present value calculations

[1] Rulemaking (R.) 04-04-003. SCE's LTPP can be found at http://www3.sce.com/law/cpucproceedings.nsf/vwUFiling?SearchView&Query=long+term+procurement+plan&Start=1&Count=30. Specifically, the analysis performed to evaluate DPV2's economics ties directly to SCE's Medium Load Scenario.

[2] Typical updates to a LTPP include revised forecasts for loads, natural gas prices, and available hydro generation.

from a 2004 NPV to a 2005 NPV. The Figures below updates Figure 3 and Figure 4 found in the Original Report.

Figure 3 – Change in Total Production Costs for CAISO Ratepayers

CAISO Ratepayers (Real $2004 in millions)

	2009	2010	2011	2012	2013	2014
Consumer Surplus	$81	$158	$166	$161	$208	$193
URG Producer Surplus	($28)	($58)	($61)	($61)	($79)	($71)
Transmission Congestion Revenue	($8)	($13)	($13)	($11)	($11)	($11)
Net Benefits	$45	$87	$92	$89	$118	$111

Figure 4 – Net Present Value of Change in Total Production Costs for CAISO Ratepayers:

CAISO Ratepayers (2005 NPV, $ millions)

	2005 NPV* for Life of Project
Consumer Surplus	$1,850
URG Producer Surplus	($685)
Transmission Congestion Revenue	($96)
Net Benefits	$1,069

(* Discount rate of 10.5%)

D 2. b) Benefits Due to New Transmission Capacity:

SCE's Original Report listed one year of transmission capacity benefits. As shown in the Capacity Benefit formula in the Original Report, these benefits were dependent upon load forecasts in the southwest. Load in Arizona and southwest Nevada is now expected to be higher than originally forecasted. The increased loads have resulted in reducing transmission capacity benefits to zero.

D 2. c) Benefits Due to Increased Transmission Revenues:

Wheeling service and Existing Transmission Contracts' (ETCs) estimated benefits are revised to be approximately $0.6 million annually of increased revenue to SCE from certain ETCs and approximately $2.4 million annually of increased CAISO wheeling revenues to SCE or about $30 million (2005 NPV) over the life of the project.

D 2. d) Negative Benefits Due to Increased Transmission Losses:

The CAISO and SCE separately calculated benefits due to transmission losses but with opposite results; the CAISO found losses decrease, SCE estimated losses increase with the addition of DPV2. The CAISO utilized a production model that included individual transmission line data, whereas SCE's production model aggregates transmission data. This distinction in transmission modeling may be the cause of SCE's and the CAISO's dissimilar results. SCE believes its estimate of transmission losses using a production simulation is inconclusive. Since results are inconclusive, SCE removed the transmission loss component from its economic analysis.

D 2. e) Conclusion of DPV2's Cost-Effectiveness:

Figure 5 illustrates the updated economic benefits of DPV2 is about $1.1 billion, comprised of energy savings, and third-party transmission revenues. The 2005 present value costs for DPV2 is estimated at $650 million. With a benefit-to-cost ratio of about 1:7:1, DPV2 is a highly cost-effective project for customers in the CAISO area.[3]

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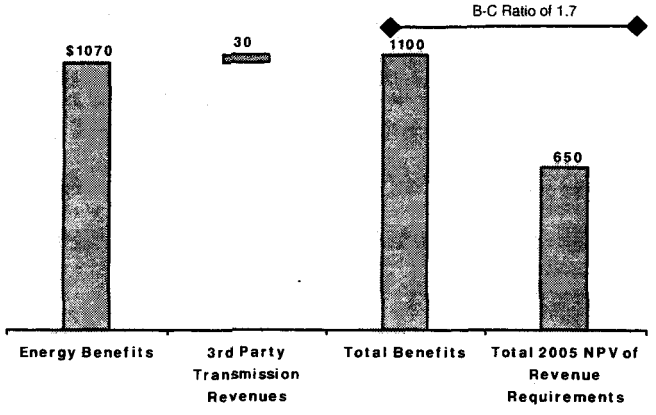
[3] Those benefits are those accruing to ratepayers whose utilities are CAISO Participating Transmission Owners that placed their transmission facilities under the operational control of the CAISO.

Figure 5 – Cost-Effectiveness Summary of DPV2

DPV2 Projected Lifecycle Benefits
(2005 NPV, $ Millions, 10.5 % discount rate per annum)



VIII Appendix E – CAISO Requested Information

A. WECC Total Production Costs

Figure 12 is revised from the Original Report to the new figure shown below.

Figure 12 – WECC Wide Production Costs (Real, 2004 $M)

WECC Production Costs (Real $2004 in millions)

	2009	2010	2011	2012	2013	2014
Without DPVII	11,332	19,086	19,945	20,548	21,198	21,644
With DPVII	11,322	19,065	19,924	20,527	21,172	21,619
Net Benefits	11	21	21	21	26	25

B. Impact to Arizona

Figure 13 is revised from the Original Report to the new figure shown below.

Figure 13 – Arizona Producer and Ratepayer Benefits (Real, 2004 $M)

Arizona Benefits (Real $2004 in millions)

	2009	2010	2011	2012	2013	2014
Consumer Surplus	($25)	($37)	($39)	($40)	($45)	($45)
URG Producer Surplus	$18	$27	$29	$29	$31	$30
Transmission Congestion Revenue	($1)	($2)	($2)	($2)	($2)	($2)
Net Benefits	($7)	($11)	($11)	($12)	($16)	($17)

Devers-Palo Verde No. 2

Cost-Effectiveness Report

An *EDISON INTERNATIONAL®* Company

April 7, 2004

Devers-Palo Verde No. 2 Cost-Effectiveness Report

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Cost Effectiveness Summary

Southern California SCE (SCE) analyzed the cost-effectiveness of constructing a new 500 kV transmission line between California and Arizona (Devers-Palo Verde No. 2 or DPV2). SCE's cost-effectiveness analysis compares California ratepayers' benefits due to increasing California import capability from the Palo Verde area to the costs of the project. The main benefits are that greater access to surplus economic out-of-state generation reduces energy costs to customers throughout California. SCE calculated the benefits accruing to ratepayers in the California Independent System Operator's (CAISO) control area[1].

SCE's evaluation of DPV2 concludes that, DPV2 is cost-effective with a benefit-to-cost ratio of almost 3:1. This analysis utilized a reasonable set of assumptions, and accounted for the uncertainty of major economic drivers. This analysis included the uncertainty of natural gas prices, load forecasts, and available hydro generation. SCE modeled major transmission operational constraints into California using realistic operational limits. In addition, the analysis attempted to quantify all reasonable and realistic costs and benefits to CAISO ratepayers. For example, costs of west of Devers substation, voltage support devices, and increased losses due to DPV2 were all captured. To be thorough, SCE also estimated the benefits of increased transmission revenues and a transmission capacity value.

SCE's sensitivity analyses showed that the project's expected cost-effectiveness could range from a benefit-cost-ratio of 1.5:1 to about 3:1; depending upon assumptions of future benefits and whether transmission lines are rated at operational or thermal limits. SCE derived the 3:1 benefit-cost-ratio from 2004 net present value of benefits of about $1,700 million, and a cost estimate of $590 million. These results assume benefits beyond 2013 are held at zero real inflation. If future annual benefits were held to 2012 levels for the life of the project, the overall 2004 net present value of benefits decline to $1,300 million, and the benefit-to-cost ratio decrease to about 2:1. These are the results if transmission ratings are held at their operational limits. SCE believes that operational limits are more realistic than using thermal limits. If transmission ratings were raised to their thermal limits, DPV2's benefits would be around $870[2] million and the benefit-to-cost ratio about 1.5:1.

The majority of benefits arise from the increased ability to import lower cost energy located in the Palo Verde area of Arizona into California. SCE's analysis indicates an excess of about 6,500 MW of cost-effective surplus generation is available in the Palo Verde and Nevada area starting in 2008. The Southwest Transmission Expansion Planning (STEP)[3] working group independently concluded a similar

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[1] Those benefits accruing to ratepayers whose transmission facilities are under the operational control of the CAISO.

[2] Assuming future benefits are held to zero real inflation from 2012.

[3] The Southwest Transmission Expansion Plan (STEP) is a sub-regional planning group that was formed to address transmission concerns in the Arizona, southern Nevada, southern California, and northern Mexico area. Due to a large amount of new generation developed in this area, it was apparent to many that the transmission grid would be inadequate

magnitude of generation should be available to import into California. SCE evaluated the benefits of this excess generation from 2009 to 2012. The evaluation started in 2009 because that is the year DPV2 is proposed to be operational.

SCE assumed that the benefits of accessing Palo Verde generation in the southwest area will continue beyond 2012. This assumption is based on a belief that new generation in Arizona will continue to have economic advantages over new projects in California. These advantages include access to lower cost natural gas, less restrictive permitting, lower taxes, and lower labor rates. As long as these advantages exist, it is reasonable to expect that a continuing benefit will accrue from new generation sources in the Palo Verde area. Therefore, it is reasonable to assume that Californians will continue to benefit from new generation beyond those plants that are in construction and permitted.

After considering all costs and benefits and uncertainty of major economic drivers, SCE believes that DPV2 is a cost effective project for CAISO ratepayers with a benefit-to-cost ratio of around 3:1. SCE respectfully requests that the CAISO find DPV2 to be a necessary and cost-effective addition to the CAISO Controlled Grid and fully support SCE in its future applications involving DPV2. It is SCE's intention to pursue additional permitting activities at the California Public Utilities Commission once we receive unambiguous approval from the CAISO.

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to efficiently deliver that power to the major load areas. The goal of STEP is "To provide a forum where all interested parties are encouraged to participate in the planning, coordination, and implementation of a robust transmission system between the Arizona, Nevada, Mexico, and southern California areas that is capable of supporting a competitive efficient and seamless west-side wholesale electricity market while meeting established reliability standards". (See, Jan. 17th pdf file at: http://www1.caCAISO.com/docs/2002/11/04/2002110417450022131.html)

I. Introduction

As provided in Section 3 of the CAISO Tariff, SCE submits this report for the CAISO's use in evaluating the cost-effectiveness of constructing the Devers-Palo Verde No. 2 – 500 kV transmission line. DPV2 is an economic project under Section 3.2.1.1 of the CAISO Tariff. SCE believes this report provides sufficient information for the CAISO to find DPV2 necessary and cost-effective. SCE respectfully requests that the CAISO find DPV2 to be a necessary and cost-effective addition to the CAISO Controlled Grid and support SCE in its application for a Certificate of Public Necessity and Convenience (CPCN) expected to be filed with the California Public Utilities Commission (CPUC or Commission) in 2004. It is SCE's intention to pursue additional permitting activities at the California Public Utilities Commission once we receive unambiguous approval from the CAISO.

II. CAISO's Key Principles of an Economic Methodology

During a March 16, 2004 Transmission Economic Analysis Methodology (TEAM) workshop, the CAISO presented five key principles[4] of a proposed generic methodology to evaluate economic transmission projects. The CAISO is required by the California Public Utilities Commission (CPUC) to recommend a methodology to evaluate economic transmission projects[5]. SCE submits the following information in subsections A, B, C, D, and E to explain how SCE's analysis comports with each of the proposed key principles.

A. Benefits Framework

The CAISO described its Benefits Framework principle as a "*standard framework to measure benefits regionally and separately from consumers, producers, and transmission owners from different regions*".

Section III(D) of this report explains that SCE's benefits framework consists of the same three primary metrics identified in the CAISO's Benefits framework; namely consumer surplus, producer surplus, and transmission congestion revenues. Along with these primary benefits, SCE

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[4] Presentation entitled "Transmission Economic Assessment Methodology, Introduction, Purpose, and Progress". Second Stakeholder Workshop – March 16, 2004. This report is available on the CAISO website at the following address: http://www1.caCAISO.com/docs/2003/03/18/2003031815303519270.html

[5] As part of the AB 970 Phase 5 proceeding (I.00-11-001).

also includes what it categorizes as secondary benefits consisting of transmission capacity, transmission revenues, and losses. Using this framework DPV2 was shown to have a benefit-to-cost ratio around 3:1 for CAISO ratepayers using the same methodology the CAISO proposes. In Section VIII of this report, SCE also describes DPV2's impacts over the WECC and Arizona regions.

B. Market Prices

The CAISO described its Market Prices principle as one that will "*utilize market prices to evaluate transmission expansion*". SCE utilized market prices to evaluate DPV2 as explained in Sections III(D)(2) and IV(A) of this report.

In summary, market prices were developed using a production simulation tool specifically designed to forecast market prices, then applied to CAISO formulas to calculate consumer surplus, producer surplus, and transmission congestion revenues for CAISO ratepayers. The derivation of consumer surplus utilized the market prices forecasted in the CAISO area with and without installing DPV2. This market price differential was multiplied by CAISO load to determine consumer surplus. SCE's producer surplus calculations also utilized market prices to forecast the revenues of utility retained generation. Market prices were also utilized to estimate transmission congestion revenues as the flow across transmission paths multiplied by the market price differential between where energy was generated to where energy was consumed by load. Finally, market prices were utilized to estimate the energy costs of losses incurred in delivering energy to consumers.

C. Uncertainty

The CAISO describes its Uncertainty principle as one to "*consider through a wide range of future system conditions; dry-hydro, gas prices, demand growth, under and over entry of generation*".

SCE's analysis captured a significant range of uncertainty by performing random Monte Carlo (i.e., stochastic) simulations for various factors which include hydro variation, gas prices, and demand growth uncertainty, described in detail in Section IV. This stochastic analysis provides a wide range of future system conditions through use of volatility and correlation parameters which were patterned using historical data. For example in Section IV, Figure 9 shows that gas price volatilities range from about $2 to $6 ($/mmBtu).

SCE's estimate of under and over entry of generation is essentially captured by Monte Carlo simulation of demand growth and forced outages. Section IV, Figure 8 illustrates load growth ranges from about 18 to 20 (GWh). Under a low load growth scenario generation would be in excess of need and in a high load growth scenario generation supply would be short.

D. Network Representation

The CAISO describes its Network Representation principle as one that will "*demonstrate flow is physically feasible*".

In Section IV(C), SCE describes transmission flows are constrained at their operational limits. SCE represented the network in two different ways. In its economic analysis, SCE used operational limits to constrain flows between geographic areas. Specifically, SCE's network representation in its economic analysis incorporated Southern California Import Transmission limits in order to capture real operational constraints to assure that flow is physically feasible. SCE also performed significant power flow analysis to demonstrate the physical feasibility of the project. Appendix A of DVP2's Technical report provides single line diagrams with the magnitude of power flows when DPV2 is modeled in and out of operation.

E. Alternatives (Generation/Demand Side Substitution)

The CAISO describes its Generation/Demand Side Substitution principle as to "*evaluate alternatives to transmission expansion*".

Section III(A) describes in detail five alternatives SCE evaluated to arrive at the conclusion that DPV2 is the best project to meet the project scope of accessing expected levels of generation supplies in the Arizona/Nevada areas. Section III(A)(2) describes how alternatives such as generation and demand side substitutions are best evaluated with respect to this project.

III. Methodology

SCE analyzed the economics of DPV2 by first determining its overall objective. SCE's objective is to access surplus energy located in the southwest (Arizona) or the south (Mexico) and to provide the transmission infrastructure necessary to enable a more liquid and competitive electricity market. Since a number of projects can meet this import objective, a methodology was developed to determine the most favorable project. SCE's method has the following four major elements:

- Project Screening
- Project Ordering
- Establishing a Baseline
- Project Evaluation

This approach started with a list of competing projects, which were then screened to determine the most viable. Viable projects were then chronologically ordered in terms of their expected operating dates for use in production simulations. Using the results of the production simulations,

the economics of competing projects were compared using a net-present value basis to formulate which project best met the import objective. After conducting this analysis, SCE concluded constructing DPV2 is cost-effective for California ratepayers. Details of this approach follow.

A. Project Screening

SCE evaluated several potential projects which could increase transmission import capability into California either from the southwest or the south. Using this project scope, SCE developed a list of new projects and upgrades to existing facilities which would meet the import objective. This list was developed using personal knowledge and projects identified via the STEP process as references. The following projects were identified as potentially meeting the import objective.

Alternative	Import Objective
1. Second Devers-Palo Verde 500 kV transmission line (DPV2)	Increase imports from the Palo Verde area by increasing the Path 49[6] transfer capability
2. Second Southwest Power Link 500 kV transmission line (SWPL)	Increase imports from the Palo Verde area by increasing the Path 49 transfer capability
3. Upgrade SWPL No. 1, Devers-Palo Verde No. 1, Navajo-Crystal, and Moenkopi-Eldorado series capacitors (Path 49 Series Capacitor Upgrades, or Series Cap)[7]	Increase imports from the Palo Verde area by increasing the Path 49 transfer capability
4. New Imperial Valley-Devers 500 kV transmission line (IV-Devers)	Increase imports from Mexico area by increasing the Path 45[8] transfer capability
5. Combination of constructing a new Imperial Valley-Devers 500 kV transmission line and upgrading SWPL No. 1, Devers-Palo Verde No. 1, Navajo-Crystal, and Moenkopi-Eldorado series capacitors (IV-Devers & Series)	Increase imports from the Palo Verde and Mexico areas by increasing both the Path 49 and Path 45 transfer capabilities

[6] Path 49 transfer capacity as defined in the 2003 WECC Path Rating Catalogue.

[7] This project was screened with an initial additional rating or transfer capability of 760 MW. Since this screening, the transfer capability has been revised to 505 MW. Since SCE estimates this project is still cost effective, conclusions stated in this report about this project remain valid. SCE is evaluating this project separately from this report using a 505 MW rating. Outside of this screening analysis, DPV2 is evaluated using the 505 MW rating.

[8] Path 45 transfer capacity as defined in the 2003 WECC Path Rating Catalogue.

Each of these projects was screened using a rough estimate of project costs and benefits. SCE conducted this screening in 2003, so a 2003 NPV of costs (Costs) of each project were developed. Costs were estimated for major cost components. No special cost studies[9] were conducted since this step of our methodology is a project screening analysis. Benefits of each project were developed by estimating each project's change to Total Production Costs using deterministic production simulations (See Appendix A for an explanation of the production simulation used in analyzing DPV2) and then calculating the 2003 NPV of such benefits (Benefits). Projects having positive net benefits were further analyzed in a later stage of analysis.

Deterministic analysis is appropriate for screening, but is not sufficient by itself for final cost-effectiveness evaluations. Deterministic analyses have only a single set of input forecasts and by themselves do not fully take into account many uncertainties related to electricity markets. By contrast, SCE used stochastic (Monte Carlo) analysis for its cost-effectiveness evaluation of DPV2 in the final project evaluation step so as to incorporate the uncertainty of key critical assumptions (i.e. load, natural gas prices, hydro production, and random generation unit forced outages).

Deterministic production cost benefits were calculated from June 1, 2008[10] up to December 31, 2012 for each alternative[11]. The economics of each project was then compared using their benefit-to-cost ratios and net benefits over 46 year expected project lives. The results of this economic screening are shown on the following Figures 1 and 2.

---

[9] Major cost components were identified. Special cost studies such as walking proposed sites to identify other cost components will be conducted for those projects passing the screening test.

[10] 2008 was chosen since it was thought DPV2 would have an operating date of 2008 at the time of this screening.

[11] For these deterministic screenings, maximum transmission line ratings were utilized. Stochastic analysis used operational transmission line ratings as a further analytical refinement.

Figure 1 – Benefit-Cost Comparison of Alternative Projects

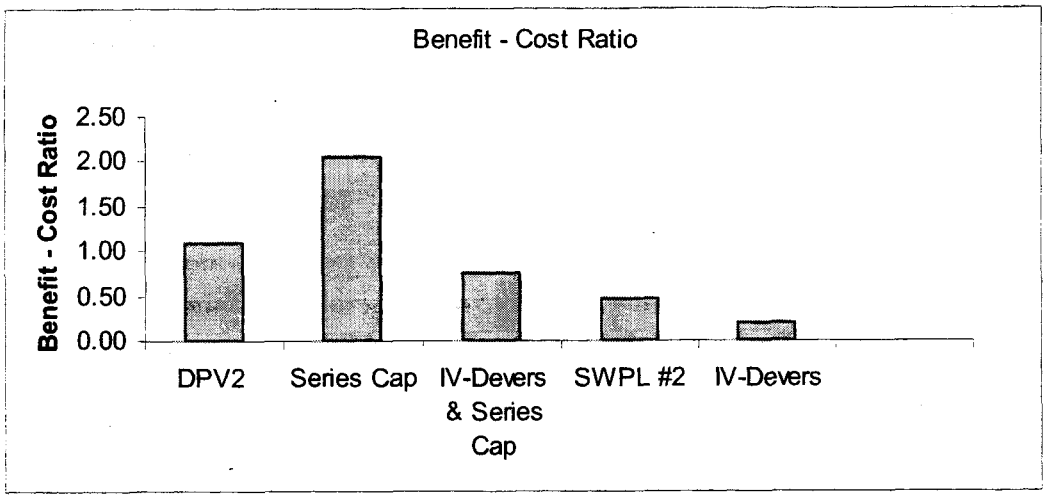
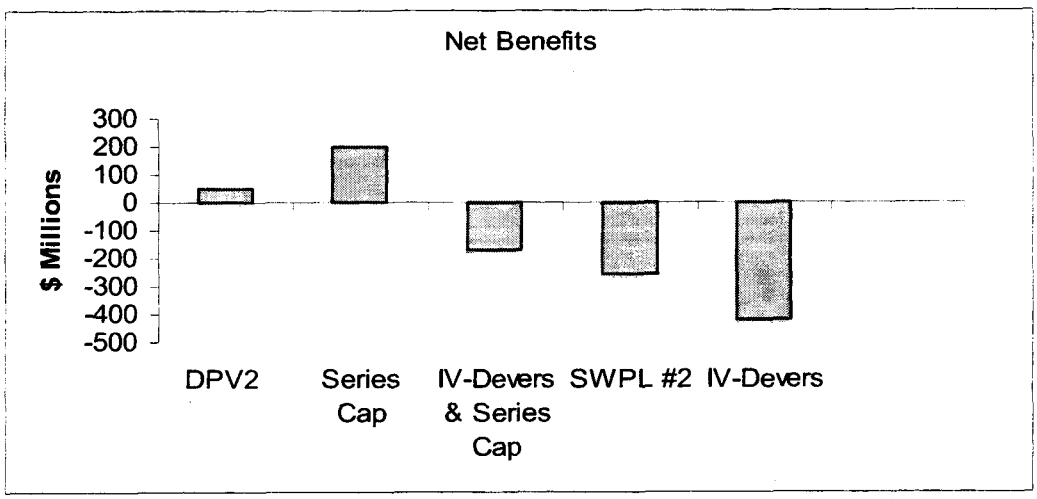


Figure 2 – Net Benefits Comparison of Alternative Projects



1. Results of Economic Screening

As shown in the Figures above, Devers-Palo Verde No. 2 and the Path 49 Series capacitor upgrade projects show sufficient benefits to evaluate further; both projects having positive net benefits. The rationales for further studying these projects, and excluding the remaining projects, are described in more detail below.

a) Devers-Palo Verde No. 2 – 500 kV Transmission Line Alternative

DPV2 will increase import capability over Path 49 by 1200 MW. This import capability yielded a deterministic benefit-to-cost ratio of slightly over 1:1, indicating a need for a more comprehensive cost and benefit analysis.

DPV2's Costs include not only costs of the line, but in addition include costs of upgrade facilities West of SCE's Devers substation totaling over $100 million, and about $75 million dollars in voltage support facilities. For screening purposes, DPV2's costs were estimated to be about $490[12] million. Benefits were estimated to be over $540 million, producing a benefit cost ratio over 1:1.

b) Imperial Valley-Devers 500 kV Transmission Line Alternative

Costs of a new 1,400 MW Imperial Valley-Devers 500 kV line were compared to the Benefits of increasing imports from the south and southwest. The Costs of constructing Imperial Valley-Devers are estimated to be about $530 million using a typical planning estimate by accounting for major transmission line, substation, land components, and west of Devers upgrades and voltage support facilities as estimated for DPV2.

The estimated $110 million of Benefits due to accessing surplus power in Mexico are low compared to their estimated Costs. Excess generation located in Mexico had an impact of lowering energy production costs in California, but not as significant as resources in the Palo Verde area. As a result, the project's 2003 NPV benefit-to-cost ratio is 0.2, which is far less cost-effective than DPV2. Consequently, this alternative was excluded from further consideration.

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[12] Since this screening, DPV2's cost estimate has increased to $590 million due to changes in project scope. Benefits have also increased to over $1,700 million due to accounting for uncertainty of load, natural gas prices, hydro generation, and operational transmission constraints.

c) Southwest Power Link No. 2 Transmission Line Alternative

A second Southwest Power Link (SWPL 2)[13] 500 kV line was evaluated as an alternative because it would increase imports from the Palo Verde area similar to DPV2. Our screening indicates SWPL 2 has an uneconomic benefit-to-cost ratio of about 0.5. Costs of constructing SWPL 2 were not estimated in detail. Instead, costs of constructing DPV2 were used as a proxy ($490 million). Such a proxy is reasonable since the line lengths and other major cost components are comparable. In fact, constructing SWPL No. 2 would likely cost more than DPV2 since SWPL No. 2 would require significant purchases of land while DPV2 does not, and is about 20% longer. Any increase in costs would further lower the project's benefits-to-cost ratio. Benefits were estimated to be about half of those from DPV2 ($230 million). This is due to congestion in transmission facilities north of the San Diego area.

Using these assumptions, SWPL 2 has a 2003 NPV of benefits-to-cost ratio of about 0.5, and therefore this project is not considered a viable import alternative.

d) Path 49 Series Capacitor Upgrades Alternative

Upgrading the SWPL No. 1, Devers-Palo Verde No. 1, Navajo-Crystal, and Moenkopi-Eldorado series capacitors and their associated facilities is roughly estimated to Cost about $190 million. The Costs of constructing these upgrades were estimated using a typical planning estimate by calculating major transmission line, and substation components.

The deterministic production cost Benefits is estimated to be $390 million, yielding a benefit-to-cost ratio over 2:1. Since the project has a large benefit-to-cost ratio, and seems to have broad support in the STEP arena, SCE added this project to its base case (Section II(B) below provides additional discussion).

e) Combination of Path 49 Series Capacitor Upgrades and Imperial Valley-Devers 500 kV Transmission Line Alternative

As shown in section (b) above, the Imperial Valley-Devers 500 kV Transmission Line was not cost-effective as a stand-alone project. SCE questioned whether this new line in combination with the Path 49 series capacitor upgrades would deliver Benefits in excess of their individual project benefits. The incremental Benefit of the combined project is about $50 million greater than the sum of the individual projects Benefits ($500 million). The Costs of the combined projects are estimated to be about $720 million. The

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[13] SWPL 1 is defined as the 500 kV line connecting the Palo Verde-North Gila-Imperial Valley-Miguel substations. SWPL 2 is one alternative to increase imports into California. SWPL 2 would be constructed as a parallel line to SWPL 1.

combined costs far exceed the combined benefits yielding a benefit-to-cost ratio of 0.7 ($550/$720). This alternative was not evaluated further.

2. **Investing in New Generation, New Renewable Resources, or New Demand Side Management Programs**

a) Generation Alternatives

As described the Preferred Resource Plan SCE filed with the Commission on April 15th, 2003, SCE is not in a position to make significant long-term commitments in generation, whether these commitments are utility generation or through purchase power contract. Two necessary preconditions must take place before SCE can make such commitments:

- Stabilizing SCE's customer base and clarifying SCE's long-term load responsibilities by establishing fair rules for future Direct Access, exit fees for municipalization and other departing load, and equal resource adequacy requirements for all Load Serving Entities;
- Continuing the efforts that the Commission and SCE have undertaken together since September 2001 to restore the regulated utility's creditworthiness and financial viability, including: (1) establishing a durable, secure and commercially realistic cost recovery framework to enable new regulated utility investments in generation; (2) recognizing all the costs associated with power contracting including significant collateral requirements and off-balance-sheet debt equivalence of long-term contracts – whether California Department of Water Resources (DWR), Qualifying Facilities (QF) or bilateral; and (3) clarifying that the DWR contracts will never be assigned to SCE.

DPV2 will help to mitigate the risks associated with SCE's uncertain regulatory environment by providing access to additional surplus generation. Access to a larger pool of potential resources may allow SCE to sign shorter term contracts with existing suppliers. Shorter term contracts can be reasonably relied upon to meet customers' needs in the face of significant uncertainty and are a lower risk approach until policy issues regarding customer base are resolved. The use of shorter term contracts will also reduce the negative credit rating impacts associated with power contract debt equivalence[14].

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[14] The two major credit rating agencies, Standard and Poor's Rating Agency and Moody's Investor Service both treat long-term power contracts as liabilities and impute a portion of the value of these contracts as debt on utility balance sheets. Shorter-term contracts, especially those with terms of three years or less, are deemed to have little or no debt equivalence.

b) Renewables Alternatives

SCE's evaluation of DPV 2 includes full compliance with California's Renewable Portfolio Standard (RPS), which requires each load serving entity to increase its commitments to renewable power 1 percent per year such that 20 percent of retail sales are met with renewable power by 2017. SCE is the leader in renewable power procurement in California and currently has a plan to meet RPS requirements ahead of schedule. SCE views the DPV2 project as one that works with the RPS requirements as it allows for greater renewables to be developed elsewhere for import into California. Therefore, rather than viewing renewables as an alternative, SCE suggests that the DPV2 project be viewed as a facilitator of additional renewable power for CAISO customers.

c) Demand Side Alternatives

SCE's current resource plan includes a significant increase in cost-effective energy efficiency and demand response investment over and above the levels funded in rates and through Public Goods Charge (PGC) funds. Current PGC funding levels are about $90 million per year and SCE received authority to invest an additional $60 million per year for energy efficiency. This is a substantial investment in energy efficiency and it is unclear how much potential cost-effective energy efficiency will be available in the 2009 timeframe. Nevertheless, SCE will continue to pursue cost-effective energy efficiency in 2009 and beyond, regardless of whether the DPV2 project is constructed in operation. It would be unwise to forego a cost-effective transmission project such as DPV2 in the hopes of pursuing unknown demand-side alternatives far in the future. Therefore, SCE finds DPV2 to be a cost-effective project even when demand-side resources are considered.

3. Summary of Transmission Alternatives

SCE evaluated a reasonable set of transmission alternatives for meeting the objective of increasing import capability into California. DPV2 increases import capability by 1200 MW with favorable economics. The screening results indicate no other alternatives examined were viable substitutes for DPV2. The Path 49 Series Capacitor Upgrades were the only other cost-effective transmission project, but this project can be pursued in addition to DPV2. SCE believes the Series Capacitor Upgrades are sufficiently cost-effective to include them in its evaluation of DPV2. No additional analysis was performed on the other alternatives.

B. Project Ordering

SCE based its economic analysis on its 2003 Preferred Resource Plan, which incorporated substantial commitments to energy efficiency, demand response, and renewable power among other attributes. Transmission projects are added to this base scenario using their operating dates. A DPV2 operating date of June 1, 2009 is expected to leave sufficient time to complete licensing, construction, and regulatory approvals.

In addition, it appears the Path 49 Series Capacitor Upgrades project will likely be operational prior to DPV2 for four reasons. First, the analysis being conducted by STEP coincides with SCE's analysis that the project is cost-effective[15]. Second, it is likely the Path 49 Series Capacitor Upgrades will be completed prior to DPV2 since there are potential project sponsors. Third, the Path 49 Series Capacitor Upgrades can be completed earlier than constructing a new line since they involve less construction and are not expected to require a CPCN[16]. Finally, DPV2 is even more cost-effective without the Path 49 upgrades; so if it can be shown that DPV2 is cost-effective with the Path 49 Series Capacitor Upgrades in place, then DPV2's benefits-to-costs ratio would be improved further still if the proposed upgrades are not completed prior to DPV2.

For these reasons, SCE decided it was reasonable to include the Path 49 Series Capacitor Upgrades in the base case prior to evaluating DPV2. SCE assumed an operating date of June 1, 2006 to reflect a likely completion schedule.

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[15] The STEP process has shown increasing the ratings of several series capacitors located on Path 49 lines has sufficient benefits and viability to include in its baseline (See, http://www1.caCAISO.com/docs/2002/11/04/2002110417450022131.html internet address). SCE's analysis confirms the STEP analysis. Upgrading the series capacitors and other related facilities on the SWPL No. 1, Devers-Palo Verde No. 1, Navajo-Crystal, and Moenkopi-Eldorado lines has sufficient benefits and likely sponsors to occur prior to DPV2's operating date. SCE added these projects to its baseline and incrementally evaluated DPV2's benefits above these added facilities.

[16] Upgrades to substation facilities do not normally require a CPCN (See, CPUC General Order No. 131-D).

C. Setting a Baseline

When evaluating new projects, it is important to have a comprehensive understanding of what generation and transmission will or won't be constructed in the future. SCE's base case was developed by adding cost-effective projects from the screening analysis above, and transmission and generation new entry and retirements known in the industry[17]. SCE utilized publicly available information relating to the likelihood of future transmission and generation projects and the following criteria.

Criteria used to add transmission

- New lines are added that affect the market model topology
- Construction should be fairly certain
- Ratings and WECC system impacts should be fairly certain
- Utility specific projects – such as DPV2

Criteria used to add generation

- Project is being constructed and has a reasonable likelihood of being completed (either substantially constructed, and have financing completed, or be an investor owned or municipality utility project.). SCE also added generation if public data reasonably supported such an addition.

Criteria used in generation retirements

- Specific published retirement dates,
- Reach a life of 55 years or,
- Retirements due to air quality restrictions
- Consistency with California Commission planning assumptions

A list of projected new entries and retirements may be found in the appendices of this report. Appendix B shows new transmission projects, Appendix C shows new generation projects and Appendix D shows generation retirements. This set of new entry and retirements together with the projects identified in our screening analysis defines SCE's base case.

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[17] Information gathered from publications or reports from the CAISO, CEC, and WECC, among others.

D. Project Evaluation

Project screening indicated DPV2 to be a cost-effective project, but a more thorough analysis was performed to better understand the project's total costs and benefits. DPV2's project scope was analyzed in detail to identify all costs, including special cost studies to further narrow cost uncertainties. Project benefits were also analyzed in more detail by conducting stochastic production simulations in which the uncertain nature of future natural gas prices, load growth, and hydro generation were included to provide expected values for production costs over a wide range of uncertainties. Also, operational transmission limits[18] were used in our project evaluation. The following sections detail SCE's evaluation of DPV2.

1. CAISO Ratepayer Perspective

SCE's cost-effectiveness evaluation of DPV2 is a life-cycle benefit-to-cost analysis from a CAISO ratepayer perspective. A life-cycle perspective measures total benefits and costs over the entire period of the project's expected life (2009-2055). SCE used a net present value (NPV) analysis to bring all benefits and costs to the base year of 2004. Measuring benefits and costs from a CAISO ratepayer perspective means that SCE valued all benefits and costs using an estimate of the revenue requirements that CAISO ratepayers would incur either with or without the project.

The CAISO ratepayer perspective is the proper scope of review since when DPV2 is approved, its revenue requirements will be collected under the CAISO Transmission Access Charge (TAC) that is paid by the ratepayers of all CAISO Participating Transmission Owners[19]. Constructing DPV2 is also expected to benefit non-CAISO ratepayers because all California electricity customers can benefit from lower average energy market prices due to the construction of DPV2.

2. Benefit-Cost Analysis

Net Present Value (NPV) is the discounted monetized value of expected benefits or costs. Discounting benefits and costs transforms gains and losses occurring in different time periods to a common unit of measurement. The ratio of the NPV of benefits to the NPV of project revenue requirements[20] is the benefit-to-cost ratio. Benefit-to-cost ratios above 1.0 indicate

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[18] Seasonal Southern California Import Transmission nomogram limits were enforced.

[19] Some of the TAC is paid for by non-CAISO ratepayers who are wheeling energy through the CAISO control area and by entities with Existing Transmission Contracts with Participating Transmission Owners whose rates are tied to their transmission revenue requirement.

[20] A revenue requirement is calculated for two types of expenditures -- O&M and capital. Both types of expenditures are converted to revenue requirements using an annual methodology. O&M expenditures, direct and indirect, are converted to

projects which benefit ratepayers. The following equation sets forth the benefit-to-cost ratio used in this analysis:

$$\text{B/C Ratio} = \frac{\sum_{I=2009}^{2055} \text{Net Present Value of [Total Production Costs (Without DPV2 – With DPV2) + Additional Benefits]}}{\sum_{I=2009}^{2055} \text{(Net Present Value of DPV2 Revenue Requirement Costs)}}$$

Where:

- "Total Production Costs (Without DPV2 – With DPV2)" is an estimate of the benefit CAISO customers may obtain through access to low cost generation supplies, producers revenues and transmission congestion revenues; and
- "Additional Benefits" are benefits from transmission capacity, and transmission wheeling revenues, and negative benefits due to transmission losses (described below).
- "Net Present Value of DPV2 Revenue Requirement Costs" includes the recovery of capital and fixed operations and maintenance expense associated with the project.

The majority of DPV2's benefits are the result of increased access to surplus economic out-of-state generation, which will lower energy market prices in California. Other benefits to California ratepayers include capacity benefits due to increased transmission capacity to other markets for capacity, and increased transmission revenues from wheeling charges and Existing Transmission Contracts. SCE estimates CAISO system losses increase with DPV2, and are incorporated into the project's cost-effectiveness as a negative benefit. These quantifiable benefits are described in more detail below.

Costs of DPV2 are provided in Section I(C) of the Technical report. The 2004 NPV of revenue requirement of DPV2's costs are estimated to be $590 million dollars.

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revenue requirements, by applying a franchise fee and uncollectibles factor. Capital expenditures, direct and indirect, are first accumulated over time, applying AFUDC (essentially interest during construction), to arrive at a total installed cost. The total installed cost is then converted to a revenue requirements stream over the useful life of the asset. The annual amount of this revenue requirements stream is a function of the book and tax lives, cost of capital, and tax rates.

a) Benefits Due To Cost Savings (Change in Total Production Costs):

The benefits due to lower energy prices are estimated by using production simulations[21] to calculate Total Production Costs over a three and a half year study period[22] and then extrapolating future benefits over the life of the project. SCE chose this study period as a reasonable balance between sufficient data to forecast future generation patterns and a study period short enough that it is practical to use production simulation. A longer simulation period was thought to derive little forecasting benefit as the uncertainty is so large beyond 2012 that the precision of such simulation would be small relative to this uncertainty.

The change in Total Production Costs, or energy cost savings, are defined as the benefits or costs to CAISO ratepayers due to three quantities: consumer surplus, producer surplus, and transmission congestion revenues when comparing benefits with and without DPV2. Consumer Surplus[23] is defined as the value of the energy to the CAISO ratepayer, minus the price paid for it. A beneficial transmission project will lower the energy costs to CAISO ratepayers.

Producer Surplus is defined as the difference between the energy price paid to the utility retained generation, and the variable operating cost to produce it. Total Production Costs include a value of producer surplus for utility retained generation only because utility retained generation reflects costs or benefits that accrue to ratepayers. Since a new transmission line could cause a utility owned generator to earn less than its costs, such ratepayer costs should be included in a ratepayer test.

Transmission Congestion Revenue[24] is the revenue customers receive due to congestion charges. Transmission Congestion Revenue was calculated for transmission facilities under the operational control of the CAISO.

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[21] Seasonal Southern California Import Transmission nomogram limits were enforced during these simulations.

[22] The production simulation study period started from DPV2's proposed operating date of June 1, 2009 and ended on December 31, 2012.

[23] Mathematically, consumer surplus equals the change in market prices with and without DPV2 times the CAISO area load.

[24] Transmission Congestion Revenue was calculated for all lines in or out of the CAISO control area using the following relationship for each transmission path: Transmission Congestion Revenue = hourly flow * (hourly market clearing price Zone B – hourly market clearing price Zone A), where Zone B is the market clearing price of the zone where energy is flowing from, and Zone A is the market clearing price of the zone where energy is flowing to (i.e. the differential in market clearing prices from both ends of a particular transmission path times the energy flow).

The summation of Consumer Surplus, Producer Surplus, and Transmission Congestion Revenue is thought to capture the major quantifiable ratepayer costs and benefits of a transmission project and be equal to its Total Production Costs. Total Production Costs for CAISO ratepayers are shown in the next Figure as net benefits.

Figure 3 – Change in Total Production Costs for CAISO Ratepayers

CAISO Ratepayers (Real $2003 in millions)

	2009	2010	2011	2012
Consumer Surplus	$160	$240	$230	$250
URG Producer Surplus	($30)	($50)	($50)	($50)
Transmission Congestion Revenue	($20)	($30)	($30)	($30)
Net Benefits	$110	$160	$150	$170

A project has positive benefits if Total Production Costs are less after it's constructed. For example, if Total Production Costs are calculated for the existing CAISO area, and then calculated again with the addition of a new project, such as DPV2, and if Total Production Costs decrease, then the additional project has positive benefits for CAISO ratepayers. For DPV2, benefits are explicitly calculated between 2009 and 2012. Benefits beyond 2012 are projected at the 2012 level at zero real growth for the remainder of the project's life (2013-2055). The net benefits for DPV2 is about $1.7 billion, as shown below.

Figure 4 – Net Present Value of Change in Total Production Costs for CAISO Ratepayers

CAISO Ratepayers (2004 NPV, $ millions)

	2004 NPV* for Life of Project
Consumer Surplus	$2,450
URG Producer Surplus	($470)
Transmission Congestion Revenue	($310)
Secondary Benefits (losses, T. cap, T. revenues)	$20
Net Benefits	$1,690

(* Discount rate of 10.5%)

b) Benefits Due To New Transmission Capacity

The benefits of DPV2 include the avoided cost of marginal generating capacity. Marginal generating capacity value is defined as a fraction of, up to 100%, the deferral value of a combustion turbine proxy[25] to the load serving entity. A new transmission project such as DPV2 can only provide a capacity benefit if the project enables access to a lower cost and available generation capacity market that would otherwise not be accessible. To illustrate, if the California generation capacity market values capacity at $100, but a new transmission line can enable access to a surplus, neighboring capacity market selling capacity for less, say at $80, then the transmission project provides a capacity benefit of the difference, or $20 to California.

A real capacity market, such as that operating in the New York and PJM markets today, does not exist for the California-Arizona area. However, SCE has established a reasonable method for estimating the value of capacity associated with DPV2 by identifying the surplus generation in the Arizona area that could be used to meet California capacity requirements and is transferable over the line. Essentially, the value of this capacity due to new transmission, 'T', is equal to SCE's estimate of its avoided cost of capacity, 'AC', multiplied by the result of 1 minus the ratio of the new transmission capacity rating to the quantity of excess generation, 'G', in the Arizona area. The value of capacity to 'T' cannot be lower than 0% and cannot exceed 100%.

Capacity Benefit =

$$\sum_{I=2009}^{2012} \text{Net Present Value of } [AC * T * (1 - T / G)]$$

[25] The costing methodology established in Commission Decision (D.) 82.12.120 directs PG&E, SCE and SDG&E to base their long-run cost of capacity according to a combustion turbine proxy.

Where:

- 'T' is defined as Path 49 operational rating increase due to DPV2.
- 'AC' is SCE's avoided cost estimate for marginal capacity and energy based on the CT deferral methodology. SCE currently estimates its future marginal capacity costs to be $85.9/kW-yr in 2008 and $89.8/kW-yr in 2009, or 100% the full value of a combustion turbine proxy in both years.
- 'G' is excess generation capacity in the Arizona area that exceeds the area's load and reserves requirements and its current export transfer capability. In the SCE database, this excess generation is expected to drop below DPV2's line rating by 2010.

SCE estimates constructing DPV2 provides access to approximately 6,500 MW of excess Arizona and Nevada generation that otherwise would not be available to California consumers. Much of this excess capacity can be tapped through existing lines and the Series Capacitor upgrade project, and even more is expected to meet local Arizona and Nevada needs as load grows in the area. These factors reduce the excess generation that can be attributable to DPV2 by its operating date. The $20 million capacity benefit (2004 NPV) was positive only over a one year period because by the year 2010, SCE believes the amount of surplus generation will fall below DPV2's capacity, thus eliminating capacity benefits as described in the formula above.

c) Benefits Due To Increased Transmission Revenues:

DPV2 will increase the Transmission Revenue Requirements used to develop rates for both CAISO Wheeling service and Existing Transmission Contracts' (ETCs). This is estimated to result in approximately $0.5 million annually of increased revenue to SCE[26] from certain ETCs and approximately $1.8 million annually of increased CAISO wheeling revenue to SCE (totaling $ 2.3 million) or about $21 million (2004 NPV) over the life of the project. SCE's ETC revenues are reflected in its Other Operating Revenue which serves to reduce its overall transmission revenue requirement. Wheeling revenue received by SCE from the CAISO for wheeling through or out of the CAISO grid is reflected in SCE's transmission revenue balancing account.

The methodology for deriving the impact of DPV2 on SCE's Wheeling Revenue is based on the ratio of the Wheeling Access Charge with and without DPV2 and historical SCE Wheeling revenue information.

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[26] Benefits due to increased transmission revenues were estimated for SCE rather than all Participating Transmission Owners due to available data.

The methodology for deriving the impact of the ETCs' revenue is based on the ratio of the Transmission Revenue Requirements with and without DPV2 multiplied by the ETCs' revenues. The ETCs consist of transmission service contracts with Colton, and LADWP.

d) Negative Benefits Due To Increased Transmission Losses:

Annual CAISO transmission system losses[27] are estimated to increase annually by about 50 GWh due to DPV2, increasing costs due to the project by about $2 million per year ($23 million, 2004 NPV). Conceptually, this seems a reasonable result when considering how far generation in the Arizona/Nevada area is from the California load being served. Some generation in California with a close proximity to California load will be displaced by the more distant, but less costly generation from Palo Verde. Losses generally increase as the distance between generation supply and load centers increases.

Increased annual system losses were estimated by comparing stochastic production simulation runs with and without DPV2. The model is populated with loss factors derived from OASIS bulletin boards, such as the CAISO Transmission Meter Multipliers. Increased losses due to serving CAISO load were summed over a year to derive annual losses, which were then multiplied by the differential[28] in Market Clearing Prices to determine the annual costs of losses[29]. A cost stream was developed by assuming a zero real escalation from 2013[30] for the remainder of project's life. The 2004 net present value of this stream was then deducted from the project's benefits.

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[27] For this analysis, losses mean real power losses and not reactive power losses.

[28] This differential refers to the decrease in estimated Market Clearing Prices (MCP) for CAISO ratepayers due to construction of DPV2; calculated as (MCP before DPV2 – MCP after DPV2).

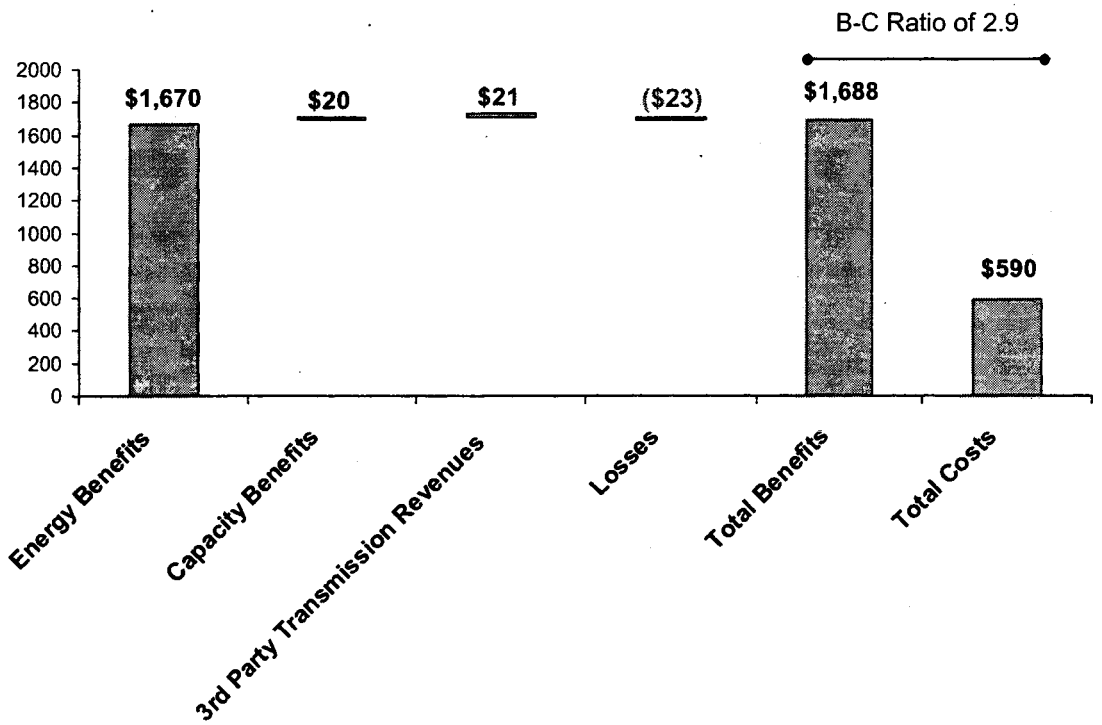
[29] Stochastic analysis results are computed one week out of the month, and every fourth hour to reduce computation time.

[30] Approximately a 3% rate of inflation.

e) Conclusion of DPV2's Cost Effectiveness:

A summary of DPV's cost-effectiveness combining all costs and benefits is shown below.

Figure 5 – Cost-Effectiveness Summary of DPV2



In conclusion, DPV2 is cost-effective with a benefit-to-cost ratio of almost 3:1. This analysis utilized a reasonable set of assumptions, and accounted for the uncertainty of major economic drivers. For example, this analysis included the uncertainty of natural gas prices, load forecasts, and available hydro generation. Major transmission operational constraints into California were also modeled. In addition, the analysis attempted to quantify all reasonable and realistic costs and benefits to CAISO ratepayers. For example, costs of west of Devers substation, voltage support devices, and increased losses due to DPV2 were all captured. To be thorough, benefits of increased transmission revenues and a transmission capacity value were also estimated. After considering all costs and benefits and uncertainty of major economic drivers, DPV2 appears to be a cost effective project for CAISO ratepayers.

of DPV2 increase if Mohave operates while DPV2 is in service. If San Onofre does not have its steam generators replaced, then there is likelihood that DPV2 would become a critical part of meeting customers' needs in Southern California since more imports would be required to serve California load. If for some unknown reason Mountainview is not completed, the benefits of DPV2 will increase.

- **New generation development** – developing the DPV transmission corridor could attract new generation development east of Devers substation, such as in the Blythe area, providing additional supply to the California energy market. If it does, then DPV2's benefits should increase due to increased access to this new low cost generation.
- **Interconnection support** – The addition of DPV2 is expected to provide up to 1200 MW of additional import transmission capacity. In our estimation of DPV2's benefit-to-cost ratio we have quantified access to existing generation markets, which had the effect due to increased transmission infrastructure to allow generators to compete and enabled a more liquid and competitive electricity market. We have not attempted to quantify other potential benefits such as increased generation reliability, replacement for aging power plants, fuel diversity, reserve sharing or power exchanges that may occur over the life of DPV2.
- **Market Power** – DPV2 may provide benefits in the form of reducing the potential for generators to exercise market power. DPV2 helps increase the quantity of generation and number of suppliers to serve California markets and should help to increase competitive pressure on generators. This, in turn, should help to reduce the ability for generators to exercise market power.

IV. Appendix A – Production Simulation

A. Production Simulation

SCE used a production simulation model[31] to forecast market clearing prices for this cost-effectiveness analysis. The model simulates the entire Western Electricity Coordinating Council (WECC) region for development of Market Clearing Prices (MCPs) by WECC transmission area. The production simulation model does the following:

- Simulates the dispatch of generation resources across the entire WECC region.
- Economically dispatches lowest cost generation to match load.
- Aggregates loads and generation into zonal markets.
- Interconnects zones by aggregating transmission lines between zones.
- Performs hourly simulation.
- Computes supply curves and Market Clearing Prices, by hour and develops various load and resource reports. Market Clearing Prices are marginal energy prices, and do not reflect market prices with profit.

Typically, a pure economic dispatch production simulation understates a transmission project's benefits because it does not capture the impact of generation that is dispatched for purely non-economic purposes, such as reliability purposes. In a pure economic dispatch, the generation supply curve is optimized for lowest costs. When generation is dispatched for reliability reasons, it changes the energy supply curve to something slightly more costly than a predetermined economically optimized dispatch, thus increasing, total generation costs.

The base case modeling for the DPV2 analysis used SCE's April 15, 2003 long term Preferred resource plan, which includes: Mountainview (a new combined cycle generating facility), a significant increase in investments in energy efficiency and demand response, the assumed shutdown of the Mohave coal plant, and the addition of sufficient renewables to meet or exceed the 20% Renewable Portfolio Standard.

Two types of simulations were performed for DPV2's analysis: deterministic and stochastic. The deterministic analysis was performed using a base set of assumptions regarding loads, natural gas prices, and the availability of generating plants to meet customer needs. Deterministic analysis is useful for understanding a single set of input forecasts, but does not reflect the impact of uncertainty. Stochastic analysis models the uncertainty associated with different parameters. In the stochastic analysis, SCE included uncertainties associated with a) load forecasts, b) natural gas prices, and c) hydro generation variability. In addition, the analysis reflected the impact of random forced outages of generation units. Stochastic analysis captures the value of low

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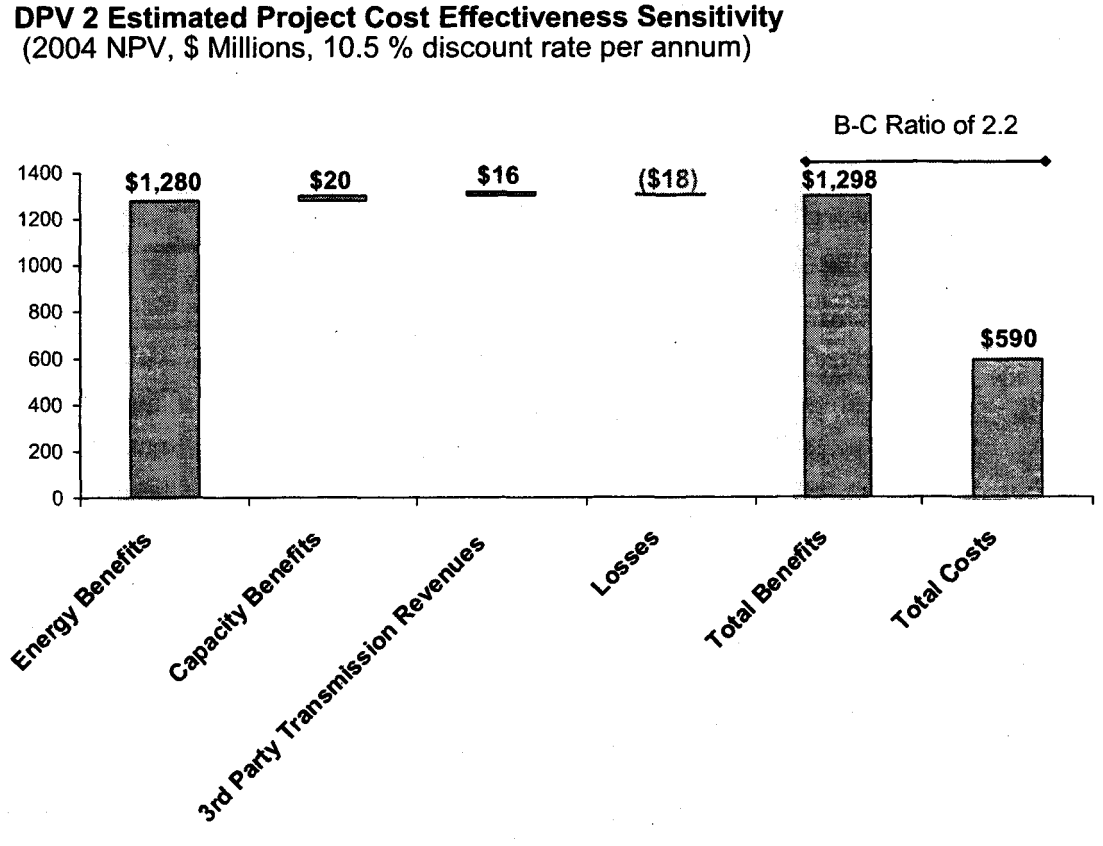
[31] SCE utilized Henwood Energy Services MARKETSYM production model for its analysis of DPV2.

f) DPV2 Cost Effectiveness with Future Benefits Held Below Inflation or at Inflation:

As a sensitivity to the Project Evaluation analysis above in section III(D), we recalculated DPV2's cost effectiveness under the assumption that future benefits are held flat at 2012 levels. The 2004 NPV results shown in Figure 6 indicate DPV2's benefits-to-cost ratio is still robust at 2.2:1. In section III(D)(2)(a), we stated that results shown in Figure 5 included the assumption that benefits were held to zero real inflation beyond 2012. This assumption seems reasonable as long as Arizona will continue to have favorable characteristics that support construction of new generating stations. These characteristics include lower costs associated with labor, natural gas, land, permitting, and taxes. A further consideration is that DPV2 capacity may attract new generation development.

Synthesizing the results of holding future benefits flat or at inflation, we expect DPV2's benefit-to-cost ratio to be around 2:1 to 3:1; depending upon which economic assumptions beyond 2012 are employed.

Figure 6 – Cost-Effectiveness Sensitivity of DPV2



g) DPV2 Cost Effectiveness Range (2004 NPV of revenue requirements):

Thus far, DPV2's cost-effectiveness has been shown to have total benefits ranging from $1,300 million to $1,700 million (rounded) depending upon future escalation assumptions, and transmission line flows held at their operational limits. SCE also determined benefits where transmission lines flows could reach their thermal limits. These benefits total about $870 million. With this range of benefits project costs of $590 million, the following figure was developed. SCE believes that DPV2's benefit-to-cost ratio ranges from about 1.5:1 to 3:1 depending upon assumptions used. SCE believes assumptions used to determine the 3:1 benefit-to-cost ratio are the most realistic.

Figure 7 – DPV2's Range of Cost-Effectiveness

Benefit-to-Cost Ratios
(2004 NPV of Revenue Requirements, $ Million)

		Cost $590
Benefits w/o SCIT	$870	1.5
Benefits with SCIT and zero inflation	$1,300	2.2
Benefits with SCIT	$1,700	2.9

h) Potential Benefits Not Quantified:

Determining all the benefits that new transmission facilities accrue to ratepayers is a complex undertaking. Part of this complexity is identifying all possible benefits transmission facilities provide. The discussion thus far has quantified a reasonable set of potential benefits, but it is not a comprehensive list. Other potential benefits not quantified in this report, but which could increase DPV2's ratepayer benefits include:

- **Emergency value** – a new transmission line such as DPV2 could provide benefits during an emergency outage of another major import line or generating facility. For instance, if fire or an earthquake disables lines from the Pacific Northwest into California, then a line importing power from the southwest, such as DPV2, would provide benefits above what is quantified in this report. A similar emergency value could accrue during the outage of generation located in southern California.
- **Outcome of current generation projects** – the base case used in this DPV2 analysis includes Mohave generating station out-of-service, and San Onofre Generating Station and Mountainview in-service. Past studies by SCE and CAISO indicate the benefits

probability events that can have an impact on an outcome. Below are graphs of the base, high, and low forecasts of load, and natural gas prices used in this analysis at the 90%, 50% and 10% confidence levels.

Figure 8 – CAISO Total Load - Monthly Confidence Intervals

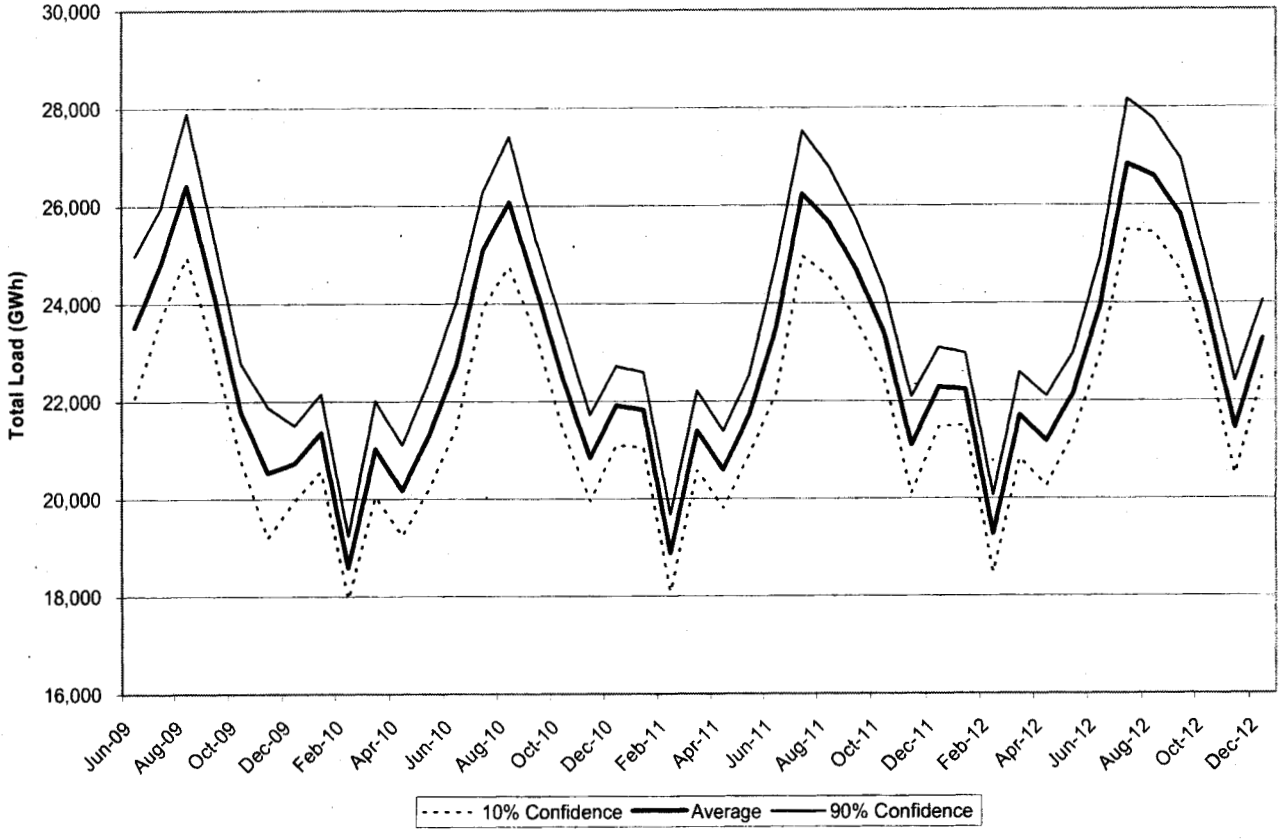
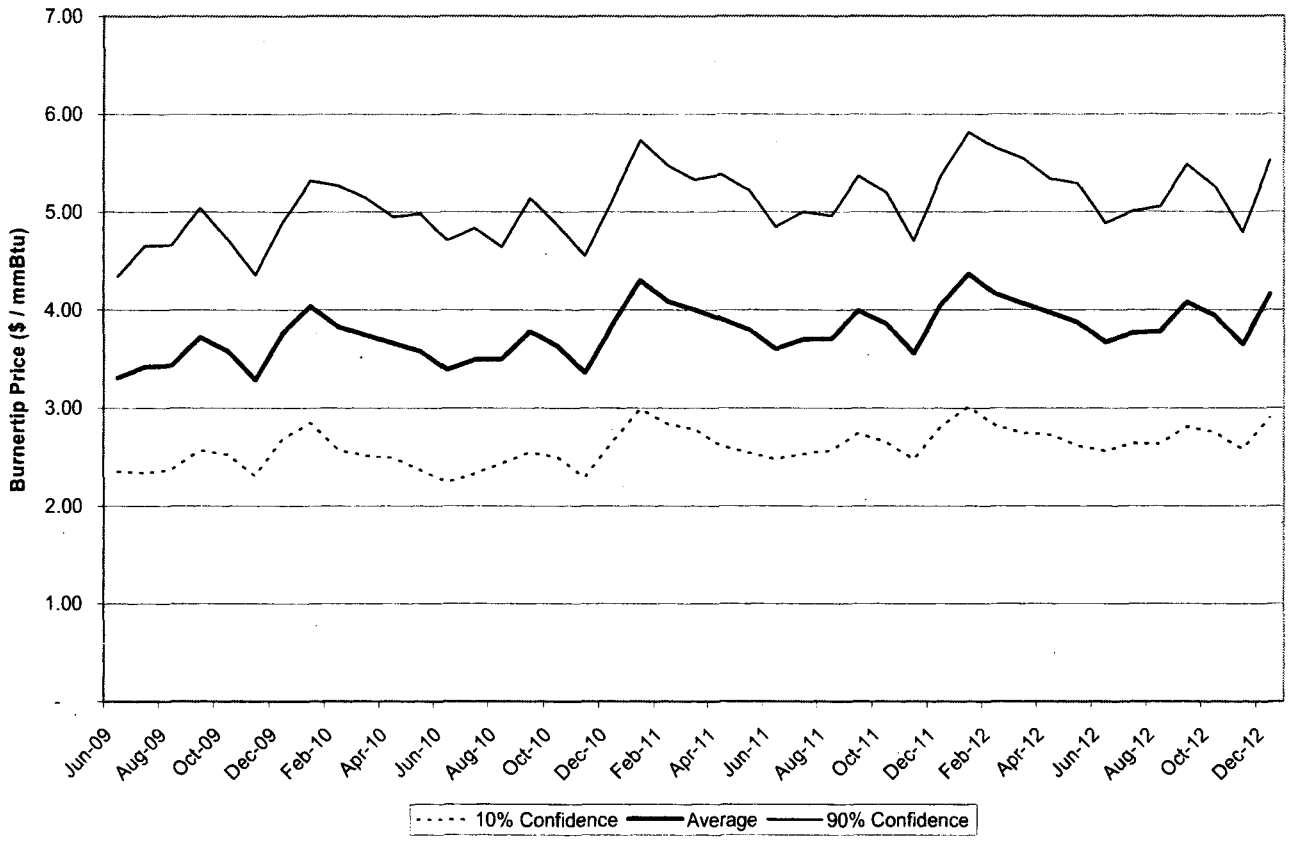


Figure 9 – Southern California Burnertip Natural Gas Price – Monthly Confidence Intervals



Other assumptions used in the production simulation are best explained by describing the modeling process used to approximate the relevant market in which DPV2 will operate. The model simulated the interconnected electrical system in the WECC (Western Electricity Coordinating Council) region by dividing the WECC's region into 25 market zones and 42 transmission paths between zones, shown in Figure 10 as a Deterministic Topology. Within this WECC model, the California electrical market is simulated by eight zones and 17 inter-zonal paths, and SCE's service territory is modeled by one zone with six inter-zonal paths. As a result, the electrical systems in California and SCE's territory are effectively modeled to determine resource requirements. Two definitions are in order: paths represent the aggregate transfer capability due to all parallel transmission lines operating between zones, and zones represent major load/generation areas. This topology of zones and paths provides a realistic framework in which to analyze transmission congestion impacting resource planning and the effects proposed transmission additions would have upon such congestion.

New transmission additions or changes in installed generation located within the zones can have a large impact on production results, so SCE used criteria which included only highly likely projects and filtered out speculative projects. New transmission facilities are only added if they

affect the modeling production topology, construction is fairly certain[32], and ratings are more or less defined. Lines affect the topology if they can transmit power between zones, so new intra-zone transmission facilities would not be modeled. Some indicia that the line will be constructed (such as an outlay of substantial investment) are required to filter out speculative lines. New transmission lines require a rating to be provided by the WECC or the project sponsor who has conducted studies in support of the project's rating. Finally, utility specific projects such as DPV2 are added. For this analysis, seven new transmission projects meet these criteria and are shown in Appendix B.

To add generation to the base case, SCE also used other screening criteria. To be included, a generating facility must be either substantially constructed, and have financing completed, or be an investor owned or municipality utility project. SCE also added generation if public data reasonable supported such an addition. Appendix C provides the list of new generating facilities meeting these criteria which add a net amount of 25,000 MW of generation to WECC area, and about 6,500 MW in the Arizona and Nevada zones in the base case. New generation facilities at a specific site are netted against those facilities retired. The criteria used to remove or retire generation from the production simulation database are:

- Specific published retirement dates,
- Reach a life of 55 years or,
- Retirements due to air quality restrictions
- Consistency with California Commission planning assumptions

Appendix D provides a list of generating stations retired in the base case.

Other production simulation attributes include:

- WECC and CAISO transmission operational[33] and thermal ratings are enforced.
- Demand response programs are included in load forecasts
- Contracts between generators and load entities are not modeled.
- Substransmission line losses are accounted for in loads.

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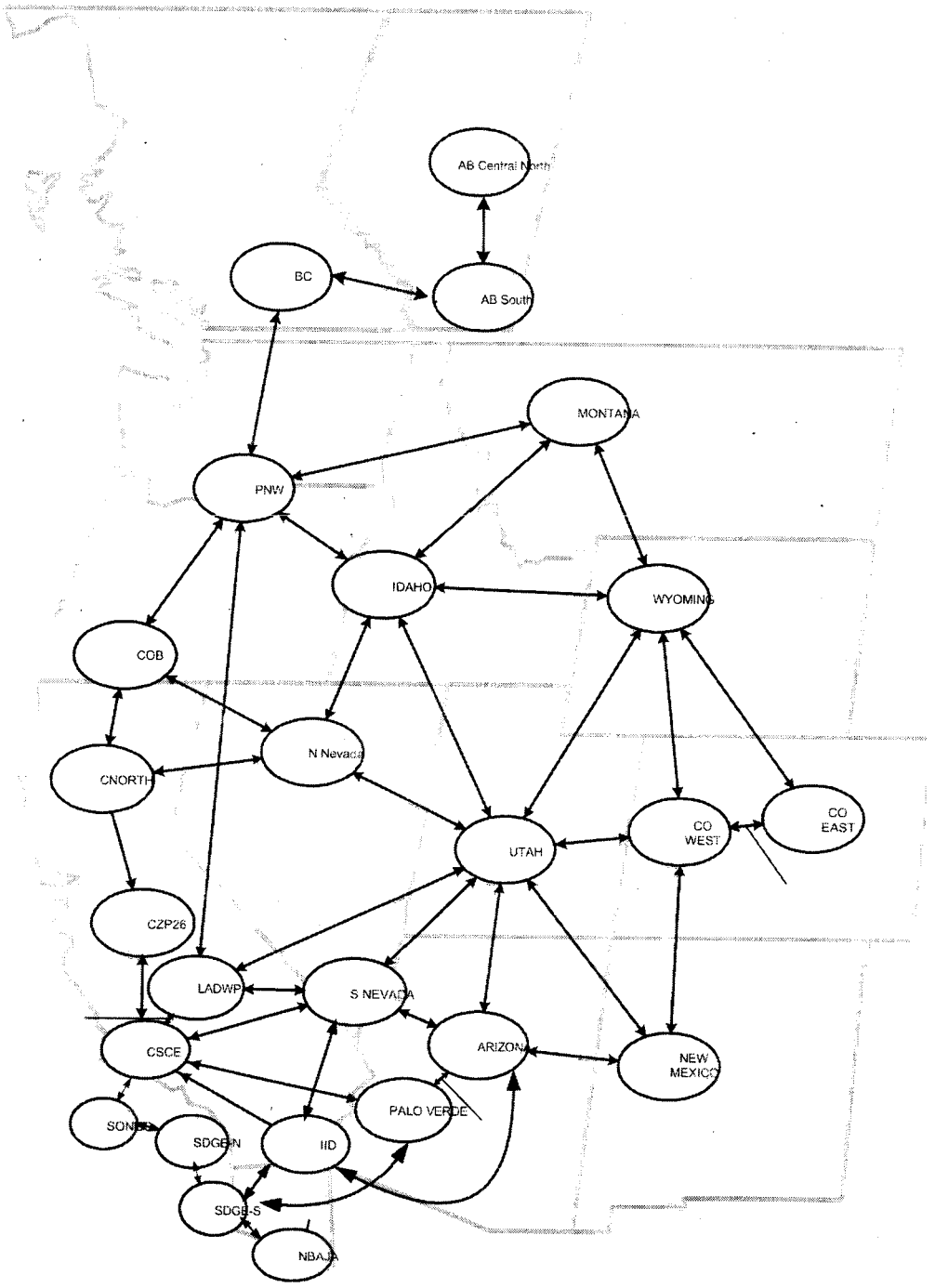
[32] To be fairly certain, entities sponsoring new transmission must make affirmative steps toward construction such as entering projects in the WECC rating process, making monetary investments like purchasing land or major facilities, or applying for regulatory permits necessary to construct.

[33] Thermal ratings were enforced for deterministic analysis, operational transmission rating of the Southern California Import Transmission nomogram was enforced in stochastic analysis.

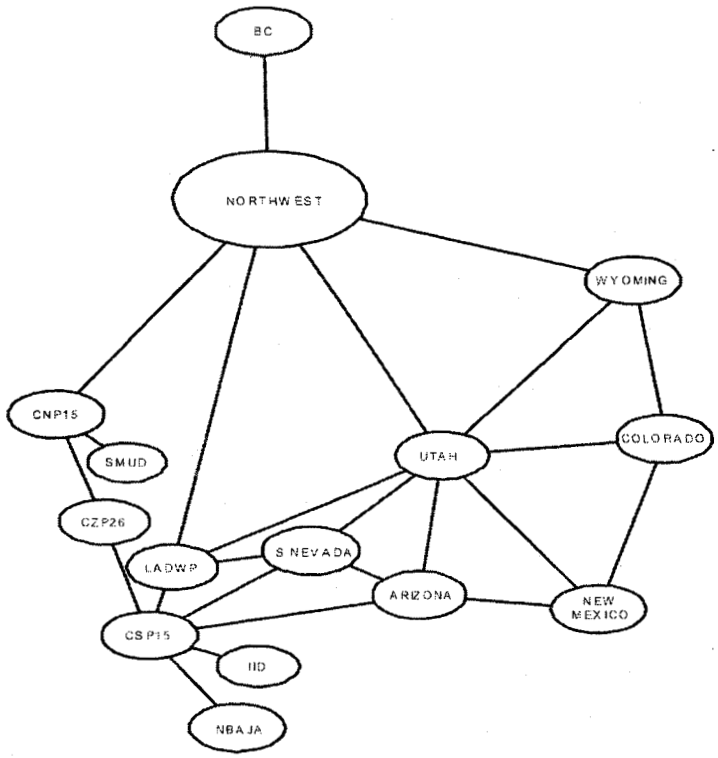
Figure 10 – Deterministic Topology



Production simulation outputs include production costs, Market Clearing Prices (MCP), total air emissions, and Energy Not Served (ENS).

These MCPs are calculated using a stochastic production module to take into account the uncertainty and volatility of important input assumptions (available hydro generation, natural gas prices, and magnitude of demand)[34]. The topology of zones and paths used in stochastic analysis is shown below in Figure 11. As can be seen, the zones and paths in California are largely unaffected by the reduction, rather the zones in neighboring states have been condensed.

Figure 11 – 15 Zone Stochastic Topology



[34] Henwood's MARKETSYM stochastic module.

B. Network Modeling

SCE's zonal model is a reasonable characterization of the WECC network. Figures 10 and 11 above demonstrate that the model SCE utilized appropriately captures transmission paths entering California from the southwest. These paths represent all major transmission lines capable of importing energy into California. It is also important to sufficiently model the California energy market since benefits are measured for CAISO ratepayers within California. Again, Figures 10 and 11 above illustrate numerous zones used to forecast California market prices. These zones represent all generation supply and loads in California. In addition to this zonal representation, SCE also provides complementary network representation indicating estimate power flows in Appendix A of the DPV2 Technical report.

C. Southern California Import Transmission Nomogram

Transmission lines can have operational limits which are lower than their maximum ratings[35]. Transmission lines importing energy into southern California are operated according to the Southern California Import Transmission (SCIT) nomogram. A nomogram is a chart showing the operational limits of a set of particular lines. The existing Devers-Palo Verde No. 1 – 500 kV transmission line is one of the lines whose rating is governed by the SCIT nomogram. DPV2's capability will also be governed by the SCIT nomogram once it is built. Since transmission power flows are managed by nomograms such as the SCIT, it is necessary to capture these operational limits in the DPV2 analysis. The production simulation used in the DPV2 analysis incorporated the current and expected[36] SCIT operational limits on applicable transmission lines.

MarketSym, the production simulation used for the DPV2 analysis, can be programmed to change the capability on a single path, but does not have the capability to change a particular transmission line's capability based upon the flow of another path[37]. The latter is needed to precisely model nomograms. Since, MarketSym does not have this capability; a new method was devised to estimate the energy flow relationship between SCIT transmission lines. The new method determined the maximum flow on SCIT lines by examining daily peak power flows for each SCIT line over a five year history (1998-2002). Based on historical flow levels, the line ratings were reduced such that the aggregate line limits totaled the existing SCIT operational

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[35] Line Rating is the WECC approved non-simultaneous capacity of the line. Line capability reflects adjustments to the Line Rating due to operational limits.

[36] Revised SCIT limits were estimated for new facilities such as DPV2 and Series Capacitor Upgrades project.

[37] For example, the rating on path A, cannot be automatically changed based upon the flows on Path B.

limit. This reduction was achieved by limiting line flow at the 95th percentile of historical flows, and an additional pro-rata reduction to certain paths[38]. MarketSym was then programmed with these flow limits to represent the operational limits of the SCIT nomogram for existing transmission paths and estimated SCIT values[39] for new facilities yet to be constructed. This method is a reasonable approach, since it is based upon historical flows, and attempts to assure that the aggregate line flows are within the SCIT operating limit.

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[38] SCIT ratings for new projects such as upgrading series capacitors or constructing DPV2 were estimated using engineering analysis.

[39] New facilities which increase available transmission capacity are expected to increase operational limits, such as the SCIT nomogram.

V. Appendix B - Transmission Additions to Base Case

Utility Link Name	Change Date	Non-Simultaneous Ratings		Note
		Old Rating (MW)	New Rating (MW)	
Palo Verde to Phoenix	Jun-04	6,200	7,700	APS/SRP Southwest Valley Project
PSE portion of West of Hatwai	Nov-04	84	105	Upgrade in direction Palo Verde to Phoenix only
BPA portion of West of Hatwai	Nov-04	981	1,226	Addition of Bell-Grande Coulee 500kv line
PacifiCorp UT to SPPCO	May-05	220	440	Addition of Bell-Grande Coulee 500kv line
SPPCO to PacifiCorp UT	May-05	80	235	Falcon-Gonder Project
Miguel Mission	Jun-05	1,690	2,250	Falcon-Gonder Project
Palo Verde to San Diego	Jun-06	1,133	1,283	Miguel Mission
Palo Verde to SCE	Jun-06	1,550	1,718	Path 49 Series Capcacitor Upgrades Project
Southern Nevada to LADWP	Jun-06	3,823	3,905	Path 49 Series Capcacitor Upgrades Project
Arizona to Southern Nevada	Jun-06	4,634	4,802	Path 49 Series Capcacitor Upgrades Project
Southern Nevada to Arizona	Jun-06	4,785	4,953	Path 49 Series Capcacitor Upgrades Project
Devers Palo Verde	Jun-09	1,718	2,918	Devers Palo Verde II

VI. Appendix C - Generation Additions to the base case.

Note: Generic CCGT and GT additions have been included to maintain reasonable reserve levels in the noted geographical areas.

Unit Name	Unit No	Installation Date	Unit Type	Max Rating	Full Load HR	TA
Calgary Energy Cntr	1	4/1/2003	CCDF	300	7280	AB_S
Pincher Creek	1	10/1/2003	WT	37.296	10000	AB_S
GenCC_AB_S06	1	1/1/2006	GenCC	245	7280	AB_S
GenCC_AB_S08	1	1/1/2008	GenCC	245	7180	AB_S
GenCC_AB_S09	1	1/1/2009	GenCC	245	7180	AB_S
GenCCX_AB_S10	1	1/1/2010	GenCC	245	7180	AB_S
GenGT_AB_S12	1	1/1/2012	GenGT	180	10500	AB_S
GenGT_AB_S12	2	1/1/2012	GenGT	180	10500	AB_S
Foster Creek	1	3/1/2003	CG	66	8000	ABCN
McBride	1	9/1/2003	WT	12.7	10000	ABCN
McBride	2	12/1/2003	WT	13.6	10000	ABCN
GenGT_ABCN12	1	1/1/2012	GenGT	180	10500	ABCN
West Phoenix	5a	6/1/2003	CCDF	265	7380	Arizona
West Phoenix	5b	6/1/2003	CCDF	265	7380	Arizona
Santan Exp CC	1	6/1/2005	CCDF	275	7380	Arizona
Santan Exp CC	2	6/1/2005	CCDF	275	7380	Arizona
Santan Exp CC	3	6/1/2005	CCDF	275	7380	Arizona
GenGT_Ariz12	1	1/1/2012	GenGT	180	10500	Arizona
GenCC_BC05	1	1/1/2005	GenCC	245	7100	BC
GenCC_BC07	1	1/1/2007	GenCC	245	7280	BC
GenCC_BC07	2	1/1/2007	GenCC	245	7280	BC
GenCC_BC08	1	1/1/2008	GenCC	245	7180	BC
GenCC_BC08	2	1/1/2008	GenCC	245	7180	BC
GenCC_BC08	3	1/1/2008	GenCC	245	7180	BC
GenCC_BC08	4	1/1/2008	GenCC	245	7180	BC
GenGT_BC08	1	1/1/2008	GenGT	180	10500	BC
GenGT_BC08	2	1/1/2008	GenGT	180	10500	BC
GenGT_BC08	3	1/1/2008	GenGT	180	10500	BC
GenGT_BC08	4	1/1/2008	GenGT	180	10500	BC
GenCC_BC09	1	1/1/2009	GenCC	245	7180	BC
GenCCX_BC11	1	1/1/2011	GenCC	245	7180	BC
GenCCX_BC11	2	1/1/2011	GenCC	245	7180	BC
Wolfskill	1	1/1/2003	GT	45	10500	CNP15
Los Esteros Critical	1	3/1/2003	GT	45	10500	CNP15
Los Esteros Critical	2	3/1/2003	GT	45	10500	CNP15
Riverview Energy	1	3/30/2003	GT	45	10500	CNP15
Tracy Peaker	1	4/1/2003	GT	84.4	11000	CNP15
Tracy Peaker	2	4/1/2003	GT	84.4	11000	CNP15
Tracy Peaker	3	4/1/2003	GT	84.4	11000	CNP15
Woodland CC	2	5/1/2003	CCDF	80	8311	CNP15
Pico	1	1/1/2005	GT	160	10184	CNP15
Consumnes River	1	3/15/2005	CC	250	7180	CNP15
Consumnes River	2	3/15/2005	CC	250	7180	CNP15
Metcalf Energy	1a	6/1/2005	CCDF	289.4	7360	CNP15
Metcalf Energy	1b	6/1/2005	CCDF	289.4	7360	CNP15
San Fran Airport	1	6/1/2005	GT	160	10184	CNP15

Unit Name	Unit No	Installation Date	Unit Type	Max Rating	Full Load HR	TA
San Fran Airport	2	6/1/2005	GT	160	10184	CNP15
Kings River Peaker	1	7/1/2005	GT	160	10184	CNP15
Walnut CC	1	3/1/2006	CC	250	7180	CNP15
GenGT_CNP112	1	1/1/2012	GenGT	180	10500	CNP15
Blue Spruce Energy C	1	5/1/2003	GT	155	10850	CO_East
Blue Spruce Energy C	2	5/1/2003	GT	155	10850	CO_East
Front Range	1a	5/1/2003	CC	240	7100	CO_East
Front Range	1b	5/1/2003	CC	240	7100	CO_East
Rocky Mountain Energ	1a	5/1/2004	CCDF	300.5	7280	CO_East
Rocky Mountain Energ	1b	5/1/2004	CCDF	300.5	7280	CO_East
GenGT_CO_E12	1	1/1/2012	GenGT	180	10500	CO_East
GenGT_CO_W12	1	1/1/2012	GenGT	180	10500	CO_West
NewRen07	1	1/1/2003	GE	350	10000	CSCE
NewRen07	2	1/1/2003	GE	350	10000	CSCE
THUMS Long Beach	1	2/15/2003	CG	47	8000	CSCE
High Desert Power	1a	6/1/2003	CCDF	250	7400	CSCE
High Desert Power	1b	6/1/2003	CCDF	250	7400	CSCE
High Desert Power	1c	6/1/2003	CCDF	250	7400	CSCE
Agua Mansa	1	7/1/2003	GT	48	9700	CSCE
Huntington Beach	4M	8/1/2003	ST	225	10396	CSCE
Glenarm Expansion	3	9/1/2003	GT	47	9700	CSCE
Glenarm Expansion	4	9/1/2003	GT	47	9700	CSCE
Vernon GT	1	5/1/2005	GT	160	10184	CSCE
Mountainview CC	1a	1/1/2006	CCDF	255	7220	CSCE
Mountainview CC	1b	1/1/2006	CCDF	255	7220	CSCE
Mountainview CC	2a	1/1/2006	CCDF	255	7220	CSCE
Mountainview CC	2b	1/1/2006	CCDF	255	7220	CSCE
Elk Hills CC	1	3/1/2003	CCDF	275	7360	CZP26
Elk Hills CC	2	3/1/2003	CCDF	275	7360	CZP26
Sunrise Power CC	1a	7/1/2003	CC	280	7180	CZP26
Sunrise Power CC	1b	7/1/2003	CC	280	7180	CZP26
Pastoria CC	1a	6/1/2007	CC	250	7180	CZP26
Pastoria CC	1b	6/1/2007	CC	250	7180	CZP26
Pastoria CC	1c	6/1/2007	CC	250	7180	CZP26
GenGT_Idah12	1	1/1/2012	GenGT	180	10500	Idaho
NewRen02	1	1/1/2003	GE	350	10000	IID
NewRen02	2	1/1/2003	GE	350	10000	IID
Mesquite Lake	1	4/1/2003	CG	13.1	12500	IID
Salton Sea #6	1	7/1/2005	GE	185	21000	IID
Valley LADWP CC	1A	6/1/2003	CCDF	264.25	7360	LADWP
Valley LADWP CC	1B	6/1/2003	CCDF	264.25	7360	LADWP
Haynes Repowering	1a	12/1/2004	CC	287.5	7180	LADWP
Haynes Repowering	1b	12/1/2004	CC	287.5	7180	LADWP
Magnolia CC	1	3/1/2005	CC	250	7180	LADWP
First Megawatts CC	1A	7/1/2003	CC	120	7438	Montana
First Megawatts CC	1B	7/1/2003	CC	120	7438	Montana
Thompson River	1	12/1/2003	CG	10	9540	Montana
GenGT_Mont12	1	1/1/2012	GenGT	180	10500	Montana
Presco Rye Patch	1	1/1/2003	GE	12	23924	N Nevada
GenGT_N Ne12	1	1/1/2012	GenGT	180	10500	N Nevada
La Rosita (Azteca)	1a	7/1/2003	CC	295	7200	NBAJA
La Rosita (Azteca)	1b	7/1/2003	CC	295	7200	NBAJA
Pyramid Power Plant	1	4/1/2003	GT	38	9700	NewMexico

Unit Name	Unit No	Installation Date	Unit Type	Max Rating	Full Load HR	TA
Pyramid Power Plant	2	4/1/2003	GT	38	9700	NewMexico
Pyramid Power Plant	3	4/1/2003	GT	38	9700	NewMexico
Pyramid Power Plant	4	4/1/2003	GT	38	9700	NewMexico
GenGT_NewM12	1	1/1/2012	GenGT	180	10500	NewMexico
Goldendale	1	7/1/2003	CC	253	7100	Northwest
SP Newsprint	1	7/1/2003	CG	35	8000	Northwest
Chehalis CC	1a	11/1/2003	CC	260	7100	Northwest
Chehalis CC	1b	11/1/2003	CC	260	7100	Northwest
GenCC_Nort09	1	1/1/2009	GenCC	245	7180	Northwest
GenCC_Nort09	2	1/1/2009	GenCC	245	7180	Northwest
GenCC_Nort09	3	1/1/2009	GenCC	245	7180	Northwest
GenCCX_Nort10	1	1/1/2010	GenCC	245	7180	Northwest
GenCCX_Nort10	2	1/1/2010	GenCC	245	7180	Northwest
GenCCX_Nort10	3	1/1/2010	GenCC	245	7180	Northwest
GenCCX_Nort10	4	1/1/2010	GenCC	245	7180	Northwest
GenCCX_Nort10	5	1/1/2010	GenCC	245	7180	Northwest
GenCCX_Nort10	6	1/1/2010	GenCC	245	7180	Northwest
GenCCX_Nort11	1	1/1/2011	GenCC	245	7180	Northwest
GenCCX_Nort11	2	1/1/2011	GenCC	245	7180	Northwest
GenCCX_Nort11	3	1/1/2011	GenCC	245	7180	Northwest
GenCCX_Nort12	1	1/1/2012	GenCC	245	7180	Northwest
GenGT_Nort12	1	1/1/2012	GenGT	180	10500	Northwest
GenGT_Nort12	2	1/1/2012	GenGT	180	10500	Northwest
GenGT_Nort12	3	1/1/2012	GenGT	180	10500	Northwest
Gila River	1a	4/1/2003	CCDF	293.5	7380	PV
Gila River	1b	4/1/2003	CCDF	293.5	7380	PV
Gila River	2a	5/1/2003	CCDF	293.5	7380	PV
Gila River	2b	5/1/2003	CCDF	293.5	7380	PV
Gila River	3a	6/1/2003	CCDF	293.5	7380	PV
Gila River	3b	6/1/2003	CCDF	293.5	7380	PV
Harquahala	1a	6/1/2003	CC	260	7200	PV
Harquahala	1b	6/1/2003	CC	260	7200	PV
Harquahala	2a	6/1/2003	CC	260	7200	PV
Harquahala	2b	6/1/2003	CC	260	7200	PV
Mesquite CC	1	6/1/2003	CC	312.5	7200	PV
Mesquite CC	2	6/1/2003	CC	312.5	7200	PV
Gila River	4a	8/1/2003	CCDF	293.5	7380	PV
Gila River	4b	8/1/2003	CCDF	293.5	7380	PV
Mesquite CC	3	11/1/2003	CC	312.5	7200	PV
Mesquite CC	4	11/1/2003	CC	312.5	7200	PV
Apex Industrial	1a	3/1/2003	CC	250	7200	S Nevada
Apex Industrial	1b	3/1/2003	CC	250	7200	S Nevada
Blythe	1a	3/1/2003	CC	260	7200	S Nevada
Blythe	1b	3/1/2003	CC	260	7200	S Nevada
Reliant Bighorn	1a	10/1/2003	CC	290	7380	S Nevada
Reliant Bighorn	1b	10/1/2003	CC	290	7380	S Nevada
Silverhawk CC	1	6/1/2005	CCDF	275	7380	S Nevada
Silverhawk CC	2	6/1/2005	CCDF	275	7380	S Nevada
GenGT_S Ne12	1	1/1/2012	GenGT	180	10500	S Nevada
SDGE GenCCGT 1*	1a	6/1/2006	CCDF	261	7360	SDGEN
SDGE GenCCGT 1*	1b	6/1/2006	CCDF	261	7360	SDGEN
SDGE GenCCGT 2*	1	6/1/2007	CCDF	272.5	7389.7	SDGEN
SDGE GenCCGT 2*	2	6/1/2007	CCDF	272.5	7389.7	SDGEN
La Rosita (Baja)	2	6/1/2003	CC	310	7180	SDGES
La Rosita (Azteca)	1c	7/1/2003	CC	160	7180	SDGES

Unit Name	Unit No	Installation Date	Unit Type	Max Rating	Full Load HR	TA
TDM CC	1	8/1/2003	CCDF	300	7360	SDGES
TDM CC	2	8/1/2003	CCDF	300	7360	SDGES
GenCCX_CSDG12	1	1/1/2012	GenCC	245	7180	SDGES
GenCCX_Utah12	1	1/1/2012	GenCC	245	7180	Utah
GenGT_Utah12	1	1/1/2012	GenGT	180	10500	Utah
Wygen	1	3/1/2003	ST	80	10000	Wyoming

* Specific generation resource additions are representative of reasonable expectations in this region

VII. Appendix D - Generation Retirements in the base case.

Unit Name	Unit No	Retirement Date	Unit Type	Max Rating	Full Load HR	TA
Medicine Hat	7	1/1/2008	ST	30	10742	AB_S
Wabamun	1	1/1/2004	ST	67	14246	ABCN
Wabamun	2	1/1/2004	ST	56	14840	ABCN
Wabamun	4	1/1/2010	ST	280	11740	ABCN
Rossdale	10	10/1/2010	ST	72	12739	ABCN
Rossdale	8	10/1/2010	ST	71	13384	ABCN
Rossdale	9	10/1/2010	ST	73	12948	ABCN
Kyrene	1	1/1/2007	ST	34	12383	Arizona
Kyrene	2	1/1/2009	ST	72	11134	Arizona
Saguaro	1	1/1/2009	ST	100	11195	Arizona
Saguaro	2	1/1/2010	ST	99	11702	Arizona
Agua Fria	1	1/1/2012	ST	114	9896	Arizona
Lytton Diesel	1	1/1/2006	IC	4	11000	BC
Pittsburg	3	10/1/2003	ST	154	10645	CNP15
Pittsburg	4	10/1/2003	ST	150	10623	CNP15
Hunters Point	4	1/1/2006	ST	163	10385	CNP15
Hunters Point	GT1	1/1/2006	GT	52	12813	CNP15
Pittsburg	1	1/1/2009	ST	163	11408	CNP15
Pittsburg	2	1/1/2009	ST	154	11017	CNP15
Humboldt Bay	1	1/1/2011	ST	53	12379	CNP15
Zuni	1	1/1/2003	ST	39	13630	CO_East
Trinidad	1-4	1/1/2005	IC	10	13000	CO_East
Arapahoe	3	1/1/2006	ST	45	11810	CO_East
Birdsall	1	1/1/2008	ST	16	13500	CO_East
Birdsall	2	1/1/2009	ST	17	13500	CO_East
Raton	4-5	1/1/2009	ST	12	14200	CO_East
Zuni	2	1/1/2009	ST	68	13440	CO_East
Arapahoe	4	1/1/2010	ST	111	10700	CO_East
W.N. Clark	1	1/1/2010	ST	17	10669	CO_East
Birdsall	3	1/1/2012	ST	23	13500	CO_East
Bullock	1-2	1/1/2007	ST	12	18000	CO_West
Cameo	1	1/1/2012	ST	24	12440	CO_West
Klamath Expansion	1	6/1/2004	GT	50	9700	COB
Klamath Expansion	2	6/1/2004	GT	50	9700	COB
Etiwanda	1	1/1/2003	ST	132	12746	CSCE
Etiwanda	2	1/1/2003	ST	132	12380	CSCE
Alamitos GT	7	12/31/2003	GT	147	18510	CSCE
Etiwanda	5	12/31/2003	GT	142	20006	CSCE
Redondo Beach	5	1/1/2009	ST	175	10345	CSCE

Unit Name	Unit No	Retirement Date	Unit Type	Max Rating	Full Load HR	TA
Redondo Beach	6	1/1/2012	ST	175	12000	CSCE
Sunrise Power	1	4/1/2003	GT	160	10184	CZP26
Sunrise Power	2	4/1/2003	GT	160	10066	CZP26
Morro Bay	1	9/30/2003	ST	163	10443	CZP26
Morro Bay	2	9/30/2003	ST	163	10651	CZP26
El Centro	3	1/1/2012	ST	48	10619	IID
Grayson GT	7	1/1/2003	GT	21	12500	LADWP
Grayson GT	6	7/1/2003	GT	18	13000	LADWP
Haynes	4	11/1/2003	ST	222	9794	LADWP
Magnolia GT	5	12/31/2003	GT	22	14268	LADWP
Olive	3	12/31/2003	GT	24	14339	LADWP
Olive	4	12/31/2003	ST	31	14339	LADWP
Valley LADWP	1	4/15/2004	ST	95	11345	LADWP
Valley LADWP	2	4/15/2004	ST	95	10968	LADWP
Valley LADWP	3	4/15/2004	ST	163	10804	LADWP
Valley LADWP	4	4/15/2004	ST	160	10854	LADWP
Haynes	3	9/1/2004	ST	222	9705	LADWP
Magnolia	3	9/30/2004	ST	21.5	11827	LADWP
Magnolia	4	9/30/2004	ST	32	11100	LADWP
Grayson	3	1/1/2009	ST	19	13000	LADWP
Afton GT	1	10/1/2003	GT	135	11000	NewMexico
Los Alamos	1	1/1/2005	ST	5	14024	NewMexico
Los Alamos	2	1/1/2005	ST	4	14024	NewMexico
Los Alamos	3	1/1/2007	ST	9	13475	NewMexico
Rio Grande	6	1/1/2012	ST	48	11844	NewMexico
Pierce Power	1	1/1/2003	GT	154	9700	Northwest
Mohave	1	1/1/2006	ST	790	9771	S Nevada
Mohave	2	1/1/2006	ST	790	10123	S Nevada
Clark ST	1	1/1/2010	ST	42	11719	S Nevada
Clark ST	2	1/1/2012	ST	69	11260	S Nevada
Naval Station	1	1/1/2003	GT	29	14357	SDGEN
Naval Training Ctr	1	1/1/2003	GT	16	16239	SDGEN
North Island	1	1/1/2003	GT	22	14950	SDGEN
North Island	2	1/1/2003	GT	22	15220	SDGEN
South Bay	4	1/1/2003	ST	222	12461	SDGEN
South Bay	1	12/31/2008	ST	146	10567	SDGEN
South Bay	2	12/31/2008	ST	150	10259	SDGEN
Encina	1	1/1/2009	ST	104	11287	SDGEN
Encina	2	1/1/2011	ST	105	11428	SDGEN
Provo City	4	1/1/2004	ST	8	14500	Utah
Gadsby	1	1/1/2006	ST	60	12806	Utah
Gadsby	2	1/1/2007	ST	75	11734	Utah
Carbon	1	1/1/2009	ST	70	10235	Utah
Gadsby	3	1/1/2010	ST	100	10894	Utah
Carbon	2	1/1/2012	ST	105	10542	Utah
Osage	1	1/1/2003	ST	10	14700	Wyoming
Osage	2	1/1/2005	ST	10	14750	Wyoming
Osage	3	1/1/2007	ST	10	14400	Wyoming

Retirements shown herein are announced retirements or have a life expectancy of 55 years.

VIII. Appendix E – CAISO Requested Information

A. WECC Total Production Costs

The CAISO requested the change in WECC wide production costs to determine societal benefits of the project. Below is a figure showing the changes in total production costs that include generation fixed and variable costs, and costs of transmission losses, emissions, wheeling charges and energy not served. Total production costs were calculated for the WECC region with and without DPV2. Figure 12 shows constructing DPV2 reduces production costs by about $25 million per year (Real 2003). These estimates doe not include the other benefits described above and therefore do not represent a complete evaluation of DPV2.

Figure 12 – WECC Wide Production Costs (Real 2003 $M)

	2009	2010	2011	2012
Without DPVII	10,680.19	18,128.94	19,299.12	20,052.32
With DPVII	10,664.56	18,103.21	19,273.84	20,025.70
Net	**15.63**	**25.73**	**25.28**	**26.62**

B. Impact to Arizona

The CAISO requested data showing the impact to Arizona ratepayers. Below is a figure which includes estimates of consumer surplus, production surplus of Arizona utility owned generation, and transmission congestion revenues of Arizona transmission owners. Using stochastic analysis, constructing DPV2 was found to have a net negative impact of around $16 to $20 million per year to Arizona as shown in Figure 13 below. Generation plants locating in Arizona will stimulate the Arizona economy. For example, the Arizona economy is stimulated from the creation of new jobs due to generation plants, a secondary economic ripple effect the generation industry and employment have on other parts of the economy, and corresponding increased tax base.

Figure 13 – Arizona Producer and Ratepayer Benefits (Real 2003 $M)

	2009	2010	2011	2012
Consumer Surplus	(57.44)	(78.90)	(79.59)	(92.11)
URG Producer Surplus	45.33	63.07	63.69	73.29
Transmission Congestion Revenues	0.18	(0.17)	(0.09)	(0.21)
Net Impact	**(11.93)**	**(16.00)**	**(15.99)**	**(19.02)**

APPENDIX H
AGENCY COMMUNICATIONS

BANNING
CALIFORNIA
ESTABLISHED 1913

CITY of BANNING

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (909) 922-3130 • Fax (909) 922-3141

PUBLIC WORKS
DEPARTMENT

March 22, 2004

Lin Juniper, Region Manager
Public Affairs
Southern California Edison
36100 Cathedral Canyon Dr.
Cathedral City, CA 92234

Dear Ms. Juniper:

The City of Banning would like to confirm that we have been briefed on your proposed Devers Palo Verde 2 (DPV2) Transmission Project. It is our understanding that SCE intends to file an application for this project in early 2005 with the California Public Utilities Commission, with the intent, upon approval, to begin project implementation in 2006.

Based on the information provided, the City has not identified any environmental issues or concerns at this time. It is our understanding that DPV2 Project would add the needed transmission facilities resulting into increased system reliability and lower cost of electricity to all California residents.

We would appreciate if you can provide us additional updates on the progress of the Project.

Sincerely,

Paul Toor
Assistant City Manager

Copy: R.P. Brar, Assistant Director Electric Utility

CITY OF BLYTHE

235 North Broadway / Blythe, California 92225
Phone (760) 922-6161 / Fax (760) 922-4938

February 23, 2005

VIA FAX ONLY: (909)928-8308

Southern California Edison
Attn: Mr. Robert Lopez
Regional Manager
26100 Menifee Road
Romoland, California 92585

Re: Devers-Palo Verde No. 2 Project

Dear Mr. Lopez:

The City of Blythe is aware and supports Southern California Edison (SCE) filing an application with the California Public Utilities Commission (CPUC) to build a new electric transmission line between Arizona and California and perform certain system upgrades in California. As I spoke in favor of the project at the California Energy Commission Public Workshop of November 10, 2004, the purpose of this letter is to endorse the project from the City's local perspective.

The Devers-Palo Verde No. 2 (DPV2) project will lower the cost of electricity purchased to serve California customers. This project would also increase energy producer's access to the California energy market which may provide an incentive for new generation development to serve California electricity customers. The project is expected to increase competition among energy suppliers and to benefit Californians through lower electricity costs. The construction of a large scale project like this will boost the local economy short term. Long term, the City and Palo Verde Valley hope to also enjoy reduced electricity costs. With the Blythe Energy Project in literally our back yard, and certainly if the second power plant becomes reality, this transmission line then becomes a critical component to that infrastructure.

Please contact me directly at (760)921-2740 if you would like to discuss this matter further.

Sincerely,

Charles Hull,
Assistant City Manager

cc: Kathleen DeRosa, SCE at (760)202-4136FAX

City of Palm Springs

David H. Ready, City Manager

3200 Tahquitz Canyon Way • Palm Springs, California 92262

TEL: (760) 323-8201 • FAX: (760) 323-8207 • TDD: (760) 864-9527

February 3, 2005

Lin Juniper
SCE Palm Springs Service Center
36100 Cathedral Canyon Drive
Cathedral City, CA 92234

Re: Devers Palo Verde #2

Dear Ms Juniper:

We have been briefed by means of the Project Summary Documents and FAQ's provided by SCE for the subject project. We understand that the project, consisting of new and replacement overhead power lines in the vicinity of I-10, runs through a portion of Palm Springs. We fully understand that the portion of the project within I-10 is within existing Southern California Edison rights of way. On the basis that this project would add transmission facilities needed to import additional lower cost electricity from out of state into California, and that electricity rates would therefore be lower with this project than they would be otherwise, we support SCE's pursuit of the Devers Palo Verde #2 Project.

We request that SCE coordinate with City staff for the portions of the project within the City and that copies of all environmental documents be made available to our Planning Department for review and comment.

Sincerely,

David H. Ready
City Manager

xc: David J Barakian
Alex Meyerhoff

Board of Supervisors
County of San Bernardino

JOSIE GONZALES
SUPERVISOR, FIFTH DISTRICT

January 14, 2005

Mr. Ray R. Gonzales, Region Manager
Southern California Edison (SCE)
Public Affairs
287 Tennessee Street
Redlands, CA 92373

RE: DEVERS PALO VERDE NO. 2 (DBV2) PROJECT

Dear Mr. Gonzales:

Thank you for taking the time to brief me on the proposed new electrical transmission line between Arizona and California. It is my understanding you will be submitting applications to the California Public Utilities Commission (CPUC), with the intent, upon approval, to begin this project in 2006.

I have not identified any specific issues or concerns with this project; however, I ask that you keep my informed of the status of the project throughout your filing process. As updates and/or issues arise that you feel may impact the Fifth District, please advise me.

Again, thank you for sharing your information with us on January 11, 2005

Sincerely,

JOSIE GONZALES
Supervisor, Fifth District

JG:tlm

San Bernardino County Government Center • 385 North Arrowhead Avenue, Fifth Floor • San Bernardino, CA 92415-0110 • (909) 387-4565 • Fax (909) 387-5392

Grand Terrace
CALIFORNIA

22795 Barton Road
Grand Terrace
California
92313-5295

Civic Center
(909) 824-6621
Fax (909) 783-7629
Fax (909) 783-2600

Maryetta Ferré
Mayor

Bea Cortes
Mayor Pro Tempore

Council Members
Lee Ann Garcia
Herman Hilkey
Jim T. Miller

Thomas J. Schwab
City Manager

January 12, 2005

Southern California Edison (SCE)
ATTN: Beverly Powell
287 Tennessee St.
Redlands, CA 92374

RE: Proposed Devers-Palo Verde No. 2 (DPV2) Project

Dear Ms. Powell:

On behalf of the Mayor and the City Council of Grand Terrace, we would like to thank SCE for the information presented to our citizens and businesses concerning the proposed Devers-Palo Verde No. 2 (DPV2) Project. Your team has been very informative, attending council meetings, providing community workshops, and advertising in our local newspaper, The Blue Mountain Outlook.

If you have any questions, please contact my office at 909-430-2245.

Sincerely,

Thomas J. Schwab
City Manager

cc: Mayor and City Council

City of Redlands
City Manager

John Davidson

January 12, 2005

Ms. Beverly Powell
Regional Manager
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

Re: Proposed Devers - Palo Verde No. 2 (DPV2) Project Coordination

Dear Ms. Powell,

On behalf of the Mayor and City Council, I wish to express the City's appreciation for your continued effort to educate and update City staff and the community on SCE's proposed transmission line upgrades in the City of Redlands. As a result of your public outreach efforts, our community is better informed of the DPV2 Project.

Thank you very much for your continued efforts and involvement, and we look forward to continued dialogue as the project planning process moves forward.

Sincerely,

John Davidson
City Manager

cc R. Mutter, Public Works Director
J. Shaw, Community Development Director

City of Beaumont

550 E. 6th Street
Beaumont, CA 92223
(909) 769-8520
FAX (909) 769-8526
Email: cityhall@ci.beaumont.ca.us
www.ci.beaumont.ca.us

January 7, 2005

Lin Juniper, Region Manager
Public Affairs
Southern California Edison
36100 Cathedral Canyon Dr.
Cathedral City, CA 92234

Dear Ms. Juniper:

The City of Beaumont would like to confirm that we have been briefed on your proposed Devers Palo Verde 2 (DPV2) Transmission Project. It is our understanding that SCE intends to file an application for this project in early 2005 with the California Public Utilities Commission, with the intent, upon approval, to begin project implementation in 2006.

Currently the City has not identified any specific issues or concerns with this project; however, we ask that you keep us informed of the status of the project throughout your filing process, along with any updates and/or issues that you feel may impact any areas within the current boundaries of potentially annexed areas of our City.

Thank you for keeping us briefed on this project.

Sincerely,

Alan C. Kapanicas
City Manager

Cathedral City

January 6, 2005

Lin Juniper
Region Manager, Public Affairs
Southern California Edison Company
36100 Cathedral Canyon
Cathedral City, CA 92234

Dear Ms. Juniper,

Thank you for briefing the City Council and staff December 20 on the Devers Palo Verde 2 project and for SCE's sponsorship of the open house I was able to attend September 28 at the Joslyn Senior Center in Palm Desert regarding plans for the new high-voltage electric transmission line.

We certainly support the project, which we hope will help to control the rising cost of energy and request that we be kept up to date on progress as the application proceeds through the CPUC, as well as during construction.

There is no major area of concern for Cathedral City, except to assure, in the interest of homeland security, that the transportation corridor of Date Palm Drive be maintained even in the event of any unforeseen act of terrorism. Is there any possibility of the line's being buried under Date Palm Drive? The I-10-Date Palm Drive interchange is one of Desert Hot Springs main transportation routes and the intersection and roadway itself will become increasingly vital as development begins to occur north of the freeway.

Again, we appreciate your efforts to keep city officials apprised of plans and progress.

Sincerely,

Donald E. Bradley
City Manager

DEB:JB/tlm

cc: Julie Baumer, Deputy City Manager; Bill Bayne, City Engineer

68-700 AVENIDA LALO GUERRERO • CATHEDRAL CITY, CA 92234 • 760/770-0340 • FAX: 760/202-1460

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Deirdre H. Bennett
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Ramon M. Hernandez

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District 6

CITY MANAGER

Daryl J. Parrish

December 15, 2004

Ray Gonzalez
Region Manager
Southern California Edison
287 Tennessee
Redlands, CA 92373

Subject: Devers-Palo Verde No. 2

Dear Ray,

This letter is in response to your request for written comments regarding the Devers-Palo Verde No. 2 project. The City of Colton has concerns regarding the upgrades planned for the Vista Substation, which is our interconnection point to SCE. As you know, any planned outages at Vista Substation would mean that our entire city would be without power for that duration. Therefore, the City of Colton would very much like to be included in any discussions regarding outage mitigation with respect to the upgrades planned for Vista. If you have any questions, please contact me at (909) 370-5051 or Jeannette Olko, Electric Utility General Manager at (909) 370-6196.

Sincerely,

Daryl Parrish
City Manager
City of Colton

CIVIC CENTER
650 N. La Cadena Drive
Colton, CA 92324
(909) 370-5099

City of Loma Linda

25541 Barton Road, Loma Linda, California 92354-3160 • (909) 799-2800 • FAX (909) 799-2890

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December 9, 2004

Ms. Beverly Powell, Regional Manager
Southern California Edison (SCE)
Public Affairs
287 Tennessee Street
Redlands, CA 92373

RE: DEVERS PALO VERDE NO. 2 (DPV2) PROJECT

Dear Ms. Powell:

Thank you for the opportunity to review the proposal and participate in the public review process for the DPV2 Project. Due to your public outreach efforts, the City of Loma Linda is very well aware of the DPV2 Project. The open house that SCE staff held for the community on September 7, 2004 and presentation to the City's Trails Development Committee on November 18, 2004 provided valuable information to City staff, Loma Linda and other area residents and interested parties. Staff's understanding is that the project will not result in a need for additional easements or right-of-ways and the potential environmental impacts of the project (i.e., aesthetics, land use) will not be significant because the SCE Easement already exists. Based on the preceding, staff has no comments or concerns about the project at this time.

Please feel free to contact me at (909) 799-2810 if you have any questions or concerns about this correspondence.

Sincerely,

Dennis R. Halloway
City Manager

cc: T. Jarb Thaipejr, PE, REA, Public Works Director/City Engineer
Deborah Woldruff, AICP, Community Development Director

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Recycled Paper

City Of Calimesa

December 8, 2004

Ms. Beverly Powell
Regional Manager
SCE Redlands Service Center
287 Tennessee Street
Redlands, CA 92373

Re: Proposed Devers-Palo Verde No. 2 (DPV2) Project Coordination

Dear Ms. Powell,

On behalf of the Mayor and City Council I wish to express the City's appreciation for your continued effort to educate and up date City staff and the community on SCE 's proposed transmission line upgrades in the City of Calimesa. Although community response to the many community workshops has been as varied as the questions themselves, the general community attitude has been positive.

Your community outreach, and involvement with City staff is to be complemented, as we look forward to continued dialogue as the project planning process proceeds.

Sincerely,

George Hansen
City Manager

CC: City Council

Executive Office
County of Riverside

Larry Parrish
County Executive Officer

December 6, 2004

Robert Lopez
SCE San Jacinto Valley Service Center
26100 Menifee Road
Romoland, CA 92380

Re: Devers-Palo Verde No. 2 Project

Dear Mr. Lopez,

Thank you for providing the information brochures on the Devers-Palo Verde No. 2 Project, a proposed 230 mile-long high-voltage electric transmission line between California and Arizona, with approximately 120 miles of transmission line through the County of Riverside. The County understands that the new line will parallel the existing transmission line but that SCE will need to acquire additional property rights in some areas. With regard to any property acquisition, the County would expect compliance with its Multi-Species Conservation Habitat Plan. The County also recognizes that the benefits the proposed project is expected create, including a reduction in the cost of electricity purchased to serve California customers.

At this time, the County's position on this project is neutral. We look forward to receiving and responding to any scoping documents, EIR review and other environmental information. Should you have any questions or need additional information, please contact Rhonda King at 951.955.1186.

Sincerely,

Larry Parrish
County Executive Officer

Robert T. Andersen Administrative Center
4080 Lemon Street • 4th Floor • Riverside, California 92501 • (951) 955-1100 • Fax (951) 955-1105