

MINUTE ITEM

This Calendar Item No. C9
was approved as Minute Item
No. 9 by the State Lands
Commission by a vote of 2
to 0 at its 7/28/83
meeting.

CALENDAR ITEM

7-009

4/28/83
W 22800
Childress
PRC 6405

GENERAL LEASE - RIGHT-OF-WAY USE

APPLICANT: San Diego Gas and Electric Company
P. O. Box 1831
San Diego, California 92112

AREA, TYPE LAND AND LOCATION:
A Strip of land 200 feet wide, consisting
of a 15.719-acre parcel of State school
land, located in Imperial County.

LAND USE: Construct, operate and maintain a 500 KV
overhead transmission line and all appurtenant
facilities thereto.

TERMS OF PROPOSED LEASE:
Initial period: 49 years from March 15,
1983.

Public liability insurance: \$1,000,000
combined single limit
coverage.

CONSIDERATION: \$282.96 per annum with the State reserving
the right to fix a different rental on
each fifth anniversary of the lease.

BASIS FOR CONSIDERATION:
Pursuant to 2 Cal. Adm. Code 2003.

PREREQUISITE TERMS, FEES AND EXPENSES:
Filing fee and first year's rental have
been received.

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STATUTORY AND OTHER REFERENCES:

- A. P.R.C.: Div. 6, Parts 1 and 2; Div. 13.
- B. Cal. Adm. Code: Title 2, Div. 3; Title 14, Div. 6.

AB 884: 12/22/84.

OTHER PERTINENT INFORMATION:

1. The San Diego Gas and Electric Company proposes to construct and operate a single - circuit 500 KV transmission line (approximately 280 miles long) from the Palo Verde Nuclear Generating Station, 40 miles west of Phoenix, Arizona to within ten miles of San Diego, California. The system will interconnect with local power networks in Imperial Valley and the Yuma area.

San Diego Gas and Electric Company -s very dependent on oil and natural gas (82 percent). The proposal project would: (1) help reduce dependence on oil and natural gas; (2) furnish access to the economy energy market; (3) enhance system reliability; and (4) help meet forecasted power needs.

2. A final EIR was prepared and certified by the Bureau of Land Management and the California Public Utilities Commission, pursuant to CEQA and the State CEQA Guidelines. The Bureau of Land Management and the California Public Utilities Commission found that the project will not have a significant effect on the environment.
3. The project is not situated on lands identified as possessing significant environmental values pursuant to P.R.C. 6370.1.

EXHIBITS:

- A. Land Description.
- B. Location Map.
- C. Summary of EIR.

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IT IS RECOMMENDED THAT THE COMMISSION:

1. DETERMINE THAT AN EIR HAS BEEN PREPARED AND CERTIFIED FOR THIS PROJECT BY THE BUREAU OF LAND MANAGEMENT AND THE CALIFORNIA PUBLIC UTILITIES COMMISSION.
2. CERTIFY THAT THE INFORMATION CONTAINED IN THE EIR HAS BEEN REVIEWED AND CONSIDERED BY THE COMMISSION.
3. DETERMINE THAT THE PROJECT WILL NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT.
4. AUTHORIZE ISSUANCE TO SAN DIEGO GAS AND ELECTRIC COMPANY OF A 49-YEAR GENERAL LEASE - RIGHT-OF-WAY USE, FROM MARCH 15, 1983; IN CONSIDERATION OF ANNUAL RENT IN THE AMOUNT OF \$282.96, WITH THE STATE RESERVING THE RIGHT TO FIX A DIFFERENT RENTAL ON EACH FIFTH ANNIVERSARY OF THE LEASE; PROVISION OF PUBLIC LIABILITY INSURANCE IN THE AMOUNT OF \$1,000,000 FOR COMBINED SINGLL LIMIT; FOR THE CONSTRUCTION, OPERATION AND MAINTENANCE OF A 500 KV OVERHEAD TRANSMISSION LINE AND ALL APPURTENT FACILITIES THERETO ON THE LAND DESCRIBED ON EXHIBIT "A" ATTACHED AND BY REFERENCE MADE A PART HEREOF.

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EXHIBIT "A"

LAND DESCRIPTION

W 22800

A strip of State school land 200 feet wide extending across Sections 27 and 28, T16S, R9E, S8M, Imperial County, California, lying 100 feet on each side of the following described centerline:

BEGINNING at a point on the south line of said Section 28 which bears S 89° 48' 39" W 1105.75 feet from a brass capped pipe marked USGLO T16S, R9E, set at the corner common to Sections 27, 28, 33 and 34 (so marked on said brass capped pipe) having California Coordinate System, Zone 6 coordinates of $x = 2,065,768.970$ and $y = 208,730.333$; thence N 26° 58' 19" E 3423.59 feet to a point on the east line of Lot 7 in Tract 57 and the terminus of the herein described centerline.

The sidelines of the herein described 200 foot wide strip shall be lengthened or shortened so as to terminate on the south line of said Section 28 and the east line of said Lot 7.

END OF DESCRIPTION

REVISED JANUARY 5, 1983 BY BOUNDARY AND TITLE UNIT, LEROY WEED, SUPERVISOR.

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TIME	610

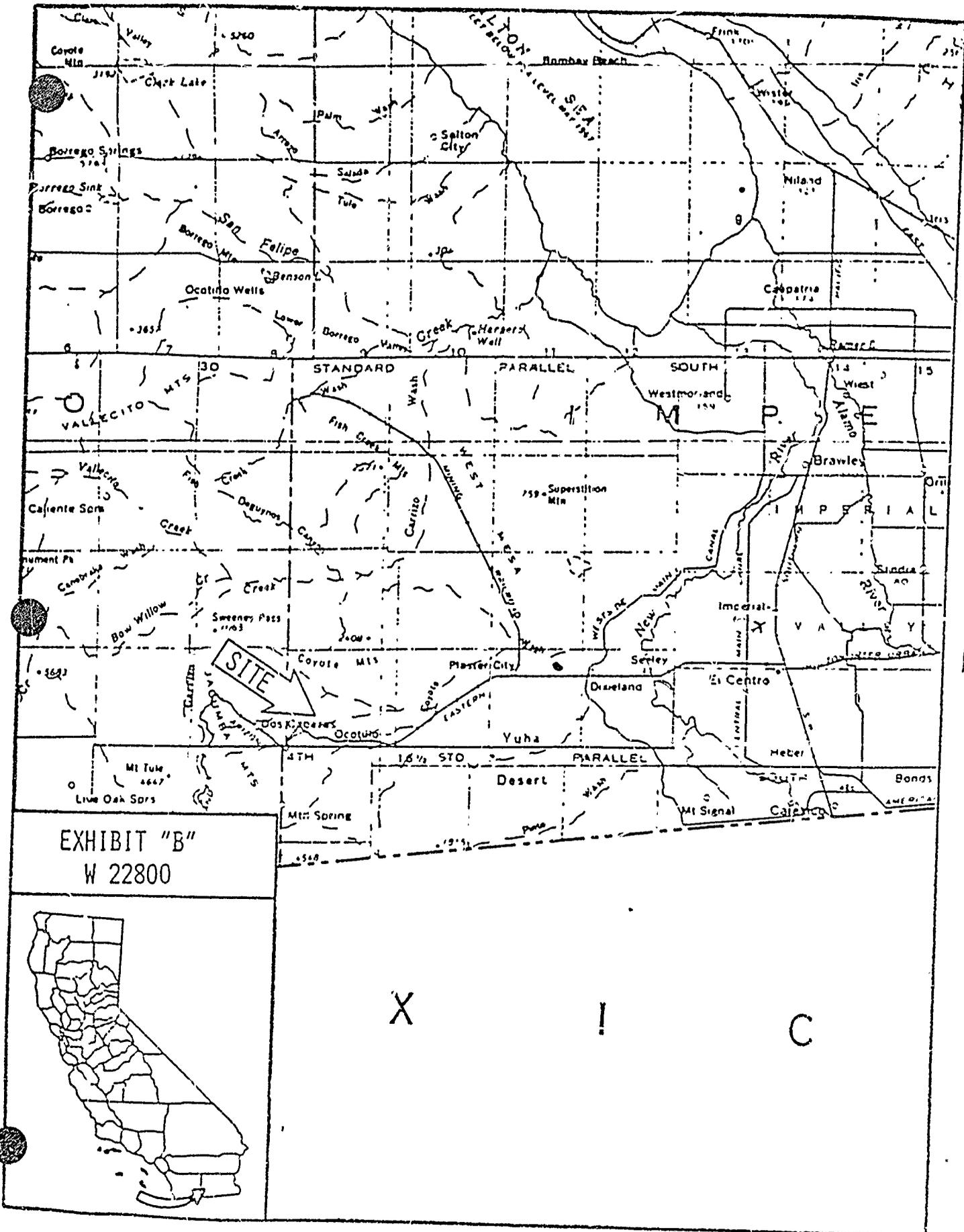


EXHIBIT "B"
W 22800



X I C

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The following is a copy of a summary: APS/SDG&E Interconnection Project; SCH# 79061204, FEIR October 1981. The document was jointly prepared by the BLM and the California Public Utilities Commission.

SUMMARY

INTRODUCTION

Arizona Public Service (APS) and San Diego Gas & Electric (SDG&E) (the Applicants or utilities) propose to construct and operate a transmission system to interconnect the electric power networks of APS, SDG&E and the Imperial Irrigation District (IID). This environmental document is a joint submittal by the Bureau of Land Management (BLM) and California Public Utilities Commission (CPUC) in compliance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) for consideration with the utilities' applications for granting a Certificate of Public Convenience and Necessity and approval of a right-of-way.

PURPOSE AND NEED

Both APS and SDG&E have an inordinate dependency on oil and natural gas (70 percent and 82 percent, respectively, in the Yuma and San Diego service areas) as primary fuel-sources for electric-power generation. In addition, forecasts by the California Energy Commission (CEC) for the SDG&E service area and by the Applicants indicate a growth in demand for electricity in the mid-to-late 1980s in the Applicants' respective service territories, which the utilities would be unable to meet without additional power and transmission capacity.

The proposed Project would (1) help reduce dependence on oil and natural gas for generating electricity consumed in the APS Lower Colorado River and SDG&E service territories; (2) furnish access to the economy energy market; (3) enhance system reliability; and (4) help meet the forecast need for power of both utilities by providing long-term firm transmission-capacity.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

Five general alternatives were considered by the Applicants to meet the need for oil and gas displacement and additional power in their respective service territories: no action, energy conservation and land management, alternative generation sources, alternative transmission systems and technologies, and the proposed action with routing alternatives.

NO ACTION

The no-action alternative (required for consideration under the NEPA regulations and defined here as the equivalent of the no-project alternative required under the CEQA regulations) has been interpreted in this environmental document to mean that no additional generating or transmission

facilities beyond those included in their current resource plans would be constructed by APS or SDG&E. The utilities would, however, attempt to meet their need for additional power in San Diego and Yuma with existing facilities and various forms of mitigating measures to compensate for the anticipated shortfall in the supply of electric power, but would be unable to meet their objective for oil and gas displacement.

Advantages of the no-action alternative would include the saving of construction costs for new facilities and the preclusion of associated environmental impacts. These advantages would have to be weighed, however, against the disadvantages that would result from or in spite of mitigating measures, such as increased generation from existing oil- and gas-fired power plants, continued and expanded conservation efforts, and increased interruptible power-purchases.

Increased generation from existing oil- and gas-fired units would increase the utilities' oil dependence, contrary to national energy policy; increase fuel costs and customer rates; deteriorate existing air-quality in the Yuma and San Diego areas; and still fail to compensate fully for the anticipated shortfall in electrical energy. Potential energy savings from existing and planned conservation programs have already been incorporated in the utilities' demand forecasts, and even if projected energy savings could be doubled, they would be insufficient to significantly offset the anticipated shortfall in the supply of electricity. Future amounts of interruptible transmission capacity are expected to be substantially less than the limited quantities currently available, and could not be relied upon for systems planning.

Other disadvantages or adverse effects that would result from the energy shortfall, even if the above mitigating measures were implemented, include possible interruptible service, rolling blackouts and brownouts and a moratorium on new hook-ups in the Yuma and San Diego service territories of the utilities, with consequent adverse effects on the incomes, health, safety and general convenience of all classes of customers. Further, the utilities could not take advantage of potential geothermal developments in the Imperial Valley and Mexico, or of coal-fired energy and the economy energy market to the east, all of which would require new transmission capacity.

ENERGY CONSERVATION AND LOAD MANAGEMENT

Energy conservation and load management have the advantage of reducing energy consumption and peak demand with no documented adverse environmental impacts, although there are economic and other constraints that prevent or inhibit implementation of some conservation and load-management programs. Both APS and SDG&E have comprehensive on-going programs in conservation and load management that have reduced energy consumption and system peak demand compared to earlier forecasts. Current demand forecasts for the utilities incorporate anticipated energy savings and reductions in peak demand from conservation and load-management programs.

ALTERNATIVE GENERATION SOURCES

Although a principal objective of the utilities is to reduce oil and gas dependence, all types of potential generating capabilities were considered, including the addition of new oil- and/or gas-fired units, repowering of existing units, the addition of coal or nuclear plants, development of hydroelectric facilities, development of geothermal power, cogeneration, purchases from Mexico, wind turbines, solar energy, biomass and new technologies. These alternatives were found not to be reasonable for either APS or SDG&E because of constraints of capital costs, national energy policy, environmental regulations, state-of-the-art technologies or lead-time required to construct new generating facilities in relation to time-of-need. In the case of APS, no additional generating capability could be justified by the company's long-range forecast until 1990. Most of the alternative generation sources considered by SDG&E would be located off-system and would require new transmission facilities to deliver energy from each of the alternative generation sources to the SDG&E service area.

In addition to considering individual generation alternatives, cumulative effects were considered of some of the alternatives in combination that passed an initial screening based on criteria that they reduce oil/gas requirements and meet the time limit of the stated need. A potential range of capacity for eight alternatives--additional conservation, hydroelectric and geothermal development, purchases from Mexico, cogeneration, wind, solar and biomass development--was then compared to realistic estimates. However, because the values used to quantify the range of potential capacity and realistic estimates were conjectural, and the availability of maximum capacity from all eight alternatives uncertain, it was concluded that for SDG&E the cumulative effects of the alternatives in combination could not be considered to meet the stated need. A similar conclusion was reached for APS by demonstrating that none of the alternatives was independently viable and their effects in combination would not meet the stated need.

ALTERNATIVE TRANSMISSION SYSTEMS AND TECHNOLOGIES

Another alternative considered for meeting the stated need was the transfer of energy from generation sources outside San Diego and Yuma using existing or new transmission systems and/or technologies. And, since a principal concern of both utilities is to obtain reliable base-load energy that is not oil- or gas-fired, ways to transfer energy from existing coal-fired power plants that have surplus capacity were analyzed and evaluated.

The major sources of available coal-fired electrical energy within a practical range of the utilities' service areas are located in northern and eastern Arizona and in New Mexico. Therefore, transmission alternatives, including existing transmission capability, between coal-fired power sources to the east and Yuma/San Diego were investigated. It was determined that sufficient

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transmission capability will exist in the 1980s for delivery of SDG&E's firm bulk-power purchases from coal-fired plants to Palo Verde Nuclear Generating Station Switchyard (PVNGS), west of Phoenix. Other delivery points were evaluated, but PVNGS was identified as the most accessible and acceptable because of environmental, cost-effective and systems-engineering reasons. Also, PVNGS is a major regional intertie. Accordingly, the transmission alternatives under consideration involve capability between PVNGS and San Diego.

There are at present no existing or planned transmission facilities that directly connect PVNGS with the SDG&E service area. Lines indirectly connecting the two areas are either fully utilized or fully committed to future planned requirements.

Transmission lines of voltage levels other than 500kV were considered and found to be unsuitable. A 765kV (2000 MW capacity) transmission line would have excess capacity, and two 345kV transmission lines would be required to provide the 1000 MW capacity of a single 500kV line. A direct current (dc) power transmission-system was also considered, but found not to be economically competitive for route-distances less than 400 miles. Underground transmission-systems were evaluated as alternatives, but eliminated because of technical complications, economic and environmental costs, and accessibility, although some adverse visual and aesthetic impacts would be avoided.

Investigation of the alternatives described above led to the conclusion that the optimal means for supplying power to the Applicants' respective service territories within the time-frame of the stated need (given the economic, environmental, national energy-policy and state-of-the-art constraints of alternative actions) would be by constructing an overhead alternating current (ac) transmission-system between the APS main system and its Yuma service territory and a bulk-power delivery center near San Diego. (SDG&E's action to explore a transmission line to the east is also consistent with a CPUC order of May 1978 that "SDG&E shall continue to analyze and pursue the concept of building a transmission-line system to the Arizona border and apply to the appropriate agencies for permits" Order No. 88758.)

THE PROPOSED ACTION

Primary facilities of the proposed Project include a single-circuit 500kV transmission line (approximately 280 miles long) from PVNGS, 40 miles west of Phoenix, Arizona, to Miguel Substation, approximately 10 miles southeast of San Diego, California, and a double-circuit 230kV transmission line from Miguel Substation to Mission Tap, 24 miles northwest of Miguel Substation. Ancillary facilities include intermediate substations at Yuma, Arizona and the Imperial Valley, California; a 161kV transmission line to interconnect the 500kV transmission line with the local power network in Imperial Valley; a

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69kV transmission system to interconnect the 500kV transmission line with the local power network in the Yuma area; and communications facilities throughout the system. Of the substations required for the proposed action, new 500kV substations would be required in the Imperial Valley and possibly at two of the four alternative substation-sites in the Yuma area (North Gila and Dome Valley). Existing substations at PVNGS, Miguel, Los Coches and at the other two Yuma alternative sites (Yucca and Gila) would be expanded or modified. Power-transfer-capability of the 500kV system would be nominally rated at 1000 MW, of which APS would have an 11 percent (or 110 MW) entitlement between PVNGS and Yuma. Construction would begin in January 1982 and be completed in May 1984. The life of the proposed Project is estimated to be 50 years.

SCOPING, PROJECT-RELATED STUDIES AND PUBLIC REVIEW PROCESS

DRAFT ENVIRONMENTAL DOCUMENT (DES)*

Prior to preparation of the DES, environmental studies, including regional-scale and corridor-scale studies, were conducted for more than 1,100 miles of alternative transmission-line routes between PVNGS and Mission Top via Miguel. The principal studies, through which the environmental baseline for impact assessment and mitigation planning was developed, inventoried existing conditions for air, geotechnical and ecological resources in the natural environment; land uses, agricultural resources and socioeconomic, visual and acoustical characteristics of the human environment; and archaeological, historical and Native American cultural resources in the cultural environment. Studies were also conducted (1) to determine the feasibility of the International Border, Salton Sea and Banning Pass alternative corridors, proposed in public scoping meetings; (2) to assess the potential environmental impacts of ancillary facilities; (3) to determine potential growth-inducing effects; and (4) to analyze potential electrical, biological, health and safety effects from the proposed Project.

In compliance with NEPA, appropriate Federal, state and local agencies, and interested persons participated in the identification of significant issues relevant to the proposed Project and in the development of the work plan for environmental studies. The comprehensive scoping process included the following sequential steps:

*The APS/SDG&E Interconnection Project Draft Environmental Document (EIS/EIR) is referred to in this document as the DES; the Supplement to the DES is referred to as the SDES, and this Final Environmental Document is referred to as the FES.

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- Review of published and unpublished pertinent data, including a number of previous environmental studies and environmental statements germane to the study area.
- Identification and development of additional data where it was deemed necessary.
- Selection of a preliminary network of alternative transmission corridors for the 500kV transmission line between PVNGS and Miguel, and for the 230kV transmission line between Miguel and Mission Tap.
- Four public meetings to determine significant environmental issues to be emphasized in the environmental studies and review the preliminary corridors under consideration.
- Selection of the final network of alternative transmission corridors, and identification by the Applicants of a proposed centerline within each corridor and alternative study areas for ancillary facilities.
- Preparation of a scope of work.

An extensive program to contact and inform the public was conducted to provide information on the proposed Project to agencies, groups and individuals; to solicit input and obtain data for the environmental studies; and to identify issues and concerns about the proposed Project early in the planning process. BLM, CPUC, APS, SDG&E and Wirth Associates (the environmental consultant) all participated in the program.

SUPPLEMENT TO THE DRAFT ENVIRONMENTAL DOCUMENT (SDES)

Subsequent to the publication of the DES in October 1980, and as a result of issues, concerns and objections raised by various public agencies, special-interest groups and the general public, additional studies were conducted and a decision made to issue a supplement to the DES (SDES). New alternatives were studied either at a Phase II level (corridor scale), or for their general feasibility/suitability to see if they warranted Phase II studies. Alternatives studied for the SDES are briefly described below.

Yuma - Alternative 500kV transmission routes, 500kV/69kV substation sites and associated 69kV transmission systems were studied at a Phase II level in the Yuma area.

Sand Hills - One alternative 500kV transmission route crossing the southern portion of the Sand Hills was studied at a Phase II level in addition to a feasibility/suitability study conducted on a route further north.

Imperial Valley - One 500kV and two 161kV transmission-line alternatives were studied at a Phase II level. Also, the Salton Sea and Banning Pass alternative routes, and 500kV/161kV substation sites previously studied for the DES were reevaluated. The Holtville Drain alignment was analyzed with respect to engineering, design and agricultural constraints. Existing data relevant to the Palo Verde-Devers transmission route, Mesquite Lake Substation, and the median strip of Interstate 8 (I-8) were reviewed.

Dulzura - Three new alternative 500kV transmission routes south of Dulzura were studied at a Phase II level, and the Otay International Border Route was studied for feasibility/suitability.

Miguel-Mission Tap - Results of previous studies on alternative transmission routes between Miguel Substation and Mission Tap were documented.

The environmentally preferred route identified in the SDES included two environmentally preferred routes in the Yuma area, each route reflecting a different set of values, or point of view, in trade-offs between resources. The southern preferred alternative represents the route with the least environmental impacts to the natural environment. The northern preferred alternative responds to public concerns expressed and gives greater significance to land-use conflicts and agricultural impacts.

FINAL ENVIRONMENTAL DOCUMENT (FES)

Subsequent to the publication of the SDES in April 1981, the Wellton-Mohawk Irrigation and Drainage District in Arizona and APS requested that BLM consider alternative routes in the Mohawk Valley and Laguna Mountains to avoid crossing agricultural lands. Also, SDG&E requested a modification of the northern environmentally preferred route in the Sand Hills to straighten the proposed alignment and thereby save substantial costs. Additional environmental studies were undertaken in those areas, the results of which are presented in this document.

PUBLIC REVIEW PROCESS

The public review process for the DES and SDES consisted of soliciting comments from government agencies, institutions, organizations and individuals to whom approximately 1200 copies of each document were sent, either in the form of letters, or remarks during public hearings conducted by BLM and CPUC in Phoenix and Yuma Arizona, and El Centro, El Cajon and San Diego, California.

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The response was voluminous. Two-hundred-two letters were received commenting on the DES and SDCS; approximately 765 people attended the public hearings; and 148 people spoke at the public hearings. Responses to specific comments received in letters and hearings are included in this FES.

The twelve major issues raised most frequently by reviewers of the documents were: electrical effects, property value, growth impacts, agricultural impacts, alternative energy sources and conservation, bird-collision hazard, underground transmission systems, use of public vis-a-vis private land, ecological vis-a-vis human values, Link 28, avoiding Eucalyptus Hills, and the validity of corridor-scale studies and corridor-selection process.

THE AFFECTED ENVIRONMENT

The environment potentially affected by the proposed action in southwestern Arizona and southern California is one of diverse natural features, land uses and cultural resources. With the exception of a few urban centers, the area is sparsely populated. The eastern portion of the study area is largely desert with characteristically hot summers, cool winters and scant precipitation, while the western portion has a climate typical of the Coastal Mountain Range, with warm summers, cool winters and moderate precipitation.

The Arizona portion of the study area falls within the Sonoran Desert section of the Basin and Range Province and is characterized by stark, rugged mountains rising abruptly from the desert floor to less than 2,000 feet elevation.

The Peninsular Range section in the Lower California Province, the westernmost portion of the study area, is characterized by major northwest-trending ridges, commonly 5,000 to 8,000 feet in elevation, bounded by steep scarps and aproned by numerous small alluvial fans extending from large drainages into adjacent valleys. The Salton Trough section of the Lower California Province, including the Imperial and Coachella valleys as well as the inland Salton Sea, extends eastward from the Peninsular Range to the edges of the Chocolate and Cargo Muchacho mountains, and is bounded on the northeast and southwest by major active faults. The Salton Trough is noted for its low relief and exceptionally low elevations (-200 feet near the Salton Sea, which provides drainage for this section of the Province), and for the Sand Hills in eastern Imperial County, which provide an exceptional example of migrating sand dunes and stationary sand deposits.

The easternmost California alternative corridors cross the Colorado Desert in the Lower California Province, a region dominated by northwest-trending eroded mountains separated by broad flat alluvium-filled valleys. The Colorado River, which is the largest water source in Imperial County, forms the eastern boundary of the Colorado Desert and the natural and political boundary between Arizona and California.

The most significant resources and land uses within the alternative transmission-line corridors include the riparian habitat along the Colorado and Gila rivers; unique vegetative communities; Federal- and state-protected plant and wildlife species; big game animals; irrigated farmlands; the Salton Sea National Wildlife Refuge; the Anza Borrego State Park (the second largest state park in the Nation); the Gila Bend (Papago), Cocopah, Fort Yuma (Quechan) and Campo (Kumeyaay) Indian reservations; Luke Air Force Gunnery Range; Yuma Proving Ground; the scenic quality of riparian and mountain landscapes; the Sand Hills; and archaeological, historical and Native American cultural resources.

ENVIRONMENTAL CONSEQUENCES

IMPACT ASSESSMENT/MITIGATION PLANNING PROCESS (IA/MPP)

Environmental consequences from the proposed action and alternatives are the residual impacts derived through a process that first identified, and subsequently evaluated and integrated, initial (unmitigated) impacts and appropriate mitigation measures. The process involved assessing impacts based upon a comparison of the proposed Project with the pre-Project environment; determining mitigation that would avoid, effectively reduce or eliminate impacts; and identifying "residual" impacts, or impacts remaining after the application of mitigation committed to by both the Applicants and BLM. The impact assessment was conducted on alternative routes and assumed a geographic tolerance of one-half mile (one-quarter mile on each side of the Applicants' preliminary centerline).

TRANSMISSION - 500kV/230kV

Significant types of impacts relevant to ecological resources include any impact that affects officially regulated or protected species, communities or areas; interferes with migration of wildlife; alters the diversity of biotic communities or population of plant or animal species; affects important habitat; or increases potential for wildfire.

In Arizona, potential significant impacts may occur to special-status plant species, e.g., elephant tree; migratory waterfowl, bighorn sheep and Sonoran pronghorn habitat, and possible habitat for Gila monster, desert tortoise and flat-tailed horned lizard. In the California study area, potential significant impacts may occur to unique plant species, Andrew's scarab beetle, bighorn sheep range, raptor nesting areas, good-quality habitat and a vernal pool.

Characteristically, direct and long-term impact types for social and economic land uses include any impact that displaces, alters or otherwise physically affects any existing, developing or planned residential, commercial, industrial or institutional use or activity, utility line or facility, communications facility or related activity, air-facility or related activity; affects official general or regional plans, policies, goals or operations of communities or governmental agencies; or affects reliability of electrical service because of potential man-induced hazards.

Potential significant residual land-use impacts were identified for individual and clusters of residences scattered throughout the study corridors; a few private airstrips, some institutional and light industrial land-uses and mobile-home parks.

Potential significant residual impacts to park, preservation and recreation land uses include the Fred J. Weiler Greenbelt, BLM-off road vehicles (ORV) open areas, BLM concentrated use zones, a California State Preservation Area of Outstanding Natural Sand Dunes, the Pacific Crest Trail, the Cochama Experimental Forest and Cottonwood Golf Course.

The agricultural study identified long-term impacts to agricultural resources in terms of estimated annual costs of additional farm equipment, irrigation and weed-control operations, within and around transmission towers, additional aerial applications, and crop-loss. Short-term impacts included costs of crop-loss due to loss of cropping area, additional irrigation operations, cost of site-reconditioning, cost of perennial crop-reestablishment and loss of crop due to tree pruning. Impact types considered include any impact that affects crop production and farming operations or occupies "prime" or "unique" farmland. A moderate level of impact was applied to all agricultural land, regardless of the type of crop impacted. (See Agricultural Study, Appendix D in the DES.)

The socioeconomic impact analysis addressed potential positive and negative construction-worker, expenditure and fiscal effects that would result from the construction of the proposed facilities. The maximum demand by construction workers for temporary accommodations could be met with existing facilities in each community and community services would be adequate. Potential indirect-tax revenues that would accrue to communities and taxing jurisdictions in the study area would be minimal, but would be a beneficial impact of the proposed Project. Increases in property-tax revenues during operation would be a significant long-term beneficial impact. Personal income in the region would rise as a result of Project expenditures, which would be a small beneficial impact for the region.

Visual impacts were considered to be adverse, direct and long-term. Typical impact-types include impacts affecting: the quality of any scenic resource; any resource possessing rare or unique value; the view from or the visual setting of any residential, commercial, institutional or other visually sensitive

land-use; the view from a visual setting of any travel route; the view from a visual setting of any established, designated or planned recreation, preservation, educational or scientific facility, use area, activity, view point or vista.

Visual intrusion of the transmission line because of structures contrast (no similar existing structures), landform contrast (new or upgraded access roads and tower-pad construction) and vegetation contrast (vegetation removal), would continue throughout the life of the proposed Project. The greatest residual impacts would occur in areas of natural scenic-quality or where the transmission line would be in close proximity to residences, travel routes (e.g., I-8), use areas (Sand Hills), or other sensitive viewing locations.

Impacts to archaeological resources, which are nonrenewable, would be adverse and permanent. Construction and operation activities could result in impact types affecting archaeological resources physically and/or visually; sites or districts included in or eligible for inclusion in the National Register of Historic Places; or sites or areas identified as having special archaeological value. Impact levels were probability levels determined by a predictive model.

Potential high impacts to archaeological resources were predicted in the Gila Bend Mountains, along the Gila River, in the Muggins and Laguna mountains, the foothills of the Gila Mountains, the Colorado River Pilot Knob area, the Picacho Basin along the ancient Lake Cahuilla shorelines, the base of the Fish Creek Mountains, in the vicinity of Jacumba, along the Jamul, Tecate and Dulzura creeks and the Sycamore Canyon drainage, and along the base of Mother Miguel Mountain.

Types of impacts to historical resources were identified as direct physical impacts resulting from construction-related activities; indirect physical impacts resulting from increased access; and visual impacts created by the presence of tower and lines during the life of the proposed Project.

No potential significant impacts to historical resources are expected in Arizona. In California, significant impacts were identified for the Pilot Knob historic Native American site, the Plank Road Area of Critical Environmental Concern, Southern Emigrant (Butterfield) Road and the Jamul Cement Works.

Three types of impacts to Native American cultural resources were assessed: physical, visual and aural. No specific identification of Native American cultural resources will be disclosed in this document because of Native American concern for the sacred nature of many sites and the desire to protect the resources. Potential significant impacts would occur to multiple-resource areas, rock-art areas, cremation/burial areas, village sites and sacred mountains.

No significant potential impacts to air and geotechnical resources or acoustical characteristics were identified.

ANCILLARY FACILITIES

The construction and operation of the Imperial Valley Substation sites could highly impact archaeological resources. A high probability for encountering sites was indicated by the predictive model. (Subsequently, an intensive survey in July 1980 revealed no sites at Substation Site D.) The expansion of facilities at Miguel Substation would potentially affect ecological and archaeological resources significantly. The expansion of facilities at Los Cocheros would occur near Lake Jennings Park, a highly sensitive land-use. Depending on the final location of the Yucca Substation, a high impact to a single dwelling could occur. No significant potential environmental impacts were identified for the North Gila Substation site; however, significant impacts at the Yucca Substation site would occur to Native American and agricultural resources. (The 50 acres of agricultural land that would be removed from production represents the most significant impact (high impact) to agricultural resources from the proposed Project.) Significant (moderate) potential impacts at the North Gila Substation site were identified for historical and visual resources, while at the Dome Valley Substation site there would be a potential significant (moderate) impact to ecological resources.

Construction and operation of the 69kV transmission system would result in significant (moderate) potential impacts to ecological resources along routes that cross riparian areas and known flat-tailed horned lizard habitat. A high impact could also result where the 69kV transmission line would cross the N.R. Adair County Park. A moderate impact to visual, historic and Native American cultural resources could also occur along sections of the 69kV alternative routes.

Significant (high) potential impacts to ecological resources could occur from the construction and operation of the 161kV transmission line because of an important waterfowl rookery and potential waterfowl-collision hazard. Significant (high) potential impacts also exist for archaeological resources along 161kV alternative routes because of projected high density of sites.

Potential high impacts from the construction of microwave towers could occur to Native American cultural resources at one site.

ELECTRICAL, BIOLOGICAL, HEALTH AND SAFETY EFFECTS

Only the potential impacts from the 500kV line were analyzed, as any electrical effects experienced by the public, with the exception of audible noise, would be less in areas adjacent to substation and communications facilities and beneath lower-voltage lines.

The electrical effects considered in the studies were those resulting from corona and electric fields. Corona, which is the discharge of energy from an energized line when the voltage gradient exceeds the breakdown strength of

air, is greatest during wet weather. Effects of corona are audible noise, visible light, photochemical oxidants, and radio and television interference. No significant adverse effects from audible noise, visible light and photochemical oxidants are anticipated. Radio and television interference would be most pronounced in areas of weak reception and where antennae are located close to a transmission line.

Effects from electrostatic and magnetic fields that develop around a transmission line are of general concern because of the potential for induced voltage onto conductive objects within the electrostatic field, instantaneous ignition of fuel, electric shock to human beings and possible health and biological hazards.

Short-circuit current from induced voltage would be limited by the proposed Project's line design in compliance with national and state safety codes, and the electrostatic potential would be eliminated for all permanent structures by grounding within 200 feet of the right-of-way. Line design will limit to 5.0 milliamps (mA) the short-circuit current from metallic objects. Studies have shown that let-go thresholds for people are equal to or greater than 5.0 mA.

Interference that might result from induced voltage from a magnetic field to pipelines, rails, overhead communications circuits or other electric lines would be mitigated by the Applicants to the satisfaction of affected utilities and individuals.

The results of studies, reported to date, on biological and health effects from electric fields are inconclusive in establishing that such effects do occur. On the other hand, it has not been clearly demonstrated that such effects do not occur. If they do, in fact, occur, experts are not in agreement that they pose a potential biological or health hazard. Reversion of pacemakers is the most substantial effect noted, although it is not considered a serious problem when it occurs for short periods of time. To date, no evidence that a transmission line has caused a serious problem to the wearer of a pacemaker has been found.

GROWTH INDUCEMENT

A growth-inducing impact study was conducted to estimate potential economic and demographic impacts to the SDG&E service area from the proposed Project. A baseline "no-project" alternative was hypothesized using criteria established by CPUC.

The proposed Project was considered to be growth-accommodating rather than growth-inducing, with any growth differential between the Project and no-Project alternatives not attributable solely to the Project.

Results of the study indicate that potential growth-inducing impacts would not be significant.

PREFERRED ROUTES

(See Figure 3-15(R)F and Table 1-1F in Chapter 1.)

ENVIRONMENTALLY PREFERRED ROUTE

The northern and southern environmentally preferred routes identified in Chapter 3 of the SDES are still the environmentally preferred routes. However, Link 167 has also been identified as an environmentally preferred alternative to Links 134, 162, 163, 164 and 165 in the Sand Hills.

Description of the Environmentally Preferred Route

PVNGS to Yuma

While the environmental consequences along the Arizona portion of the proposed preferred route can generally be characterized as moderate-to-low, there remain some significant unavoidable adverse impacts. The preferred route would traverse areas of moderate-to-high natural scenic-quality and be visible (in close proximity) from residences and portions of I-8. Visual impacts would result from structures contrast (no existing structures similar to that of the proposed Project) and landform contrasts. The preferred route would pass through special-status plant habitats (11.0 miles) and the habitat of the Gila monster. Of the approximately 2.2 miles of agricultural land crossed, approximately 0.8 acre* would be eliminated from productive use. One single-family dwelling could be highly impacted. Cultural-resource sites important to Native Americans would be affected by this route and previously recorded archaeological sites may be crossed.

Yuma

Arizona Southern - While the environmental consequences along the southern portion of the proposed preferred route can generally be characterized as moderate-to-high, there remain some significant unavoidable adverse impacts.

*Because of adjustments by the Applicant in the proposed centerline, these figures vary from the ones given in the corridor-scale study. Total agricultural land potentially removed in Arizona between PVNGS and the Colorado River on the southern environmentally preferred route would be approximately 7.9 acres; on the northern environmentally preferred route 1.8 acres; and on the BLM preferred route 1.3 acres.

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The preferred route would be visible (in close proximity) from residences. Visual impacts would result from structures contrast (no existing structures similar to that of the proposed Project). The preferred route would pass through habitat of the flat-tailed horned lizard. Of the approximately 17.8 miles of agricultural land crossed, approximately 7.1 acres would be eliminated from productive use. Two housing subdivisions and one airstrip would be traversed, and 22 single-family dwellings could be highly impacted. Cultural-resource sites important to Native Americans would be affected by this route.

Arizona Northern - While the environmental consequences along the northern portion of the proposed preferred route can generally be characterized as moderate-to-high, there remain some significant unavoidable adverse impacts. The preferred route would traverse areas of moderate-to-high natural scenic-quality and be visible (in close proximity) from residences. Visual impacts would result from structures contrast (no existing structures similar to that of the proposed Project) and landform contrasts. The preferred route would cross the Colorado River (potential bird-collision hazard). Of the approximately 2.0 miles of agricultural land crossed, approximately 1.0 acre would be eliminated from productive use. Cultural-resource sites important to Native Americans would be affected by this route.

California Southern - The southern portion of the environmentally preferred route can generally be characterized as having moderate-to-high environmental consequences with several significant unavoidable adverse impacts. The route would traverse areas of moderate-to-high natural scenic-quality. Visual impacts resulting from structures contrast and landform contrast are predicted for this route. The preferred route would pass through 0.2 mile of Colorado River habitat and cross one area of park, preservation or recreation land-use. The route would also traverse an area of archaeological, historical and Native American concern designated as an ACEC by the BLM.

California Northern - The northern portion of the environmentally preferred route, which includes two alternatives between the Cargo Muchacho Mountains and the Sand Hills, can generally be characterized as having moderate-to-high environmental consequences with several significant unavoidable adverse impacts. Both alternatives would traverse areas of moderate-to-high natural scenic-quality, and visual impacts would result from structures contrast and landform contrast. The preferred routes would pass through 0.2 mile of Colorado River habitat and cross several areas of park, preservation or recreation land-use. The routes would also traverse areas of archaeological concern designated by BLM as having "very high" sensitivity. Numerous cultural-resource sites of Native American concern would be potentially affected.

Sand Hills-Mission Top

The California portion of the environmentally preferred route can generally be characterized as having moderate environmental consequences with several significant unavoidable adverse impacts. The route would traverse areas of moderate-to-high natural scenic-quality and be visible from residences. Visual impacts resulting from structure contrast and landform contrast are predicted for a major portion of the route. The preferred route would pass through 79.6 miles of special-status plant habitat and traverse raptor nesting areas and the habitats of the Andrew's scarab beetle, flat-tailed horned lizard, bighorn sheep and magic gecko. Of approximately 22.4 miles of agricultural land crossed, approximately 10.1 acres would be excluded from productive use. The preferred route crosses several areas of park, preservation or recreation land-use; one single-family dwelling and one mobile home would be highly impacted. The route would also traverse areas of archaeological concern designated by BLM as having "very high" sensitivity and "severe density" of sites. One historical site and numerous cultural-resource sites of Native American concern would be potentially affected.

BLM PREFERRED ROUTE

The BLM Preferred Route on public lands is essentially the same as the northern environmentally preferred route, using Link 167, with two deviations. The BLM preferred route crosses the Mohawk Valley on Link 88 to the north of the environmentally preferred route and crosses Dome Valley and the Laguna Mountains to the north of the environmentally preferred route on Links 86, 78a and 87. The BLM has deviated from the environmentally preferred route to accommodate local preferences.

ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE'S RECOMMENDED ROUTE

The Arizona State Siting Committee's recommended route is essentially the same as the BLM preferred route in Arizona with one deviation. The Siting Committee's recommended route crosses the Muggins Mountains (and Yuma Proving Ground) on Link 28, whereas the BLM (and environmentally preferred) route skirts the Muggins Mountains to the south on Links 29, 30a and 30b. Table I-1F lists the preferred routes by link. In the event the BLM does not grant a right-of-way on Link 28, the Siting Committee recommends Links 29, 30a and 30b as its alternate preferred route.

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