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2007 NOV 26 P 4: 59

AZ CORP COMMISSION
DOCKET CONTROL

Transcript Exhibit(s)

Docket #(s): L-00000D-07-0566-00135

Exhibit # : APS1-APS7, Committee1, S1-S3

Arizona Corporation Commission
DOCKETED

NOV 26 2007

DOCKETED BY nr

EXHIBIT
APS-1
Admitted

Application for a Certificate of Environmental Compatibility

Palo Verde Hub to North Gila 500kV Transmission Line Project

Map Volume

Prepared for:

Arizona Power Plant and Transmission Line Siting Committee

Submitted by:

Arizona Public Service Company

Date: October 3, 2007
Case No. ___

EXHIBIT A
LOCATION AND LAND USE MAPS

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"*Where commercially available, a topographic map, 1:250,000 scale, showing any proposed transmission line route of more than 50 miles in length and the adjacent area. For routes less than 50 miles in length, use a scale of 1:62,500. If application is made for alternative transmission line routes, all routes may be shown on the same map, if practicable, designated by the applicant's order of preference.*"

Exhibit A-1:	Land Ownership and Jurisdiction
Exhibit A-2:	Existing Land Use
Exhibit A-3:	Future Land Use

TABLE OF CONTENTS

Vicinity Map 1

Exhibit A-1 – Land Ownership and Jurisdiction
- Exhibit A-1a
- Exhibit A-1b
- Exhibit A-1c
- Exhibit A-1d

Exhibit A-2 – Existing Land Use
- Exhibit A-2a
- Exhibit A-2b
- Exhibit A-2c
- Exhibit A-2d

Exhibit A-3 – Future Land Use
- Exhibit A-3a
- Exhibit A-3b
- Exhibit A-3c
- Exhibit A-3d

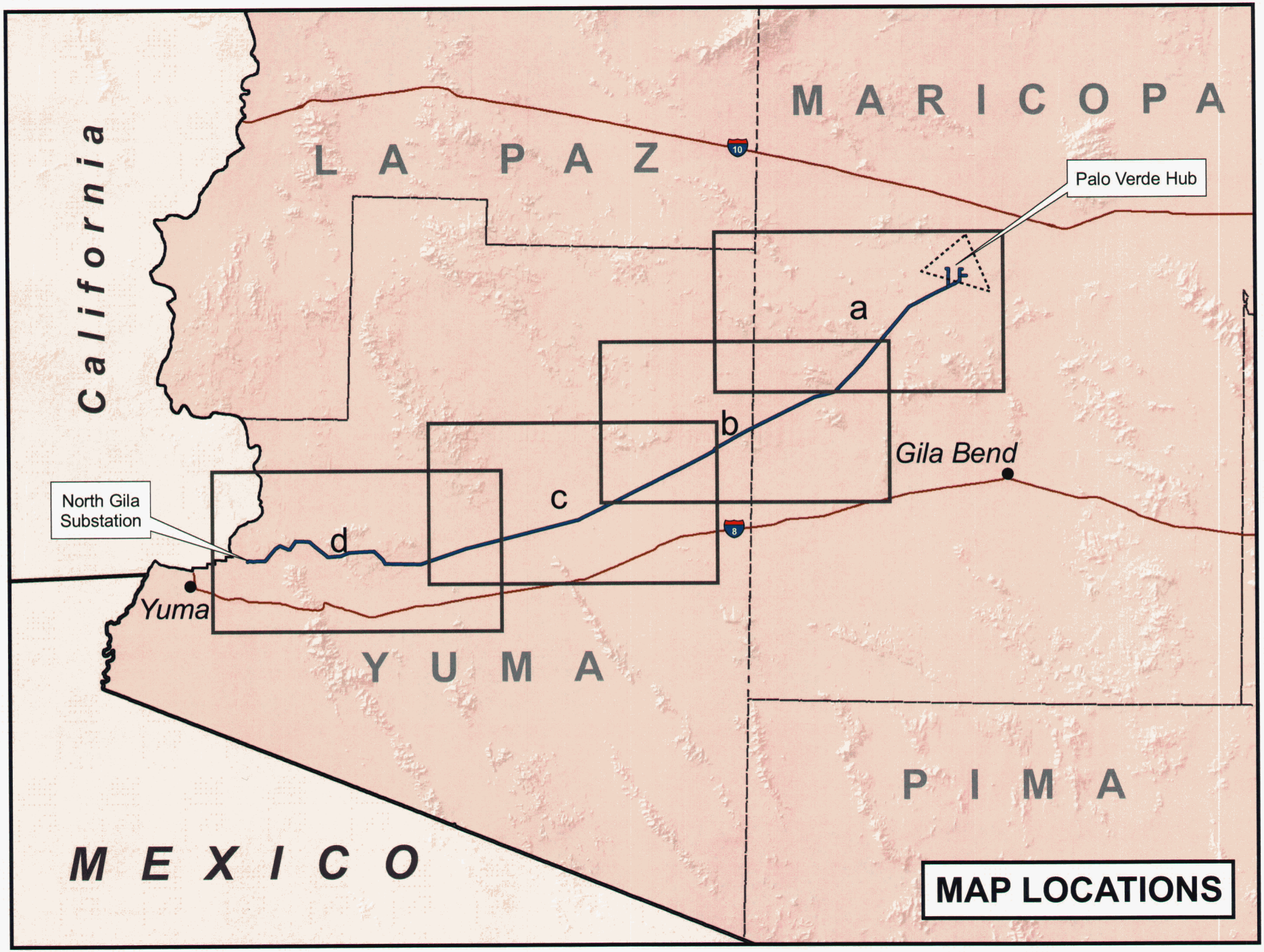

California
LA PAZ
MARICOPA
YUMA
PIMA
MEXICO
Palo Verde Hub
North Gila Substation
Gila Bend
Yuma
a
b
c
d
10
8
MAP LOCATIONS

EXHIBIT A-1
LAND OWNERSHIP AND JURISDICTION

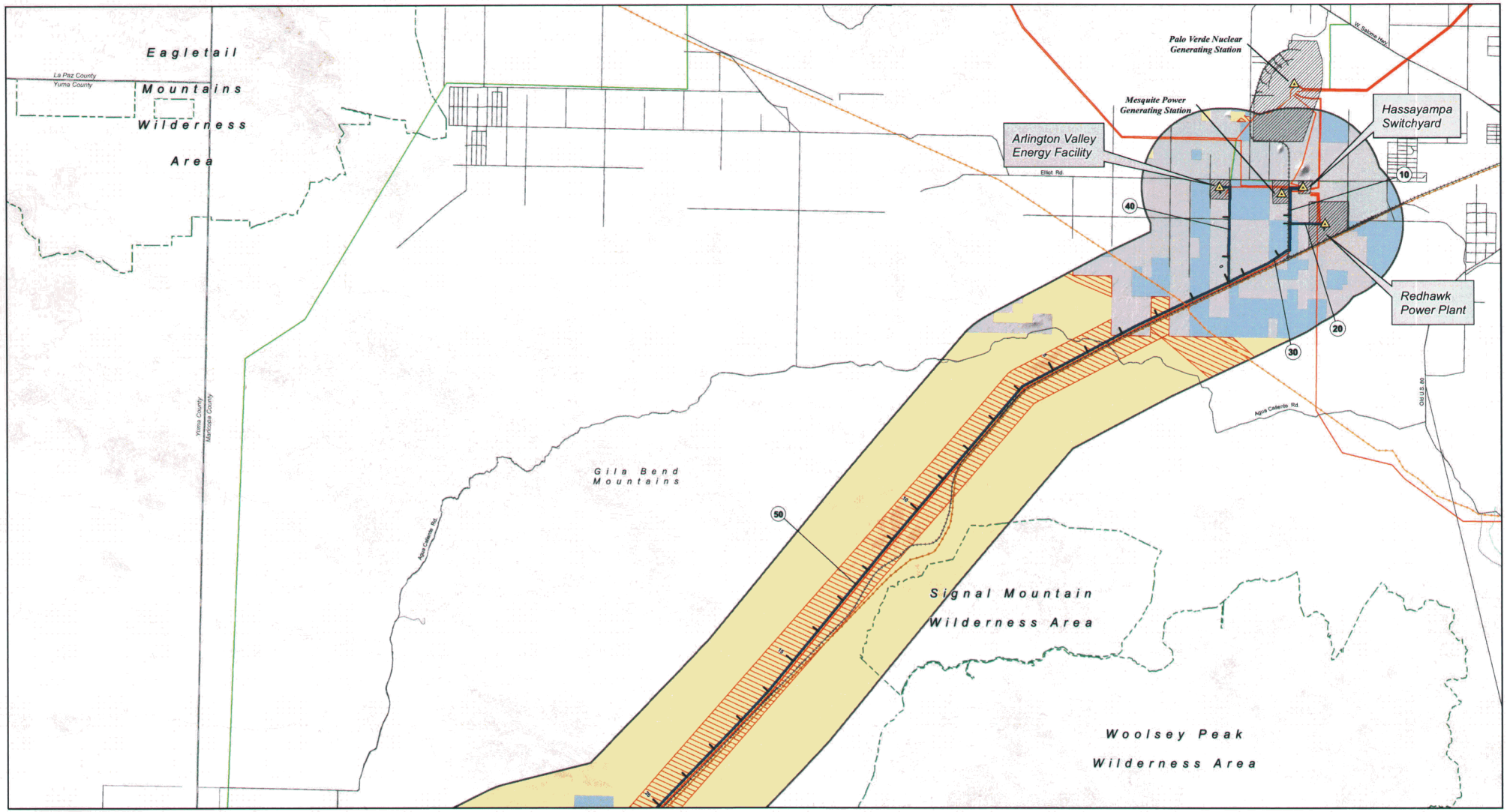
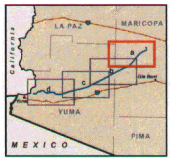


Exhibit A-1a

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Land Ownership and Jurisdiction



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LEGEND

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- State Lands
- State Wildlife Area
- Private

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

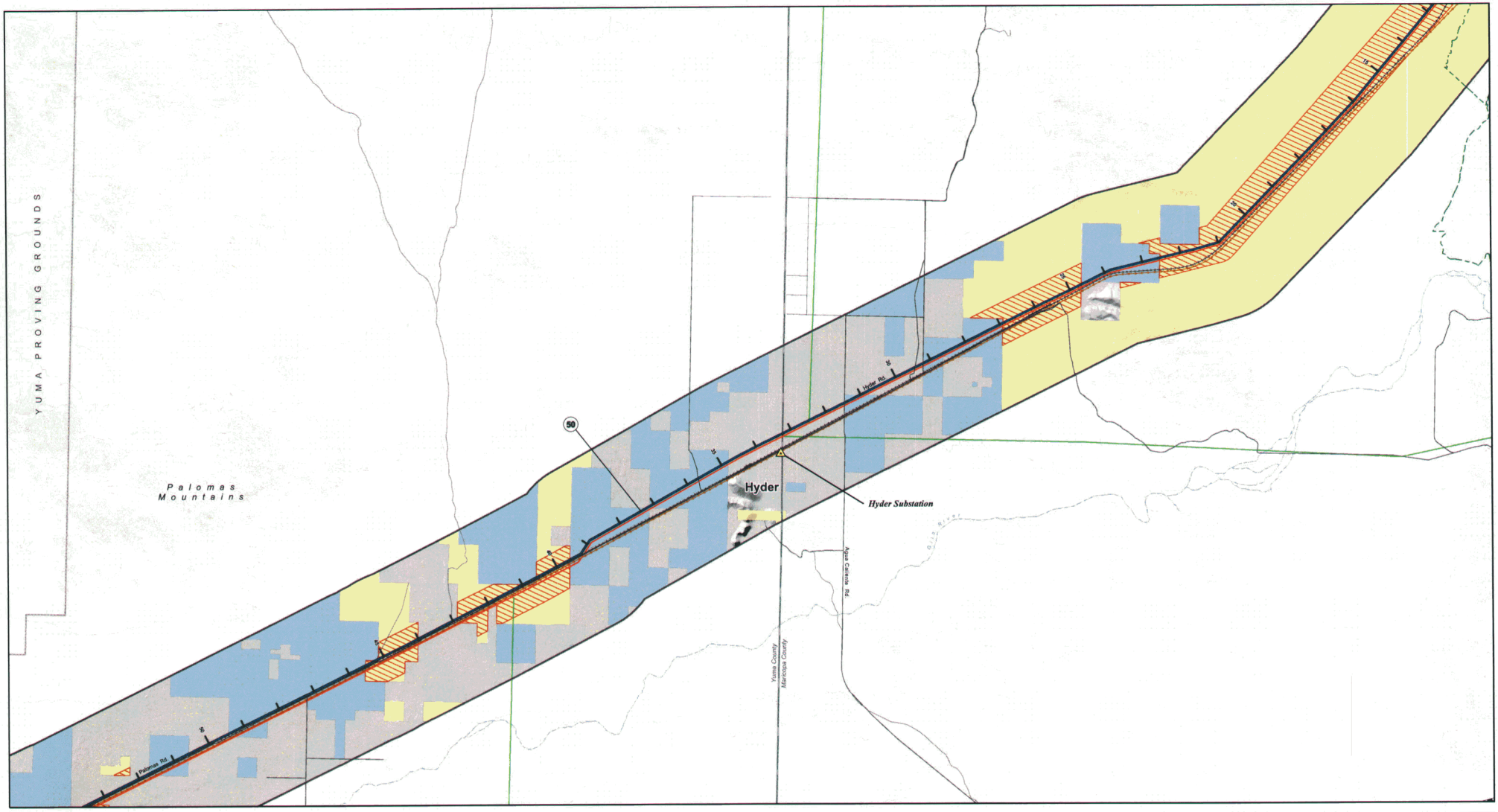
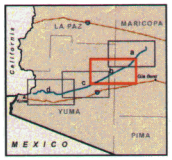


Exhibit A-1b

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Land Ownership and Jurisdiction



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LEGEND

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- State Lands
- State Wildlife Area
- Private

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
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- Interstate
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- Railroad
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- River/Stream/Arroyo

Sources:

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Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
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N

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

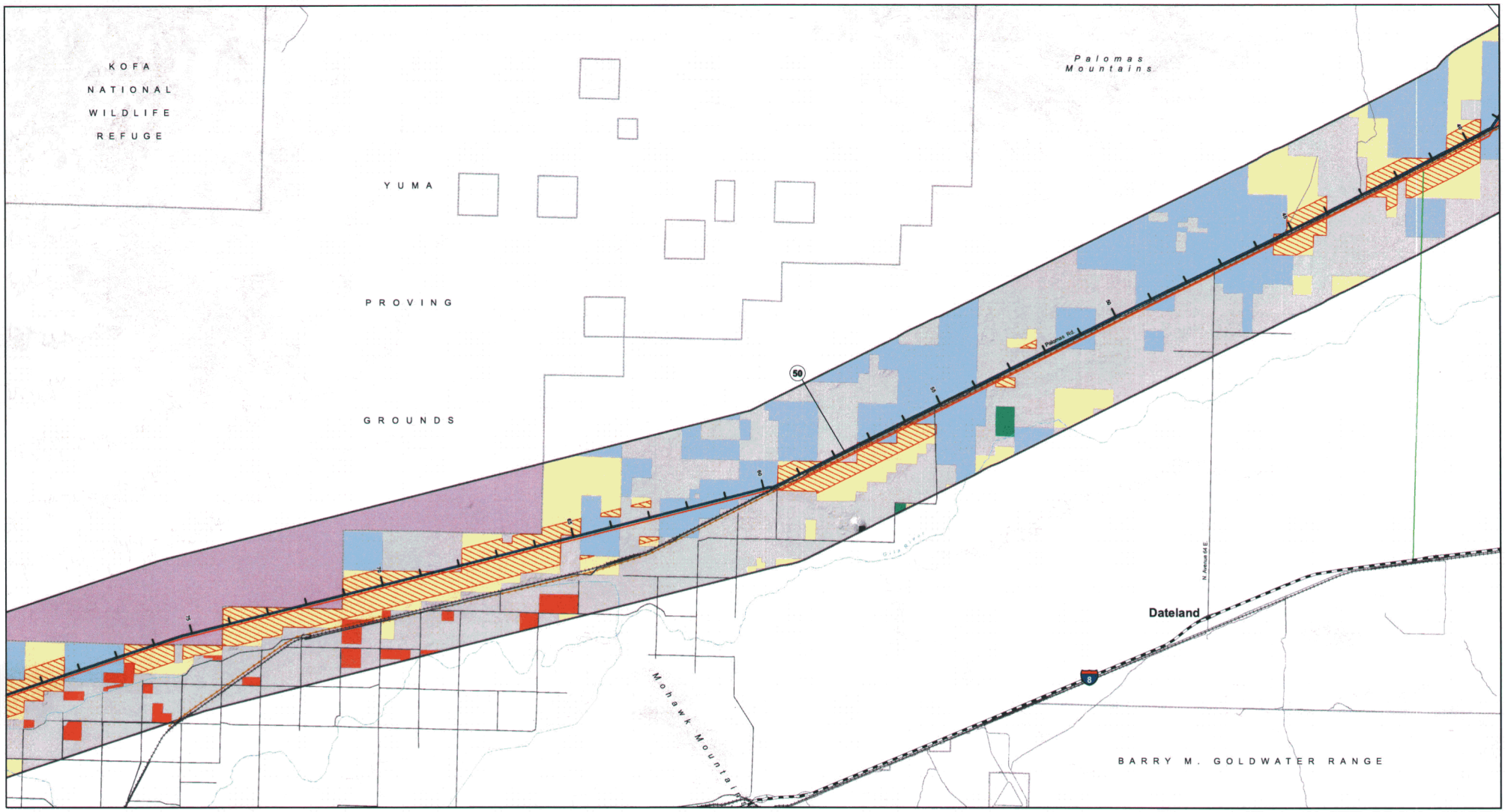
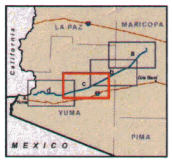


Exhibit A-1c

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Land Ownership and Jurisdiction



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LEGEND

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- State Lands
- State Wildlife Area
- Private

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
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General Reference Features

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Sources:

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Bureau of Land Management, 2005
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GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 0.5 1 2 3 4 5
Miles

0 2.5 5 10
Kilometers

CONTOUR INTERVAL 100 FEET

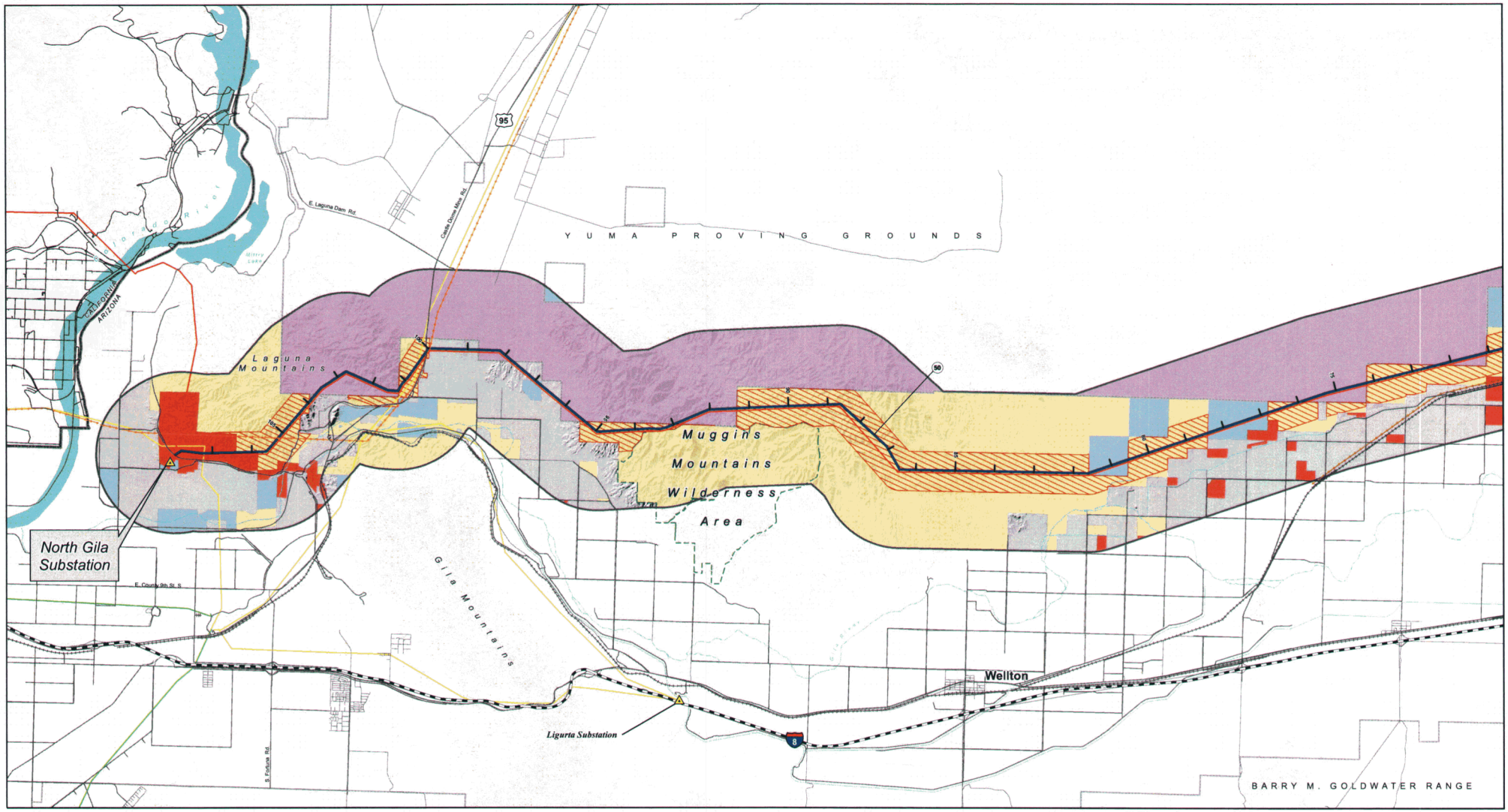
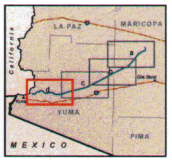


Exhibit A-1d

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Land Ownership and Jurisdiction



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LEGEND

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- State Lands
- State Wildlife Area
- Private

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

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Sources:

Arizona State Land Department, 2005
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Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

EXHIBIT A-2
EXISTING LAND USE

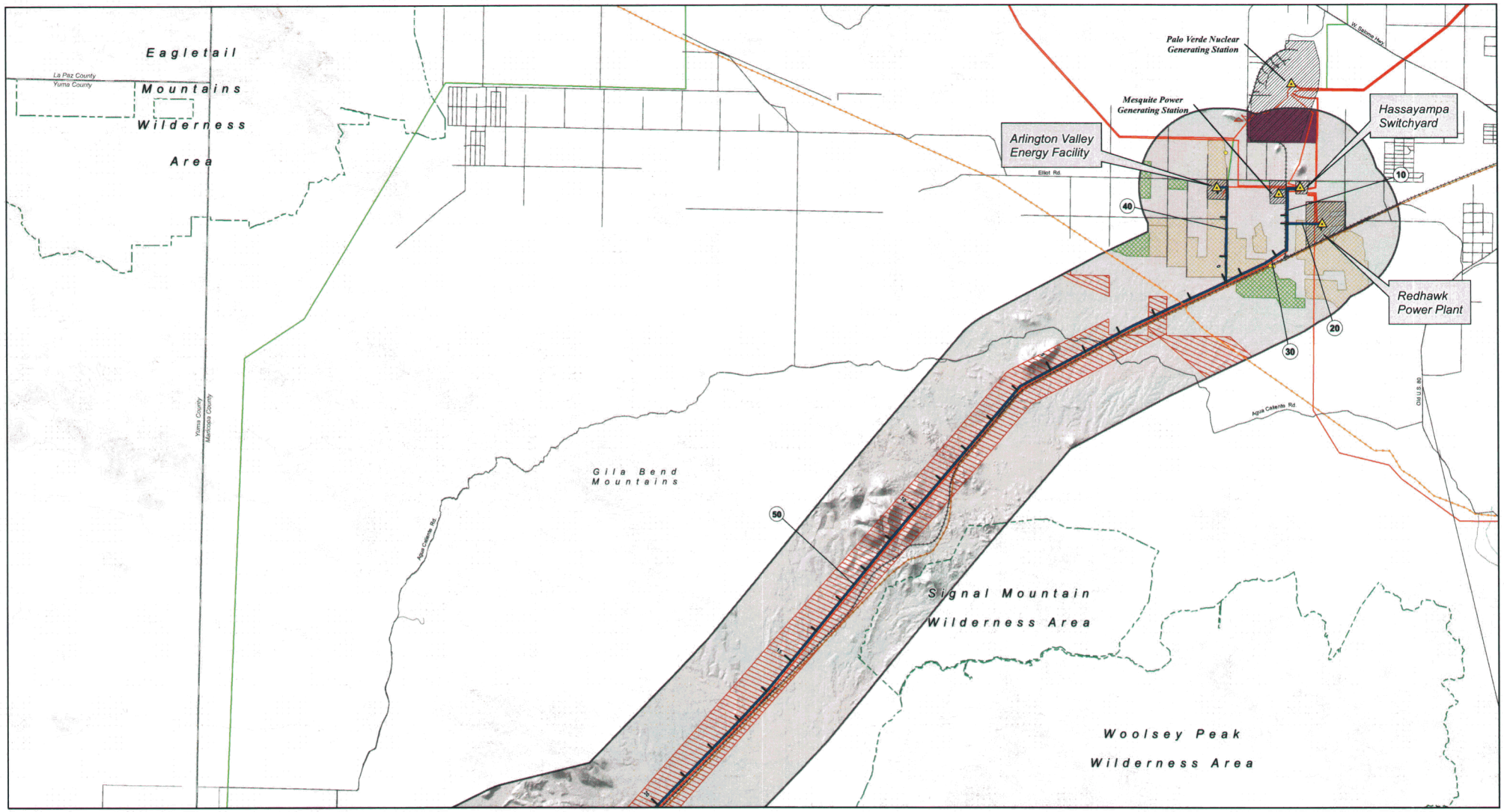
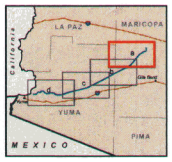


Exhibit A-2a

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Existing Land Use



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LEGEND

Existing Land Use

- Low Density Residential
- Medium Density Residential
- RV Park/Mobile Home Park
- Abandoned Multi-Family Residential Unit
- Commercial
- Mixed Use
- General Industrial
- Recreation
- Extraction Mining
- Irrigated Farmland
- Fallow Farmland
- Irrigated Farmland - Pivot
- Military
- Airstrip/Airfield
- Vacant/Undeveloped
- Single-Family Residence
- Abandoned Residence
- Multi-Family Residence
- RV/Mobile Home
- Agricultural Out-Structure/Storage
- Abandoned Farm Complex
- Commercial
- Abandoned Commercial
- Air Facility
- Utilities
- Government Building
- School/Educational Facility
- Church
- General Industrial
- Recreation
- Scenic Roads

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
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General Reference Features

- State Boundary
- County Boundary
- Military Boundary
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Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

CONTOUR INTERVAL 100 FEET

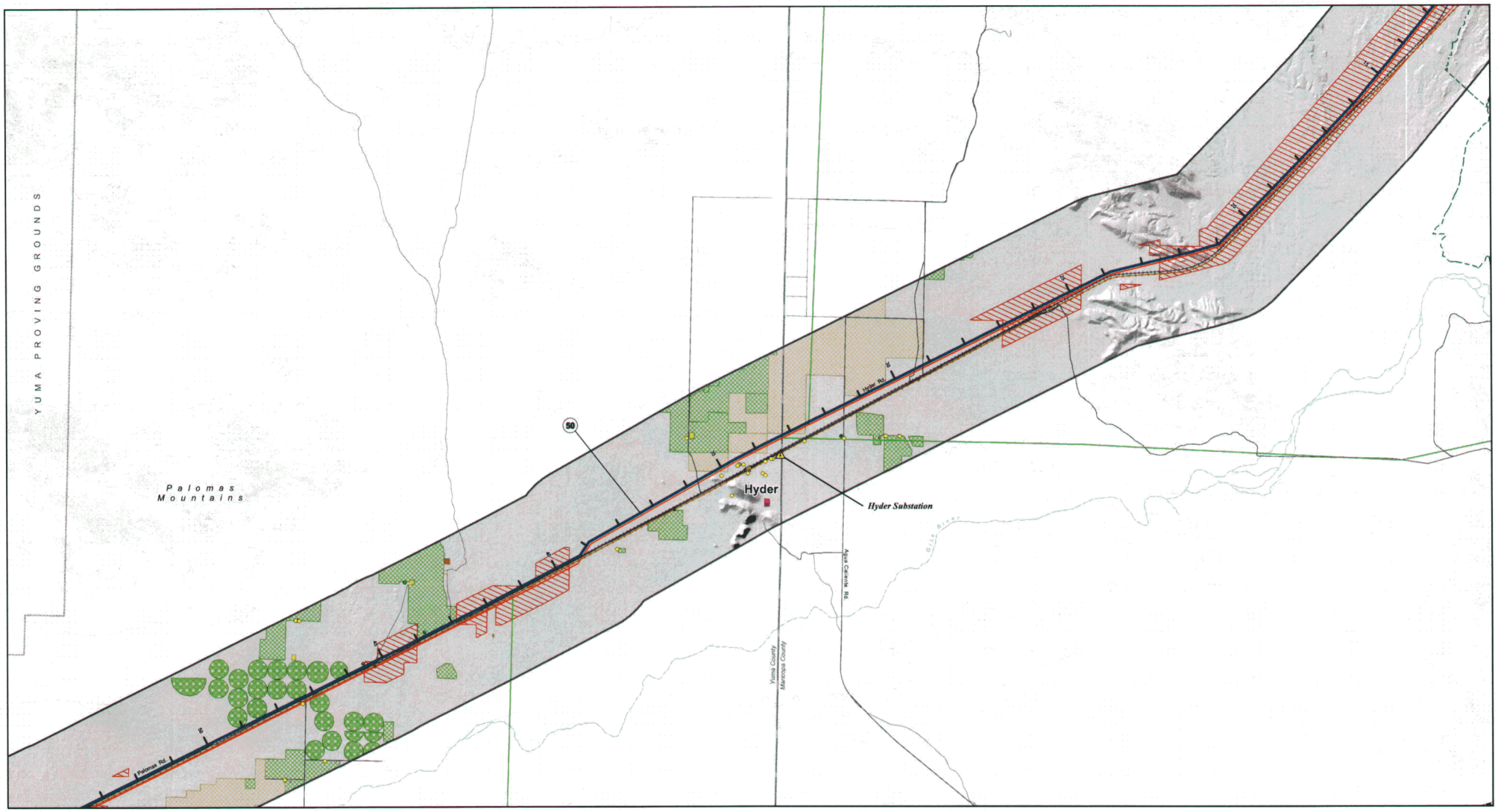
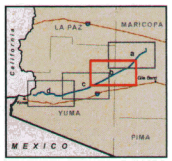


Exhibit A-2b

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Existing Land Use



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LEGEND

Existing Land Use

- Low Density Residential
- Medium Density Residential
- RV Park/Mobile Home Park
- Abandoned Multi-Family Residential Unit
- Commercial
- Mixed Use
- General Industrial
- Recreation
- Extraction Mining
- Irrigated Farmland
- Fallow Farmland
- Irrigated Farmland - Pivot
- Military
- Airstrip/Airfield
- Vacant/Undeveloped
- Single-Family Residence
- Abandoned Residence
- Multi-Family Residence
- RV/Mobile Home
- Agricultural Out-Structure/Storage
- Abandoned Farm Complex
- Commercial
- Abandoned Commercial
- Air Facility
- Utilities
- Government Building
- School/Educational Facility
- Church
- General Industrial
- Recreation
- Scenic Roads

Base Features

Project Features

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- 69kV Transmission Line
- Substation
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- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

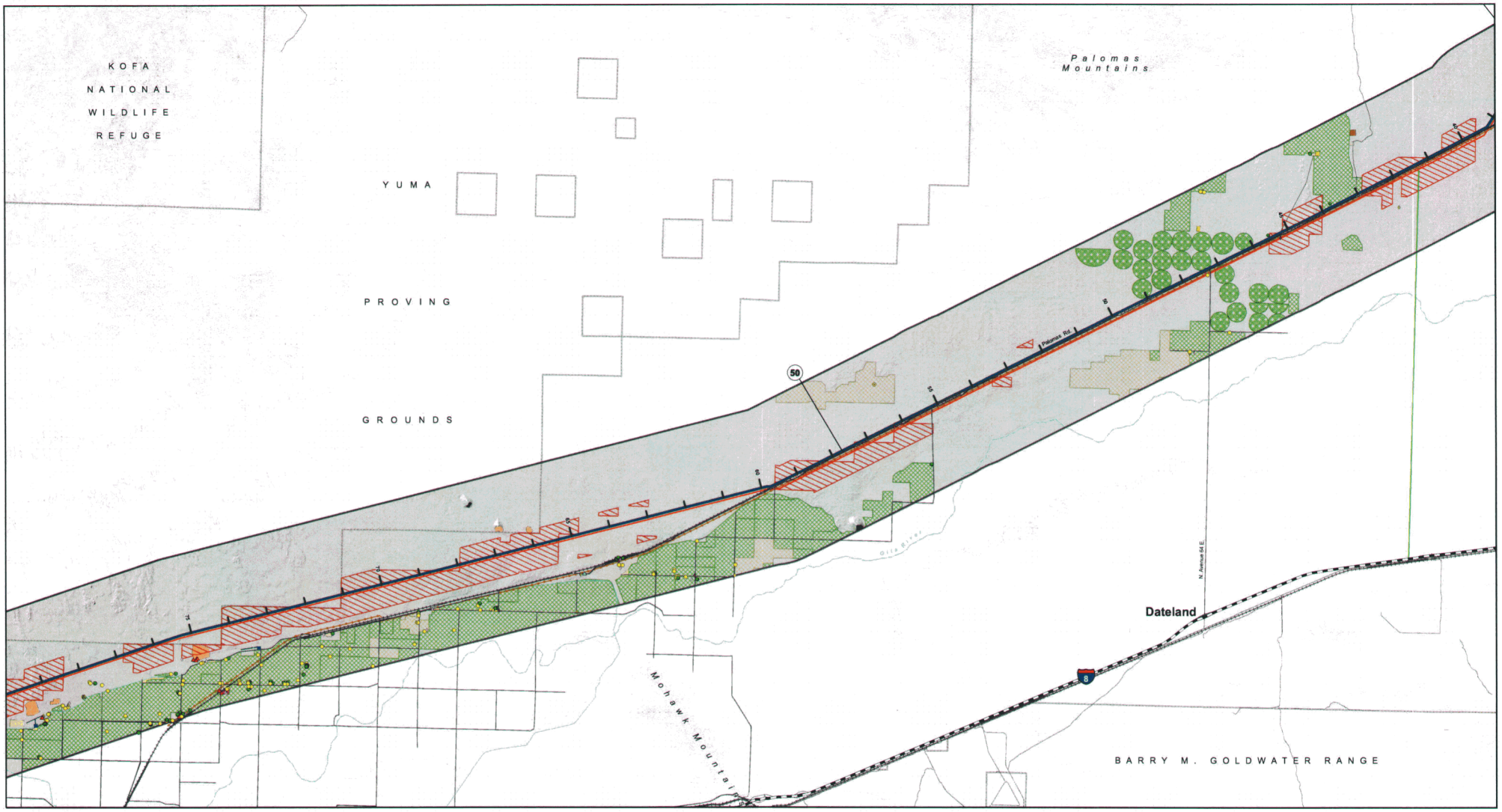
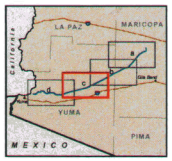


Exhibit A-2c

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Existing Land Use



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LEGEND

Existing Land Use

- Low Density Residential
- Medium Density Residential
- RV Park/Mobile Home Park
- Abandoned Multi-Family Residential Unit
- Commercial
- Mixed Use
- General Industrial
- Recreation
- Extraction Mining
- Irrigated Farmland
- Fallow Farmland
- Irrigated Farmland - Pivot
- Military
- Airstrip/Airfield
- Vacant/Undeveloped
- Single-Family Residence
- Abandoned Residence
- Multi-Family Residence
- RV/Mobile Home
- Agricultural Out-Structure/Storage
- Abandoned Farm Complex
- Commercial
- Abandoned Commercial
- Air Facility
- Utilities
- Government Building
- School/Educational Facility
- Church
- General Industrial
- Recreation
- Scenic Roads

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

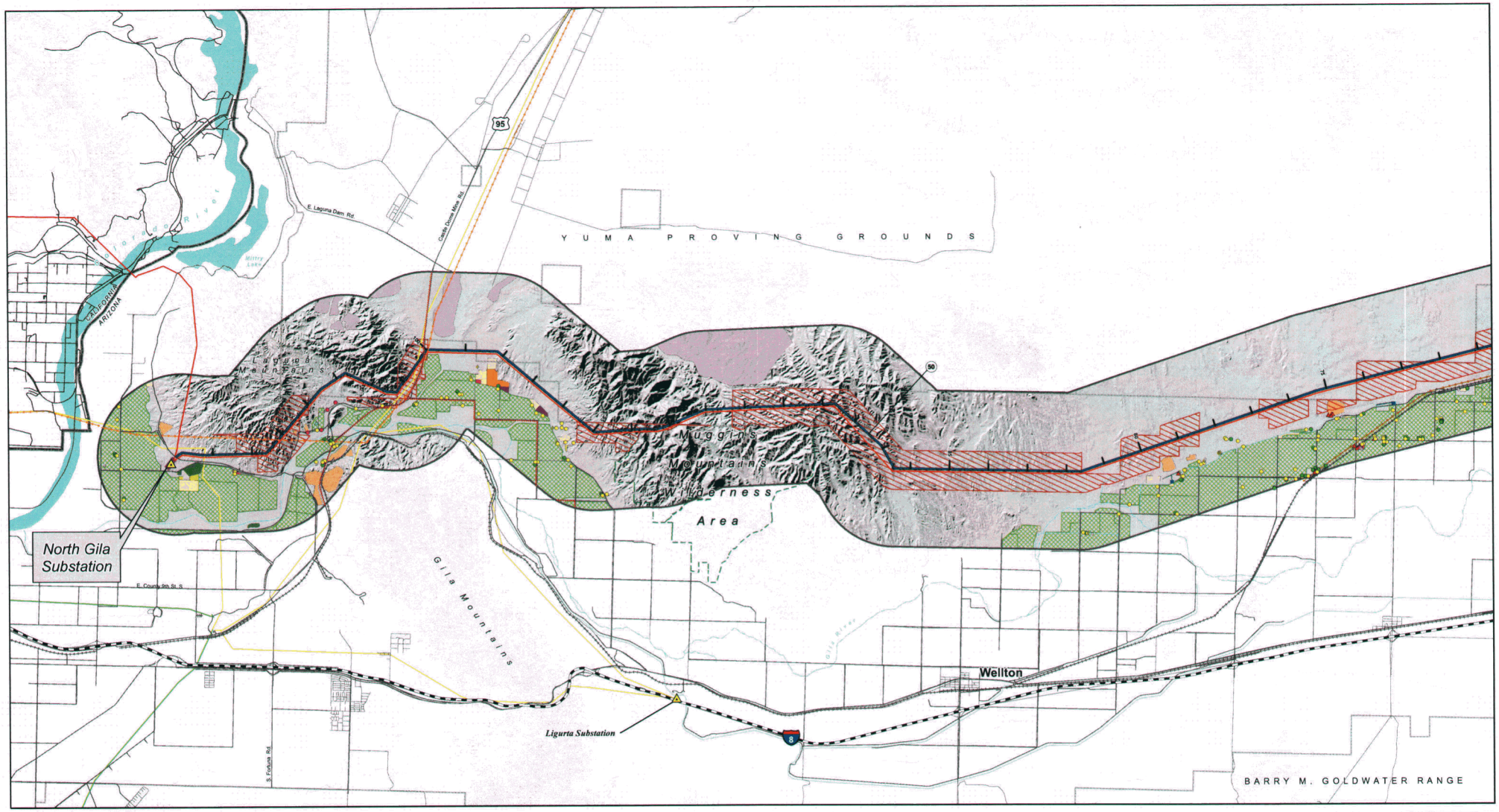
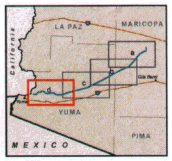


Exhibit A-2d

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Existing Land Use



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LEGEND

Existing Land Use

- Low Density Residential
- Medium Density Residential
- RV Park/Mobile Home Park
- Abandoned Multi-Family Residential Unit
- Commercial
- Mixed Use
- General Industrial
- Recreation
- Extraction Mining
- Irrigated Farmland
- Fallow Farmland
- Irrigated Farmland - Pivot
- Military
- Airstrip/Airfield
- Vacant/Undeveloped
- Single-Family Residence
- Abandoned Residence
- Multi-Family Residence
- RV/Mobile Home
- Agricultural Out-Structure/Storage
- Abandoned Farm Complex
- Commercial
- Abandoned Commercial
- Air Facility
- Utilities
- Government Building
- School/Educational Facility
- Church
- General Industrial
- Recreation
- Scenic Roads

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wilderness Area Boundary
- Interstate
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- Railroad
- Canal
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Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

EXHIBIT A-3
FUTURE LAND USE

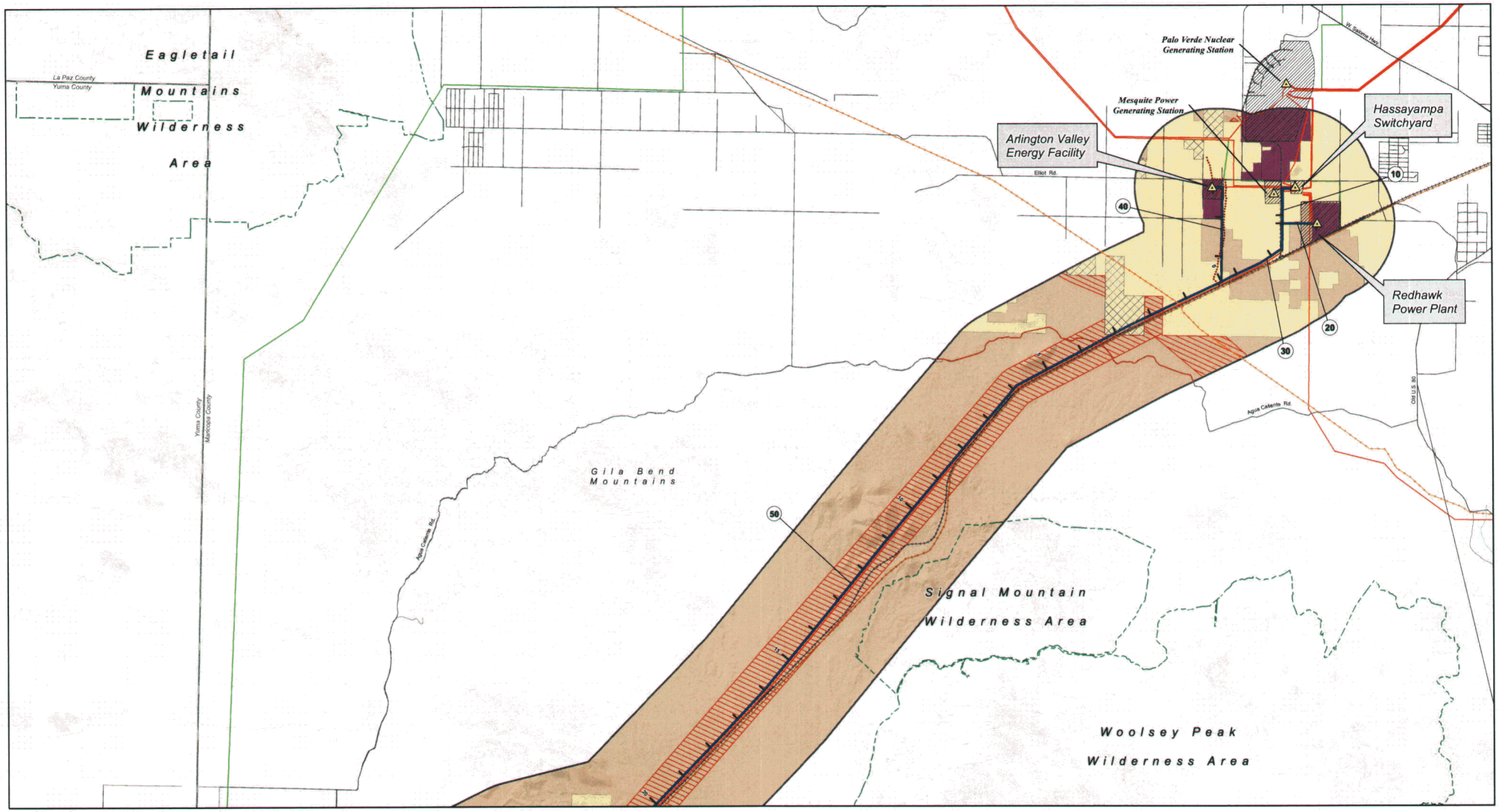
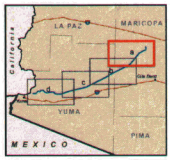


Exhibit A-3a

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Future Land Use



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LEGEND

Future Land Use

- Low Density Residential
- Medium Density Residential
- Commercial
- Industrial
- Military
- Agriculture/Rural Preservation
- Public Lands
- Proposed Camp Hyder Army Training Center Park
- Platted Subdivisions
- Proposed County Trails
- Scenic Roads

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
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Sources:

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EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

Miles: 0, 0.5, 1, 2, 3, 4, 5

Kilometers: 0, 2.5, 5, 10

CONTOUR INTERVAL 100 FEET

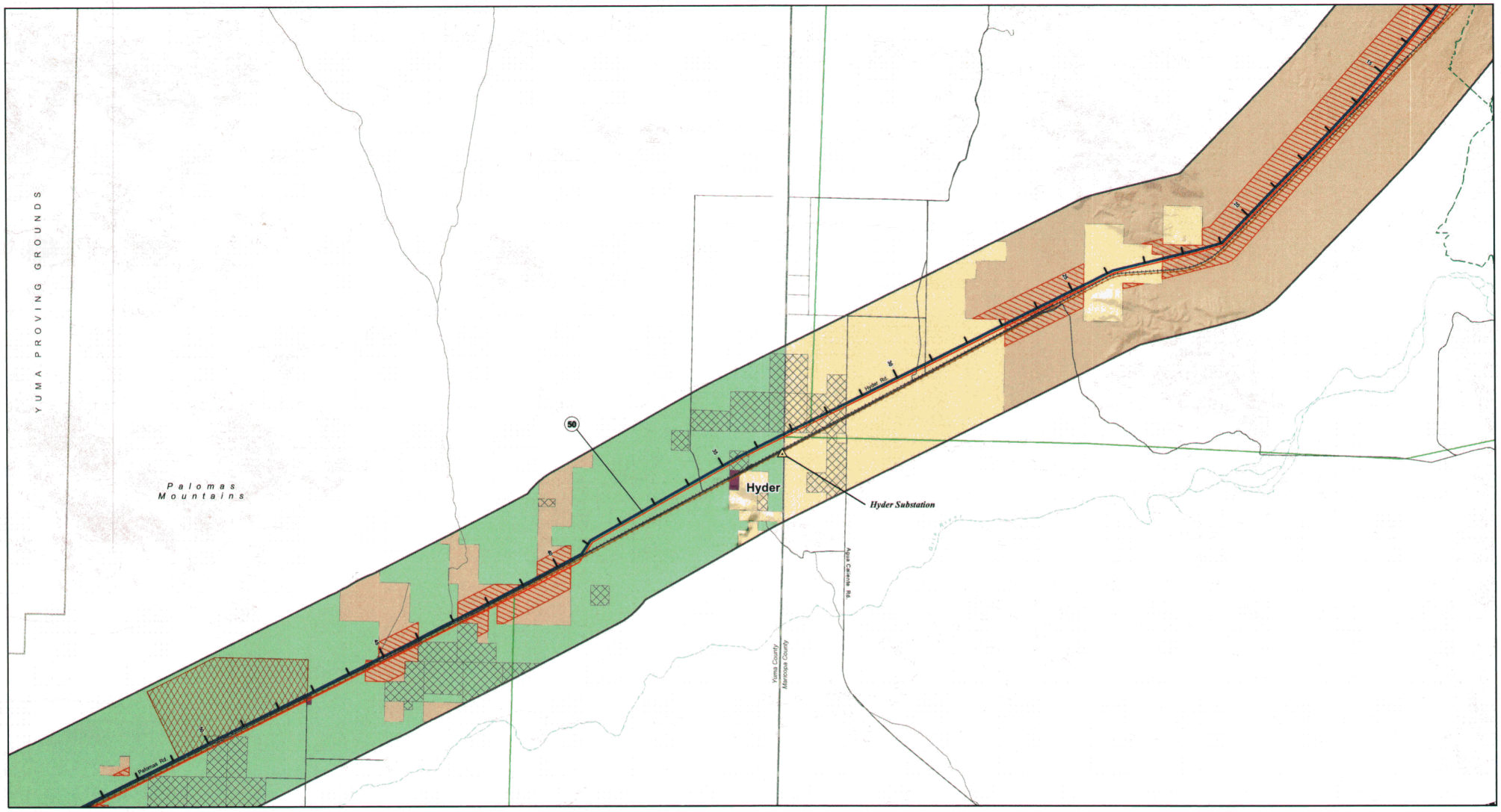
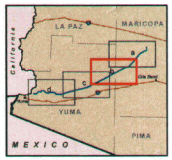


Exhibit A-3b

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Future Land Use



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LEGEND

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Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

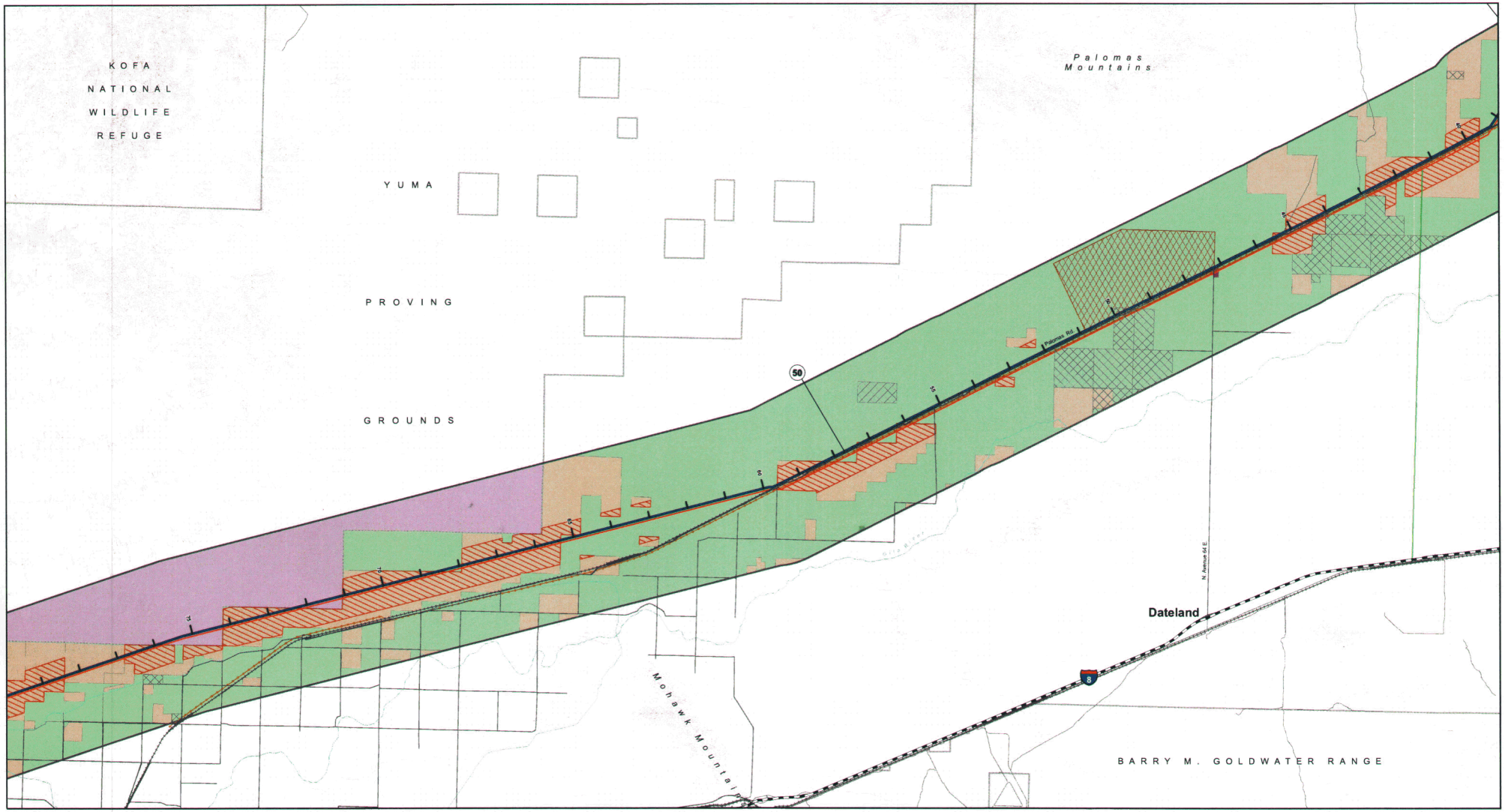
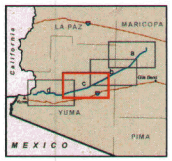


Exhibit A-3c

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Future Land Use



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LEGEND

Future Land Use

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Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

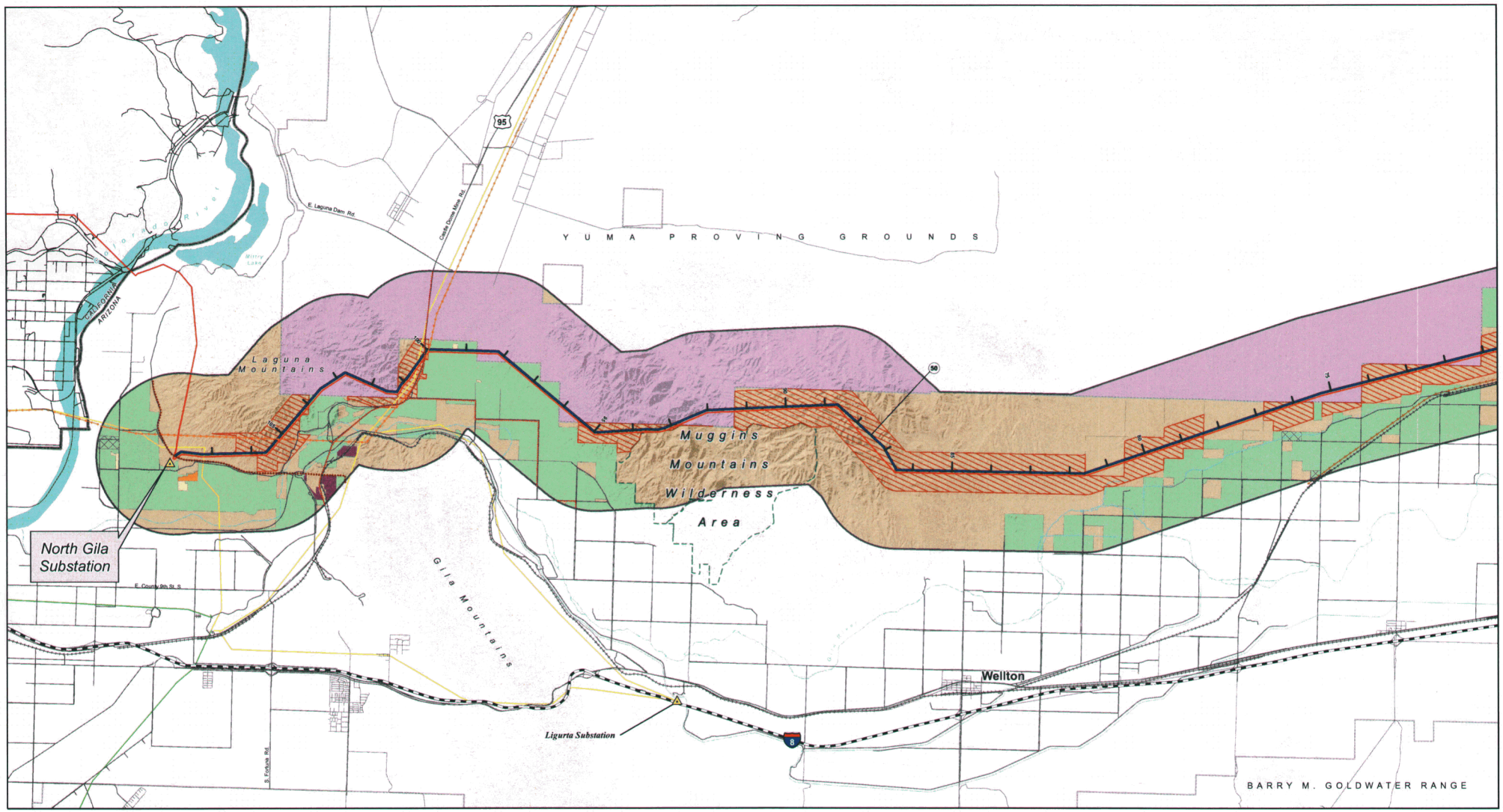
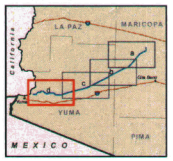


Exhibit A-3d

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Future Land Use



October 2007

APS

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LEGEND

Future Land Use

- Low Density Residential
- Medium Density Residential
- Commercial
- Industrial
- Military
- Agriculture/Rural Preservation
- Public Lands
- Proposed Camp Hyder Army Training Center Park
- Platted Subdivisions
- Proposed County Trails
- Scenic Roads

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
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Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 0.5 1 2 3 4 5 Miles

0 2.5 5 10 Kilometers

CONTOUR INTERVAL 100 FEET

Application for a Certificate of Environmental Compatibility

Palo Verde Hub to North Gila 500kV Transmission Line Project

Prepared for:

Arizona Power Plant and Transmission Line Siting Committee

Submitted by:

Arizona Public Service Company

Date: October 3, 2007
Case No. ___

BEFORE THE
POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

In the matter of the Application of Arizona Public Service Company, in conformance with the requirements of Arizona Revised Statutes 40-360, et seq., for a Certificate of Environmental Compatibility authorizing the Palo Verde Hub to North Gila 500kV Transmission Line Project, Which includes a 500kV transmission line and associated facilities and interconnections originating from either the Arlington Valley Energy Facility, Section 17, Township 1 South, Range 6 West, G&SRB&M, the Hassayampa Switchyard, Section 15, Township 1 South, Range 6 West, G&SRB&M, or the Redhawk Power Plant, Section 23, Township 1 South, Range 6 West, G&SRB&M, each located south of Interstate 10 near Wintersburg Road in an unincorporated area of Maricopa County, Arizona, to the North Gila Substation, 5 miles northeast of the City of Yuma, Yuma County, Arizona, at Section 11, Township 8 South, Range 22 West, G&SRB&M.	Case No. ___

APPLICATION FOR
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

TABLE OF CONTENTS

Introduction 1

Application 4
Figure 1 Land Ownership 10
Figure 2 Preliminary Alternatives 15

Exhibit A – Location and Land Use Maps
Exhibit A-1 Land Ownership and Jurisdiction (under separate cover)
Exhibit A-2 Existing Land Use (under separate cover)
Exhibit A-3 Future Land Use (under separate cover)

Exhibit B – Environmental Report
Exhibit B-1 Environmental Assessment

Exhibit C – Areas of Biological Wealth

Exhibit D – Biological Resources

Exhibit E – Scenic Areas, Historic Sites and Structures, Archaeological Sites

Exhibit F – Recreational Purposes and Aspects

Exhibit G – Concepts of Proposed Facilities

Exhibit G-1 to G-8	Typical Transmission Line Structures
Exhibit G-9	Typical 500kV Switchyard Arrangement
Exhibit G-10 to G-14	Simulations

Exhibit H – Existing Plans

Exhibit I – Anticipated Noise and Interference with Communication Signals

Exhibit J – Special Factors
Exhibit J-1 Website
Exhibit J-2 Project Newsletter One
Exhibit J-3 Project Newsletter One (Spanish)
Exhibit J-4 Open House Comment Form
Exhibit J-5 Display Advertisement
Exhibit J-6 BLM Informational Letter
Exhibit J-7 Public Comment and Response Summary Table

LIST OF ACRONYMS AND ABBREVIATIONS

AC	alternating current
ACC	Arizona Corporation Commission
ADOT	Arizona Department of Transportation
AZGFD	Arizona Game and Fish Department
AM	Amplitude Modulation
AN	Audible Noise
APS	Arizona Public Service
ASLD	Arizona State Land Department
BLM	Bureau of Land Management
CEC	Certificate of Environmental Compatibility
dB	decibel
DOD	Department of Defense
DOE	Department of Energy
EA	Environmental Assessment
EHV	Extra-High Voltage
EIS	Environmental Impact Statement
EMF	Electric and Magnetic Fields
EPG	Environmental Planning Group
FM	Frequency Modulation
G&SRB&M	Gila and Salt River Basin and Meridian
HDMS	Heritage Data Management System
HPTP	Historic Properties Treatment Plan
IARC	International Agency for Research on Cancer
IID	Imperial Irrigation District
IO	Isolated Occurrence
I-8	Interstate 8
I-10	Interstate 10
KOP	Key Observation Point
kV	kilovolt
LSFO	Lower Sonoran Field Office
mA	milliamp
MCAS	Marine Corps Air Station

MCRT	Maricopa County Regional Trail
MHz	megahertz
MW	megawatt
NEPA	National Environmental Policy Act
NESC	National Electric Safety Code
NIEHS	National Institute of Environmental Health Sciences
NRHP	National Register of Historic Places
PV Hub	Palo Verde Hub
PVNGS	Palo Verde Nuclear Generating Station
Reclamation	Bureau of Reclamation
RMP	Resource Management Plan
ROS	Recreation Opportunity Spectrum
ROW	right of way
SDG&E	San Diego Gas and Electric
SHPO	State Historic Preservation Office
SRP	Salt River Project
SWAT	Southwest Area Transmission
SWPL	Southwest Power Link
TESS	USFWS Threatened and Endangered Species System
TVI	Television Interference
UPRR	Union Pacific Railroad
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management
WAPA	Western Area Power Administration
WHO	World Health Organization
WMIDD	Wellton-Mohawk Irrigation and Drainage District
YFO	Yuma Field Office
YPG	Yuma Proving Ground

INTRODUCTION

Arizona Public Service Company (APS), as the project manager and Applicant, is seeking a Certificate of Environmental Compatibility (CEC) for the proposed Palo Verde Hub (PV Hub) to North Gila Substation 500 kilovolt (kV) Transmission Line Project (PV Hub to North Gila Project). APS has solicited others to participate in the project and, to date Salt River Project (SRP), Wellton Mohawk Irrigation and Drainage District (WMIDD), and the Imperial Irrigation District (IID) are participating in funding project permitting and are expected to participate as owners in the project.

The project is included in the larger, regional transmission plans identified through the Southwest Area Transmission (SWAT) regional planning group. The project is identified as an important component in ensuring adequate import capability into the Yuma area load pocket, increasing the reliability of the Southwest area's transmission system, and increasing transmission capability out of the PV Hub. The project is also included in APS' Ten-Year Plan that was filed with the Arizona Corporation Commission (ACC) on January 31, 2007, and identified as a critical component of the Fourth Biennial Transmission Assessment (2006-2016) issued by the ACC.

PROJECT OVERVIEW

The PV Hub to North Gila Project will originate at the Arlington Valley Energy Facility, the Hassayampa Switchyard, or the Redhawk Power Plant, each located south of Interstate 10 (I-10) near Wintersburg Road. The actual location for the interconnection with the PV Hub will be determined based on APS' evaluation of system reliability and interconnection issues. Thus, APS (Applicant) requests that the CEC include all three alternatives for the PV Hub interconnection. The western termination of the PV Hub to North Gila Project will be the existing North Gila Substation, located approximately 5 miles northeast of the City of Yuma, east of South Avenue 8E and north of East County 6th Street South in Yuma County, Arizona.

PROPOSED ROUTE

The PV Hub to North Gila Project would be constructed with lattice tower and tubular-steel monopole structures that match and parallel the existing Southwest Powerlink (SWPL) 500kV transmission line, within a 1-mile-wide Bureau of Land Management (BLM)-designated utility corridor (on federal land). Near the PV Hub, the project initially crosses private land before traversing a large segment of BLM land, parallel to the SWPL 500kV transmission line, in a southwesterly direction within the designated utility corridor. The proposed line continues across interspersed segments of BLM, Arizona State Trust land, and private land, until it crosses the Yuma Proving Ground (YPG). The route then proceeds through another segment of BLM land before crossing Bureau of Reclamation (Reclamation) land and connecting to the North Gila Substation site. The Proposed Route crosses public land (Federal and Arizona State Trust) for 88

miles, or 80 percent of the 110- to 112-mile route, including 55 miles on BLM land within a designated utility corridor, which is approximately 50 percent of the route.

PROJECT NEED

The proposed project is needed to support the continuing development and growth, occurring and anticipated, in the Yuma region. This project will strengthen the entire Yuma area transmission system by providing an additional extra high voltage (EHV) electrical transmission source to the region. In addition to increasing import capability into the Yuma area load pocket, the proposed line will increase the export transmission capability from the PV Hub, and provide additional transmission to reinforce the WMIDD service territory. The proposed line may have a capacity of up to 1,250 megawatts (MW). The project will also provide access to renewable energy sources in Southern California such as the geothermal generation capability in the Imperial Valley Area. The projected need date for the proposed 500kV line is 2012, and construction is anticipated to commence in 2010.

ENVIRONMENTAL STUDIES AND ROUTE SELECTION PROCESS

In mid 2005, APS, in conjunction with its environmental consultant, Environmental Planning Group (EPG), studied and evaluated potential alternative routes as part of the initial scoping for the development of the Environmental Assessment (EA) for the PV Hub to North Gila Project. The EA was prepared by EPG for the BLM on behalf of APS. Potential route alignments were identified by minimizing siting options in constrained areas, such as near schools and residences, and maximizing siting opportunities that take advantage of existing linear features, such as utility corridors, canals, and railroads. The result of this process was the identification of the Proposed Route following the SWPL 500kV transmission line corridor. The Proposed Route had the least amount of environmental impact when compared to the other potential routes, while still meeting engineering system requirements and cost considerations. The Proposed Route was evaluated as part of the Proposed Action in the EA (see Exhibit B-1), and is pending approval from the BLM. For additional information on the environmental studies prepared for this application refer to Section 6, Description of Environmental Studies, of this application.

PUBLIC INVOLVEMENT OVERVIEW

A public information program for the PV Hub to North Gila Project was conducted during the preparation of the EA and CEC Application to establish and maintain open communication with the public. The public involvement program included public open house meetings in Dateland and Yuma, jurisdictional meetings, agency briefings, landowner contacts, informational mailings (federal scoping letter and APS newsletter), electronic communications (e-mail), and the provision of other sources of information, such as a project website and phone line. By providing the public with multiple opportunities to access project information and provide comments, the project team was able to educate the public about the proposed project, as well as gather public

input, identify issues, and respond to those issues through the planning process. Exhibit J contains additional details of public involvement activities for the PV Hub to North Gila Project.

APPLICATION FOR
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

(Pursuant to A.R.S. § 40-360.03 and 40-360.06)

1. Name and address of Applicant:

Arizona Public Service Company
P.O. Box 53933
Phoenix, Arizona 85072-3933

2. Name, address and telephone number of a representative of Applicant who has access to technical knowledge and background information concerning this application, and who will be available to answer questions or furnish additional information:

Paul Herndon
Project Manager
Transmission and Facility Siting Group
Arizona Public Service
P.O. Box 53933, Mail Station 4609
Phoenix, Arizona 85072-3933
(623) 932-6729

3. Dates on which Applicant filed a Ten Year Plan in compliance with A.R.S. § 40-360.02, in which the facilities for which this application is made were described:

2003
2004
2005
2006
2007

4. Description of the proposed facilities:

4.1 Description of electric generating plant:

(not applicable)

4.2 Description of the proposed transmission line:

4.2.1 General Description:

4.2.1.1 Nominal voltage for which the lines are designed:

525kV alternating current (AC) single circuit

4.2.1.2 Description of proposed structures:

The transmission line will be constructed using steel lattice and tubular steel monopole structures. Links 10, 20, 30, 40, and the majority of Link 50 will be constructed using steel lattice structures. In specific areas along Link 50, steel monopoles may be used to mitigate land use impacts.

The structures would be approximately 130 to 150 feet above ground, depending on the span length required, with a maximum height of 195 feet. The span length between structures would vary between 600 to 2,100 feet, according to terrain conditions and to achieve site-specific mitigation objectives such as matching structure locations with existing transmission lines. The steel lattice and tubular steel pole structures would have a dulled finish and conductors would have a low-reflective (non-specular), dulled finish to reduce visibility.

In addition to the structures for the transmission line, ancillary equipment may be needed to support this project. This ancillary equipment could include the following: aerial marker balls or lights, fiber optic splice cases, supporting electrical distribution lines for the fiber optic system, safety signs, and location signs.

Exhibit G contains conceptual illustrations of the proposed structures to be utilized for the project.

4.2.1.3 Description of proposed switchyards:

The PV Hub to North Gila Project will originate at one of three locations at the PV Hub—the Arlington Valley Energy Facility, Hassayampa Switchyard, or Redhawk Power Plant, and will require expansion/new facilities at the interconnection points selected for the project.

The switchyard modifications will consist of several steel structures for line terminations and station bus conductor

support. The structures and equipment will have a dulled finish similar to the transmission line towers, as described in Section 4.2.1.2. The tallest switchyard structure will be no more than 130 feet high. In addition to the electrical facilities, the switchyard modifications may include control, protection, and communications equipment. The switchyard area will be graded for water retention and will be covered in gravel. The colors for the facilities will be selected to blend in with the existing switchyard facilities to the extent possible. Any additions of new structures or equipment or modifications to existing facilities outside the existing switchyard fence will be enclosed with new fencing, with appropriate landscaping per jurisdictional code.

Exhibit G contains a conceptual illustration of the switchyard layout proposed for the project.

4.2.1.4 Purpose for constructing said transmission line:

The proposed project is needed to support the continued development and growth occurring and anticipated in the greater Yuma area. The proposed project will strengthen the entire Yuma area transmission system by providing an additional EHV transmission source into the area. In addition to increasing import capability into the Yuma area load pocket, the proposed line will increase the export transmission capability from the PV Hub, and provide additional transmission to reinforce the WMIDD service territory. The proposed line may have a capacity of up to 1,250 MW. The project will also provide access to renewable energy sources in Southern California such as the geothermal generation capability in the Imperial Valley Area.

4.2.2 General Location

4.2.2.1 Description of the geographic points between which the transmission line will run:

The proposed transmission line will originate at one of three proposed interconnection points at the PV Hub: (i) the Arlington Valley Energy Facility, located at Section 17, Township 1 South, Range 6 West, Gila and Salt River Baseline and Meridian (G&SRB&M); (ii) the Hassayampa Switchyard, located at Section 15, Township 1 South, Range 6 West, G&SRB&M; or (iii) the Redhawk Power Plant, located at

Section 23, Township 1 South, Range 6 West, G&SRB&M. Each of these potential interconnection points is located south of I-10 near Wintersburg Road in an unincorporated area of Maricopa County, Arizona.

The transmission line will terminate at APS' existing North Gila Substation, 5 miles northeast of the City of Yuma, Yuma County, Arizona, at Section 11, Township 8 South, Range 22 West, G&SRB&M.

4.2.2.2 Straight line distance between such geographic points:

The straight-line distance from the Arlington Valley Energy Facility to the North Gila Substation is 101.8 miles. The straight-line distance from the Hassayampa Switchyard to the North Gila Substation is 103.8 miles. The straight-line distance from the Redhawk Power Plant to the North Gila Substation is 104.0 miles.

4.2.2.3 Length of the transmission line for each alternate route:

The length of the Proposed Route is 110.6 miles (Arlington Valley Energy Facility termination), 111.6 miles (Hassayampa Switchyard termination), or 111.3 miles (Redhawk Power Plant termination).

4.2.3 Detailed Dimensions:

4.2.3.1 Nominal width of right-of-way requested:

The Applicant is requesting approval of a total right-of-way width of up to 200 feet within a general corridor that is 2,000 feet wide. A description of the requested corridor width according to specific segments (links) is provided in Section 4.2.5 of this application. The location of the alignment for the right-of-way within this corridor will be determined according to right-of-way considerations, site-specific design, and environmental requirements.

4.2.3.2 Nominal length of span:

The nominal length of span varies from 600 to 2,100 feet.

4.2.3.3 Typical height of structures above ground:
Maximum height of supporting structures:

The typical height of the supporting structures will vary from 130 to 150 feet. The maximum height of the supporting structures will be approximately 195 feet.

4.2.3.4 Minimum height of conductor above ground:

The minimum height of the 500kV transmission line conductor above existing grade will be 31 feet, 6 inches.

4.2.4 Estimated costs of proposed transmission line and substation

	Total Length of Transmission Line (distance in miles)	Right-of-way Costs ($ million)	Construction Costs ($ million)	Switchyard Facilities ($ million)	Total of Right-of-Way and Construction Costs ($ million)
Proposed Route (Arlington Valley Energy Facility Interconnection)	110.6	18.0	167.1	19.9	205.0
Proposed Route (Hassayampa Switchyard Interconnection)	111.6	18.0	170.6	14.4	203.0
Proposed Route (Redhawk Power Plant Interconnection)	111.3	18.0	168.2	12.9	199.1

4.2.5 Description of the proposed and alternate routes:

The Applicant has identified a Proposed Route for the PV Hub to North Gila Project. The Proposed Route is inclusive of three options for the origin of the proposed transmission line at the Arlington Valley Energy Facility (Link 40), Hassayampa Switchyard (Links 10 and 30), or Redhawk Power Plant (Links 20 and 30). The actual location for the interconnection at the PV Hub will be determined based on the Applicant's evaluation of system reliability, physical interconnection issues and the ability to successfully negotiate an interconnection agreement with the specific site owner(s).

The Applicant is requesting a corridor of 2,000 feet in total width for the Proposed Route, described below, to provide for necessary flexibility

during final design and engineering of the project. The typical right-of-way widths are described in Section 4.2.3.1 of this application.

The Proposed Route is illustrated in Figure 1, and more detailed information is provided in Exhibits A-1 through A-3. The routes include link numbers associated with segments that comprise each route, as follows:

Proposed Route

The Proposed Route will originate at the Arlington Valley Energy Facility located in Section 17, Township 1 South, Range 6 West G&SRB&M, the Hassayampa Switchyard, Section 15, Township 1 South, Range 6 West G&SRB&M, or the Redhawk Power Plant, Section 23, Township 1 South, Range 6 West G&SRB&M. If the route originates at the Arlington Valley Energy Facility, the Applicant requests a 2,000-foot corridor (1,000 feet on either side of a centerline, which is the southern edge of the north half of the northeast quarter of Section 17, and south along the eastern edge of Sections 17, 20, and 29, Township 1 South, Range 6 West G&SRB&M) along Link 40. Link 40 proceeds east from the Arlington Valley Energy Facility, and turns south at the eastern edge of Section 17, and continues south along the eastern edge of Sections 20 and 29, Township 1 South, Range 6 West G&SRB&M, until reaching a common point for all route options, located at the eastern edge of Section 29, Township 1 South, Range 6 West G&SRB&M, where Link 50 begins 130 feet north of the SWPL 500kV transmission line.

If the route originates at the Hassayampa Switchyard, the Applicant requests a 2,000-foot corridor (1,000 feet on either side of the SWPL 500kV transmission line centerline) for Link 10 and 30, 130 feet on the north side through Sections 15, 22, 27, and 28, Township 1 South, Range 6 West G&SRB&M, to a common point described above.

If the route originates at the Redhawk Power Plant, the Applicant requests a 2,000-foot corridor (1,000 feet on either side of the centerline which is also the northern section line of Sections 23 and 22, Township 1 South, Range 6 West G&SRB&M) along Link 20. Link 20 proceeds west from the Redhawk Power Plant along the northern section line of Sections 23 and 22, Township 1 South, Range 6 West G&SRB&M, to the beginning of Link 30, located at the midsection line of Section 22, Township 1 South, Range 6 West G&SRB&M, proceeding south to the common point described above.

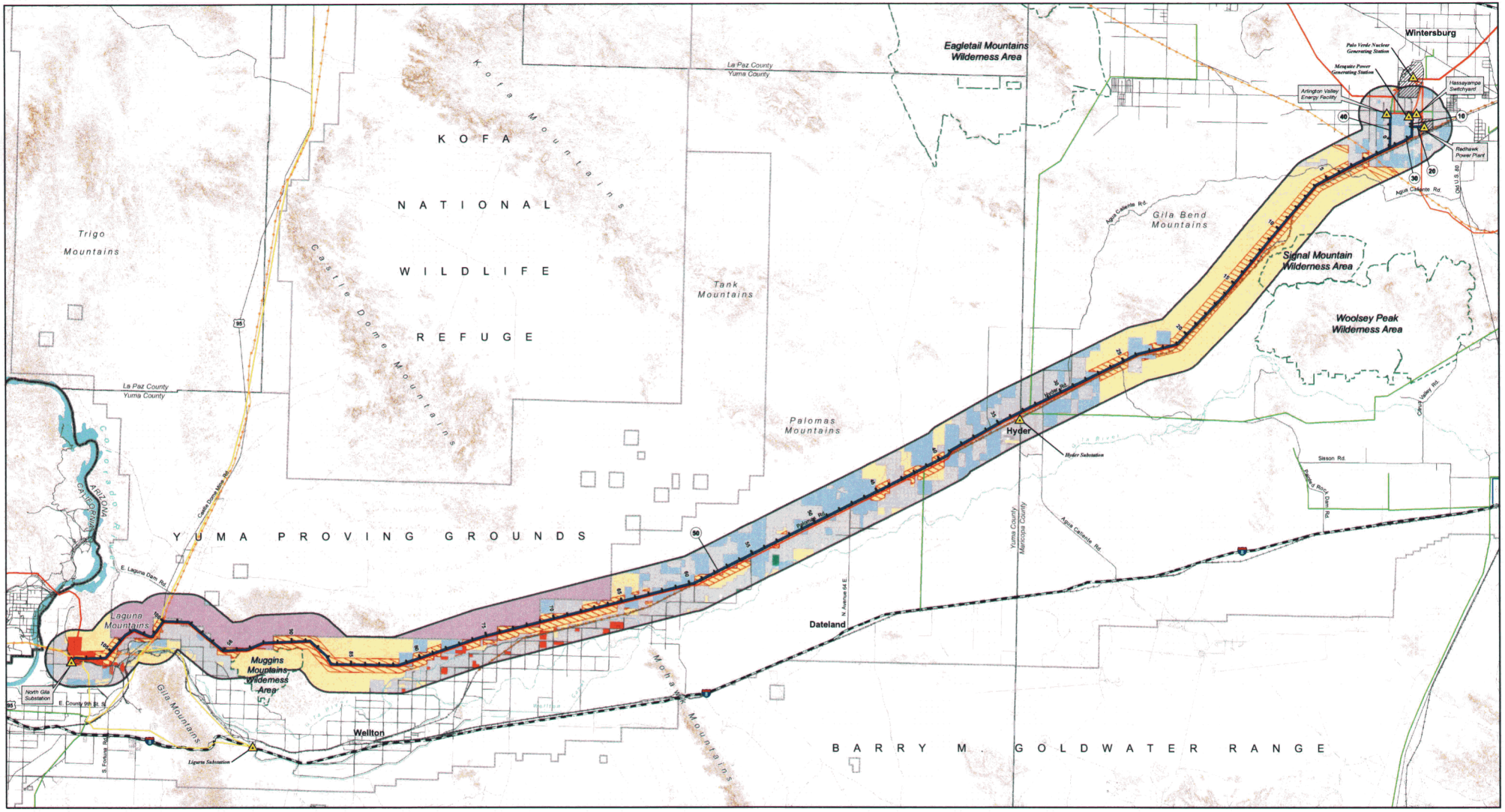

Figure 1

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Land Ownership

October 2007

APS epg

LEGEND

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- State Lands
- State Wildlife Area
- Private

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
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- Wilderness Area Boundary
- Interstate
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Sources:

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GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

Miles: 0 1 2 4 6 8 10
Kilometers: 0 5 10 20

CONTOUR INTERVAL 100 FEET

All three interconnection options proceed to the beginning of Link 50, described as the common point above. The Applicant requests a 2,000-foot corridor for Link 50 north of the SWPL 500kV transmission line. The proposed 2,000-foot corridor begins at the centerline of the existing SWPL 500kV transmission line and extends 2,000 feet north. From this location, the route proceeds southwest parallel to the SWPL 500kV transmission line, with a minimum separation distance of 130 feet between existing and proposed structures to the north of the SWPL 500kV transmission line. Additionally, the proposed line parallels the Union Pacific Railroad (UPRR) in this area. The Proposed Route continues to the southwest, where it crosses vacant Arizona State Trust land and private land, before crossing into a large segment of BLM land near Agua Caliente Road.

The Proposed Route proceeds to the southwest, parallel to the SWPL 500kV transmission line and the UPRR, where it crosses through the Gila Bend Mountains across Arizona State Trust land, BLM land, and private lands that were once in agricultural use but have been allowed to go fallow.

After crossing the 571st Avenue alignment, the corridor proceeds to the southwest, parallel to the SWPL 500kV transmission line and the UPRR, traversing a large segment of private land, before crossing into agricultural lands that have been allowed to turn fallow. At this point, the corridor crosses from Maricopa County into Yuma County and the unincorporated community of Hyder. The Proposed Route is north of the community of Hyder and the Hyder General Store. As the Proposed Route proceeds southwest, parallel to the SWPL 500kV transmission line, an APS 69kV sub-transmission line, and the UPRR, it crosses a segment of Arizona State Trust land that also includes a portion of fallow agricultural land.

The Proposed Route continues to the southwest, across a large segment of Arizona State Trust land. At a point near the Baragan Wash, the SWPL 500kV transmission line crosses to the south side of the UPRR. Beginning at this point, the Proposed Route continues southwest, parallel to the north side of the UPRR, with a minimum 130-foot separation from the SWPL 500kV transmission line, across a large segment of vacant BLM and Arizona State Trust land. The Proposed Route crosses the southern edge of existing irrigated farmland before traversing vacant BLM land. Additionally in this area, the Proposed Route crosses a large segment of Arizona State Trust land that currently is being leased for pivot irrigation agriculture. Impacts to the agriculture in this area are expected to be minimal as any crossings can be designed to span the limits of the cultivated land.

As the Proposed Route proceeds southwest, parallel to the UPRR and the SWPL 500kV transmission line, it crosses private land, Arizona State Trust land, and BLM land. The SWPL 500kV transmission line crosses again to the north side of the UPRR and no longer parallels the UPRR. The Proposed Route continues paralleling the SWPL 500kV transmission line on the north side at a minimum separation distance of approximately 130 feet to the north of the line. From this location, the Proposed Route crosses Arizona State Trust land, private land, and BLM land.

The Proposed Route proceeds to the southwest, parallel to the north side of the SWPL 500kV transmission line, and crosses YPG land, Arizona State Trust land, and BLM land that crosses through the Muggins Mountains in a generally northwesterly direction.

The Proposed Route proceeds to the west, parallel to the north side of the SWPL 500kV transmission line, and crosses into YPG land, BLM land adjacent to the Muggins Mountain Wilderness, and private land. The Proposed Route crosses U.S. 95, turns southwest and crosses into BLM lands associated with the Laguna Mountains. The Proposed Route proceeds generally west and crosses into a segment of YPG land, a segment of BLM land, and a segment of Reclamation land to the termination of the Proposed Route, interconnecting with the existing North Gila Substation.

4.2.6 Land Ownership:

The following table lists the mileage for the Proposed Route by Ownership, based on the alternative interconnection locations:

	BLM (distance in miles)	**Reclamation (distance in miles)**	**YPG (distance in miles)**	**Arizona State Trust (distance in miles)**	**Private (distance in miles)**	**Total Length (distance in miles)**
Proposed Route (Arlington Valley Energy Facility Interconnection)	54.6	1.5	8.7	21.6	24.2	110.6
Proposed Route (Hassayampa Switchyard Interconnection)	54.6	1.5	8.7	23.1	23.7	111.6
Proposed Route (Redhawk Power Plant Interconnection)	54.6	1.5	8.7	23.2	23.3	111.3

5. Jurisdictions:

5.1 Areas of jurisdiction (as defined in A.R.S. Section 40-360) affected by this route:

Approximately 36 miles of the Proposed Route is located within unincorporated Maricopa County. The remaining 74 miles are located within unincorporated Yuma County.

5.2 Designation of proposed sites or routes, if any, which are contrary to the zoning ordinances or master plans of affected areas of jurisdiction:

The Proposed Route is not contrary to zoning ordinances or master plans of any affected areas of jurisdiction.

6. Description of the environmental studies Applicant has performed:

The environmental consulting firm of EPG coordinated the preparation of the environmental studies supporting the application. Under direction of the Lower Sonoran Field Office (LSFO) of the BLM, EPG (as a third-party contractor) conducted environmental studies that were utilized in the preparation of the EA (Exhibit B-1), pursuant to the National Environmental Policy Act (NEPA). The Proposed Route is primarily located on land managed by the BLM and Arizona State Land Department (ASLD). On BLM land, for approximately 55 miles, or 50 percent of the overall length, the Proposed Route would be located within the BLM-designated utility corridor. The BLM-designated utility corridor (1 mile wide) includes the San Diego Gas and Electric (SDG&E) Interconnection Corridor, identified in the *Lower Gila South Resource Management Plan*, and the Interconnection Corridor identified in the *Yuma Resource Management Plan*. These corridors are identified in the BLM Resource Management Plans (RMP) and are incorporated to consolidate similar facilities across BLM land.

Public and agency scoping, environmental resources inventory, and impact assessments were conducted for the Proposed Route. Impacts to land use, visual resources, cultural resources, biological resources, socioeconomics, geology, soils, noise, and air, were evaluated. An inventory of the existing environment, as well as an assessment of potential environmental consequences as a result of this project, was completed (see Exhibit B-1, Chapter 3).

Preliminary Alternatives Evaluation

In mid 2005, APS began working with the LSFO of the BLM to begin the project scoping process. After meeting with the BLM, and further refinement of the project description, it was determined that the scope of the project would include a 500kV transmission line from the PV Hub to the North Gila Substation. A further analysis of preliminary

alternatives was conducted to ensure that the preferred utility corridor, identified in the utility corridor study, was the most environmentally compatible alternative for the PV Hub to North Gila project. Approximately 550 miles of preliminary transmission line alternatives were evaluated using secondary data. Figure 2 illustrates the preliminary alternatives considered.

The majority of the preliminary alternatives paralleled railroads, pipelines, canals, and transmission lines. The alternatives were evaluated for environmental, reliability, engineering, financial, and system operating considerations. Preliminary alternatives considered included alternative routes studied during the preparation of the APS/SDG&E Interconnection Environmental Impact Statement (EIS) for the SWPL 500kV transmission line, and corridors identified in the draft Department of Energy (DOE) West-wide Energy Corridor Programmatic EIS process.

Six alternative routing areas were considered preliminarily: the Northern Alternative Routes, the Southern Alternative Routes, the Muggins/Dome Valley/Gila Mountains Alternatives, the Muggins Mountains Alternative, the Laguna Mountains Alternative, and the Existing 500kV Transmission Line Corridor (SWPL) Alternative. Three preliminary alternatives were eliminated, and three alternatives were carried forward for further evaluation, as discussed below.

Preliminary Alternatives Considered and Eliminated

Northern Alternative Routes

Alternatives were identified that would circumvent the Gila Bend Mountains to the north. The first alternative considered begins near the Palo Verde Nuclear Generating Station (PVNGS) and follows the Arlington-Clanton Well Road to the west across private land, Arizona State Trust land, and BLM land. The alternative continues north of the Gila Bend Mountains along Arlington-Clanton Road, which begins to turn south. The alternative turns south parallel to a 69kV sub-transmission line through BLM land, before turning southwest in order to avoid agricultural lands associated with Hyder. The alternative would join the alignment of the Proposed Route southwest of Hyder.

The second alternative considered turns northwest from the Proposed Route where it crosses Agua Caliente Road and follows it through BLM land north of both Yellow Medicine Butte and Face Mountain, before turning south. The alternative continues to follow Agua Caliente Road south towards the Proposed Route crossing BLM land, Arizona State Trust land, and private land. The alternative would join the alignment of the Proposed Route northeast of Hyder.

The northern alternative routes were eliminated from further study because of land use, visual, cultural, and financial/environmental factors. The routes would directly impact residences, along with agricultural operations.

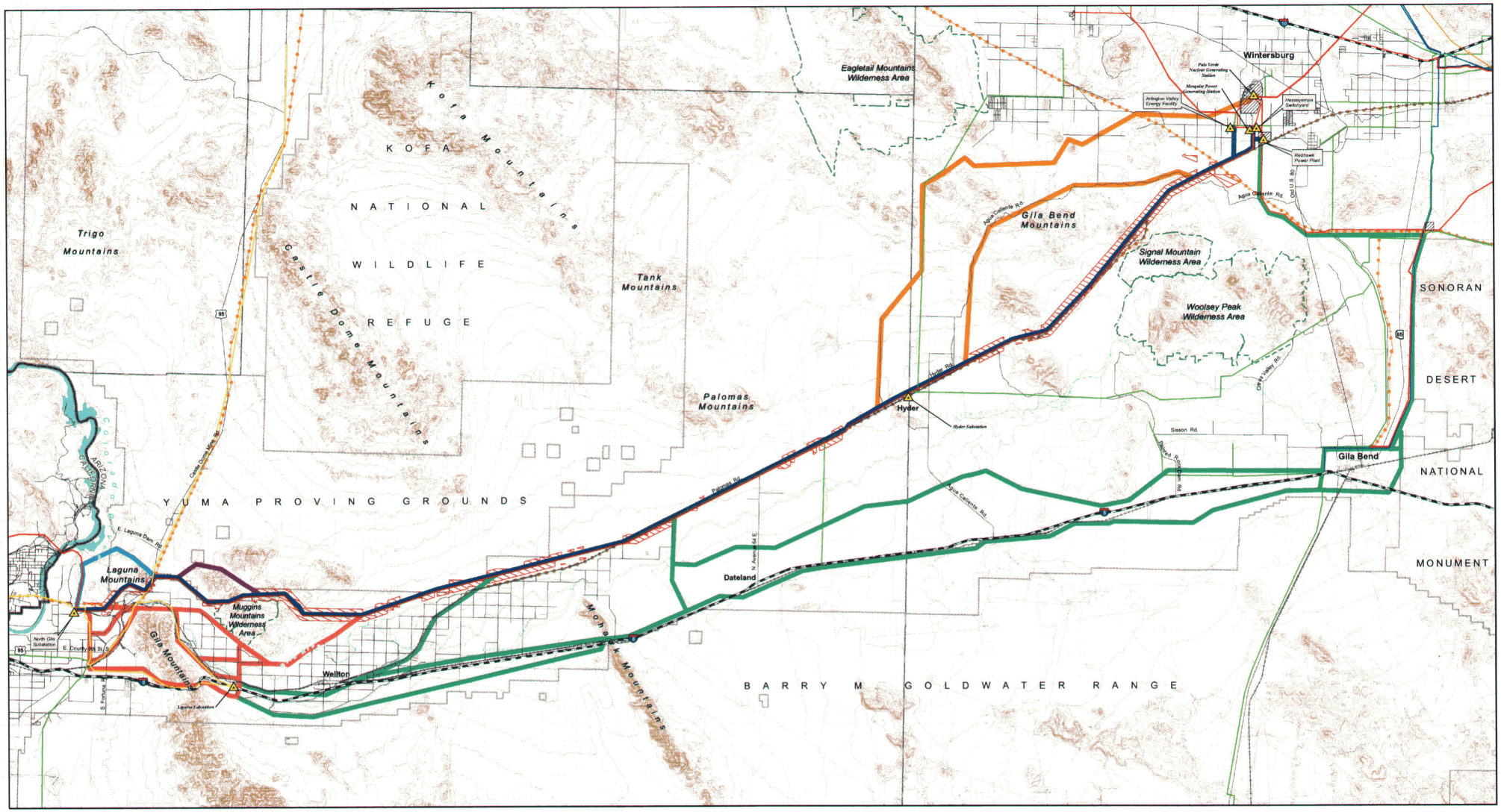

Figure 2

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Preliminary Alternatives

October 2007

APS

epg

LEGEND

Preliminary Alternatives Considered and Eliminated

- Northern Alternative Routes
- Southern Alternative Routes
- Muggins/Dome Valley/Gila Mountains Alternative Routes

Alternatives Considered for Further Evaluation

- Existing 500kV Transmission Line Corridor (SWPL)
- Muggins Mountains Alternative
- Laguna Mountains Alternative

Base Features

Project Features

- Power Plant/Switchyard
- BLM-Designated Utility Corridor

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wildlife Refuge/National Monument Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

N

0 1 2 4 6 8 10 Miles

0 4.5 9 18 Kilometers

CONTOUR INTERVAL 100 FEET

In addition to potential impacts to land use resources, the northern alternative routes would have potential high visual impacts to residential areas in Hyder, because of the introduction of a new 500kV transmission line that is not parallel to existing EHV lines. Arlington-Clanton Well Road runs just south of the Eagletail Mountains Wilderness, and would introduce new visual disturbance to this area. Agua Caliente Road is a road used by people seeking recreation and scenic opportunities, and the introduction of a new transmission line would impact viewers along the road.

Cultural resources crossed by the northern alternative routes include Native American multi-resource areas, a Native American sacred place, and a Native American burial area.

The fourth factor in eliminating the northern alternative routes from further consideration is that they could be more than 6 miles longer than the Proposed Route, resulting in potentially greater financial and environmental impacts.

Southern Alternative Routes

An alternative was identified that originates at the PV Hub and proceeds generally south towards Gila Bend where it branches into several alternatives south of the Gila River, then proceeds west towards Yuma. From the PV Hub, the alternative heads south adjacent to the existing Palo Verde to Kyrene 500kV transmission line, crossing private land, Arizona State Trust land, and BLM land. The alternative is within a BLM-designated utility corridor on BLM land. The alternative continues to follow the Palo Verde to Kyrene 500kV transmission line as it turns east, where it crosses the Gila River and State Route 85. East of State Route 85, the alternative proceeds south parallel to an existing 230kV and two 500kV transmission lines, which crosses BLM land, Arizona State Trust land, and private land.

In the Gila Bend area, several alternatives were identified. One alternative continues parallel to two 500kV transmission lines and a 230kV transmission line as it turns west, north of Gila Bend, then turning south towards Interstate 8 (I-8). Another alternative was considered that would continue south from the point where the 500kV transmission lines and the 230kV transmission line proceed west, crossing I-8, and turning west, south of Gila Bend.

From Gila Bend, alternatives were considered both north and south of I-8. One alternative parallels I-8 and the UPRR from Gila Bend all the way to Wellton, crossing private land, Arizona State Trust land, and BLM land. Another alternative roughly parallels I-8 on the north side, avoiding agricultural lands, and parallels segments of a 69kV sub-transmission line along with existing dirt roads, as well as overland sections. The alternative turns south near Texas Hill, along an alternative that takes advantage of an existing road to connect the Proposed Route alignment with the southern alternatives along I-8. These alternatives cross private land, Arizona State Trust land, BLM land, and Reclamation land.

Near the Mohawk Mountains pass, an alternative was identified that separated from I-8 to the south, staying along the edge of the Barry M. Goldwater Range. Near Wellton, this alternative parallels the Mohawk Canal south of I-8, before the alternative turns northwest near the eastern base of the Gila Mountains crossing private land, Arizona State Trust land, and BLM land. Another alternative splits from the Proposed Route near Roll, and continues to parallel the UPRR until the alternative reaches I-8, where the alternative would join with the alternative described above, crossing private land, Arizona State Trust land, and BLM land.

The southern alternative routes were eliminated from further study because of potential impacts to land use, cultural, visual, biological, and financial/environmental factors. The routes would directly impact residences, as well as agricultural operations.

Cultural resources affected by the southern alternative routes include crossings of undisturbed traces of the Gila Trail and the location of a Butterfield Stage station.

The southern alternative routes do not parallel existing EHV transmission lines, and would therefore include visual impacts related to the introduction of a new EHV transmission line in these areas. Alternatives near Gila Bend and Wellton would introduce high impacts to residential viewers. The alternatives parallel to I-8 would potentially have high impacts to viewers on the freeway due to the proximity and duration of views.

Another alternative crosses the Fred J. Weiler Greenbelt, which could create impacts on biological resources within the greenbelt.

During the public scoping period for the APS/SDG&E EIS study for the placement of the SWPL transmission line, comments were received from the WMIDD opposing routes that cross through the Wellton area. Public comment was also received in general opposition to these routes because of potential interference with agricultural operations and development plans.

As with the northern alternative routes, another factor in eliminating the southern alternative routes from further consideration is that they were typically more than 50 miles longer than the Proposed Route, resulting in greater financial and environmental impacts. Additionally, these routes were not within a BLM-designated utility corridor.

Muggins/Dome Valley/Gila Mountains Alternatives

A series of alternatives were identified at the western end of the study area, in the area of the Muggins Mountains, the Dome Valley area, and crossings of the Gila Mountains. One alternative provided an alternate routing for the Proposed Route south of the Muggins Mountains, generally adjacent to the foothills of the mountains, circumventing the

Muggins Mountains Wilderness, and rejoining the Proposed Route alignment at the northern end of the Dome Valley. This alternative crosses BLM and private land.

Another alternative route provides a connection for alternatives that parallel I-8 into the North Gila Substation. The route parallels the UPRR and Wellton-Mohawk Canal north, on the western side of Dome Valley, before turning west and connecting to the alignment of the Proposed Route, crossing BLM land, Arizona State Trust land, and private land.

An alternative was identified that continued to follow I-8 west through Telegraph Pass, parallel to an existing 161kV transmission line, and roughly parallel to I-8. The route continues to parallel I-8, before turning north parallel to Avenue 9 East into the North Gila Substation, crossing BLM land, Arizona State Trust land, and private land.

Additional sub-alternatives were identified in this area, including routes parallel to the Gila Gravity Main Canal, the Main Outlet Drain, Avenue 22 East, County 9th Street, and County 8th Street.

The Muggins/Dome Valley/Gila Mountains alternatives were eliminated from further study because of potential impacts to land use, visual, cultural, and biological factors. The routes would have substantial impacts to agricultural resources, as well as high impacts to existing and planned residences.

Most of the alternatives parallel existing linear features, but not EHV transmission lines, which results in visual impacts associated with the introduction of a new 500kV transmission line on the landscape. Specific impacts identified in these alternatives include high impacts to viewers on I-8 and residences because of the proximity and duration of views, and crossing of BLM Class A landscapes. Alternatives in the Dome Valley would create impacts for viewers traveling on Dome Valley Road, because of its designation as a County scenic road. Alternatives in the Dome Valley also are not located within a BLM-designated utility corridor.

Cultural resources affected by the alternatives includes the potential crossing of a possible Sand Papago village location, and the potential of the alternatives to be visible from at least two Native American sacred places.

The alternatives also cross possible Desert Tortoise habitat, and Flat-tailed Horned Lizard habitat.

As with the southern alternatives, during the public scoping period for APS/SDG&E EIS study for the placement of the SWPL transmission line, comments were received from the WMIDD, indicating that some of the alternatives would interfere with agricultural operations. The Arizona Department of Transportation (ADOT) also commented, indicating that the alternatives parallel to I-8 would be undesirable in this rural area for aesthetic reasons.

Alternatives Considered for Further Evaluation

Following consideration of the preliminary alternatives, three alternative routes were carried forward and studied for the EA. These alternatives included the Laguna Mountains Alternative Route, the Muggins Mountains Alternative Route, and the Existing 500kV Transmission Line Corridor (SWPL) Alternative, which was recommended by the BLM because the route was within a BLM-designated utility corridor throughout the BLM land crossed by the project. The Laguna Mountains Alternative Route was evaluated and eliminated primarily because of conflicts with military operations on the YPG and the cost of the alternative due to its length (2 miles longer than the Proposed Route). The Muggins Mountains Alternative Route was also evaluated and eliminated because of conflicts with military operations on the YPG, and potential visual impacts to recreation users in the Muggins Mountains. The Existing 500kV Transmission Line Corridor (SWPL) Alternative had the least amount of environmental impact compared to the other alternatives, while still meeting engineering system requirements and cost considerations. Chapter 2 of the EA provides a more detailed discussion of alternatives that were considered and eliminated. The Existing 500kV Transmission Line Corridor (SWPL) Alternative became the Proposed Route, and was studied during the Detailed Alternative Evaluation, described below.

Detailed Alternative Evaluation

Resources located within the project study area were inventoried by collecting existing data; reviewing existing literature, aerial photographs, and maps; and contacting appropriate federal, state, county, and municipal agencies. Field reconnaissance also was conducted. A study corridor 2 miles on each side of the reference centerline was studied for potential visual resource and land use impacts.

Detailed cultural surveys, typically 300 feet wide, were conducted along the reference centerline for the Proposed Route. A report documenting these findings was sent to the BLM, Reclamation, YPG, and ASLD in December 2006 for review. Comments were received from the BLM, Reclamation, and YPG and a revised draft was submitted to the BLM, Reclamation, YPG, and ASLD in August 2007. Consultation with the State Historic Preservation Office (SHPO) was initiated in September 2007 and is anticipated to be complete in November 2007.

Potential environmental impacts were determined through an impact assessment process that compared the proposed project and the existing environment. Potential impacts were identified and, where effective, mitigation measures were utilized to reduce or eliminate impacts. Standard construction operating procedures and mitigation measures included structure placement to avoid sensitive resources, matching existing structure type, use of non-specular conductors and dulled structures, use of existing access for over 98 percent of the Proposed Route's overall length, landscape reclamation and revegetation, and biological and cultural monitoring. The mitigation measures are described in detail in the

BLM EA (Exhibit B-1, Appendix A). In addition, a draft Plan of Development was prepared and approved by the BLM. The Plan of Development will be finalized and incorporated into the Construction, Operation, and Maintenance Plan documenting construction practices and stipulations that will be prepared in accordance with BLM requirements prior to construction.

The public involvement program was developed to identify potential issues and concerns of affected or interested agencies, Native American tribes, and the public. The program included advertisements in local newspapers regarding two public open house meetings, a jurisdictional meeting, one-on-one agency meetings, a project newsletter, BLM mailings, and direct contacts. The project newsletter was mailed to the public that described the proposed project and the time and location of the public open house meetings. The mailing list included over 1,100 addresses and was developed utilizing a mailing list provided by the BLM, and landowners and APS electric customers within the study area. In addition to the newsletter, APS briefed local news sources and placed paid advertisements for the March open house meetings. In particular, APS briefed the *Yuma Sun* and *Arizona Republic*. A project website and information line also was established to provide additional information to the public. A total of 39 comments were received from the public at the open house meetings and throughout the planning process. Information from the public comments was incorporated into the evaluation of preliminary alternatives and selection of the Proposed Route. Additionally, the BLM distributed an informational letter to over 3,400 individuals and agencies throughout the US in January 2006, describing the proposed project and the project study area. The letter invited recipients to provide any comments to the BLM within a 30-day period. See Exhibit J for a summary of public comments and public involvement materials.

Exhibits A, B, C, D, and E of this application contain descriptions and conclusions of the environmental studies. Detailed descriptions of environmental studies for the proposed project are included in the BLM EA (Exhibit B-1).

7. Rationale for Route Preference:

The Proposed Route described in this application has been found by APS and its environmental consultant, EPG, to be within the range of impacts deemed "environmentally compatible" in past Arizona siting decisions. During the scoping period, the BLM directed APS to study the Proposed Route in detail, because the alternative would parallel the existing SWPL 500kV transmission line within a designated utility corridor across BLM land. The use of a designated utility corridor and paralleling of existing utilities will minimize impacts throughout the study area. By paralleling other linear features and utilities, including the SWPL 500kV transmission line, visual impacts will be reduced through matching of structure types and span lengths as much as possible. The Proposed Route crosses 88 miles of public land, or 80 percent of the 110- to 112-mile route. The Proposed Route will also be able to take advantage of existing access roads for 98 percent of the route, which will minimize impacts to visual,

land use, cultural, and biological resources. The Proposed Route was therefore selected as the preferred route.

Approval of the Proposed Route by the BLM is pending. Additional rationale for the selection of the Proposed Route follows.

The Proposed Route is preferred by APS based on the following environmental considerations:

- Land use impacts were avoided by utilizing existing linear corridors and existing access. There are 10 residences within ¼ mile of the Proposed Route, however they are south of the SWPL 500kV transmission line and therefore will be no closer to the proposed line than the existing line.

- No conflicts with any planned recreational uses are anticipated.

- No long-term or adverse effects to special status species or unique habitats will result from the construction of the Proposed Route.

- The Proposed Route would not constitute a barrier to wildlife movement after construction. Additionally, wildlife habitat fragmentation is not anticipated.

- Historic and cultural properties along the Proposed Route will be avoided where possible. While most impacts can be avoided through the careful placement of structure locations, there are five sites where impacts are unavoidable. The impacts to these sites would be mitigated by the development of a Historic Properties Treatment Plan (HPTP). Thirteen Native American tribes are currently being consulted by the BLM in order to determine any issues or concerns. Exhibit E contains a detailed discussion and analysis of historic and cultural properties.

- Visual impacts are anticipated to be primarily low for residential, recreation, and travel route viewers based on the following:
  - The Proposed Route would parallel an existing transmission line for nearly its entire length.
  - The Proposed Route would be located within a BLM-designated utility corridor, and is consistent with the management objectives identified in the BLM planning documents.
  - Similar structure types will be used and sited adjacent to the existing transmission line structures (where practical).
  - The project will match spans between structures whenever possible.
  - The project will use non-specular conductors and dulled structure surfaces.
  - The Proposed Route would use existing access for over 98 percent of its overall length.

- No issues were identified by the public living in the project area during the public scoping process. Comments received indicated a preference for the route to be north of the SWPL 500kV transmission line.

The Proposed Route presented in this application will meet the requirements for the PV Hub to North Gila Transmission Line Project.

ARIZONA PUBLIC SERVICE COMPANY

By: _____
Paul Herndon
Project Manager

I HEREBY CERTIFY that on this ____ day of _____, 2007, I have delivered to the Arizona Corporation Commission, twenty-five (25) copies of this Application for a Certificate of Environmental Compatibility.

EXHIBIT A
LOCATION AND LAND USE MAPS

EXHIBIT A
LOCATION AND LAND USE MAPS

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"*Where commercially available, a topographic map, 1:250,000 scale, showing any proposed transmission line route of more than 50 miles in length and the adjacent area. For routes less than 50 miles in length, use a scale of 1:62,500. If application is made for alternative transmission line routes, all routes may be shown on the same map, if practicable, designated by the applicant's order of preference.*"

Exhibit A-1:	Land Ownership and Jurisdiction
Exhibit A-2:	Existing Land Use
Exhibit A-3:	Future Land Use

Exhibits A-1 through A-3 are located in the Map Volume, under separate cover.

EXHIBIT B
ENVIRONMENTAL REPORT

EXHIBIT B
ENVIRONMENTAL REPORT

As stated in Arizona Corporation Commission Rules of Practice and Procedure R-14-3-219:

"Attach any environmental studies which applicant has made or obtained in connection with the proposed site(s) or route(s). If an environmental report has been prepared for any federal agency or if a federal agency has prepared an environmental statement pursuant to Section 102 of the National Environmental Policy Act, a copy shall be included as part of this exhibit."

Under the direction of the BLM, the environmental consulting firm of EPG, Inc., third party contractor, conducted environmental studies that were utilized in the preparation of the EA (Exhibit B-1). The EA was prepared for the proposed construction, operation, and maintenance of a 500kV transmission line and substation/switchyard facilities. Refer to the EA for a more detailed discussion of all of the resources evaluated during the planning process.

LAND USE

Overview

The study area for the land use resources inventory was defined as a 4-mile-wide corridor (2 miles on each side of the reference centerline). Data were collected and updated between September 2005 and March 2007. The land use inventory considered existing and planned land uses within the project study area and was compiled through the review and interpretation of secondary data such as existing maps and planning documents, field reconnaissance, and contacts with key federal, ASLD, and local land-management and agency officials.

A description of conditions along the Proposed Route is described initially in this section, followed by a description of potential impacts to land use resources from the Proposed Route. For reference, the proposed project is located north of the SWPL 500kV transmission line.

Jurisdictions and Land Ownership

The jurisdictions and land ownership within the study area are shown in Exhibit A-1. Table B-1 includes the land ownership categories that the proposed transmission line would cross in approximate miles.

TABLE B-1 LAND OWNERSHIP CROSSED BY THE PROPOSED PROJECT[1]			
	Proposed Route (miles)		
Ownership	**Arlington Valley Energy Facility**	**Hassayampa Switchyard**	**Redhawk Power Plant**
BLM	54.6	54.6	54.6
Arizona State Trust	21.6	23.1	23.2
YPG	8.7	8.7	8.7
Private/Reclamation	25.7	25.2	24.8
Route Total	**110.6**	**111.6**	**111.3**

[1]*Actual distances may vary based on the final survey of the route alignment.*

The Proposed Route primarily crosses BLM land managed by the LSFO and Yuma Field Office (YFO). Portions of the BLM-managed lands were withdrawn and are currently managed by the Department of Defense (DOD) as the YPG. Reclamation owns land in fee along the very western end of Link 50, north of the North Gila Substation. Unincorporated private land is crossed within Maricopa and Yuma County.

Existing Land Use

Existing land uses include mostly vacant and undeveloped areas; utility and other infrastructure (energy facilities, high-voltage transmission lines, and petroleum and natural gas pipelines); mining; residential; commercial; crop dusting airstrips; agriculture; livestock facilities; park, preservation, and recreation areas; and transportation routes. Because a majority of the proposed route crosses BLM land within a designated utility corridor, the proposed project crosses a minimal amount of developed land. A map illustrating existing land uses is provided in Exhibit A-2.

Planned Land Use

The portion of the project that crosses BLM lands is located within the Lower Sonoran Planning Area (eastern portion) and the Yuma Planning Area (western portion). The BLM is currently in the process of updating and developing the Phoenix South RMP and the Yuma RMP. The RMP provides a comprehensive framework for future management actions, uses, allocation of public land, and resources. The Phoenix South RMP is currently in the alternatives development phase, and the comment period for the Draft Yuma RMP ended on March 15, 2007. Until these RMPs are completed, the *Lower Gila South Resource Management Plan* (BLM 1988), as amended, and the *Yuma Resource Management Plan* (BLM 1986 and 1987), as amended, remain the primary BLM planning guides for the portions of the study area at the eastern and western ends, respectively.

The proposed route would be located within a BLM-designated utility corridor and is consistent with the management objectives identified in the BLM planning documents. The *Lower Gila*

South RMP identifies the SDG&E Interconnection Utility Corridor as 1 of 10 "existing utility rights-of-way that should be designated to serve as utility corridors, and recommends that each of these corridors be 1-mile-wide" (BLM RMP 1988, p. 4). This corridor is referred to as No. 3 in the RMP. The *Yuma RMP* identifies the Interconnection Utility Corridor as 1 of 9 "existing and proposed rights-of-way [that] would be designated as utility corridors to accommodate recent and future development needs" (BLM RMP 1986 and 1987, p. 20). This corridor is referred to as No. 9 in the RMP, and is stated to be 1 mile wide.

The *Maricopa County Tonopah/Arlington Area Plan* (Maricopa County 2000) provides for rural residential and industrial uses on lands within the eastern portion of the project study area. In the eastern portion of the study area not included in the Tonopah/Arlington Area Plan, the *Maricopa County 2020 Comprehensive Plan* (Maricopa County 2002) classifies all other land as rural. Maricopa County recognizes this area as a rural zoning district defined as R-43, 1 acre per dwelling unit; R-70, 70,000 square feet per dwelling unit; or R-190, 190,000 square feet per dwelling unit. The principal purpose of these zoning districts is to conserve and protect farms and other open land uses, foster orderly growth in rural areas, and prevent urban and agricultural land use conflicts (Maricopa County 2005). According to Section 403 of the Maricopa County Zoning Ordinance, county land not currently zoned will be subject to a rural classification (R-190).

The *Yuma County 2010 Comprehensive Plan* (Yuma County 2001) provides for rural residential and agricultural uses on lands within the western portion of the project study area. These districts are intended to permit uses which are compatible with the use of the land for agriculture, farming, and open space preservation (Yuma County 2004). According to Section 502.02 of the Yuma County Zoning Ordinance, county land not currently zoned will be subject to a rural classification (RA-20). The Camp Hyder U.S. Army Training Center is listed as a conceptual park. The conceptual park is located adjacent to the UPRR and Avenue 64E, approximately 9 miles north of Dateland. The site is currently being leased for pivot agriculture.

Within the unincorporated private land in the study area, Maricopa and Yuma County have several approved platted subdivisions. The majority have not developed at all, but there is dispersed residential development on a few of the platted subdivisions. In the areas where a platted subdivision is crossed by the proposed route, the route is north and directly parallel to the SWPL 500kV transmission line and the UPRR.

A map illustrating planned land uses is provided in Exhibit A-3.

Recreation

Dispersed recreational activities such as hunting, hiking, horseback riding, mountain biking, and off-highway vehicle uses potentially occur on public land along the Proposed Route and in the general area.

The BLM YFO has two designated 14-day camping areas that are within the study area: Fortuna Pond and Redondo Pond. Fortuna Pond is located approximately 1 mile north of U.S. 95 and 3 miles east of Avenue 7E, and is about 2 miles south of the proposed transmission line. Redondo Pond is located approximately 3 miles north of U.S. 95 off of County 6th Street, and is about ½ mile south of the proposed transmission line. Both areas offer camping and fishing opportunities.

In July 2004, the Maricopa County Board of Supervisors approved the Maricopa County Regional Trail System Plan, which identifies future trail corridors throughout the county. The plan identifies corridors according to segments with a corresponding priority level. One corridor identified in the plan is located within the study area including the Old Camp Wash in the eastern portion of the study area. The portion of the proposed Maricopa County Regional Trail (MCRT) along the Old Camp Wash is identified as a Priority Four segment. This segment is identified as future trail corridors (5 miles wide) worthy of future study. Maricopa County generally considers transmission line corridors as opportunities for trails.

The *Yuma County 2010 Comprehensive Plan* also includes a conceptual proposed 56-mile multi-use (equestrian and non-motorized) trail that will largely circle the perimeter of the greater Yuma area. The proposed trail crosses into the study area in the North Gila Valley near Blaisdell, and will run west almost parallel to the SWPL 500kV transmission line, crossing underneath both this line and the proposed transmission line just north of the North Gila Substation.

Recreation Opportunity Spectrum

In the BLM planning process, Recreation Opportunity Spectrum (ROS) classifications are used to help set recreation themes within each of the BLM's management areas. The majority of the BLM lands crossed by the proposed route occur within the Roaded Natural category. The Roaded Natural designation is given to areas typically characterized by a natural environment with moderate evidence of humans. A portion of the proposed transmission line route also would cross BLM lands designated as Semi-Primitive Motorized, in the vicinity of Signal Mountain, which are typically characterized by a predominantly unmodified natural environment of moderate to large size. All BLM lands crossed by the Proposed Route, including the Semi-Primitive Motorized area, are located within the BLM-designated utility corridor where the proposed route would parallel the north side of the SWPL 500kV transmission line.

Potential Impacts – Proposed Route

Construction of the proposed facilities would not conflict with existing or planned land uses or recreation areas inventoried along the Proposed Route. Moderate impacts may occur to in-production farmland in the Hyder Valley for less than 1 mile of the route. The use of monopoles in this area would minimize ground disturbance to the in-production farmland. The Proposed Route would be located within a BLM-designated utility corridor and is consistent with the ROS management classifications and management objectives of consolidating corridors identified in

the BLM planning documents. The Proposed Route would parallel the north side of the SWPL 500kV transmission line and use existing access to the extent practical along the entire alignment.

EXHIBIT B-1
BLM ENVIRONMENTAL ASSESSMENT

Exhibit B-1
Environmental Assessment
Palo Verde Hub to North Gila Substation 500kV Transmission Line Project

Prepared for

United States Department of the Interior
Bureau of Land Management
Phoenix Field Office

On behalf of

Arizona Public Service

Prepared by

Environmental Planning Group
4141 North 32nd Street
Suite 102
Phoenix, Arizona 85018

October 2007

BLM Case File No. AZA-33305
NEPA No. AZ-220-2006-008

PALO VERDE HUB TO NORTH GILA SUBSTATION

500KV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ASSESSMENT

Prepared by:

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4141 North 32nd Street, Suite 102
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BLM Serial No. AZA-33305
NEPA No. AZ-220-2006-008

October 2007

TABLE OF CONTENTS

Chapter 1 – Introduction
1.1 Background 1- 1
1.2 Purpose and Need for the Proposed Action 1- 1
1.3 Conformance with Resource Management Plans 1- 1
1.4 Relationship to Statutes, Regulations, and Other Plans 1- 2
1.5 Environmental Review Process 1- 2

Chapter 2 – Proposed Action and Alternatives
2.1 Introduction 2- 1
2.2 Proposed Action 2- 1
2.2.1 Construction Activities 2- 5
2.3 No-Action Alternative 2-11
2.4 Alternatives Considered But Eliminated From Further Study 2-11
2.4.1 Energy Conservation and Load Management 2-11
2.4.2 Transmission Line Technology 2-12
2.4.3 Underground Transmission 2-12
2.4.4 Alternative Structures 2-13
2.4.5 Alternative Routes 2-13

Chapter 3 – Affected Environment and Environmental Consequences
3.1 Introduction 3- 1
3.2 Land Use 3- 2
3.2.1 Affected Environment 3- 2
3.2.2 Environmental Consequences 3-13
3.3 Visual Resources 3-15
3.3.1 Affected Environment 3-15
3.3.2 Environmental Consequences 3-21
3.4 Cultural Resources and Native American Concerns 3-25
3.4.1 Affected Environment 3-26
3.4.2 Environmental Consequences 3-27
3.4.3 Native American Concerns 3-29
3.5 Biological Resources 3-30
3.5.1 Affected Environment 3-30
3.5.2 Environmental Consequences 3-46
3.6 Socioeconomics 3-51
3.6.1 Affected Environment 3-51
3.6.2 Environmental Consequences 3-54
3.7 Earth and Water Resources 3-55
3.7.1 Affected Environment 3-56
3.7.2 Environmental Consequences 3-60

Table of Contents (continued)

3.8 Health and Safety 3-62
3.8.1 Affected Environment 3-62
3.8.2 Environmental Consequences 3-63

Chapter 4 – Cumulative Impacts
4.1 Introduction 4- 1
4.2 Findings 4- 1
4.2.1 Past, Present, and Future Development 4- 1
4.2.2 Summary of Cumulative Impacts 4- 2

Chapter 5 – Consultation and Coordination
5.1 Public Contact Information 5- 1
5.2 Agencies, Tribes, and Organizations Consulted 5- 1
5.2.1 Federal 5- 1
5.2.2 Native American 5- 1
5.2.3 State 5- 2
5.2.4 County and City 5- 2
5.2.5 Public Meetings 5- 2
5.2.6 Informational Mailings 5- 3
5.2.7 Other Sources of Project Information 5- 4
5.3 Issue Identification 5- 4
5.4 List of Preparers 5- 5
5.4.1 Bureau of Land Management 5- 5
5.4.2 Arizona Public Service 5- 5
5.4.3 Environmental Planning Group 5- 5

Chapter 6 – References
6.1 Land Use 6- 1
6.2 Visual Resources 6- 2
6.3 Cultural Resources and Native American Concerns 6- 2
6.4 Biological Resources 6- 3
6.5 Socioeconomics 6- 7
6.6 Earth and Water Resources 6- 8
6.7 Health and Safety 6- 8

Table of Contents (continued)

Appendices

A – Standard Construction and Operating Procedures and Mitigation Measures
B – Visual Resources
C – Biological Resources
D – Public Contact Information
E – Public Comment

LIST OF FIGURES

2-1 Land Ownership 2- 2
2-2 Typical 500kV Single-Circuit Steel Lattice Structure 2- 3
2-3 Typical 500kV Single-Circuit Tubular Steel Pole Structure 2- 4
2-4 Alternatives Considered and Eliminated 2-16

3-1 Existing Land Use 3- 4
3-2 Future Land Use 3-11

LIST OF TABLES

2-1 Typical Design Characteristics 2- 5
2-2 Typical Transmission Line Construction 2- 6

3-1 Land Ownership Crossed By The Proposed Project 3- 3
3-2 Planned Land Use Sources 3-10
3-3 Summary of Sites Located within the APE of the Proposed Alignment 3-26
3-4 Percentage Population Increase for Selected Areas 1990-2000 3-51
3-5 Soil Erosion Hazards By Association 3-58

4-1 Projects List – Cumulative Effects 4- 4

LIST OF ACRONYMS

ACC	Arizona Corporation Commission
ADWR	Arizona Department of Water Resources
AZGFD	Arizona Game and Fish Department
APE	Area of Potential Effect
APS	Arizona Public Service
ARPC	Arizona Rare Plant Committee
ASLD	Arizona State Land Department
BLM	Bureau of Land Management
dB	decibel
DOD	Department of Defense
DTC-CAMA	Desert Training Centers – California Arizona Maneuver Area
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPG	Environmental Planning Group
FCR	Field Contact Representative
HPTP	Historic Properties Treatment Plan
IO	Isolated Occurrence
I-8	Interstate 8
KOP	Key Observation Point
kV	kilovolt
LSFO	Lower Sonoran Field Office
MCAS	Marine Corps Air Station
MCRT	Maricopa County Regional Trail
MPA	Municipal Planning Area
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
PDO	Phoenix District Office
POD	Plan of Development
PV Hub	Palo Verde Hub

PVNGS	Palo Verde Nuclear Generating Station
Reclamation	Bureau of Reclamation
RI	radio interference
RMP	Resource Management Plan
ROS	Recreation Opportunity Spectrum
SDG&E	San Diego Gas and Electric
SQRU	Scenic Quality Rating Units
SWPL	Southwest Power Link
TVI	television interference
UPRR	Union Pacific Railroad
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management
WAPA	Western Area Power Administration
WMIDD	Wellton-Mohawk Irrigation and Drainage District
YFO	Yuma Field Office
YPG	Yuma Proving Ground

CHAPTER 1 – INTRODUCTION

1.1 BACKGROUND

Arizona Public Service Company (APS) has applied for a right-of-way grant (Serial Number AZA-33305) from the Bureau of Land Management (BLM) for the construction, operation, and maintenance of the proposed Palo Verde Hub (PV Hub) to North Gila Substation 500 kilovolt (kV) Transmission Line Project. The proposed route parallels the existing Palo Verde–North Gila Southwest Power Link 500kV Transmission Line (SWPL). The proposed transmission line would be located within a BLM-designated utility corridor (1-mile wide) on BLM land. The remaining portions of the line would cross Bureau of Reclamation (Reclamation), Yuma Proving Grounds (YPG), Arizona State Trust land, or private land.

The required right-of-way width would be 200 feet. The estimated length of the proposed transmission line route is approximately 110 to 112 miles, depending on the final system option selected, and crosses approximately 55 miles of BLM land, 2 miles of Reclamation land, 9 miles of the YPG, 22 miles of Arizona State Trust land, and 24 miles of private land.

This Environmental Assessment (EA) was prepared by the BLM Lower Sonoran Field Office (LSFO) with the assistance of APS and the Environmental Planning Group (EPG), as presented in Chapter 5.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The proposed project is needed to support the continuing development and growth, occurring and anticipated, in the Yuma region. This project would strengthen the entire Yuma area transmission system by providing an additional extra-high voltage (EHV) electrical transmission source to the region. In addition to increasing import capability into the Yuma area load pocket, the proposed line would increase the export transmission capability from the PV Hub, and provide additional transmission to reinforce the Wellton-Mohawk Irrigation and Drainage District (WMIDD) service territory. The proposed line may have a capacity of up to 1,250 megawatts (MW). The project would also provide access to renewable energy sources in Southern California such as the geothermal generation capability in the Imperial Valley Area. The projected need date for the proposed 500kV line is 2012, and construction is anticipated to commence in 2010.

The proposed project is consistent with the latest APS 10-Year Plan, which was filed in January 2007, with the Arizona Corporation Commission (ACC).

1.3 CONFORMANCE WITH RESOURCE MANAGEMENT PLANS

The BLM LSFO is the lead federal agency for this EA. The proposed transmission line is located within BLM-designated utility corridors (1-mile wide), on federal land, including the San Diego

Gas and Electric (SDG&E) Interconnect, identified as No. 3 on page 4 of the *Lower Gila South Resource Management Plan* (RMP) (BLM 1988), as amended, and the Interconnection, identified as No. 9 on page 20 of the *Yuma District RMP* (BLM 1986 and 1987), as amended. The proposed project complies with the standards and guidelines specified in the RMP(s), including the placement of new electrical transmission lines within BLM-designated utility corridors.

1.4 RELATIONSHIP TO STATUTES, REGULATIONS, AND OTHER PLANS

This EA has been prepared in compliance with the National Environmental Policy Act (NEPA), Council on Environmental Quality Implementation Procedures, outlined in 40 CFR, Parts 1500-1508, BLM Arizona Environmental Handbook, and BLM Manual 1790, and NEPA Handbook 1790-1. The *Maricopa County Comprehensive Plan* (August 2002), *Tonopah/Arlington Area Plan* (September 2000), *Old U.S. 80 Area Plan* (May 2007), and *Yuma County 2010 Comprehensive Plan* (December 2001) also were reviewed during the evaluation of this project. Additionally, other planning efforts, including regional high-voltage transmission line projects, were considered.

1.5 ENVIRONMENTAL REVIEW PROCESS

This EA evaluates the potential environmental impacts of the Proposed Action and No-Action alternatives for the following environmental study areas:

- Land Use and Recreation
- Visual Resources
- Cultural Resources and Native American Concerns
- Biological Resources
- Socioeconomics
- Earth and Water Resources
- Health and Safety

The following critical elements of the environment were considered:

- Air Quality (Section 3.8)
- Areas of Critical Environmental Concern (Section 3.2)
- National Monuments (Section 3.2)
- Environmental Justice (Section 3.6)
- Floodplains (Section 3.7)
- Native American Religious Concerns (Section 3.4)
- Cultural Resources (Section 3.4)
- Threatened or Endangered Species (Section 3.5)
- Farmlands (Prime and Unique) (Section 3.2)
- Wastes, Hazardous or Solid (Section 3.7)
- Wetlands/Riparian Zones (Section 3.7)
- Wild and Scenic Rivers (Section 3.2)
- Wilderness Areas (Section 3.2)

- Non-Native Invasive Species (Section 3.5)
- Water Quality, Drinking or Ground (Section 3.7)
- Standards for Rangeland Health (Section 3.5)
- Adverse Energy Impact (The Proposed Action, if approved, would not have a direct or indirect adverse impact on energy development, production supply, and/or distribution.)

The Arizona BLM has established an informal process for initiating EA-level documents, as described in the overview of BLM's NEPA process. This process consists of careful planning and internal and external coordination with other governmental agencies, individuals, and interest groups, as appropriate. The publication of a Notice of Intent in the *Federal Register* is not required. In January 2006, informational letters were sent to contact addresses on the BLM mailing list. In addition, APS conducted an informational open house and distributed a newsletter that included project information to residents and landowners within the study area. A project website and telephone information line number also were available for people to contact project team members. A detailed summary of the project public involvement program is provided in Chapter 5 of this EA.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

Chapter 2 describes the Proposed Action and No-Action alternatives, as well as alternatives considered and eliminated from the project. The Proposed Action is described first and is followed by the options for the construction and implementation of the transmission line and a summary of associated pre-construction, construction, operation, and maintenance activities. A description of the No-Action alternative is presented next, followed by an explanation of alternatives to the proposed transmission line project that were considered and eliminated.

2.2 PROPOSED ACTION

The Proposed Action involves the construction and operation of one single-circuit 500kV transmission line that would originate from the PV Hub. The PV Hub, for the purposes of this project, is the Arlington Valley Energy Facility, the Hassayampa Switchyard, or the Redhawk Power Plant. The transmission line would connect into the North Gila Substation, generally in the same location as the SWPL 500kV transmission line, as illustrated in Figure 2-1. All three options of the PV Hub are currently being evaluated for system reliability and interconnection issues. The right-of-way for the project would be up to approximately 200 feet in width and approximately 110 miles in length.

From the PV Hub, the Proposed Action would be constructed primarily with lattice tower structures that parallel the SWPL 500kV transmission line. Tubular-steel poles may be necessary in specific areas. The project then continues to the south and west, within a BLM-designated utility corridor. The project initially crosses private land before entering a large segment of BLM land, where it would continue to parallel the SWPL 500kV transmission line in a southwesterly direction, within the designated utility corridor. Following this segment, the proposed line traverses interspersed segments of BLM, Arizona State Trust land, and private land, until reaching a segment that crosses the YPG. The proposed line then reaches another segment of BLM land, where it would then cross into Reclamation land before connecting to the North Gila Substation site, located northeast of Yuma, Arizona (Section 11, Township 8 South, Range 22 West, Gila and Salt River Basin and Meridian (G&SRB&M)). Land ownership in the study area is illustrated in Figure 2-1.

The 500kV transmission line would be designed for a three-phase single-circuit, double or triple-bundled (two or three conductors per phase), and two overhead ground wires. The overhead ground wires could be comprised of one stranded steel and the other a fiber optic line, or two fiber optic lines. The purpose of the fiber optic network is to provide a communication and data path between switchyards, generating stations, and the system control center. The fiber optics network would be part of the transmission line operation and control system. The structures proposed for the transmission line are both steel lattice and tubular-steel pole, as shown in Figures 2-2 and 2-3. The structures would be approximately 130 to 150 tall, depending on the

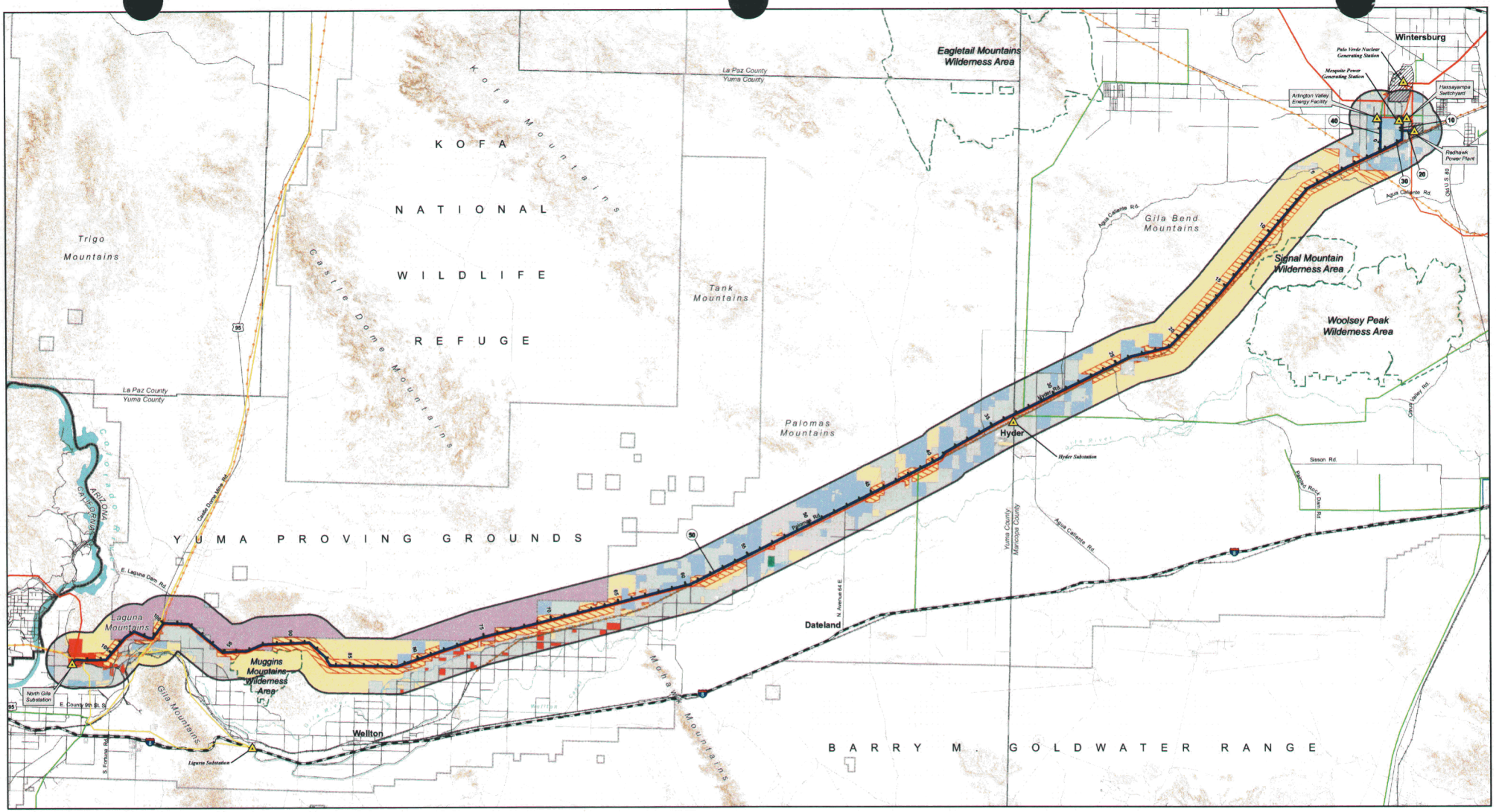


Figure 2-1

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Land Ownership

October 2007

APS epg

LEGEND

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- State Lands
- State Wildlife Area
- Private

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wildlife Refuge Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

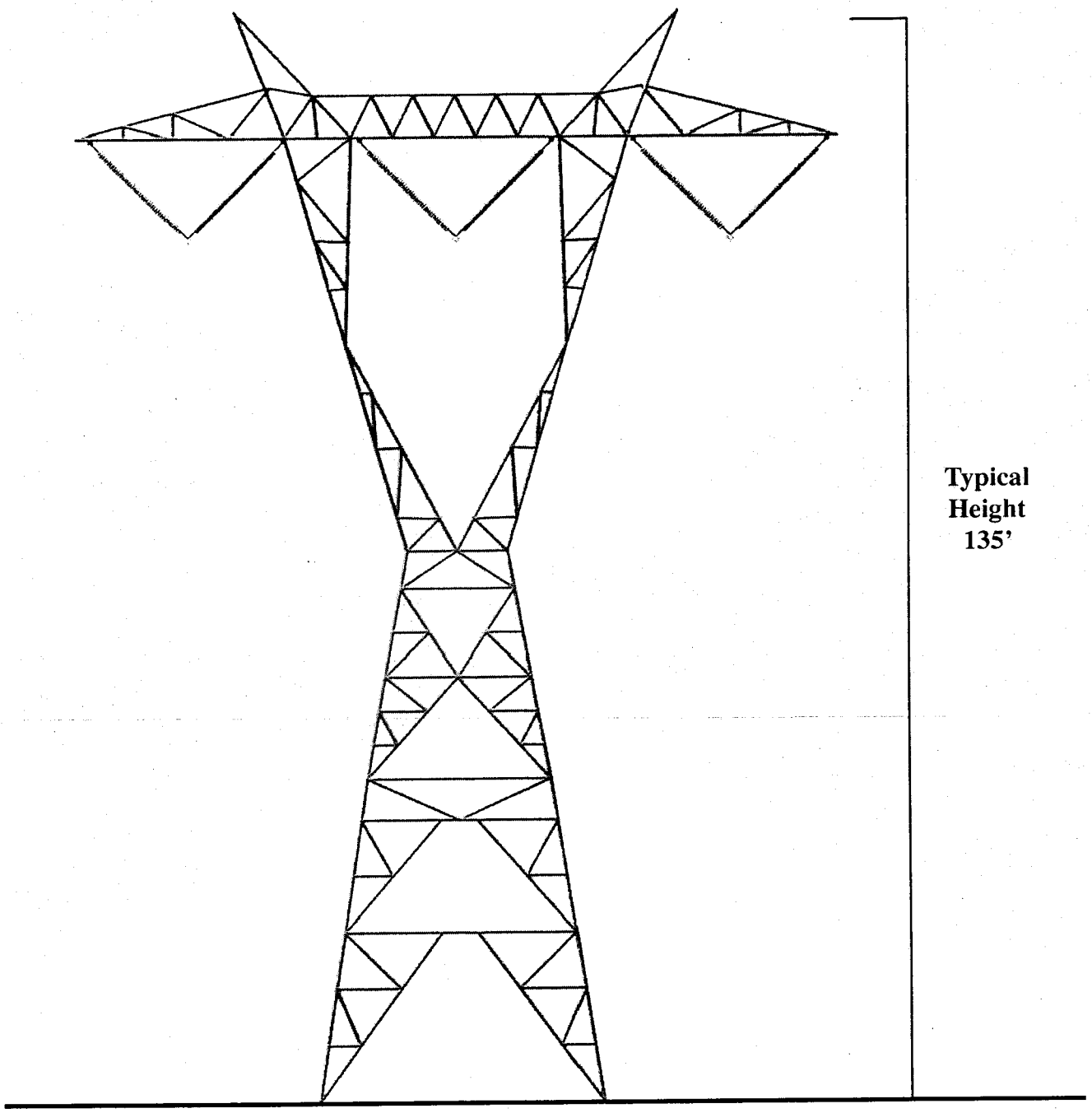
Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

0 1 2 4 6 8 10 Miles
0 5 10 20 Kilometers

CONTOUR INTERVAL 100 FEET

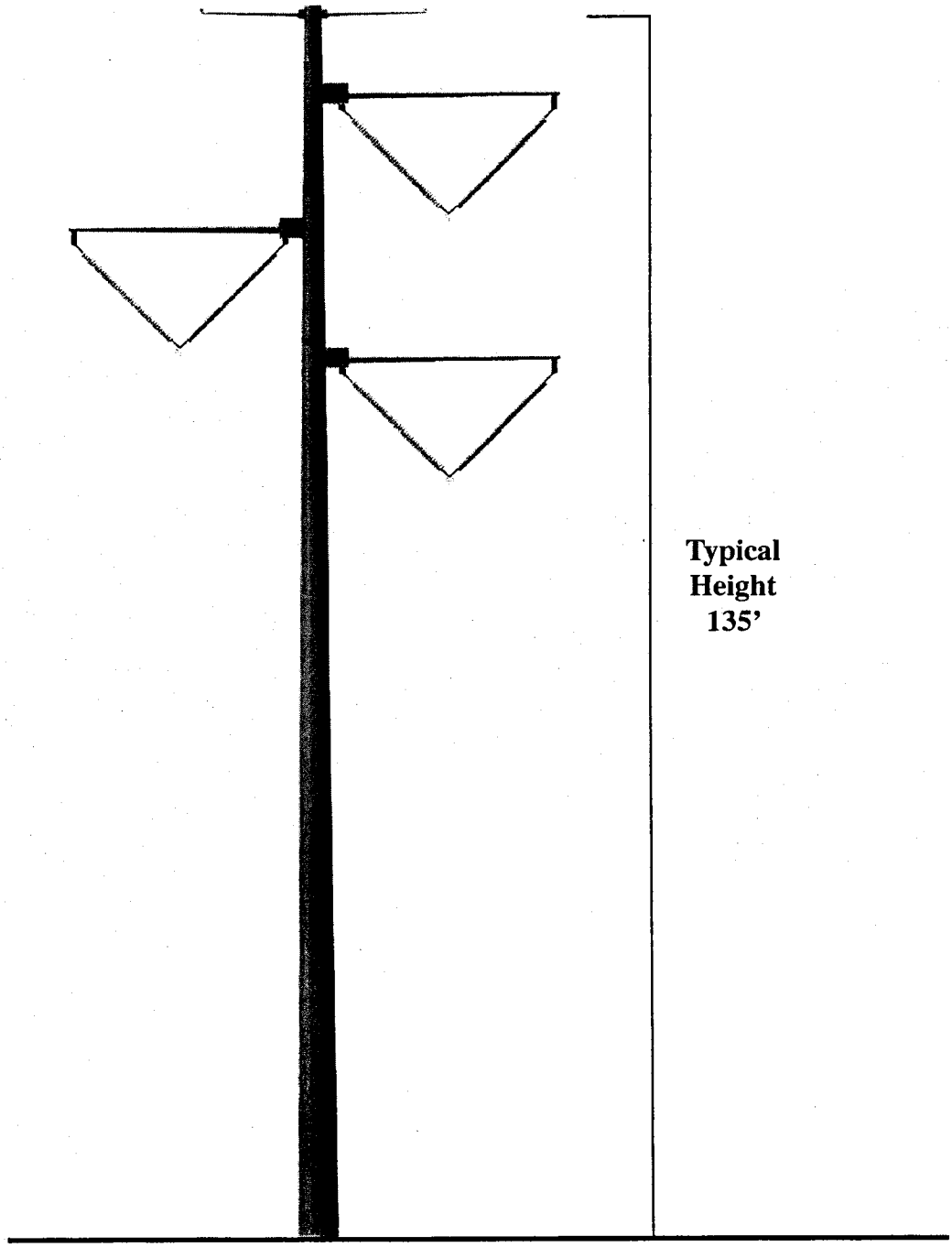
Typical 500kV Single-Circuit Steel Lattice Structure



Palo Verde Hub to North Gila
Transmission Line Project

Figure 2-2

Typical 500kV Single-Circuit Tubular Steel Pole Structure



Palo Verde Hub to North Gila
Transmission Line Project

Figure 2-3

span length required. The span length between structures would vary between 600 and 2,100 feet, according to terrain conditions and to achieve site-specific mitigation objectives, such as matching structure locations with the existing transmission line. The steel-lattice towers and poles would have a dulled finish and conductors would have a low-reflective (non-specular), dulled finish to reduce visibility. In order to minimize impacts, structure selection and individual structure placement would be determined in the detailed design phase of the project. Structures would be constructed to conform to the Suggested Practices for Avian Protection on Power Lines (Avian Power Line Interaction Committee 2006). In addition, in order to comply with Federal Aviation Administration guidelines to minimize aircraft hazards (Federal Aviation 77 regulation), mitigation could include modified structures, or ancillary equipment including elements such as marker balls or lights. Additional ancillary equipment could include the following: fiber optic repeater stations, fiber optic splice cases, supporting electrical distribution lines for the fiber optic system, safety signs, and location signs. The repeater stations would be enclosed structures within a 40' x 40' yard, and constructed adjacent to a proposed transmission line structure within the existing right-of-way. The final number and locations will be determined during detailed engineering design.

2.2.1 Construction Activities

During the preconstruction phase, a specific Plan of Development would be prepared to include standard construction and operating procedures and mitigation measures (Appendix A), as well as a native plant survey and noxious weed plan for the project. These elements would be implemented throughout the life of the project, in order to minimize potential environmental impacts. Construction of the proposed line is projected to take place over an estimated 24- to 36-month period. The 500kV line is projected to be in-service in 2012. Table 2-1 is a summary of the project design characteristics.

TABLE 2-1
TYPICAL DESIGN CHARACTERISTICS

Line Length	Approximately 110 miles
Type of Structures	Lattice tower or tubular-steel poles
Structure Height	130 to 150 feet (maximum height of 195 feet for structures)
Span Length	600 to 2,100 feet
Number of Structures Per Mile	3 to 6
Right-of-Way Width	200 feet
Land Disturbed (approximate):	
Temporary	
structure site	380 acres
wire-pulling, splicing sites	60 acres
Total Temporary Disturbance	440 acres
Permanent	
structures	10 acres
spur roads	88 acres
Total Permanent Disturbance	98 acres
Access Roads	Use existing roads with new spur roads along the SWPL 500kV line
Voltage	500kV

TABLE 2-1 TYPICAL DESIGN CHARACTERISTICS	
Capacity	Up to 2,000 megawatts per circuit
Circuit Configuration	Single-circuit, double or triple-bundled conductor
Conductor Size	1.00 to 1.83 inches
Ground Clearance of Conductor	32.5 feet minimum
Tower Foundation Depth	14 to 35 feet
Switchyards	500kV
Substations	500/230kV

Construction activities would include temporary access road construction (where required), clearing structure sites, digging holes, assembling and erecting structures, wire stringing, cleanup, and site reclamation. An estimate of the number of workers and types of equipment needed to construct the proposed transmission line and switchyards/substation are provided in Table 2-2.

TABLE 2-2 TYPICAL TRANSMISSION LINE CONSTRUCTION Estimated Personnel and Equipment Required		
Activity	**Personnel**	**Equipment**
Right-of-Way/ Construction	8 (including maintenance)	equipment: 2 bulldozers (D-6 or D-8) 1 motor grader 2 pickup trucks 1 water truck (for construction and maintenance)
Survey	3	equipment: 2 pickup trucks
Hole Digging	10	equipment: 2 hole diggers 2 pickup trucks 1 bulldozer (D-6) 1 backhoe 1 truck (2-ton) 2 dump trucks 1 water truck 2 wagon drills
Structure/Pole Haul	10	equipment: 2 pole haul trucks 2 pickup trucks 2 yard cranes (heavy duty) 1 water truck
Structure Erection	10	equipment: 1 crane (60-ton) 2 trucks (2 ton) 2 pickup trucks 1 water truck concrete trucks

TABLE 2-2 TYPICAL TRANSMISSION LINE CONSTRUCTION		
Estimated Personnel and Equipment Required		
Activity	**Personnel**	**Equipment**
Conductoring	25	equipment: 1 helicopter and fly ropes 3 drum pullers (1 light, 1 medium, 1 heavy) 2 splicing trucks 2 double-wheeled tensioners (1 light, 1 heavy) 6 wire reel trailers 2 diesel tractors 1 crane (20-ton) 1 drag 1 sagging equipment 4 trucks (5-ton) 6 pickup trucks 5 two-man lifts 1 water truck
Clean-up	4	equipment: 2 pickup trucks
Rehabilitation	4	equipment: 1 bulldozer (D-8) 1 pickup truck 1 motor grader
Biological Monitors	2	equipment: 2 pickup trucks
Total Personnel Required	76*	
*Additional personnel and equipment may be utilized in order to meet schedule.		

Right-of-Way Acquisition

New land rights, obtained in the name of APS, would be required for the proposed transmission line, switchyard(s), substations, and access roads. A grant for rights-of-way with a width of 200 feet, for the portions of the transmission line that would cross BLM lands administered by the BLM, are being reviewed as part of the NEPA process. Authorization for the portions of the transmission line that cross the YPG, administered by the DOD, and Reclamation, also will be included in the NEPA process. Non-federal land, necessary for the transmission line right-of-way and switchyards/substations, would be obtained as easements or fee purchases. The appropriate federal agency receives right-of-way rental payments for those portions of the transmission line located on their land.

Pre-Construction Activities

During the preconstruction phase, a specific Plan of Development (POD) would be prepared. The POD would include detailed descriptions of standard construction and operating procedures and mitigation measures (Appendix A), Sonoran desert tortoise mitigation measures, a native plant survey plan, and a noxious weed plan for the project. These elements would be

implemented throughout the life of the project in order to minimize potential environmental impacts.

Access Road Construction

Facility construction requires the movement of large vehicles along the right-of-way. Unpaved access roads would be required for the construction, operation, and maintenance of the proposed transmission line. Existing roads, associated with the SWPL 500kV transmission line, would be used to provide adequate access to the proposed right-of-way. Spur roads to the tower sites would be required in areas where the existing access is not sufficient to provide access to the proposed right-of-way. Typical permanent disturbance in these areas is estimated to be approximately 0.5 acre per mile of transmission line. In areas of steep terrain (e.g., Muggins Mountains) disturbance from spur roads could be as much as 2.4 acres per mile of transmission line.

Temporary road construction would include dust-control measures (e.g., watering of roads). All existing roads would be left in a condition equal to or better than their condition prior to the construction of the transmission line. All roads would be constructed in accordance with the applicant's requirements for transmission line access roads, and would be consistent with the project's standard construction and operating procedures and mitigation measures described in Appendix A. Any roads or auxiliary features that have not been surveyed for cultural resources would need to be surveyed and evaluated according to BLM standards prior to authorization of any right-of-way.

Structure Site Clearing

At each structure site, areas would be needed to facilitate the safe operation of equipment, such as construction cranes or line trucks. The area required for the location and safe operation of cranes and line construction equipment would be approximately 100 feet wide. At each lattice tower site, a temporary work area of approximately 1 acre would be required for the location of structures, assembly, and positioning of the structures. A temporary work area of approximately 0.5 acre would be required for those portions of the route where tubular-steel poles would be used. The vegetation in the work area would be avoided. However, if vegetation cannot be avoided, the vegetation would be trampled, not cleared, unless approved by the BLM. After line construction, all areas not needed for normal transmission line maintenance would be graded to blend, as nearly as possible, with the natural contours and revegetated.

Right-of-Way Clearing

The selected clearing of some natural vegetation would be required; however, clearing would be performed only when necessary, to provide for surveying, electrical clearance, line reliability, construction and maintenance operations. The topping or removal of mature vegetation under or

near the conductors would be done to provide adequate electrical clearance, as required by National Electrical Safety Code standards.

No chemical treatment is anticipated along the right-of-way during construction. If chemical treatment of non-native invasive plants on BLM managed land is needed during the life of the proposed authorization, a treatment plan would be developed and provided to BLM for approval. No treatment would begin until BLM approval is received.

Foundation Installation

Excavations for structures are made using power equipment. Where the soil condition permits, a vehicle-mounted power auger or backhoe is used. In rocky areas, the foundation holes may be excavated by drilling and blasting, or special rock anchors may be installed. Blasting requires drilling holes in the area to be excavated. If blasting is required, conventional or plastic explosives would be used. Safeguards, such as blasting mats, may be used, when needed, to protect the adjacent property. After the hole is augured, tower footings or poles, dug to a depth of 14 to 35 feet, would be set and backfilled with concrete. Remaining minimal spoils material would be spread on the ground to best match the natural contour of the area, adjacent to the tower excavations. The foundation excavation and installation requires access to the site by a power auger rig, crane, and hauling trucks.

Construction Yards

Temporary construction yard(s) would be located on private land. If public land is needed for a temporary construction yard(s), it would be determined ahead of time and evaluated in an appropriate environmental document.

Structure Assembly and Erection

Tower components (and associated hardware) or poles are shipped to each structure site by truck or rail. Structure assembly and mounting of associated line hardware takes place at each site. The structure components or assembled structure is then raised by crane and mounted to the foundation.

Conductor Installation

After the structures are erected, insulators, hardware, and stringing sheaves are delivered to each structure site. The structures are then rigged by crane, with insulator strings and stringing sheaves at each ground wire and conductor position.

For public protection during wire installation, guard structures are erected over highways, railroads, power lines, structures, and other obstacles. Guard structures typically consist of H-frame poles placed either near or on either side of an obstacle. These structures prevent ground wire, conductors, or equipment from falling on an obstacle. Equipment for erecting guard structures includes augers, line trucks, pole trailers, and cranes. Guard structures may not be required for small roads where other safety measures, such as barriers, flagmen, or other traffic control, are used.

A pilot line is pulled (strung) from structure to structure by a helicopter, bulldozer, or all-terrain vehicle and threaded through the stringing sheaves at each tower. A larger diameter, stronger line is then attached to the pilot line and strung. This is called the pulling line. This process is repeated until the ground wire or conductor is pulled through all sheaves.

The ground wire and conductor are strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end. Sites for tensioning and pulling equipment are approximately 10,000 feet apart and would be restored, according to the standard construction and operating procedures and mitigation measures, after construction.

The tensioning and pulling site is an approximately 1.0-acre area. Tensioners, line trucks, wire trailers, and tractors, which are needed for stringing and anchoring the ground wire or conductor, are located at this site. The tensioner, along with the puller, maintains tension on the ground wire or conductor. Maintaining tension and ground clearance is necessary to avoid damage to the ground wire, conductor, or any objects below them during the stringing operation. The puller, line trucks, and tractors, needed for pulling and temporarily anchoring the ground wire and conductor, also are located at this site.

Cleanup

Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flags, would be removed from the sites and disposed of in an approved manner. No construction equipments' oil or fuel would be drained on the ground. Oils or chemicals would be hauled to an approved site for disposal. No open burning of construction trash would occur on BLM-administered land.

Reclamation

Following construction and cleanup, reclamation would be completed. The disturbed surfaces would be restored to the original contours of the land surface, to the extent determined by the BLM. Water diversions would be constructed along the right-of-way, as needed to control surface water and soil erosion. Access roads not needed for operation and maintenance would be closed and reclaimed. Appropriate site-specific seed mixes, free of noxious weeds, would be used where conditions warrant. Salvaged native plants may be used for revegetation, if appropriate, along with seeding using BLM-recommended seed mixes. Preferably, seed would be

planted between November and January following transmission line construction. Seed would be planted as directed by the BLM. Applicant will notify appropriate BLM field office once reclamation is complete.

The construction methods described above, mitigation of disturbed areas, and adherence to health and safety measures, will be made a part of the POD.

2.3 NO-ACTION ALTERNATIVE

Under the No-Action alternative, the right-of-way application would not be approved and the transmission line would not be built. The No-Action alternative could affect the ability to reliably provide electrical service to the greater Yuma area. While the No-Action alternative would not change existing impacts or result in any additional environmental impacts, it would not meet the project need.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER STUDY

Several alternatives to the Proposed Action were analyzed but eliminated from further study because they do not meet the purpose and need of the project. These alternatives included:

1. Energy conservation and load management
2. Transmission line technology
3. Underground transmission
4. Alternative structures
5. Alternative routes

2.4.1 Energy Conservation and Load Management

Energy conservation and load management refers to elimination of inefficient or imprudent uses of electrical energy and redistributing consumer demand from times of peak demand to times of off-peak demand. APS has put into effect numerous energy-conservation and load-management programs to educate customers on the necessity of conserving energy and encourage the prudent use of electricity through the application of programs appropriate for each class of customer. In fact, potential reductions in system peak demand resulting from the load-management program have been factored into APS's area load forecasts for over 25 years. Therefore, when compared to existing transmission capacity, the forecasts for additional conservation and load management demonstrate that despite effects of energy conservation and load-management programs, a significant difference remains between the existing capacity and projected demands. Also, since load conservation is a volunteered effort and is not guaranteed, APS is required to plan their resources to actually meet projected peak loads. Additionally, even under the best circumstances, energy conservation and load management would only play a very small part in meeting the

overall need for additional electric demand for the Yuma area. Therefore, energy conservation and load management were eliminated from further consideration.

2.4.2 Transmission Line Technology

Power-transfer capability is one of the most important factors in choosing the appropriate voltage for a transmission line. The industry standard for transmitting large amounts of power across long geographical areas is by using high-voltage lines. The standard voltage for this region is 500kV. This voltage is more efficient and reduces line losses. A standard voltage of 500kV has been established for transmission of electricity from the PV Hub to the Yuma area and is in accordance with the 10-Year Plan submitted to the ACC in January 2007. Alternate voltages were investigated when designing systems in the 10-Year Plan. This proposed 500kV transmission line would provide bulk power to the North Gila Substation, for use in the Yuma area. Alternative transmission line voltages would not fulfill the purpose and need of the Proposed Action, and were eliminated from further consideration.

2.4.3 Underground Transmission

APS recently investigated the applicability of 500kV high-voltage underground cable versus overhead transmission. This investigation included use, reliability, restoration time, ground disturbance, and cost considerations.

The design, manufacture, and installation of underground cable systems at a voltage level of up to 230kV are widely known. Past discussions with high-voltage cable manufacturers and review of previous installations indicate that installing underground 500kV cable and accessories for the distance and terrain traversed by the Proposed Action would present significant cost, reliability, and maintenance concerns.

Design, manufacture, installation, and operation of long-distance 500kV underground transmission lines is still a learning experience in the industry, due to limited operating history at this voltage level, and reliability issues for long-term operation remain unknown. Repairing a failed underground cable can take weeks or months due to the complexity of specialized cable, splices, equipment, and personnel required. Installation of underground tunnels and 500kV cable would result in major initial ground disturbances compared to overhead construction, although with proper reclamation techniques, some of this disturbance could be considered temporary.

For these reasons, the installation of 500kV underground cable circuits are not feasible, when compared to the installation of overhead lines, to meet the purpose and need identified in Chapter 1, and are therefore, eliminated from further consideration.

2.4.4 Alternative Structures

Two types of structures were considered for the proposed project: single-circuit lattice tower and single-circuit tubular-steel pole. The structure comparison was conducted according to criteria that included industry design practices, reliability, maintenance, material availability, costs, right-of-way, typical height, maximum span, and footprint requirements. Wood poles were not considered because they do not provide the necessary strength and height to meet 500kV requirements. Steel lattice towers would be utilized from the origin of the proposed line at the PV Hub and in most areas where the line parallels the SWPL 500kV transmission line. Matching tower heights and spans with the existing transmission line would be done to the extent possible to minimize visual impacts.

2.4.5 Alternative Routes

The review process for the proposed facilities included environmental studies and public involvement activities conducted from September 2005 through December 2006. This approach was designed to identify, evaluate, and compare project alternatives based on an environmental analysis and agency and public input. The study approach involved a two-phase systematic process.

The first phase was the determination of a project study area and development of siting criteria to identify potential alternative locations for the transmission line. The initial study area included the communities of Wintersburg, Hyder, Tacna, Wellton, and Dome, as well as the City of Yuma. The study area included land administered by the BLM, Reclamation, United States Army, United States Fish and Wildlife Service (USFWS), as well as Arizona State Trust land and private land.

The initial study area for the project was defined to include all reasonable and feasible alternative routes for the location of a 500kV transmission line, extending from the PV Hub inclusive of the Palo Verde Nuclear Generating Station (PVNGS) and the associated transmission interconnection hub, to the North Gila Substation. The PV Hub siting area was inclusive of the PVNGS, Pinnacle West Energy's Redhawk Power Plant (Redhawk), Sempra Energy Resources' Mesquite Power Generating Station (Mesquite), Dynegy's Arlington Valley facility and associated switchyards, and the Hassayampa Switchyard.

Previous siting studies were reviewed, including the APS/SDG&E Interconnection Project Environmental Impact Statement (EIS), for information on route alternatives already studied. The EIS included the study of routes that followed Agua Caliente Road around the northern side of Signal Mountain; south to Gila Bend, and then west along Interstate 8 (I-8) into Yuma; a myriad of routes through and around the Gila Mountains, including routes through and around the community of Wellton. As part of the EIS, some of the routes above were eliminated from consideration, and the reasons for those eliminations were reviewed as part of this EA process. Public and agency comments on the routes carried forward in the EIS were also reviewed. Additionally, a meeting with the BLM, including interdisciplinary team members, concluded that

defining the proposed route to the existing designated utility corridor was the appropriate action for study. These reviews and meetings ultimately allowed the PV Hub to North Gila Project study area to be redefined to an approximately 450-square-mile area which is a 4 mile-wide study area, 2 miles wide on each side of the SWPL 500kV transmission line. The general proposed route follows the route of the SWPL 500kV transmission line between the PV Hub and the North Gila Substation.

In the second phase of the project, a regional inventory was conducted to identify environmental siting opportunities and resource sensitivity. The resources studied include biological, human, and cultural environments, as well as engineering considerations. The information was used to determine the location of alternative routes. To the greatest extent possible, routes under consideration used the existing BLM-designated utility corridor and available access, avoided biological and cultural resource conflicts, and avoided currently subdivided and densely developed residential lands. Approximately 21 miles of alternative transmission line routes were identified and evaluated during this phase of the project. As a result of the analysis, one transmission line route and four switchyard interconnection areas were studied in detail in this EA as part of the Proposed Action described in Section 2.2.

The alternative routes that were considered and eliminated are described below according to their geographic location within the study area (e.g., Muggins Mountains and Laguna Mountains alternative routes). Figure 2-4 illustrates the location of the alternative routes considered and eliminated.

Muggins Mountains Alternative Route

Because of APS engineering concerns, the Muggins Mountains Alternative Route was developed to avoid potentially difficult terrain located along the proposed route parallel to the SWPL 500kV transmission line. The alternative route diverges from the proposed route where the Vinegaroon Wash crosses under the Proposed Route. The alternative route would then proceed northwest within a canyon for approximately 3½ miles, before continuing west within the wash for approximately 2 miles. The route then turns southwest for approximately 2 miles, to rejoin the Proposed Route (see Figure 2-4).

The alternative was developed with the consideration that this route may shorten the overall length of the route, as well as avoid potentially difficult terrain features associated with the Proposed Route. The Muggins Mountains Alternative Route was eliminated from further consideration after meetings with and analysis by the YPG staff determined that this route would adversely affect military operations, and was officially opposed by YPG staff. On November 21, 2006, APS received an official letter from the Department of the Army indicating their preference for the proposed route, and opposition to any alternate route that would extend more than 500 feet north of the existing SWPL 500kV transmission line.

Laguna Mountains Alternative Route

As with the Muggins Mountains Alternative, engineering concerns drove the consideration of the Laguna Mountains Alternative Route. The alternative route turns away from the proposed route just east of U.S. 95, where it proceeds northwest for about 4 miles into the YPG, just north of the foothills of the Laguna Mountains. The route turns to the southwest and continues for approximately 3 miles, south of the Gravity Main Canal and Mittry Lake, which is part of the Mittry Lake State Wildlife Area. The route turns south at the point where it reaches the SWPL 500kV transmission line, and runs parallel to it for 3½ miles, before reaching the North Gila Substation (see Figure 2-4).

The Laguna Mountains Alternative Route was eliminated from further consideration after meetings with and analysis by the YPG staff determined that this route would adversely affect military operations, and was officially opposed by the staff.

PV Hub 500kV Interconnection Area

The initial PV Hub siting area was defined by an area inclusive of the PVNGS, Redhawk, Mesquite and Arlington Valley power plants and the Hassayampa Switchyard, as illustrated in Figure 2-4. Based on APS's review of system considerations and technical and financial issues, it was determined that an interconnection for the proposed 500kV transmission line into the PVNGS or Mesquite Power Plant was not reasonable and they were eliminated from further consideration. The interconnection opportunities at the remaining locations, the Arlington Valley Energy Facility, Hassayampa Switchyard, and the Redhawk Power Plant, were carried forward and studied in detail as part of the EA, as described in Section 2.2.

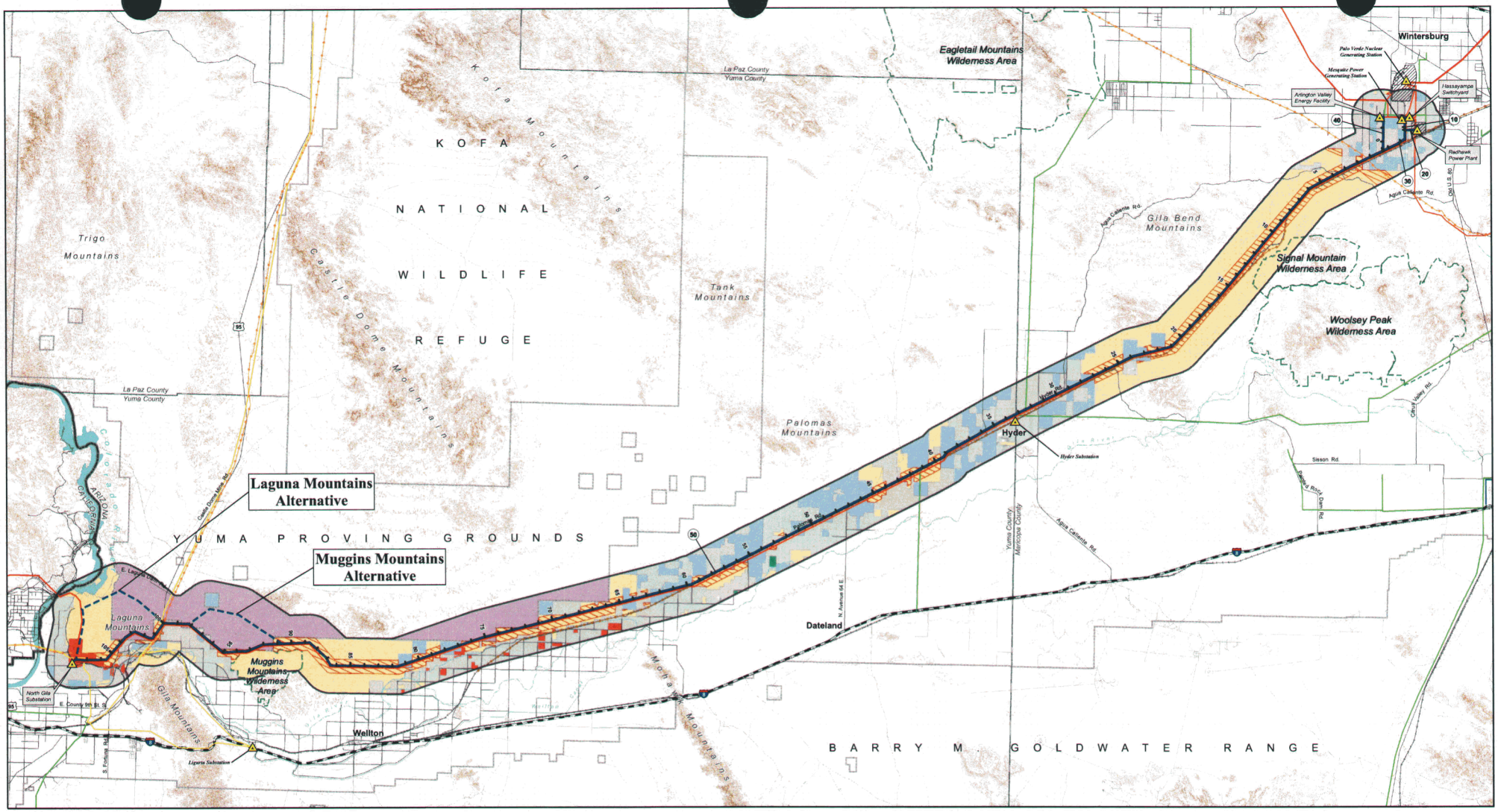


Figure 2-4

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Alternatives Considered and Eliminated

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LEGEND

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- State Lands
- State Wildlife Area
- Private

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wildlife Refuge Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

CONTOUR INTERVAL 100 FEET

CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

The affected environment and potential environmental consequences are addressed in this chapter. This analysis evaluates the potential effects to the environmental resources from the construction, operation, maintenance, and long-term presence of the PV Hub to North Gila Substation 500kV Transmission Line Project. The affected environment for the proposed route is often referred to as the "study area."

The following sections explain in detail the existing conditions found throughout the study area and the potential impacts of the proposed project. Impacts that could result from the project were determined by comparing the proposed project to the existing environment. The impacts are described as direct, indirect, or cumulative. The direct and indirect impacts are discussed in the individual resource sections in this chapter. The cumulative resource impacts are discussed in Chapter 4. The impact analysis is based on the inventory results and standard construction practices, combined with the professional judgment of the principal investigator for each environmental component. Minimal environmental impacts to the human, natural, or cultural environment are anticipated from the potential interconnection of the 500kV transmission line into the PV Hub at the Arlington Valley Energy Facility, Hassayampa Switchyard, or Redhawk Power Plant. The existing interconnection locations have been highly modified by the generation facilities, switchyards, and associated electrical generation and transmission facilities; therefore, the interconnection into the PV Hub is not described in detail in this chapter.

Three general levels of impacts were employed in the assessment—high, moderate, and low. A high impact results when the proposed action is expected to result in a substantial change to the resource. A moderate impact results when the proposed action is expected to result in change to the resource. A low impact results when the proposed action would result in a minimal change to the resource.

Standard construction and operating procedures and mitigation measures were used to minimize potential impacts from the proposed project. These procedures and measures are discussed within each resource section, as applicable, and can be reviewed in Appendix A.

Maps are included for existing and future land use. The maps include links and mileposts. All mileposts start at zero and proceed in a generally southwest direction, and are divided into 1-mile segments.

3.2 LAND USE

This section of the EA addresses land use resources including existing land use, utilities, transportation, rangeland management, minerals, recreation, and planned land use activities related to the construction, operation, and maintenance of the proposed transmission line and switchyard/substation facilities. Section 3.2.1 provides a description of the affected land use environment for the proposed project. Section 3.2.2 provides a description of the potential impacts to land use resources.

The study area for land use resources inventory was defined as a 4-mile-wide study area (2 miles on each side of the reference centerline). The 2-mile distance was selected because the proposed project would also be reviewed and considered by the Arizona Corporate Commission (ACC). The ACC requires this distance to be studied, according to Title 14, Chapter 3, Article 2, R14-3-219, pursuant to Arizona Revised Statutes §§ 40-360.03 and 40-360.06, which states, "Where commercially available, a topographic map, 1:62,500 scale, of each proposed plant site, showing the area within two miles thereof." Data were collected and updated between September 2005, and March 2007. The land use inventory considered existing and planned land uses within the project study area and was compiled through the review and interpretation of secondary data such as existing maps, planning documents, field reconnaissance, and contacts with key federal, Arizona State Trust land, and local land management and agency officials.

There are no existing Areas of Critical Environmental Concern, National Monuments, Communication Facilities, or Wild and Scenic Rivers within the study area.

3.2.1 Affected Environment

Land Ownership and Jurisdiction

Land ownership within the study area is shown on Figure 2-1 in Chapter 2 and includes the BLM, Reclamation, United States Department of Defense (DOD), Arizona State Trust land, Arizona Game and Fish Department (AZGFD), and private land. BLM land is primarily found in two locations within the study area—the land southwest of the PVNGS within the Gila Bend Mountains, near Link 50 Mileposts 2 through 23, and the land north of the Dome Valley in and around the Muggins Mountains. Smaller areas of BLM land are interspersed throughout the study area. Reclamation ownership is interspersed infrequently throughout the study area, with the largest concentration occurring north of the existing North Gila Substation. The study area crosses the YPG at two separate locations, first, north of the Mohawk Valley, and second, north of the Muggins and Laguna Mountains. Arizona State Trust land is interspersed regularly throughout the study area. Two small areas of AZGFD management occur north of the Dateland area, but the proposed project does not cross these areas. Private land comprises the remainder of the study area. Table 3-1 includes the land ownership categories that the proposed transmission line would cross in approximate miles.

TABLE 3-1 LAND OWNERSHIP CROSSED BY THE PROPOSED PROJECT	
Ownership	**Proposed Route (miles)**
BLM	54.6
Reclamation	1.5
DOD	8.7
Arizona State Land Department	21.6
Private	24.2
Total	**110.6**

Two irrigation districts are located within the study area. The WMIDD manages irrigation in the Mohawk Valley, between the Gila Mountains and Texas Hill. The Hyder Irrigation District manages irrigation in the Hyder Valley, near Hyder.

The study area includes two county jurisdictions, Maricopa County and Yuma County, as shown on Figure 2-1 in Chapter 2.

Existing Land Use

Existing land uses include mostly vacant and undeveloped areas; utility and other infrastructure (the PVNGS and other power generation facilities, high-voltage transmission lines, and several natural gas pipelines); agriculture; mining; residential; dispersed commercial; grazing and livestock facilities; park, preservation, and recreation areas, and transportation routes. Through the use of BLM-designated utility corridors, the proposed project crosses a minimal amount of developed land. Existing land uses are shown on Figure 3-1.

Residential

Residential land uses include single-family residences and low-density residential areas. These residential land uses are mainly associated with agricultural service centers or communities in the Lower Gila River region. Agricultural operations with seasonal working quarters or labor camps were identified in several areas throughout the study area. Unincorporated communities within the study area include Hyder, Dome, and Roll. In addition, small settlements along major transportation routes identified within the study corridors may contain residential uses. Ten residences are located within ¼ mile of the proposed transmission line, all of which are on the south side of the existing transmission line.

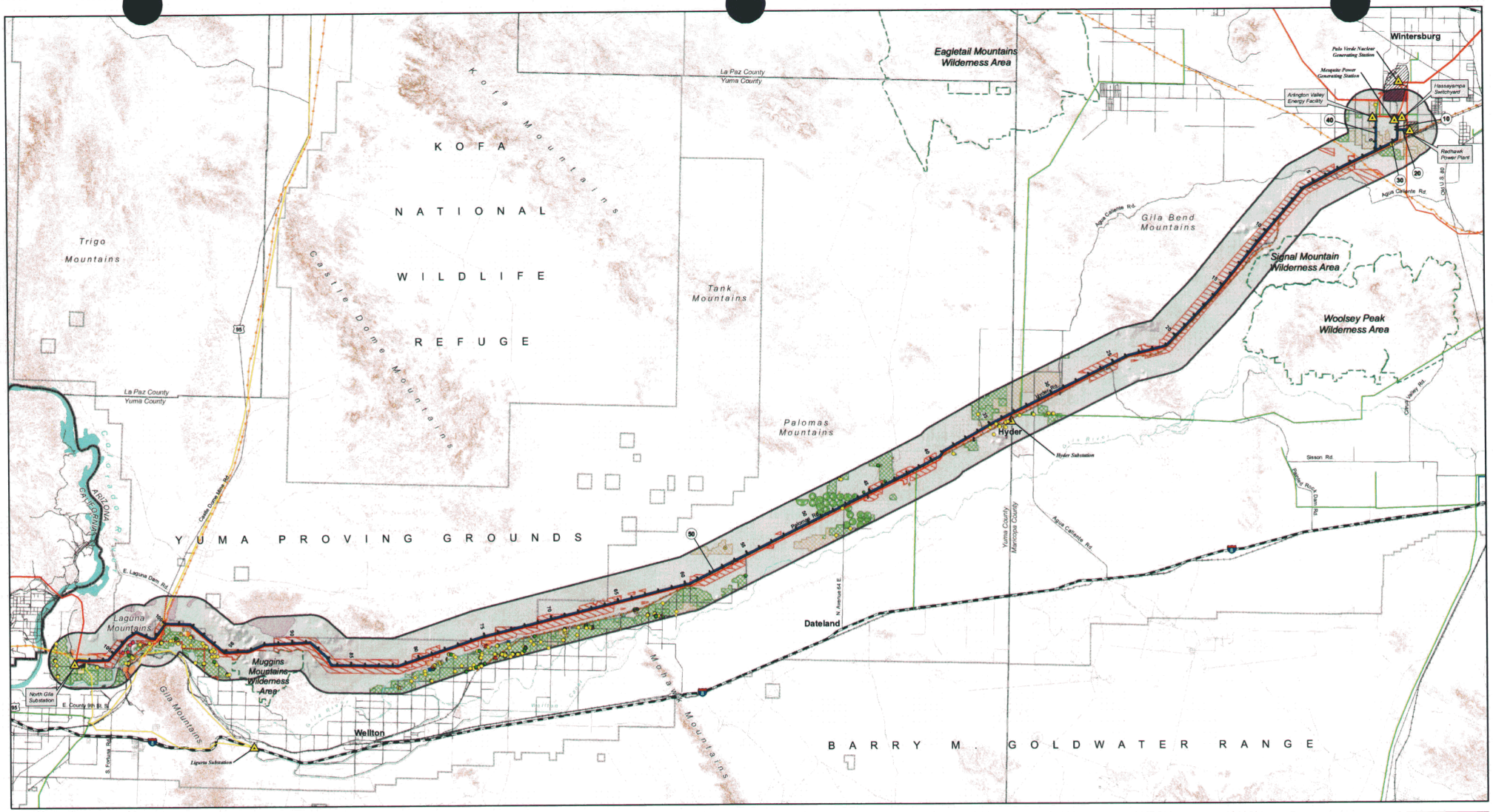

Figure 3-1

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Existing Land Use

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Existing Land Use

- Low Density Residential
- Medium Density Residential
- RV Park/Mobile Home Park
- Abandoned Multi-Family Residential Unit
- Commercial
- Mixed Use
- General Industrial
- Extraction Mining
- Irrigated Farmland
- Fallow Farmland
- Irrigated Farmland - Pivot
- Military
- Airstrip/Airfield
- Vacant/Undeveloped
- Single-Family Residence
- Abandoned Residence
- Multi-Family Residence
- RV/Mobile Home
- Agricultural Out-Structure/Storage
- Abandoned Farm Complex
- Commercial
- Abandoned Commercial
- Air Facility
- Utilities
- Government Building
- School/Educational Facility
- Church
- General Industrial
- Recreation
- Scenic Roads

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wildlife Refuge Boundary
- Wilderness Area Boundary
- Interstate
- Road
- Railroad
- Canal
- River/Stream/Arroyo

Sources:

Arizona State Land Department, 2005
Bureau of Land Management, 2005
EPG, Inc., 2006
GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

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CONTOUR INTERVAL 100 FEET

Agriculture

Agricultural land uses represent the dominant land use in the following regions: the Hyder Valley area, the Dome Valley area, the Yuma-Wellton area, and along the Gila River. Types of agricultural crops include alfalfa, cotton, small grains, vegetables, and orchards containing citrus fruit and dates. Approximately 3.6 miles of agricultural land within the study area are crossed by the proposed route; of which less than one mile is in-production. The remainder is currently out of production.

Public and Quasi-Public

Public and quasi-public land uses within the study corridor are primarily associated with the urban communities and settlements in the Lower Gila River region that include:

- a church located approximately 2 miles southwest of Hyder
- shooting ranges located along U.S. 95, approximately 3 miles west of Dome, roughly ½ mile southeast of Link 50 Milepost 104

Commercial and Industrial

As with residential uses, commercial, light and heavy industrial uses are strongly associated with the urbanized and agricultural areas of the Lower Gila region. Several commercial uses, including a retail store, were identified in the study area, but none are crossed by the proposed project.

Air Facilities

There are two airstrips within the study corridor. Both airstrips are private and used for agricultural related activities. The locations of the airstrips are as follows:

- approximately 2½ miles northeast of Roll, roughly 1 mile southeast of Link 50 Milepost 74
- approximately 3½ miles west of Roll, roughly 1 mile southeast of Link 50 Milepost 80

Minerals

Mining sites and mineral locations occur within the study corridor. Some of these sites are abandoned or inactive, and other sites are used for casual use mining.

There are several major active sand and gravel operations located within the study corridor. The majority of the sand and gravel operations are located in the western Lower Gila River region, but are not crossed by the proposed project.

Park, Preservation, and Recreation Areas

BLM Wilderness

The Signal Mountain Wilderness area is in the study area, approximately 1 mile south of the proposed transmission line. The edge of the Muggins Mountains Wilderness is adjacent to the SWPL 500kV transmission line, and the Proposed Route will be up to 500 feet north of the SWPL 500kV transmission line.

Recreation Opportunity Spectrum

In the BLM planning process, Recreation Opportunity Spectrum (ROS) classifications are used to help set recreation themes within each of the BLM's management areas. The majority of the BLM land crossed in the Lower Sonoran Planning Area by the proposed route occurs within the Roaded Natural category. The Roaded Natural designation is given to areas typically characterized by a natural environment with moderate evidence of humans. A portion of the BLM lands crossed in the Lower Sonoran Planning Area by the proposed route is designated as Semi-Primitive Motorized, in an area near the Signal Mountain Wilderness along Link 50, which is typically characterized by a predominantly unmodified natural environment of moderate to large size. ROS classifications have not been inventoried for the Yuma Planning Area.

Recreation

The Lower Gila South RMP describes recreational uses in the study area as providing dispersed recreational opportunities such as rock climbing, hiking, hunting, camping, sightseeing, rock collecting, and vehicle off-roading (BLM 1988). Typical recreation activities in the Muggins and Laguna mountains include camping, off-highway vehicle use, hiking, mountain biking, sightseeing, and rock climbing (BLM 1987, Fusilier 2006).

Two designated 14-day camping areas are within the study area in the Yuma Planning Area: Fortuna Pond and Redondo Pond. Fortuna Pond is located approximately 1 mile north of U.S. 95 and 3 miles east of Avenue 7E. Redondo Pond is located approximately 3 miles north of U.S. 95 off of County 6th Street. In addition to camping, these areas provide fishing opportunities.

Grazing Allotments

The BLM land in the eastern portion of the study area includes several grazing allotments including the Gable-Ming, Gable-Ming/Dendora, and Amavisca allotments. The Gable-Ming is perennial, while the other allotments are ephemeral (Lambeth 2005).

Arizona State Game and Fish Wildlife Areas

Two separate AZGFD Wildlife Areas fall within the study area. The first area is located approximately 4 miles northeast of Texas Hill and 1 mile southeast of Link 50 Milepost 54. The second area is located approximately 1 mile east of Texas Hill and 2 miles southeast of Link 50 Milepost 57.

County Parks

The N.R. Adair County Park is located at the base of the Laguna Mountains, west of U.S. 95. In addition to picnic facilities, there are several ranges available that include a variety of archery and shooting facilities. Adair County Park is approximately ½ mile southeast of Link 50 Milepost 104.

Military

The U.S. Army maintains and operates several mobility test courses within the YPG portion of the study corridor. These courses include the Vapor Lock Course, which is located approximately 1 mile east of U.S. 95; the Middle East Cross Country Course, which is located in the Muggins Mountains; and the Dust Course, which is located northwest of the Muggins Mountains. The mobility test courses are used to test wheel and track vehicles in a multiple terrain setting.

Comments were solicited from the YPG and the Marine Corps Air Station (MCAS), Yuma, to determine if the proposed route would have any effect on military operations. According to comments received, the proposed route would have no effect on current or future planned military operations, as long as it is located no more than 500 feet north of the SWPL 500kV transmission line.

Linear Features

A detailed description of the linear features identified within the study corridor is presented below.

Utilities

Existing and proposed utilities were identified and mapped under the following six categories:

- Transmission Lines
- Major Pipelines
- Railroads
- Major Canals
- Major Utility Corridors (designated, proposed, or recommended)

Transmission Lines

The proposed route parallels the SWPL 500kV transmission line for its entire length. The Department of Energy (DOE), Western Area Power Administration (WAPA) has two 161kV transmission lines that interconnect at the North Gila Substation. One of the lines crosses the proposed route west of U.S. 95 near Link 50 Milepost 101. Subtransmission lines and distribution lines less than 69kV were not identified.

Major Pipelines

The El Paso Natural Gas Company owns and operates one 10¾-inch natural gas pipeline that traverses the study area from Yuma east along I-8 and then north along U.S. 95. In addition, Kinder Morgan owns and operates a 20-inch diameter oil products pipeline that generally parallels the proposed route and the Union Pacific Railroad (UPRR) for approximately 60 miles, from Yuma to Buckeye.

Railroads

The UPRR operates a line within the study area from the PV Hub to Wellton. This portion of the UPRR is currently not in service. The proposed transmission line parallels about 60 miles of the UPRR.

Major Canals

There are several major canals within the study area that transport water from the Colorado River region to Texas Hill. This system of canals is part of the Colorado River reclamation projects, administered by the U.S. Department of the Interior Bureau of Reclamation, and services the agricultural water needs of the Yuma-Wellton area and along the Gila River.

The Wellton-Mohawk, Mohawk, and Gravity Main canals are all more than 1 mile away from the Proposed Route.

Major Utility Corridors (Designated, Proposed, or Recommended)

The BLM Lower Sonoran and Yuma Field Offices have identified the SDG&E Interconnect (SWPL 500kV transmission line) as a designated utility corridor from the PV Hub to the Colorado River. The BLM has designated this major utility corridor to cover a width of 1 mile.

Roads and Highways

U.S. or State Highway

U.S. 95 travels south and west from Quartzsite through the Laguna Mountains to Yuma and Somerton, Arizona. The Proposed Route crosses perpendicular to U.S. 95 at Link 50 Milepost 101.

County and Other Major Roads

County and paved roads are present in Maricopa and Yuma counties. Major county roads include Wintersburg Road, Elliot Road, Agua Caliente Road, Hyder Road, and Palomas Road. Other paved arterials connect settlements in the Wellton-Mohawk farming region and provide access to I-8 and other transportation routes.

Scenic Roads

Two scenic roads were identified in the study area. U.S. 95 and Dome Valley Road are designated by Yuma County as scenic roads.

Planned Land Use

General Plans

Zoning maps and general or comprehensive planning documents were utilized within the study area to delineate planned land uses. Table 3-2 lists these documents by county, with their adoption status.

TABLE 3-2 PLANNED LAND USE SOURCES	
Title	**Year Adopted**
Maricopa County	
Land Use Plan, Tonopah Planning Area	2000
Zoning Ordinance	2005
Land Use Plan, Old U.S. Highway 80 Area Plan	2007
2020 Comprehensive Plan	2002
Yuma County	
2010 Comprehensive Plan	2001
Dateland/East County Planning Area Plan	2001
Dome Valley/Wellton Planning Area Plan	2001
Yuma, Foothills and South County Planning Area Plan	2001
North Gila Valley Sub-Regional Planning Area Plan	2001
Zoning Ordinance	2004
Bureau of Land Management	
Lower Gila South Resource Management Plan, Final, Phoenix District, as amended	1988
Yuma District Resource Management Plan, Final, Yuma District, as amended	1986 and 1987

Planned land use for the study area is designated by jurisdictional entities and shown on Figure 3-2. The future use of unincorporated private and Arizona State Trust land is planned under the jurisdiction of Maricopa and Yuma counties.

Within the unincorporated private land in the study area, Maricopa and Yuma County have several approved platted subdivisions. The majority have not developed at all, but there is dispersed residential development on a few of the platted subdivisions. In the areas where a platted subdivision is crossed by the proposed route, the route is north and directly parallel to the SWPL 500kV transmission line and the UPRR.

Maricopa County

The *Maricopa County Tonopah/Arlington Area Plan* (Maricopa County 2000) provides for rural residential, and industrial uses on lands within the eastern portion of the project study area. The *Old U.S. Highway 80 Area Plan* (Maricopa County 2007) provides for rural residential, open space, and industrial uses on lands within the eastern portion of the project study area. In the eastern portion of the study area not included in the *Tonopah/Arlington Area Plan* or *Old U.S. Highway 80 Area Plan*, the *Maricopa County 2020 Comprehensive Plan* (Maricopa County 2002) classifies all other land as rural. Maricopa County recognizes this area as a rural zoning district defined as R-43, 1 acre per dwelling unit; R-70, 70,000 square feet per dwelling unit; or R-190, 190,000 square feet per dwelling unit. The principal purpose of these zoning districts is to conserve and protect farms and other open land uses, foster orderly growth in rural areas, and prevent urban and agricultural land use conflicts (Maricopa County 2005). According to Section 403 of the Maricopa County Zoning Ordinance, county land not currently zoned would be subject to a rural classification (R-190).

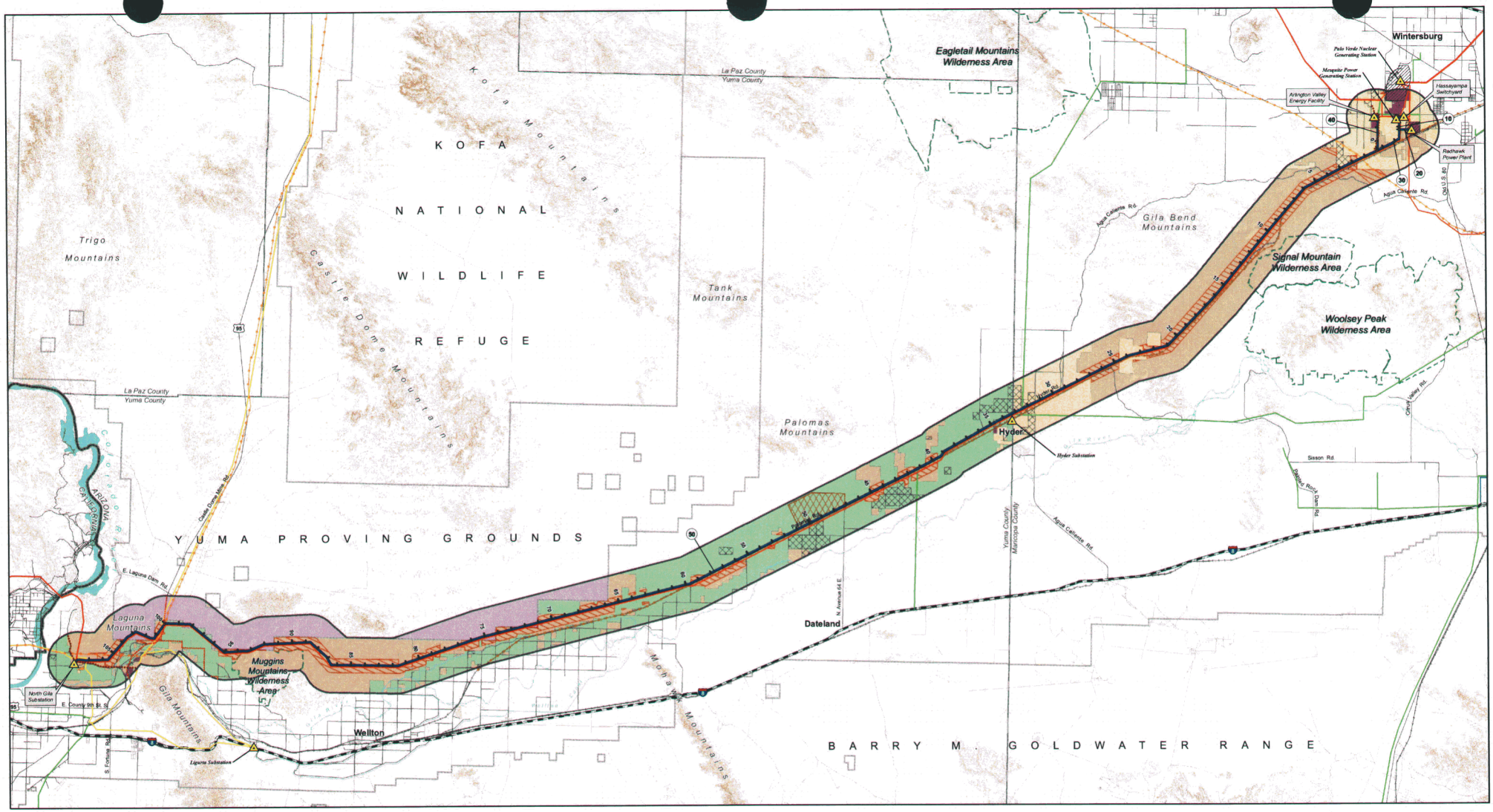

Figure 3-2

PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

Future Land Use

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LEGEND

Future Land Use

- Low Density Residential
- Medium Density Residential
- Commercial
- Industrial
- Military
- Agriculture/Rural Preservation
- Public Land
- Platted Subdivisions
- Proposed Camp Hyder Army Training Center Park
- Proposed County Trails
- Scenic Roads

Base Features

Project Features

- Project Study Area
- Proposed 500kV Transmission Line
- BLM-Designated Utility Corridor
- Link Node
- Link Number
- Power Plant/Switchyard

Existing Utilities

- 500kV Transmission Line
- 230kV Transmission Line
- 161kV Transmission Line
- 69kV Transmission Line
- Substation
- Natural Gas Pipeline
- Petroleum Pipeline

General Reference Features

- State Boundary
- County Boundary
- Military Boundary
- Wildlife Refuge Boundary
- Wilderness Area Boundary
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Sources:

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GlobeExplorer, 2004
Maricopa Association of Governments, 2005
Maricopa County Planning & Development Department, 2004
Yuma County Department of Development Services, 2004

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In July 2004, the Maricopa County Board of Supervisors approved the Maricopa County Regional Trail (MCRT) System Plan, which identifies future trail corridors throughout the county. The plan identifies corridors according to segments with a corresponding priority level. One corridor identified as the Old Camp Wash is located within the eastern portion of the study area near the PV Hub. The portion of the proposed MCRT along the Old Camp Wash is identified as a Priority Four segment. This segment is identified as future trail corridors (5 miles wide) worthy of future study, and is crossed by the SWPL 500kV transmission line. Maricopa County generally considers transmission line corridors as opportunities for trails.

Yuma County

The *Yuma County 2010 Comprehensive Plan* (Yuma County 2001) provides for rural residential and agricultural uses on lands within the western portion of the project study area. These districts are intended to permit uses that are compatible with the use of the land for agriculture, farming, and open space preservation (Yuma County 2004). According to Section 502.02 of the Yuma County Zoning Ordinance, county land not currently zoned would be subject to a rural classification (RA-20). The Camp Hyder U.S. Army Training Center is listed as a conceptual proposed park. The proposed park is located adjacent to the UPRR and Avenue 64E, approximately 9 miles north of Dateland. The site is currently being used for pivot agriculture, and there are no immediate plans for development of the park. The plan also includes a conceptual 56-mile multi-use (equestrian and non-motorized) trail that would largely circle the perimeter of the greater Yuma area. The proposed trail crosses into the study area in the North Gila Valley, near Blaisdell, and would run west, almost parallel to the SWPL 500kV transmission line, crossing underneath both this line and the proposed transmission line just north of the North Gila Substation.

BLM

The portion of the proposed project that crosses BLM lands is located within the Lower Sonoran Planning Area (eastern portion) and the Yuma Planning Area (western portion). The BLM is currently in the process of updating the Phoenix South RMP and the Yuma RMP. The RMP's provide a comprehensive framework for future management actions, uses, allocation of public land, and resources. The Phoenix South RMP is currently in the alternatives development phase, and the comment period for the Draft RMP for the Yuma Field Office ended on March 15, 2007. Until these RMPs are completed, the *Lower Gila South RMP* (BLM 1988), as amended, and the *Yuma RMP* (BLM 1986, 1987), as amended, remain the primary BLM planning guides for the portions of the study area at the eastern and western ends, respectively.

The proposed route would be located within BLM-designated utility corridors and is consistent with the management objectives identified in the BLM planning documents. The Lower Gila South RMP identifies the SDG&E Interconnection (SWPL 500kV transmission line) Utility Corridor as 1 of 10 "existing utility rights-of-way that should be designated to serve as utility

corridors, and recommends that each of these corridors be 1-mile-wide" (BLM RMP 1988, p. 4). This corridor is referred to as No. 3 in the RMP. The Yuma RMP identifies the Interconnection Utility Corridor as 1 of 9 "existing and proposed rights-of-way [that] would be designated as utility corridors to accommodate recent and future development needs" (BLM RMP 1986 and 1987, p. 20). This corridor is referred to as No. 9 in the RMP, and is stated to be 1 mile wide.

Proposed Land Use

There are no proposed developments within the 4-mile-wide study corridor.

3.2.2 Environmental Consequences

Proposed Action

The potential adverse effects to land uses from the construction and operation of a transmission line related to the improvement of existing roads, the construction of access roads, the physical presence of the line, and right-of-way encroachment are described in this section. In addition, this section also describes the potential effects of the proposed project on land and resource management policies and land management plans of federal, state, and local agencies.

The primary issues associated with the construction of the proposed PV Hub to North Gila 500kV transmission line are expected to occur from the direct physical conflicts with existing land uses (e.g., agricultural operations, residences, etc.). A transmission line can also result in indirect land use impacts to the quality of the recreation experience available to users of developed recreation sites and recreation areas (e.g., campgrounds, long-term visitor areas).

Recreating public taking advantage of dispersed recreation opportunities would be directed to avoid construction areas, and some temporary access restrictions may occur. Any established trail or road used by recreationalists that is affected by the proposed project would be graded so that cycling and off-highway vehicle activities may continue where permitted.

It is anticipated that the proposed transmission line would have minimal long-term direct or indirect adverse effects on existing or planned land uses. The majority of the land crossed by the transmission line is vacant and located within a BLM-designated utility corridor. The proposed route is parallel to the SWPL 500kV transmission line throughout the study area, and is parallel to the UPRR for over 50 percent of the route. Impacts to land use resources therefore are minimized.

Near Milepost 34, in the unincorporated community of Hyder, the proposed route is north of several residences and a commercial operation known as the Hyder General Store. All of these residences are south of the SWPL 500kV transmission line, and the majority are south of the UPRR. The Dome Valley Area, in the western portion of the study area, includes several groups

of single-family residences, all located south of the SWPL 500kV transmission line. In both areas, the proposed route is north of the SWPL 500kV transmission line.

In-production farmland is located throughout the study area, associated with the Gila River Valley. The Proposed Route could potentially intermittently cross in-production farmland from Mileposts 43 through 50. Low to moderate impacts, resulting from the loss of in-production farmland, could potentially occur between Mileposts 43 through 45. The use of monopoles, varied spans, and coordination with the landowners, would minimize agricultural impacts. The proposed route also crosses a segment of Arizona State Trust land that is currently being leased for pivot agriculture (Mileposts 46.5 through 50). Impacts to the pivot agriculture are expected to be minimal because crossings would be designed to span the current pivots.

Impacts to agricultural land (i.e., in-production farmland) include impacts incurred during and after construction of a proposed transmission line. Short-term impacts include the displacement of land during construction to improve existing access roads. With the assumption that all improved existing access roads would be converted back to their original agricultural uses, long-term impacts associated with post-construction would limit the displacement of agricultural land to the standard structure footing or base.

Potential impacts to recreation users and their recreational experiences on BLM and Arizona State Trust land are expected to be minimal because the proposed route parallels the SWPL 500kV transmission line. Short-term impacts to recreation users may result from temporary road and trail closures and other construction related activities. Cumulative effects of multiple transmission lines in the corridor, however, would result in greater adverse impacts. Generally, impacts to the recreation experience result from impacts to the scenic or aesthetic qualities of the surrounding landscape (refer to the Visual Resources section).

The proposed alternative is located within a 1-mile-wide BLM-designated utility corridor. Approximately 80 percent of the lands crossed by the proposed alternative are public lands, and the remaining 20 percent are private lands.

Indirect impacts to military operations may occur along the proposed route. Impacts to the YPG are expected to be low, since there are no military operations in areas crossed by the proposed route, and the areas are vacant. The active mobility test courses used by the U.S. Army for the testing of wheel and track vehicles are located over 0.5 mile north of the proposed alignment.

Impacts to recreation in the study area are anticipated to be minimal. The proposed project is consistent with the objectives of the Roaded Natural and Semi-Primitive Motorized categories of the ROS within the project study area. The proposed transmission line is consistent because the route is within a BLM-designated utility corridor, parallels the SWPL 500kV transmission line, uses existing access, and matches tower structure locations, to the extent possible. The proposed project is anticipated to have minimal to no impacts on recreational uses associated with the future MCRT, or the conceptual proposed multi-use equestrian trail surrounding the Yuma

metropolitan area. No other plans exist to develop recreational facilities within the proposed right-of-way.

No impacts are anticipated to existing mining activity, current mineral lease or exploration permits on Arizona State Trust land, or to active mine claims on federal land. Impacts to grazing activity are anticipated to be minimal.

No-Action Alternative

Under the No-Action alternative, the proposed project would not be constructed, no land use(s) would be affected, and no environmental consequences to land use(s) would occur; however, the purpose and need for the project would not be met.

3.3 VISUAL RESOURCES

This section of the EA addresses visual resources, including agency visual resource management classes, scenic quality, and key observation points (KOPs); and visibility related to the construction, operation, and maintenance of the proposed transmission line and substation/switchyard facilities. Section 3.3.1 provides a description of the affected visual resource environment for the proposed project. Section 3.3.2 provides a description of the potential impacts to visual resources.

The visual resource study was based upon the BLM's Visual Resource Management (VRM) System (BLM Manual 8410-1, January 1986) and addresses the potential visual effects of the proposed project on landscape scenic quality and sensitive viewers, and compliance with VRM classifications. The visual study included an inventory and assessment of visual resources within the study area for the proposed route. Data were collected 2 miles on either side of the centerline of the proposed route in order to characterize the visual resources in the study area. Inventory data for visual resources were collected from existing and future land use plans (see Figures 3-1 and 3-2), aerial photography, previous 500kV transmission line studies, BLM data, and field review. The visual resource inventory focused on the determination of scenic quality, VRM compliance, identification of sensitive viewers, and viewing conditions within the study area.

Appendix B contains definitions for VRM classes.

3.3.1 Affected Environment

Project Setting

The project study area is located within the Basin and Range Physiographic Province in southwest Arizona (Fenneman 1931). This province is also further divided into sections, two of

which are in the project study area. The majority of the project study area crosses the Sonoran Desert and is generally characterized by basin ranges and intervening desert plains that support an array of vegetation communities. The ranges are smaller in comparison to the broader character of this province, and topography slopes generally toward the Gulf of California. The western portion of the project study area crosses the Salton Trough. This section is generally characterized by alluvial desert basins that run northwest from the Salton sink for 150 miles, into southwest Arizona.

The study area primarily consists of a natural setting represented by five distinct landscape character types: desert mountains, desert foothills, bajadas, desert plains, and riparian areas. Desert mountains are usually isolated ranges that are steep, rugged, and rocky, with exposed peaks and faces. These formations are generally surrounded by alluvial fans at their bases that coalesce to form the bajada, a gently rolling terrain dissected by arroyos with a rocky soil. 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 plains.

The Gila River parallels the project area to the south and meanders in and out of the study area, providing a distinct visual feature that exhibits a diversity of associated riparian vegetation in this otherwise arid setting.

The topographic character within the study area can be described as generally flat, with intermittent rolling hills and rock escarpments associated with the Gila Bend Mountains in the eastern portion of the study area and mountainous foothills leading up to coarse jagged peaks associated with the Muggins, Gila, and Laguna Mountains in the western portion of the study area. Other major topographic features in this study area include Signal Mountain and Face Mountain.

There is a variety of vegetation communities within the study area that are associated with the changing topographic character and provincial sections (e.g., Sonoran Desert and Salton Trough). The predominant vegetation throughout this study area is creosote bush-bursage communities within the desert plains; however, greater density and diversity of vegetation is found along xeroriparian corridors in the Sonoran Desert section, which include paloverde, ironwood, and a variety of cacti. Open stands of saguaro can be found along the bajadas and foothills associated with Signal Mountain and the Gila Bend Mountains in the eastern portion of the project study area. Mountainous regions in the western portion of the study area, including the Muggins, Gila, and Laguna mountains, are sparsely vegetated by creosote-bursage and other desert scrub communities.

Large areas within the study area have been converted to agricultural lands, displaying patterns that are organized and primarily based on a grid. These areas are restricted to the desert plains

and are generally present along the Gila River. Variations in landform are extremely limited, and vegetation is seasonal, consisting primarily of cultivated crops. Agricultural areas are predominantly located around rural communities such as Hyder, Roll, Growler, Wellton, and Dome.

Infrastructure/cultural modifications in the project study area that affect the natural landscape setting include the PV Hub and ancillary facilities (Arlington Valley Energy Facility, Mesquite Power Generating Station, Hassayampa Switchyard, and the Redhawk Power Plant), the SWPL 500kV transmission line, 161kV WAPA transmission lines, 69kV transmission lines, Kinder-Morgan petroleum pipeline, the UPRR, and a natural gas pipeline. Communities within the study area are primarily associated with agriculture and are represented by small towns such as Wintersburg, Hyder, and Dome. Historically, mining operations, including copper and gold, occurred throughout the study area. Gravel extraction areas, which are highly visible, are located within the study area.

Agency Visual Resource Management Classes

BLM VRM classes are assigned to lands managed by the BLM and provide direction regarding levels of visual change within each class. VRM class designations are typically dictated by the scenic quality of the landscape, public concern for the maintenance of the scenic quality, KOPs and associated visibility, and specific management prescriptions based on land use, such as wilderness study areas or areas of critical concern (see Appendix B).

VRM classes were inventoried within the study area using Geographic Information System data acquired from the BLM, and past project-specific data for the same study area. The majority of land crossed by the proposed project is designated as Class IV and is generally characterized by open desert scrub lands consisting of creosote-bursage. Class III areas that would be crossed by the proposed project are isolated landforms such as Yellow Medicine Hills, as well as open desert east of the Muggins Mountains. Areas of Class II are associated with moderate to high topographic relief landforms. These areas that are crossed by the proposed route include the Gila Bend Mountains, the Laguna Mountains, and foothills to the east and west of the Muggins Mountains. The proposed route would not cross any Class I areas.

Scenic Quality

Scenic Quality Rating Units (SQRUs) are used by the BLM to describe specific natural landscape types and cultural modifications found within the regional landscape. The designations are categorized into three classes—A (outstanding), B (above average), and C (common). The degree of diversity and variety of visual elements (e.g., landform, vegetation, color) associated with the previously described landscape character were used to derive the SQRUs along the proposed project.

The majority of the project area within the proposed Palo Verde-North Gila 500kV corridor traverses Class C landscapes. These areas are generally associated with low isolated desert hills, desert plains, and alluvial slopes with a lower density of vegetation. Examples of Class C landscapes include Dome Valley, Hyder Valley, and plains east of Red Bluff.

Class B landscapes that are traversed by the proposed route include bajadas west of the Gila Bend Mountains, and the Laguna Mountains. Class B areas are designated where terrain features are more subtle and do not possess great variety, but other characteristics such as unique vegetation or riparian areas add interest to the scenery. Additionally, agricultural land associated with Hyder Valley, Dome Valley, and the Gila River Corridor are considered Class B landscapes because of the diversity of vegetation in these areas.

Areas designated as Class A scenery, while limited, include mountainous terrain containing an array of distinctive rock formations that are unique to their setting. No Class A landscapes are crossed by the proposed route; however, this route would run directly adjacent to the Class A Muggins Mountains and Signal Mountain Wilderness Areas.

Key Observation Points and Visibility

The inventory of KOPs included three components: (1) the identification of key viewers and visual sensitivity, (2) distance zones, and (3) viewing conditions.

KOPs, their associated viewers, and corresponding viewsheds were identified through data gathered during field reconnaissance and aerial photograph interpretation. The sensitive viewers were organized into three categories, including residential, recreation, and transportation views, and are described below.

Key Viewers and Visual Sensitivity

Numerous viewpoints and viewing areas associated with sensitive viewers were identified in coordination with land use investigations, including individual residences, communities, recreation areas, and transportation routes. Visual sensitivity reflects the degree of concern for change in the landscape. Visual sensitivity levels (high or moderate) 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.

For the purposes of this proposed project, high sensitivity viewers were associated with existing residential areas, the Signal Mountain Wilderness Area, the Muggins Mountains Wilderness Area, U.S. 95, Dome Valley Road, and Agua Caliente Road. Dispersed recreation viewers within the Signal Mountain and Muggins Mountains wilderness areas were considered high sensitivity because of their concern for the maintenance of the natural landscape. U.S. 95 and Dome Valley Road are considered high sensitivity because of their scenic corridor designations (Yuma County

2001). Agua Caliente Road is designated as a high sensitivity travel route because it is used by recreation users traveling Agua Caliente Road. Residential areas were designated high sensitivity because of the long duration of their views and their concern for the maintenance of their existing viewsheds. Moderate sensitivity viewers were associated with travel routes, dispersed recreational users, and future residential development identified to occur in the study area. While there are no specific future residential development plans, there is rural residential zoning within the study area associated with Dome, Hyder, and Wellton. These areas have been mapped on Figure 3.2, Future Land Use. The travel route viewers were identified as having a moderate sensitivity due to the short duration of their views based on vehicular speed or the modest level of vehicular traffic associated with these routes.

Distance Zones

The distance from the viewer to the proposed transmission line also was considered in the analysis. Typically, in the 0-½-mile range individual objects are seen in greater detail, whereas in the ½ to 2-mile range, objects are typically viewed in relationship to patterns rather than an emphasis on individual features. In areas where views are from 2 miles and more, landscapes are viewed as horizon lines and tones where atmospheric conditions often dominate. These ranges or distance zones are based on previous 500kV siting studies in similar settings.

The BLM has identified three distance zones in its VRM System for determining relative visibility from travel routes or observation points. These distance zones have been divided into foreground-middleground, background, and seldom seen. The foreground-middleground zone includes areas seen from viewing locations that are less than 3 to 5 miles away. Background zone areas are beyond the foreground-middleground zone, but usually less than 15 miles away. Areas not seen as foreground-middleground or background are in the seldom-seen zone.

Residential Views

Residential development in the study area is primarily rural in character and associated with agricultural lands. In the easternmost portion of the study area near the PV Hub there are three isolated residences. These residences are located one mile or greater from the proposed route. The landscape in this vicinity has been locally modified by the Arlington Valley Energy Facility, Hassayampa Switchyard, Redhawk Power Plant, Mesquite Power Generating Station, multiple 500kV transmission lines, a 69kV transmission line, the UPRR, and similar industrial facilities. Dispersed rural residences are also found in and around the communities of Hyder, Roll, and Growler, and are generally associated with agriculture. In Hyder, there are approximately twelve dispersed residences within ½ mile of the proposed route. Residences in Roll and Growler are more than ½ mile from the proposed route. Dispersed and low density residences in Dome Valley are exclusively on the south side of the proposed route, and the majority of these residences views are screened by topography. There is also an isolated pocket of medium density residences in this area. Many of these are located on rolling topography west of the Muggins

Mountains, creating a greater potential for screening by landforms. This condition also creates a greater opportunity for superior views. Existing modifications include the SWPL 500kV transmission line that would be paralleled for its entire length on the north side by the proposed route, the UPRR, industrial facilities associated with agriculture, and a petroleum pipeline.

Recreation Views

There are no formally designated or defined high sensitivity trails, parks, or trailheads within the project study area; however, the Yuma County Park containing Adair Shooting Range, which is a moderate sensitivity recreation area, is located adjacent to U.S. 95 in the foothills of the Laguna Mountains. There are also mountain biking trails designated within these mountains. Dispersed recreation viewers may be located in the Signal Mountain and Muggins Mountains wilderness areas. The boundary for the Signal Mountain Wilderness Area is approximately ½ to 1 mile from the proposed route and 0 to ½ mile from the boundary of the Muggins Mountains Wilderness Area. Existing modifications for both of these areas include the SWPL 500kV transmission line. Views from both wilderness areas to the north would involve looking through the existing line. As a result of these conditions, there would be only intermittent and modified views of the proposed project from the wilderness area. The Juan Batista de Anza National Historic Trail Auto Tour Route is follows I-8 south of the study area. The proposed project would not be visible from the Auto Tour Route. All other recreation within the study area is widely dispersed.

Transportation Views

Yuma County has designated both U.S. 95 and Dome Valley Road as Scenic Corridors. There is a higher viewer sensitivity associated with these routes than others in the study area because the routes were designated to maintain the unique visual characteristics that each transects. Travelers along U.S. 95 would have views of the proposed route; where the proposed route is visible, the setting has already been modified by the SWPL 500kV and WAPA 161kV transmission lines. Additionally, landforms would also provide screening in specific areas. Viewers associated with Dome Valley Road would have intermittent views of the proposed route that would be seen in the context of the SWPL 500kV transmission line and potentially would be screened by agricultural facilities and topography.

Other transportation routes that occur within the study area that would have views of the existing transmission line and the proposed route are Wintersburg Road, Elliot Road, Agua Caliente Road, Hyder Road, and Palomas Road. Both Wintersburg Road and Elliot Road pass through the highly modified setting of the PV Hub, and the resulting viewer sensitivity would be moderate. The proposed route would intersect Agua Caliente Road northeast of the Yellow Medicine Hills; however, views of the proposed route would be modified by the SWPL 500kV transmission line. Hyder and Palomas roads are associated with rural agricultural settings and have a lower use volume. Existing modifications for both roads include the SWPL 500kV transmission line, the UPRR, and a petroleum pipeline.

3.3.2 Environmental Consequences

The purpose of the visual impact assessment is to identify and characterize the level of visual modification in the landscape that could result from the construction, operation, and maintenance of the proposed route. Modification of the landscape is described in levels of visual contrast, which affects scenic quality, sensitive viewers, and compliance with VRM objectives, all of which have been introduced in Section 3.3. The potential contrasts resulting from the proposed route were assessed using a methodology consistent with the BLM's Contrast Rating System (BLM Manual 8431) and previous 500kV siting studies. The visual impact analysis considered contrast as a result of introducing new facilities to the existing landscape setting, access, and potential vegetation clearing, and the presence of existing facilities (e.g., power plants, substations, and transmission lines), distance zones, and sensitive viewers.

Visual Contrast

Visual contrast is defined as the degree of perceived change that would occur in the landscape as a result of the construction, operation, and maintenance of the proposed route. Visual contrast from the proposed action would occur from (1) the landform modifications that are necessary to upgrade and construct new access roads and tower pad sites; (2) the removal of vegetation to construct roads and maintain right-of-way and clearance zones associated with the conductors and towers; and (3) the introduction of new structures to the landscape.

The visual contrast assessment was conducted by comparing landscape elements (form, line, color, and texture) of the existing landscape with the elements associated with the proposed route including new structures (towers, hardware, and conductors) and new or improved access. Changes in landform, vegetation, and structural contrast were evaluated and assigned degrees of change in contrast. A contrast evaluation was conducted to provide existing contrast conditions adjacent to the proposed transmission line route. Landscape settings were evaluated that considered the SWPL 500kV transmission line for the entire length of the proposed route, the UPRR for 60 miles, the WAPA 161kV transmission line adjacent to U.S. 95, and the irrigation berm north of Wellton and within the Dome Valley. The existing landscape contrast was then combined with the contrast associated with the proposed 500kV transmission line, resulting in a baseline of project contrast.

Project contrast levels for this type and size of project (i.e., approximately 110-112 miles), typically range from strong to weak; however, only weak and weak-moderate project contrasts are expected to occur as a result of the construction, operation, and maintenance of the proposed route. Weak project contrast occurs where the proposed transmission line would parallel the SWPL 500kV transmission line and uses existing access roads. This condition occurs for a majority of the proposed route across the desert plains. Weak-moderate project contrast occurs where the proposed route parallels the SWPL 500kV transmission line through foothills and mountainous terrain associated with the Gila Bend, Muggins, and Laguna mountains. Project contrast is higher through these areas because in some cases (e.g., the Muggins Mountains) new

access may be required. Additionally, steep terrain could prevent the proposed route from being seen in context with the existing line.

Following are the characterizations and descriptions of visual impacts associated with KOPs, scenic quality, and VRM classes. For all impact discussions, future visual impacts are described after the existing visual impacts for each KOP. If an impact for a specific resource is not anticipated to occur, it will not appear in the text.

Proposed Route

Key Observation Points/Sensitive Viewers

Impacts to sensitive viewers based on project contrast are anticipated to occur from the proposed route. Impacts are typically low for this proposed project compared to other 500kV transmission line projects because the proposed route parallels the SWPL 500kV transmission line for its entire length within a BLM-designated utility corridor on BLM land. Furthermore, the use of dulled steel structures, matching existing spans and tower locations (where possible), the use of non-specular conductors, the use of existing access to the greatest extent possible, and the rehabilitation of vegetation, where applicable, all contribute to the minimizing of visual impacts to KOPs.

The following characterization of impacts to KOPs has been organized by the type of KOP, including residential, recreational, and travel routes.

Residential Views

Impacts that may occur to residential viewers as a result of the construction, operation, and maintenance of the proposed route are anticipated to range from primarily low to low-moderate. These impacts occur because the residences are typically located over ½ mile from the proposed project. Additionally, the existing conditions adjacent to the residences have been locally modified by the SWPL 500kV transmission line that the proposed route would parallel. Impacts to residences are primarily low as a result of this existing line: however, there are several low-moderate impacts to residential viewers that are associated with their proximity to the proposed route.

Low impacts would occur to several dispersed residences in the vicinity of the PVNGS. As previously mentioned, there are multiple generating stations and ancillary facilities in the area, with existing 500kV and 69kV transmission lines tying in to these facilities. The proposed route would match similar industrial facilities, and this line would be viewed in the context of the existing structures. None of these residences are within a half mile of the proposed route.

Dispersed rural residences in Hyder, Roll, Growler, and Wellton would incur low to low-moderate impacts as a result of the proposed route. Residences that fall within ½ mile of the proposed route would result in low-moderate impacts, based on the proximity of the viewers to the proposed transmission line. Most residences within ½ mile of the proposed route are located in Hyder and Dome Valley. Residences at a distance greater than ½ mile from the proposed route would have low impacts.

Low to low-moderate impacts are anticipated for residences in Dome Valley. These residences are dispersed in nature and exclusively located south of the SWPL 500kV transmission line and proposed route. There are several residences within ½ mile of the proposed route; although, a majority of the Dome Valley residences views are screened by topography. Their views of the proposed project would be seen in the context of and modified by the SWPL 500kV transmission line. Residences located on higher terrain may have a view that looks down on the proposed project; however, the proposed project would be backdropped, reducing impacts.

Impacts to future residential viewers are anticipated to be low because the Proposed Action would directly parallel the SWPL 500kV transmission line.

Recreation Views

Low to moderate impacts to dispersed recreation viewers are anticipated to occur as a result of the construction, operation, and maintenance of the proposed route. Typical conditions for viewers from the foothills adjacent to Signal Mountain and the Muggins Mountains would be intermittent screened views of the proposed route. Furthermore, the proposed route would parallel existing visually dominant features, including the SWPL 500kV transmission line within a BLM-designated utility corridor. Views from the Signal Mountain Wilderness Area would be greater than ½ mile and seen in context of the existing line, thus resulting in low impacts to dispersed recreation viewers. Views from the Muggins Mountains would be from a distance of ½ mile or less. Through this area the proposed route would traverse across varying topography and have the potential to be screened and/or backdropped. There is also the potential for this route to be skylined and it may not always be seen in the context of the SWPL 500kV transmission line. As a result, impacts to recreation viewers in the Muggins Mountains would range from low-moderate to moderate, and depend on specific viewing conditions or viewer location. Moderate sensitivity recreation viewers, including an RV park and Adair County Park, would incur low impacts from the proposed project.

Transportation Views

Impacts to viewers on moderate and high sensitivity travel routes would range from low to low-moderate. The SWPL 500kV transmission line would reduce the structure and landform contrast of the proposed route. Furthermore, varied topography and vegetation result in a variety of viewing conditions (screening and backdropping) that reduce the visibility of the proposed route.

Low impacts occur where a weak or weak-moderate condition exists within a 0 to ½ mile, ½ to 1 mile, or 1 to 2 miles visibility threshold (distance zone), respectively. Moderate impacts occur where a weak-moderate to moderate condition exists within a 0-½ mile or a ½ to 1 mile visibility threshold (distance zone), respectively.

The following is a description of impacts according to travel route.

U.S. 95 – Impacts to viewers traveling on U.S. 95 would range from low to moderate. The proposed route would intersect U.S. 95 near the Laguna Mountains. The proposed project, when seen in the context of the existing modifications (including the SWPL 500kV and WAPA 161kV transmission lines), would have minimal impacts, except at the crossing of U.S. 95, where moderate impacts are anticipated. Topography associated with the Laguna Mountains would potentially provide screening and/or backdropping of the proposed route. There is also the potential that this route could be skylined or not viewed in context with the existing lines as a result of this topography.

Dome Valley Road – Impacts to viewers on Dome Valley Road would range from low to low-moderate. The proposed route would come within ½ mile of a small section of this roadway, and would be seen in the context of the SWPL 500kV transmission line. Topography and facilities associated with agriculture would potentially provide screening of the proposed route.

Agua Caliente Road – Impacts to viewers on Agua Caliente Road would be low-moderate based on viewing duration and sensitivity along this travel route. The proposed route would be viewed in the context of the SWPL 500kV transmission line, and would cross perpendicular to the roadway.

Wintersburg Road – Viewer impacts from Wintersburg Road would be low, based on existing modifications (PVNGS) and the viewer proximity to the proposed route. Views along this roadway would be of distances of ½ mile or greater and seen in the context of similar existing industrial structures. Viewer duration would be short, and only southbound travelers would have views of the proposed route.

Elliot Road – Impacts to viewers on Elliot Road would be low. Travel viewers would be at a distance of ¼ mile or greater and view the proposed route in context with existing industrial features.

Hyder and Palomas Roads – Impacts to viewers along Hyder and Palomas roads would generally be low where the proposed route parallels the existing line; however, there is a section of Palomas Road that would have the proposed route on the opposite side of the road from the existing line. In this case Palomas Road would incur moderate impacts.

Scenic Quality

Low impacts to scenic quality would occur for the majority of the proposed route because the proposed transmission line would parallel the SWPL 500kV transmission line within a BLM-designated utility corridor within Class C landscapes. Low-moderate impacts are anticipated for portions of the foothills and mountains associated with the Muggins Mountains, and isolated areas of Class B landscape associated with the Laguna and Gila Bend mountains. These impacts would be minimized because the Proposed Action also parallels the SWPL 500kV transmission line within a BLM-designated utility corridor in these areas.

VRM Compliance

The Proposed Action crosses primarily VRM Class III or IV landscapes and isolated Class II areas in the foothills associated with the Gila Bend Mountains, the Laguna Mountains, and foothills to the east and west of the Muggins Mountains. Because the proposed route would parallel the SWPL 500kV transmission line and is located in a BLM-designated utility corridor, the Proposed Action would comply with VRM objectives (see Appendix B). The Proposed Action does not cross any Class I landscapes; however, it does run adjacent to the Muggins Mountains and Signal Mountain Wilderness Areas.

No-Action Alternative

Under the No-Action alternative, the proposed project would not be constructed, no visual resources would be affected, and no environmental consequences to visual resource(s) would occur; however, the purpose and need for the proposed project would not be met.

3.4 CULTURAL RESOURCES AND NATIVE AMERICAN CONCERNS

This section of the EA addresses the cultural resources and Native American concerns, including the results of the records review and intensive pedestrian surveys completed in support of the proposed project related to the construction, operation, and maintenance of the proposed transmission line and substation facilities. Section 3.4.1 provides a description of the affected cultural resources environment for the proposed project. Section 3.4.2 provides a description of the potential environmental consequences the proposed project may have on cultural resources and Native American concerns.

A cultural resource study consisting of a detailed records review and an intensive pedestrian survey was conducted by EPG in support of the Proposed Action (Rowe 2007). The study was conducted to determine the presence of any historic sites and structures or archaeological sites in the vicinity of the proposed project and how they might be affected by the construction of the proposed project. This study was undertaken to support the preparation of the EA; the BLM's,

Reclamation's, and DOD's compliance with the National Historic Preservation Act; and the Arizona State Land Department's (ASLD) compliance with the Arizona State Historic Preservation Act.

The area of potential effect (APE) for the proposed project is a 200-foot-wide corridor beginning at the Palo Verde Hub and terminating at the North Gila Substation, for a distance of approximately 110-112 miles. The exact beginning point at the PV Hub (Arlington, Redhawk, or Hassayampa), has not been determined at this time but may be any one of the three interconnections, all of which have been intensively surveyed for cultural resources. The interconnections average two to three miles in length. The cultural resource survey encompassed the 200-foot-wide APE for the proposed project, as well as a buffer that varied between 100 to 800 feet in various portions of the project area. The total acreage surveyed between May and June 2006, and September 2007, was 5,363.9 acres, 1,500.32 acres of which were on lands under the jurisdiction of the BLM Yuma Field Office (YFO), 1,496.96 acres on lands under the jurisdiction of the BLM Phoenix District Office (PDO), 72.72 acres on lands managed by Reclamation, 539 acres of land under the jurisdiction of the DOD, 990.90 acres of lands under the jurisdiction of the ASLD, and 764 acres of privately owned land.

3.4.1 Affected Environment

The cultural resource study for the proposed project identified 33 isolated occurrences (IOs), 16 previously recorded sites, and five newly recorded sites. A list of the previously and newly recorded sites located within the APE are presented in Table 3-3 below.

TABLE 3-3
SUMMARY OF SITES LOCATED WITHIN THE APE OF THE PROPOSED ALIGNMENT

Site Number	Recording Status	Jurisdiction	Description	Eligibility and Criterion
AZ L:12:15 (ASM)	Previously recorded	BLM YFO and DOD	69kV power line	Recommended Not Eligible
AZ S:15:7 (ASM)	Previously recorded	BLM YFO, ASLD, and private	69/12kV power line	Recommended Not Eligible
AZ S:15:10 (ASM)	Previously recorded	Private	Camp Hyder - World War II (1942-1944) military training base	Recommended Eligible – A, B
AZ S:16:37 (ASM)	Previously recorded	BLM PDO	Prehistoric artifact scatter	Recommended Eligible – D
AZ S:16:38 (ASM)	Previously recorded	BLM PDO	Historic Saddle Railroad Station	Recommended Eligible – A
AZ S:16:39 (ASM)	Previously recorded	BLM PDO	Papago Maneuvering Area	Recommended Eligible – A, B
AZ S:16:80 (ASM)	Newly recorded	BLM PDO	Historic trash scatter associated with historic Southern Pacific Railroad	Recommended Eligible – A, D

TABLE 3-3 SUMMARY OF SITES LOCATED WITHIN THE APE OF THE PROPOSED ALIGNMENT				
Site Number	**Recording Status**	**Jurisdiction**	**Description**	**Eligibility and Criterion**
AZ T:9:27 (ASM)	Previously recorded	BLM PDO	Lithic scatter	Recommended Not Eligible
AZ T:9:104 (ASM)	Newly recorded	BLM PDO	Historic Gillespie Siding	Recommended Eligible – A
AZ T:10:84 (ASM)	Previously recorded	BLM YFO	Historic Southern Pacific Railroad	Determined Eligible – A
AZ X:3:382 (ASM)	Previously recorded	BLM YFO	Prospecting pit, trail, and cairn	Determined Eligible – D
AZ X:3:415 (ASM)	Previously recorded	DOD	Mining claim and historic trash scatter	Determined Not Eligible
AZ X:7:10 (ASM)	Previously recorded	Reclamation	Prehistoric lithic scatter and associated features	Determined Eligible – D
AZ X:7:20 (ASM)	Previously recorded	Reclamation	Gila Gravity Canal	Considered Eligible – A
AZ Y:1:148 (ASM)	Newly recorded	ASLD	Rock piles	Recommended Eligible – D
AZ Y:2:29 (ASM)	Previously recorded	BLM YFO and Private	Historic Horn Railroad Siding	Recommended Eligible – A
AZ Y:2:30 (ASM)	Previously recorded	ASLD	Historic Kofa Railroad Siding	Recommended Eligible – A
AZ Y:2:48 (ASM)	Newly recorded	BLM YFO	Collapsed corral and light historic trash scatter	Recommended Not Eligible
AZ Y:2:49 (ASM)	Newly recorded	ASLD and Private	Camp Horn – World War II (1942-1944) military training base	Recommended Eligible – A, B, D
AZ Y:3:29 (ASM)	Previously recorded	ASLD	Lithic scatter	Recommended Not Eligible
AZ Y:3:30 (ASM)	Previously recorded	ASLD	Lithic scatter	Recommended Not Eligible

3.4.2 Environmental Consequences

The intensive pedestrian survey resulted in the identification of five newly recorded sites, 33 IOs, and the revisiting of 16 previously recorded sites. Of these sites, 3 have been determined to be eligible for listing on the National Register of Historic Places (NRHP) and 11 are recommended as eligible for listing on the NRHP. The IOs are not eligible for listing on the NRHP because they do not meet the necessary criteria for listing.

It may be possible to avoid most of the NRHP eligible sites by spanning through careful positioning of tower locations. However, a total of five sites would not be able to be spanned given their large sizes. These include three historic military training camps (AZ S:15:10 (ASM), AZ S:16:39 (ASM), and AZ Y:2:49 (ASM)) and two prehistoric lithic scatters (AZ X:7:10 (ASM) and AZ S:16:37 (ASM)).

Site AZ S:15:10 (ASM) is the remains of Camp Hyder. The site is the easternmost of the four Desert Training Centers – California Arizona Maneuver Area (DTC-CAMA) divisional training camps that were established in Arizona in 1942. Site AZ S:15:10 (ASM) is located on privately owned land and consists of a series of stone alignments lining tent platforms, walkways, and roads. The camp was originally laid out in an orderly, triangular shape; however, through the years since the abandonment of the site, it has been heavily disturbed by several sources, including the local jojoba agriculture common in the area. Other disturbances include mechanical clearing, construction, access roads, and the existing SWPL 500kV transmission line. Although there is some depth to the local sediments, the site is surficial in nature. Site AZ S:15:10 (ASM) is recommended to be eligible for listing on the NRHP under Criterion A and B for its association with military training in Arizona during World War II and its association with General Patton. The proposed project is located in the northern portion of the site. Anticipated disturbance to the site consists of the placement of two lattice structures.

Site AZ S:16:39 (ASM) is the remains of the Papago Maneuvering Area, a previously recorded historic military activity area located on lands under the jurisdiction of the BLM PDO. Features on the site consist of tent platforms, stone circles, redoubts, stone alignments, foxholes, and cleared/graveled areas. Disturbances to the site include the existing SWPL 500kV transmission line. Based on the geologic deposition, there is no potential for intact subsurface remains at this site. Site AZ S:16:39 (ASM) is also recommended to be eligible for listing on the NRHP under Criterion A and B for its association with military training camps within Arizona during World War II and its association with General Patton. The proposed project is located in the northern portion of the site. Anticipated disturbance to the site consists of the placement of three lattice structures.

Site AZ Y:2:49 (ASM) is the remains of Camp Horn, a newly recorded historic military base located on lands under the jurisdiction of ASLD and on privately owned land. The site is one of four DTC-CAMA division training camps that were established in Arizona in 1942. The site consists of a series of stone alignments, outlining tent platforms, walkways, and other activity areas. Since the site was abandoned it has been heavily disturbed by several sources, including pivot irrigation fields, however the southern half still retains some integrity. Site AZ Y:2:49 (ASM) is recommended to be eligible for listing on the NRHP under Criterion A, B, and D for its association with military training camps within Arizona during World War II, its association with General Patton, and its potential to provide information concerning military training activities conducted in southwestern Arizona during this period.. The proposed project is located along the southern edge of the site. Anticipated disturbance to the site consists of the placement of undetermined number of lattice structures, although there is good potential to reduce the level of disturbance through careful placement of these structures.

Site AZ S:16:37 (ASM) is a large artifact scatter with a feature on lands under the jurisdiction of the BLM PDO. The site consists of a thin scatter of chipped stone and ceramics over the entire area of the site, with thirteen distinct clusters of chipping stations, as well as a possible sleeping circle. This site represents the only source for good quality chipping stone material for several miles. Disturbances to the site include cattle grazing, road maintenance, the existing SWPL

500kV transmission line, as well as the UPRR. The AZ S:16:37 (ASM) site is recommended eligible for listing on the NRHP under Criterion D for its potential to provide significant information on the organization of resource exploitation, technology, and social interaction during prehistory within the Dendora Valley. The proposed project extends across the central portion of the site. Anticipated disturbances across this approximately 3-mile site consist of the placement of approximately 12 lattice structures.

Site AZ X:7:10 (ASM) is a large lithic scatter located on lands managed by Reclamation. The site consists of 17 loci that that consist of flaked stone concentrations. The site also contains a light scatter of ceramics and two trail features. Disturbances to the site include the existing SWPL 500kV transmission line. The AZ X:7:10 (ASM) site has been previously determined to be eligible for listing on the NRHP under Criterion D for its potential to provide information on the subsistence and settlement strategies of the inhabitants of the North Gila Valley during the prehistoric period. The proposed project extends across the southern portion of the site. Anticipated disturbances across this approximately 1-mile-wide site consist of the placement of approximately 4 lattice structures.

Construction of the proposed project would directly affect the five sites outlined above. Specific effects to the archaeological sites would not be known fully until the detailed engineering and design for the transmission line have been completed. While most impacts can be avoided through spanning, there are five very large sites that are likely to be affected. Any adverse effects to these five sites would be mitigated by the development and implementation of a Historic Properties Treatment Plan (HPTP). The HPTP would be developed with the various land managing agencies and submitted to the Arizona State Historic Preservation Office (SHPO) for approval and the plan would be implemented prior to and during construction of the proposed project. Possible mitigation measures that would be identified in the HPTP include archival research, data recovery, and construction monitoring.

The project corridor maintains a distance from Anza National Historic Trail of between 1 and 5 miles and the trail is not crossed by the proposed project. The proposed transmission line will have no effect, physically or visually, upon the Anza National Historic Trail.

No-Action Alternative

Under the No-Action alternative, the proposed project would not be constructed, no cultural resources would be affected, and no environmental consequences would occur; however, the purpose and need for the project would not be met.

3.4.3 Native American Concerns

A total of thirteen Native American Tribes were contacted in February of 2006 by the BLM PDO concerning the proposed project. These included the Ak-Chin Indian Community, Chemehuevi

Indian Tribe, Cocopah Tribe, Colorado River Indian Tribes, Fort McDowell Yavapai Nation, Fort Mojave Indian Tribe, Fort Yuma Quechan Tribe, Gila River Indian Community, Hopi Tribe, Salt River Pima-Maricopa Indian Community, Tohono O'odham Tribal Nation, Yavapai-Apache Nation, and the Yavapai-Apache Indian Tribe.

To date, only the Fort Yuma Quechan has responded. In their letter dated February 27, 2006, they acknowledged that transmission line construction, maintenance, and operation can affect cultural resources and indicated the need for an intensive cultural resource inventory.

The cultural resource study that was conducted (Rowe 2007) will be provided to the various Native American Tribes for comment and the BLM will continue to consult with them as the project moves forward.

3.5 BIOLOGICAL RESOURCES

This section of the EA addresses biological resources, including vegetation, wildlife, and special status species related to the construction of the proposed project. Section 3.5.1, Affected Environment, provides a description of the affected biological resources for the proposed project. Section 3.5.2, Environmental Consequences, provides a description of the potential impacts to biological resources.

Secondary data were collected in order to characterize the biological resources in the study area. The information included the results of a literature search, secondary data from the BLM, a review of previous studies conducted in the area of the Proposed Action, and field visits to selected sites conducted between September 2005 and October 2006. Field visits were performed for reconnaissance purposes only and did not include any species-specific surveys.

A list of sensitive species anticipated in the area was compiled utilizing the U.S. Fish and Wildlife Service (USFWS) endangered species Internet site, personal contact with the BLM Field Office for the Sonoran Desert National Monument, and the AZGFD Heritage Data Management System (HDMS) Internet site (AZGFD 2006). This list is included in Appendix B of this document.

3.5.1 Affected Environment

The Palo Verde to North Gila transmission line corridor is located within the Lower Colorado River Valley Subdivision of Sonoran Desertscrub (Turner 1994). This vegetation community is dominated by creosote bush (*Larrea tridentata*). Other common species include ocotillo (*Fouquieria splendens*), foothill paloverde (*Parkinsonia microphylla*), ironwood (*Olneya tesota*), saguaro (*Carnegiea gigantea*), barrel cactus (*Ferocactus wislizenii*), and various species of cholla (*Cylindropuntia* spp.). Vegetation is typically sparse. Annual plant cover varies depending upon winter rainfall.

The proposed project area varies from hilly areas covered with gravel or volcanic rock, to flat areas of desert pavement or gravel. Wash size ranges from narrow to broad. Washes support more diverse vegetation, such as paloverde and ironwood trees.

Typical wildlife species found within this vegetation community and substrate are presented below. Typical mammals include Harris' Antelope Ground Squirrel (*Ammospermophilus harrisii*), Coyote (*Canis latrans*), Kangaroo Rats (*Dipodomys* spp.), the Black-tailed Jackrabbit (*Lepus californicus*), California Leaf-nosed Bat (*Macrotus californicus*), Javelina (*Pecari tajacu*), Mule Deer (*Odocoileus hemionus*), Pocket Mice (*Perognathus* spp.), Kit Fox (*Vulpes macrotis*), Round-tailed Ground Squirrel (*Spermophilus tereticaudus*), Desert Cottontail (*Sylvilagus audubonii*), Desert Bighorn Sheep (*Ovis canadensis*) and the Gray Fox (*Urocyon cinereoargenteus*). Common bird species that could be found in the project area include the Black-throated Sparrow (*Amphispiza bilineata*), Cactus Wren (*Campylorhynchus brunneicapillus*), Roadrunner (*Geococcyx californianus*), Gambel's Quail (*Callipepla gambelii*), Gila Woodpecker (*Melanerpes uropygialis*), Black-tailed Gnatcatcher (*Polioptila melanura*), Curve-billed Thrasher (*Toxostoma curvirostra*), LeContes Thrasher (*Toxostoma lecontei*), and the Mourning Dove (*Zenaida macroura*). Typical amphibians and reptiles that could be found in the project area include the Sonoran Desert Toad (*Bufo alvarius*), Zebra-tailed Lizard (*Callisaurus draconoides*), Whiptails (*Cnemidophorus* spp.), Rattlesnakes (*Crotalus* spp.), the Desert Tortoise (*Gopherus agassizii*), Gila Monster (*Heloderma suspectum*), Horned Lizards (*Phyrnosoma* spp.), the Chuckwalla (*Sauromalus ater*), and the Tree Lizard (*Urosaurus ornatus*).

Special Status Species

A table of special status species with the potential to occur in Maricopa and Yuma counties can be found in Appendix C. These species include federally listed species protected by the USFWS, AZGFD designated Wildlife of Special Concern, BLM sensitive species, and plants considered highly safeguarded under the Arizona Native Plant Law. Species for which there is the potential to occur in the project area are listed in more detail below.

Special Status Species Which Could Potentially Occur in the Study Area

Straw-top Cholla (*Cylindropuntia echinocarpa*)

Status: The straw-top cholla is listed as a salvage restricted plant (AZGFD 2006).

Background: The straw-top cholla is found on lower bajadas, plains, and occasionally slopes in the Mojave and Sonoran Deserts. Its distribution includes southeastern California, southern Nevada, and southwestern Arizona and Utah (Johnson 2004).

This cholla blooms from March through May and ranges from 91 to 152 centimeters in height. The flowers have yellow-green petals that are waxy in appearance. Fruits are dry, remain on the plant for many months, and are densely covered with spines. Plants have a short trunk that is much-branched. Outer stems are short, have numerous tubercles, and are between 2 and 3.75 centimeters thick. The tubercles are covered with many spines that have sheaths of a yellow or white color (Johnson 2004).

Populations in the Study Area: Populations of this plant range throughout the project area in Maricopa and Yuma Counties and have a high likelihood of occurring there.

Longleaf Sandpaper Plant (*Petalonyx linearis*)

Status: The longleaf sandpaper plant is a BLM Yuma Field Office Priority Species (BLM 2007).

Background: The longleaf sandpaper plant is found in sandy or rocky canyons in the Sonoran Desert and the southeastern Mojave Desert. Its distribution includes southeastern California, southwestern Arizona, and northwestern Mexico (Baldwin et al. 2002).

This plant blooms from March through May. Plants are 15 to 100 centimeters tall. The flowers have white petals 2 to 5.5 millimeters in length. Leaves are generally sessile and are linear to narrowly oblanceolate. The leaves are 10 to 25 millimeters long, and the margins are entire to irregularly toothed (Baldwin et al. 2002).

Populations in the Study Area: The plant is known to occur in the Laguna Mountains, as well as in the Laguna Dam vicinity of the Colorado River, north of the project area. Other known locations of this plant are in the Kofa Mountains, to the north of the project area, and in the Gila and Tinajas Altas mountains, to the south of the project area (AZGFD 2006).

Kearney Sumac (*Rhus kearneyi*)

Status: Kearney sumac is a BLM Sensitive Species (BLM 2005).

Background: This species is found on north-facing dry cliffs in desert scrub at elevations from 1,000 to 1,500 feet (300 to 450 meters). It is only known from a few mountain ranges in southern Yuma County and northwestern Mexico.

Kearney sumac blooms from January to February. Plants take the form of evergreen shrubs to small trees up to 4 meters tall. The flowers are 3.5 millimeters long and are cream-white in color. Leaves are oblong or oval and 2.5 to 5 centimeters long and 1.3 to 3.5 centimeters wide. The dark-green leathery leaves have conspicuous white veins (Arizona Rare Plant Committee [ARPC] 2002).

Populations in the Study Area: Kearny sumac is known to occur in the Gila, Tinajas Altas, and Cabeza Prieta mountains of southern Yuma County (AZGFD 2005c). These mountain ranges are all located south of the project area. This species is not known in the project area and has a low likelihood of occurring there.

Schott Wire Lettuce (*Stephanomeria schottii*)

Status: Schott wire lettuce is a BLM Sensitive Species (BLM 2005).

Background: This plant is found in semi-stabilized sand dunes with creosote bush, white bursage, big galleta grass, and many species of wildflowers at 400 to 800 feet (120 to 245 meters). It is found in southern Yuma and Maricopa counties and on one site in northern Sonora, Mexico.

Schott wire lettuce blooms from mid-March to mid-May. It is an annual plant that grows to 20 to 60 centimeters tall. There are 3 to 9 flowers per head. The involucre is 5 to 9 millimeters high. The papus has 5 to 6 lanceolate scales with plumose tips (ARPC 2002).

Populations in the Study Area: Schott wire lettuce has been found in southern Yuma County in Pinta Sands, Mohawk Dunes, Yuma Desert, and the San Cristobal Valley east of the Mohawk Mountains (AZGFD 2005e). All of these locations are south of the project area. Schott wire lettuce is found in semi-stabilized sand dunes, which are not present in the project area. This species is not known in the project area and has a low likelihood of occurring there.

Arizona Rosewood (*Vauquelinia californica* spp. *sonorensis*)

Status: Arizona rosewood is a BLM Sensitive Species (BLM 2005).

Background: This species can be found in woodlands or forests at the base of cliffs, along canyon bottoms, and on moderate to steep slopes of the Ajo Mountains. Elevation ranges from 2,300 to 4,800 feet (700 to 1,465 meters). It is often found with redberry juniper (*Juniperus coahuilensis*) and Ajo Mountain scrub oak (*Quercus ajoensis*). Arizona rosewood is found in the Ajo Mountains, as well as in Sierra Cobabi in northern Sonora, Mexico.

Arizona rosewood flowers from May to July and the fruits ripen in the fall. It is an evergreen medium-sized tree that reaches 5 meters in height. The leaves are narrow (7 to 10 millimeters wide) and long (up to 10 centimeters). The leaf margins are serrate with pronounced marginal spines. The leathery leaves are green on top and white-hairy below (ARPC 2002).

Populations in the Study Area: Arizona rosewood is found in the Sand Tank Mountains in southern Maricopa County, as well as the Ajo Mountains in western Pima County (ARPC 2002).

Neither location is near the project area. Arizona rosewood is not known in the project area and has a low likelihood of occurring there.

Desert Rosy Boa (*Charina trivirgata gracia*)

Status: The Desert Rosy Boa is a BLM Sensitive Species (BLM 2005).

Background: This species is found in rocky areas with basalt and granite soils in desert ranges, especially in canyons with permanent or intermittent streams. It can be found from 700 to 5,650 feet (213 to 1,719 meters). It ranges from the Mojave and Colorado deserts of central-southern California, east to the Basin Ranges of western Arizona.

The Desert Rosy Boa is a constrictor that eats small mammals, birds, and lizards. It breeds from May to June, with a gestation period of 130 days. Females give birth to 3 to 12 live young that are 10 to 12 inches (25 to 30 centimeters) in length. The Rosy Boa is primarily nocturnal and spends most of its time in rock crevices or underground, hibernating in the winter (AZGFD 2003a).

Populations in the Study Area: The range of the Desert Rosy Boa includes the project area (AZGFD 2003a). However, this snake is often found in areas with permanent water. There is a low likelihood of this species occurring in the project area.

Sonoran Desert Tortoise (*Gopherus agassizii*)

Status: The Desert Tortoise is considered a Wildlife Species of Special Concern by the AZGFD (2006).

Background: Sonoran Desert Tortoises are primarily found on rocky slopes and bajadas of Mojave desertscrub and the Arizona Upland and Lower Colorado River Valley subdivisions of Sonoran desertscrub (Murray and Dickinson 1996). The Desert Tortoise is a completely terrestrial species that requires firm ground for the construction of burrows. It constructs burrows at the base of rock outcrops and vegetation and in the banks of washes. Its diet includes herbs, grasses, and cacti (Stebbins 2003). Major threats to this species include habitat fragmentation, habitat degradation from urban development, and genetic contamination by escaped or released captives (AZGFD 1996). The Sonoran population of the Desert Tortoise is found south and east of the Colorado River. This population ranges from Pierce Ferry on the Colorado River in Mohave County, south into Sonora, Mexico, and east to Cochise County (AZGFD 2001).

Populations in the Study Area: The project area is located within the range of the Sonoran Desert Tortoise. There is a high likelihood of this species occurring in the project area. BLM-designated habitat for the Desert Tortoise is within the study area near Link 50, Mileposts 4-17, 21-24, 34-35.5, and 100-105. Desert Tortoise habitat is grouped into three categories, based upon the

following four criteria: (1) the importance of the habitat to maintaining viable populations, (2) the resolvability of conflicts, (3) Desert Tortoise density, and (4) population status (stable, increasing, or decreasing) (AIDTT 1996). Link 50, Mileposts 4-17 crosses Category 2 habitat, and Link 50, Mileposts 21-24, 34-35.5, and 100-105 crosses Category 3 habitat, which are managed by the BLM for the goal of maintaining viable Desert Tortoise populations.

Gila Monster (*Heloderma suspectum*)

Status: The Gila Monster is considered a Sensitive Species by the BLM (AZGFD 2006).

Background: The Gila Monster is most common in the Sonoran and Mohave deserts, and less frequently found in semi-desert grassland, up to an elevation of about 4,100 feet (Stebbins 1985). It is also reported to occur in pine-oak forest, tropical deciduous forest, and thorn forest, with specific vegetative communities including cottonwood-willow riparian, mesquite bosque, mixed riparian scrub, Mohave desertscrub, and Sonoran desertscrub (Arizona Upland subdivision) (BISON 2002a). Gila Monsters prefer undulating rocky foothills, bajadas, and canyons, and they tend to avoid open sandy plains (Stebbins 1985). The primary threats to the Gila Monster are related to habitat destruction and illegal collecting. Collectors damage the habitat by using crowbars and hydraulic jacks to move or break rocks to expose lizards (BISON 2002a).

Populations in the Study Area: Suitable habitat for the Gila Monster, especially along dry washes, is present within the project corridor and this species is likely to be present.

Arizona Chuckwalla (*Sauromalus ater*)

Status: The Arizona Chuckwalla is a BLM Sensitive Species (BLM 2005).

Background: The Arizona Chuckwalla is found near cliffs, boulders, or rocky slopes in rocky desert, lava flows, hillsides, and outcrops, often with creosote bush. Chuckwallas use rocks as basking sites and rock crevices for shelter. They are primarily herbivorous, eating leaves, buds, flowers, and fruit. They eat a variety of annuals, some perennials, and occasionally insects. They range from southern Nevada and Utah, south through western Arizona and eastern California, and along the coasts of the Gulf of California in Sonora and Baja, Mexico (AZGFD 2005d).

Chuckwallas mate from May to June. Females lay a single clutch of 5-16 eggs from June to August, sometimes only every other year. Clutch size increases with female body size. Eggs are laid underground and Chuckwallas live in burrows that they dig themselves (AZGFD 2005d).

Populations in the Study Area: The Chuckwalla is known to occur in the Gila Mountains, south of the project area (AZGFD 2005d). Habitat exists for the Chuckwalla within the project area. It is possible that this species could be found there.

Cowl's Fringe-toed Lizard (*Uma notata rufopunctata*)

Status: The Cowl's Fringe-toed Lizard, also referred to as the Yuman Desert Fringe-toed Lizard and the Sonoran Fringe-toed Lizard, is considered a Wildlife Species of Special Concern by the AZGFD and sensitive species by the BLM (AZGFD 2006).

Background: These lizards are restricted to sparsely vegetated, fine, windblown sand dunes, flats, riverbanks, and washes of arid desert. Typical vegetation consists of creosote bush, burroweed (*Isocoma tenuisecta*), croton (*Croton* sp.), mesquite (*Prosopis* sp.), or other scrubby growth. They are found only in extreme southwestern Arizona and adjacent Mexico, from 160 to 900 feet (49 to 275 meters) (AZGFD 2003d).

The Cowl's Fringe-toed Lizard primarily eats insects, but occasionally other lizards, leaves, flowers, and some buds. Females lay 1 to 5 eggs per clutch. They may lay clutches every 4 to 6 weeks, from May to August, depending upon food availability (AZGFD 2003d).

Populations in the Study Area: The Cowl's Fringe-toed Lizard is found just south of the project area, in the Yuma dune system. It also is found in the Mohawk dune system and Pinta Sands in Yuma County (AZGFD 2003d). There is a low likelihood of this species being present in the project area because habitat, in the form of fine, windblown sand, is unlikely to exist here. The only possible habitat would be in washes, but these areas are probably not extensive enough to support this species.

Great Egret (*Ardea alba*)

Status: The Great Egret is a Wildlife Species of Concern for the State of Arizona (AZGFD 2006).

Background: Great Egrets are wide-ranging aquatic habitat generalists that occupy and utilize a wide variety of aquatic habitat types (AZGFD 2005). In Arizona, Great Egrets are found along riparian drainages, ponds, lakes, reservoirs, agricultural fields, and a variety of other areas where water is to be found on a regular basis. Great Egrets nest communally in mesquite, willow, tamarisk, citrus trees, and date and fan palms.

The Great Egret preys on fish, invertebrates, amphibians, reptiles, birds, and small mammals. Females lay clutches ranging from 1-6 eggs, with both males and females incubating the eggs. Incubation time is around 26 days, and chicks fledge in approximately 50 days.

Populations in the Study Area: Great Egrets are likely to be found year-round along the length of the Gila River, which is directly south of the project corridor. However, Great Egrets are not likely to be found within the project corridor, other than moving through it, due to a lack of standing water. Therefore, there is a moderate likelihood that this species would be found in the project area.

Western Burrowing Owl (*Athene cunicularia hypugaea*)

Status: The Western Burrowing Owl is a BLM Sensitive Species (BLM 2005).

Background: Burrowing Owls inhabit open areas in deserts, grasslands, and agricultural and range lands. They use well-drained areas with gentle slopes and sparse vegetation, and may occupy areas near human habitation, such as golf courses and airports (Dechant et al. 1999; Ehrlich et al. 1988; Terres 1980). Burrowing Owls often select burrows where surrounding vegetation is kept short by grazing, dry conditions, or burning (Dechant et al. 1999; Hjertaas et al. 1995). In Arizona, Burrowing Owls prefer grasslands, creosote bush/bursage desertscrub communities, and agricultural lands (deVos 1998).

Burrowing Owls are semi-colonial and usually occupy burrows excavated by small mammals, often at the edges of active colonies of Black-Tailed Prairie Dogs or Richardson's Ground Squirrels (*Spermophilus richardsonii*). In areas that lack colonial burrowing mammals, Burrowing Owls will use excavations made by other mammals, such as Badgers, Woodchucks, Skunks, Foxes, and Coyotes. They also may use natural cavities in rocks. In addition to the nest burrow, these owls also may use several satellite burrows. Satellite burrows may serve as protection from predators and parasites (Dechant et al. 1999). Occasionally the owls may excavate their own burrows. Burrows may be used for several consecutive years, particularly if nesting sites are limited (Hjertaas et al. 1995). Burrowing Owls will defend the area in the immediate vicinity of their nests but may share their foraging areas with other Burrowing Owls (Dechant et al. 1999).

Populations in the Study Area: Burrowing Owls are known to occur in the vicinity of the project area (AZGFD 2001a). There is a moderate likelihood that this species would be found in the project area.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

Status: The Western Yellow-billed Cuckoo is listed as a Candidate Species under the Endangered Species Act, a Sensitive Species by the U.S. Forest Service, and a Wildlife Species of Concern for the State of Arizona (AZGFD 2006).

Background: Cuckoos inhabit dense, wooded riparian zones and damp thickets with high humidity (AZGFD 2005). In Arizona, cuckoos are largely found along lowland riparian woodlands, where they nest from July to August and remain until mid-September. Cuckoo nests in Arizona are typically located in willows but also have been found in hackberry, mesquite, cottonwood, sycamore, and alder. Females lay a clutch of 2-3 eggs in mid-July and early August, and both males and females incubate them for 9-11 days (Potter 1980). Young are able to fly approximately three weeks after hatching (Hughes 1999). Cuckoos may lay a second clutch of eggs, if the first nesting attempt fails.

Yellow-billed Cuckoos feed on a variety of insects, and their nesting in Arizona typically coincides with seasonally increased abundances of insects. Cuckoos will also occasionally feed on fruit, seeds, and small vertebrates (Ehrlich et al. 1988).

Populations in the Study Area: Yellow-billed Cuckoos are found along the length of the Gila River, which is directly south of the project corridor. However, Cuckoos are not likely to be found within the project corridor, other than moving through it, due to a lack of riparian forests. Therefore, there is a low likelihood that this species would be found in the project area.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Status: The Southwestern Willow Flycatcher is listed as Endangered under the Endangered Species Act, a Sensitive Species by the U.S. Forest Service, and as a Wildlife Species of Concern by the State of Arizona (AZGFD 2006).

Background: The Southwestern Willow Flycatcher is found primarily in lowland riparian woodlands and thickets, where it nests from mid-May to mid-August. Females lay clutches ranging from 1-4 eggs and incubate the eggs for 11-14 days. Chicks typically fledge 10 to 15 days after hatching (Rourke et al. 1999). Several nesting attempts may occur during the nesting season depending upon the success of previous nesting attempts.

Southwestern Willow Flycatchers feed on a wide variety of insects that they glean from the riparian vegetation (DeLay et al. 2002; Drost et al. 1997). Flycatchers will also take prey while on the wing.

Populations in the Study Area: The Southwestern Willow Flycatcher is found locally along the length of the Gila River, which is directly south of the project corridor. However, Southwestern Willow Flycatchers are not likely to be found within the project corridor, other than moving through it, due to a lack of dense riparian forests. Therefore, there is a low likelihood that this species would be found in the project area.

American Peregrine Falcon (*Falco peregrinus anatum*)

Status: This species was federally listed as Endangered in October 1970, and it was delisted in August 1999, after showing significant recovery. The Peregrine Falcon also is considered a Wildlife Species of Special Concern by AZGFD (2006).

Background: The Peregrine Falcon is a rare and irregular transient, winter resident, and post-breeding visitor of the Lower Colorado River Valley (Rosenberg et al. 1991). Peregrines inhabit open wetlands near cliffs, and they also can be found living in cities with tall buildings or bridges (National Geographic Society 1999). They nest throughout Arizona, even at some distance from water (Monson and Phillips 1981). General breeding habitat for this species includes open areas,

from tundra, savanna, and seacoasts to high mountains, as well as open forest and tall buildings (Ehrlich et al. 1988). Its diet is solely comprised of birds, which it catches in mid-air (Phillips et al. 1964). It mostly eats doves and pigeons, but also waterfowl, shorebirds, and passerines (Ehrlich et al. 1992). There are currently no known range-wide threats to the Peregrine Falcon. Recreationists may disturb individual nests, and contaminants may be a problem on the wintering grounds in Central and South America (AZGFD 1996). Severe population losses began in the 1940s, when the use of pesticides caused eggshell thinning in this species (Ehrlich et al. 1992).

The Peregrine Falcon occurs statewide as a migrant, transient, and/or wintering species, but only the *anatum* subspecies breeds in Arizona (AZGFD 1996). It nested at Parker Dam, at least until 1954, and probably also at the Imperial National Wildlife Refuge in 1942 and Topock Gorge in 1953 (Rosenberg et al. 1991). It has been a regular winter visitor in Tucson over the past decade, and it nests at most cliff sites in the Santa Catalina Mountains (Smith 2004). Nesting territories in the Grand Canyon may be in full use, and it is thought that this may explain the decline in the number of American Kestrels there over the last 20 years (Glinski 1998). Summer records include immature sightings northeast of Yuma in 1978 and near Parker in 1979 and an adult in 1982 near Palo Verde. Three Peregrines were seen in migration in 1978 at the Cibola National Wildlife Refuge (Rosenberg et al. 1991).

Populations in the Study Area: This species is not known to occur in the project area (AZGFD 2002b). There is a low likelihood of the Peregrine Falcon being found in the project area, because of a lack of habitat. It would probably only occur in the project area as a transient.

Cactus Ferruginous Pygmy-Owl (*Glaucidium brasilianum cactorum*)

Status: The Cactus Ferruginous Pygmy-Owl is a BLM Sensitive Species and a Wildlife Species of Concern in Arizona (BLM 2005, AZGFD 2006).

Background: The Ferruginous Pygmy-Owl is a tropical species that is widespread through Mexico, Central America, and South America, and in much of its range it is abundant (Terres 1980). It reaches the northern limit of its range in southern Arizona, where it is represented by the subspecies *G. b. cactorum*. This subspecies has apparently declined in numbers, and possibly range, since 1950, and it is now very rare in Arizona (Johnson et al. 2003; Monson and Phillips 1981).

The Cactus Ferruginous Pygmy-Owl can be found in three general categories of vegetation communities (USFWS 2000a and 2000b). These communities include: (1) riparian vegetation with broadleaf gallery forests of cottonwood (*Populus fremontii*), willow (*Salix* spp.), mesquite (*Prosopis* spp.), or other species along a watercourse; (2) Sonoran desertscrub with braided wash systems and mesquite, paloverde, saguaro, ironwood, and other shrubs and cacti; and (3) semidesert grasslands with wooded drainages with mesquite, hackberry (*Celtis* spp.), ash (*Fraxinus* spp.), and a limited number of saguaros.

Pygmy-owls are cavity-nesters, usually using nest cavities excavated and abandoned by woodpeckers. Most recent nests have been in cavities in saguaros, but historically these birds also used cavities in cottonwoods, willows, and mesquite (USFWS 2000a). Nests also have been recorded in cavities in ash (*Fraxinus velutina*) and eucalyptus (*Eucalyptus* sp.). Nest sites may be reused in subsequent years (Terres 1980).

The nesting season for Cactus Ferruginous Pygmy-Owls in Arizona generally lasts from April to June (USFWS 2000a). The incubation period is between 22 and 30 days, and the chicks fledge 21 to 30 days after hatching. Young birds will disperse from the nesting area approximately eight weeks after fledging.

Cactus Ferruginous Pygmy-owls will feed on a wide variety of prey items, including birds, small mammals, reptiles, insects, scorpions, and caterpillars (Terres 1980; USFWS 2000a). They typically hunt from a perch. They are most active at night, but they also are active at dawn and dusk and may even be active during the day (Terres 1980).

The primary threat to Cactus Ferruginous Pygmy-owls in Arizona is the loss of suitable habitat. Main causes of habitat loss are cutting of riparian woodlands, livestock grazing, groundwater pumping, and urban development (USFWS 2000a).

Populations in the Study Area: There are no known locations of Cactus Ferruginous Pygmy-Owls within the project area. The closest occurrence to the project area was detected in 1955 at Cabeza Prieta Tank on the Cabeza Prieta National Wildlife Refuge (AZGFD 2001b). There also is an historic record at Agua Caliente on the Gila River, at the Maricopa-Yuma County line from 1908. Two owls were using a woodpecker hole in a palo verde tree (Gilman 1909). While large trees and saguaros in the proposed project vicinity may provide nesting cavities for the owl, the vegetation does not provide the density and structural diversity that creates habitat for Pygmy-Owl prey species. There is a low likelihood of this species occurring in the project area.

Yuma Clapper Rail (*Rallus longirostris yumanensis*)

Status: The Yuma Clapper Rail is listed as Endangered under the Endangered Species Act and is listed as a Wildlife Species of Concern for the State of Arizona (AZGFD 2006).

Background: The Yuma Clapper Rail inhabits freshwater marshes that have plenty of emergent cover available. The Yuma Clapper Rail's nesting season is from March through August. The male builds the nest in dense shoreline cover and alternate nests may also be built. Females lay clutches ranging from 5 to 8 eggs, and both males and females incubate and care for the young (Eddleman and Conway 1998).

Populations in the Study Area: The Yuma Clapper Rail utilizes freshwater marshes in the lower Colorado River and also exists locally along the Gila River. Since no freshwater marshes are

located in the project corridor, there is a low likelihood of this species occurring in the project area.

Sonoran Pronghorn (*Antilocapra americana sonoriensis*)

Status: The Sonoran Pronghorn was listed as endangered on March 11, 1967 (Federal Register 1967). A draft supplement and amendment to the Sonoran Pronghorn recovery plan was released on September 1, 2001, and is currently under review (USFWS 2003). The AZGFD considers the Sonoran Pronghorn a Wildlife Species of Special Concern (AZGFD 2006).

Background: The Sonoran Pronghorn requires long-range visibility to avoid predators and so lives in open cover, grassland, or grassland with low shrubs, where the vegetation is at a mean height of about 15 inches. It prefers low, rolling, expansive lands of less than 30 percent slope, with about 5 percent being ideal (Howard 1995). While it selects low shrubs for bedding cover, it seeks greater than average height cover for fawning. A water source must be readily accessible.

The Pronghorn is active day and night. Daily movements vary with resource availability, from 0.06 mile to 0.5 mile per day in spring and summer, to 2 to 6 miles per day in fall and winter. Mating territories vary in size from 0.09 to 1.7 square miles, contain a water source, and often have physical boundaries (Gorog 1996).

The Pronghorn diet is variable, depending on resource availability, with a preference for succulent forbs during spring, summer, and fall. Spring is the only season when grasses are heavily grazed. In winter, when forbs are scarce, Pronghorns select the most succulent, high protein browse or grasses. Habitat is greatly enhanced by fire, which increases the number of herbaceous species and reduces shrub cover (Howard 1995).

Threats to the Pronghorn include the Coyote (*Canis latrans*), Bobcat (*Lynx rufus*), Mountain Lion (*Puma concolor*), and Golden Eagle (*Aquila chrysaetos*). Short grasses favor high survival of fawns, while dense tall shrubs provide predator cover and contribute to high fawn mortality. Heavy cattle grazing will convert shrub-grassland to shrubland, resulting in poor fawn habitat. Cattle also occupy prime fawning grounds, displacing birthing areas to less favorable grounds. Removal of water resources will make habitat unsuitable for Pronghorn use (Howard 1995).

Populations in the Study Area: The range of the Pronghorn does not coincide with the project area. The range extends from Mexico, north to I-8, and covers the southeastern quarter of Yuma County, the extreme southwest corner of Maricopa County, and the far western portion of Pima County. Pronghorn are found in the Cabeza Prieta National Wildlife Refuge, Organ Pipe Cactus National Monument, Barry M. Goldwater Range, and possibly the Tohono O'odham Indian Reservation (AZGFD 2002a). There is an extremely low likelihood of this species occurring in the project area.

Spotted Bat (*Euderma maculatum*)

Status: The Spotted Bat is considered a Wildlife Species of Special Concern by the AZGFD. It also is a BLM sensitive species (BLM 2005).

Background: The Spotted Bat is one of the most striking appearing bats in North America. Its contrasting black and white pelage makes it easily distinguishable from any other bat species in the area. The Spotted Bat has the largest ears, in proportion to its body, of any North American species (Barbour and Davis 1969). Records of the Spotted Bat are few compared with other species of bats, and the species is poorly known overall. The Spotted Bat is recorded from southern British Colombia, through the western United States, and south to Queretaro, Mexico (Hoffmeister 1986), but apparently is not found along the Pacific Coast (BCI 2002; Harvey et al. 1999). The species ranges east, as far as Big Bend National Park along the Rio Grande River, in Texas, where cliff-roost habitat is abundant (BCI 2002; Nowak 1994).

Most records indicate that the Spotted Bat has a preference for rocky cliffs, where it roosts in crevices (Harvey et al. 1999). The Spotted Bat evidently prefers crevices in cliffs, but has been recorded from caves, and in buildings (WBWG 2005). This bat has been recorded from a wide range of habitats, but most often in dry desert environments, and from below sea level up to conifer habitat (Nowak 1994; WBWG 2005). There are several records from riparian associations, with or without cliff-roost habitat nearby (Hoffmeister 1986). The Spotted Bat may shift its habitat seasonally, being present at high elevations in the summer, and coming to lower elevations in the winter, where more food would be available (Barbour and Davis 1969).

The Spotted Bat forages in a variety of situations, from open meadows, over desert washes, and above tree level. Based on known records, the diet of the Spotted Bat consists almost entirely of small moths, and only a few other insects have been noted (Harvey et al. 1999; Schmidly 1991; WBWG 2004). Most records indicate that this species is essentially solitary, but they occasionally roost or hibernate in small groups. A single young is produced in May or June (WBWG 2005).

Populations in the Study Area: The Spotted Bat has been collected near Yuma in the past (AZGFD 2003b). However, this species is not known to occur in the project area. There is a low likelihood of occurrence within the project area.

California Leaf-nosed Bat (*Macrotus californicus*)

Status: The California Leaf-nosed Bat is considered a Wildlife Species of Special Concern by the AZGFD. It also is a BLM Sensitive Species (BLM 2005).

Background: The California Leaf-nosed Bat is one of two species in the genus *Macrotus* and is a year-round inhabitant of lowland desert areas of the southwestern United States and northwestern Mexico, including Baja California (Harvey et al. 1999; Nowak 1994). The California Leaf-nosed

Bat is primarily a resident of caves and mines in desertscrub habitat, generally below 3,280 feet in elevation (Barbour and Davis 1969; Hoffmeister 1986). These bats utilize a variety of situations for night roosts, such as open buildings, porches, bridges, rock shelters, and mines (Harvey et al. 1999). They require relatively warm winter roost sites, because they do not hibernate and cannot tolerate temperatures below 60 degrees Fahrenheit for more than a few hours (Hoffmeister 1986).

California Leaf-nosed Bats feed mostly on large night-flying beetles and moths, which they take in flight. They also consume grasshoppers and insect larvae, especially of moths, which they take off of bushes or from the ground. Occasionally they eat fruit, including those of cacti (Hoffmeister 1986). There is evidence that the California Leaf-nosed Bat may utilize the same roost throughout its life (Brown et al. 1993). It does not forage far from its roosts. Several foraging flights are performed during the night, the bat returns to its roost to consume larger prey (Barbour and Davis 1969). Threats to this species include mine closures, vegetation removal, vandalism at roosts, and prolonged exposure to low temperatures (Brown et al. 1993).

Populations in the Study Area: The California Leaf-nosed Bat has been known to occur in the vicinity of the project area (AZGFD 2001d). There is a high likelihood of this bat occurring within the project area, probably during nightly foraging activities. There are known mines in the project area that would constitute roosting habitat.

Cave Myotis (*Myotis velifer*)

Status: The Cave Myotis is considered a Wildlife Species of Special Concern by the AZGFD. It is also a BLM Sensitive Species (BLM 2005).

Background: The Cave Myotis prefers lower elevations in xeric habitats, such as creosote bush or paloverde-mixed scrub plant associations (Barbour and Davis 1969; Hoffmeister 1986). However, the Cave Myotis seldom occurs more than a few miles from a permanent water source (Hoffmeister 1986). The Cave Myotis most often inhabits mines and caves where colonies of several thousand may occur (Barbour and Davis 1969; Harvey et al. 1999; WBWG 2005). Colonies have also been recorded in manmade structures, such as bridges and buildings, and a few individuals, probably males, have been found in abandoned swallow nests (Barbour and Davis 1969; Harvey et al. 1999; Hoffmeister 1986; WBWG 2005).

The Cave Myotis typically leaves its roost 10 to 15 minutes after sunset to find water to drink and to forage on insects, consisting mostly of moths and beetles. Foraging usually lasts approximately ½-hour before the bat retires to a roost site to digest its meal (Barbour and Davis 1969; Schmidly 1991).

Populations in the Study Area: The Cave Myotis has been known to occur in the vicinity of the project area. It has been found about 20 miles north of Yuma near the Colorado River (AZGFD

2002c). There are known mines in the project area that would constitute roosting habitat. Therefore, there is a moderate likelihood of this species occurring in the project area.

Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

Status: The Pocketed Free-tailed Bat is a BLM sensitive species (BLM 2005).

Background: The Pocketed Free-tailed Bat gets its name from a fold on the underside of the interfemoral membrane, which forms a pocket near the knee (Harvey et al. 1999). The Pocketed Free-tailed Bat is normally found in high cliffs in rugged rocky country, but it also has been found associated with buildings (Barbour and Davis 1969; Hoffmeister 1986). The species is uncommon in the United States and reaches its northern limit near the Bill Williams River in west-central Arizona, where a specimen was taken at Alamo Crossing (Harvey et al. 1999; Hoffmeister 1986). The species occurs in the vicinity of Big Bend National Park in Texas, north to Carlsbad Caverns National Park in New Mexico, and has been recorded as far south as the State of Michoacan, Mexico (Barbour and Davis 1969).

The Pocketed Free-tailed Bat is gregarious in nature, but colonies seldom exceed 100 individuals (Barbour and Davis 1969; Harvey et al. 1999; Schmidly 1991). The bats most commonly feed on moths, but they regularly take a variety of other insects, including grasshoppers, lacewings, stinkbugs, crickets, flying ants, flies, and beetles (Harvey 1999; Schmidly 1991).

Populations in the Study Area: The Pocketed Free-tailed Bat has been known to occur in the vicinity of the project area (AZGFD 2003c). There is a low likelihood of this species occurring within the project area.

Desert Bighorn Sheep (*Ovis canadensis*)

Status: The Desert Bighorn has no special status. It is considered a big-game animal by the AZGFD. However, the BLM considers lambing areas for this species to be sensitive (AZGFD 2006)

Background: The Desert Bighorn Sheep is found in precipitous, desert mountain ranges in western Arizona and southern California. These mountain ranges typically feature broken rock, with numerous gullies and relatively sparse vegetation. Water is a critical component of the habitat and may be available in natural rock catchments, springs, and manmade supplemental water tanks. Many of these sources may be dry before the onset of the summer rains, making any remaining sources critical to the survival of the Bighorns (Hoffmeister 1986).

Bighorn Sheep will eat a variety of foods, including fruits and leaves of mesquite, ironwood, paloverde, catclaw acacia, jojoba (*Simmondsia chinensis)*, white brittlebush (*Encelia farinosa*), and fairy duster (*Calliandra eriophylla*). They will use several grass species, including three-awn

(*Aristida purpurea*), big galleta (*Pleuraphis rigida*), fluff grass (*Erioneuron pulchellum*), and bush muhly (*Muhlenbergia porteri*). In the Kofa and Castle Dome mountains, Desert Bighorns also are reported to eat Mormon tea (*Ephedra viridis*), agave (*Agave* spp.), ratany (*Krameria* spp.), desert mallow (*Sphaeralcea ambigua*), bursage (*Ambrosia* spp.), desert thorn (*Lycium* spp.), and woolly plantain (*Plantago patagonica*) (Hoffmeister 1986). Bighorns also will consume succulent plants for both food and water, including saguaro, cholla, prickly pear, and agave. Desert Bighorns will frequently use the high ridges of mountain ranges as lookout sites. High, inaccessible sites also are important for protection from predators during lambing. After the young are a few days old, they are able to follow their mothers and stay with the herd (Hoffmeister 1986).

Populations in the Study Area: Bighorn Sheep are known to occur in the project area (Henry 2005).

Wetlands and Other Water Sources

There are no wetlands or riparian zones within the study area, and there are no natural perennial water sources of any kind within the project study area. All surface hydrologic features consist of seasonally intermittent xeric washes. No wild and scenic rivers were identified near the project area.

Invasive Species (Noxious Weeds)

No noxious weed species were observed during the site visits performed September 2005-October 2006. Disturbance created during construction may contribute to the introduction and proliferation of invasive species. As part of the POD, a noxious weed survey will be performed prior to the start of construction. There is potential for the Sahara mustard (*Brassica tournifortii*) to be found within the study area. The pre-construction surveys for invasive species should be conducted in the spring as recommended by the BLM. Construction equipment would be washed and cleaned at a commercial trucking car wash and be allowed to thoroughly dry before being used on the project. All vehicles used for the project would be similarly cleaned prior to use during construction.

Migratory Birds

A list of migratory birds that could occur within the study area is provided in Appendix C. Potential impacts to migratory birds could include, but are not limited to, loss of nests and nesting habitat through ground clearing and vegetation removal, potential nest abandonment due to noise and construction activity disturbance, death by impact with the transmission lines, and increased perching habitat for avian predators. The project will minimize impacts to all bird species, including migratory birds, by following the Suggested Practices for Avian Protection on

Power Lines (Avian Power Line Interaction Committee 2006) and using existing access roads for construction. The proposed structure design conforms to the Suggested Practices for Avian Protection because the separation distance between phases is already sufficient to prevent electrocution of birds. The project POD will include information on the location of new spur roads for the project, which would be designed to avoid vegetation as much as possible.

Wild Horses and Burros

The project crosses known wild horse and burro herd areas within a designated utility corridor. Impacts to wild horses and burros could include but are not limited to disturbance or temporary restriction of movement through habitat from construction activities, permanent loss of forage material at sites where vegetation is cleared, and temporary loss of forage because of clearing of areas that will later be reclaimed. Impacts would be minimized by paralleling the SWPL 500kV transmission line and using the existing access road for construction.

3.5.2 Environmental Consequences

This section of the EA addresses potential impacts to the biological resources from the construction, operation, and maintenance of the transmission line and related facilities. Potential biological resource impacts and concerns may include (1) the loss of vegetation during construction, (2) effects to wildlife, and (3) impacts to special status species, in particular to the Sonoran population of the Desert Tortoise and Desert Bighorn Sheep. This section provides an assessment of impacts for the study area and biological elements considered in the inventory and assessment.

Proposed Action

Potential habitat that would be permanently lost as a result of this proposed project is negligible. A total of 440 acres would be disturbed during construction activities. Of those acres, 61.9 acres are Bighorn Sheep habitat, 56.6 acres are Category 2 Desert Tortoise habitat, and 15.2 acres are Category 3 Desert Tortoise habitat. 9.3 acres of Category 2 Desert Tortoise habitat, and 2.9 acres of Category 3 Desert Tortoise habitat would be permanently disturbed. Existing access roads would be used throughout the study area.

Longleaf Sandpaper Plant (*Petalonyx linearis*)

This species is known to occur in the project area. Potential impacts to the plant could include physical crushing of the plant by vehicles, machinery, or people. Invasive species introduced by the project could become established and out compete the sandpaper plant. If plants are found in

areas where construction/maintenance activities will occur, then they will be flagged so that they can be avoided.

Kearney Sumac (*Rhus kearneyi*)

There is a low likelihood of this species occurring in the project area; therefore, no impacts on the Kearney sumac are anticipated.

Schott Wire Lettuce (*Stephanomeria schottii*)

There is a low likelihood of this species occurring in the project area; therefore, no impacts on the Schott wire lettuce are anticipated.

Arizona Rosewood (*Vauquelinia californica* spp. *sonorensis*)

There is a low likelihood of this species occurring in the project area; therefore, no impacts on the Arizona rosewood are anticipated.

Desert Rosy Boa (*Charina trivirgata gracia*)

Impacts to Desert Rosy Boas from the construction phase of the proposed project could include the loss of snakes in burrows, during excavations, or on roads by construction traffic in the project area. Many snake species are nocturnal or crepuscular, and construction activities performed during these times are more likely to impact all snake species.

In areas where a biological monitor is present during construction the biologist should check construction areas before any ground-disturbing activities take place on BLM land. This would give the biologist the opportunity to remove any wildlife that is above ground from the area to be disturbed. A walk-around would be performed before moving any equipment that has been parked, looking underneath the equipment for wildlife.

Sonoran Desert Tortoise (*Gopherus agassizii*)

Land clearing and construction activities could directly impact Tortoises by crushing them or destroying their burrows. There also would be temporary impacts to habitats in construction areas. Pre-construction surveys for Tortoises would be conducted as well as having a biological monitor present during construction in areas of BLM land where Tortoise habitat is present. Mitigation efforts would be applied to reach no net loss of quality or quantity of Desert Tortoise habitat in accordance with current BLM policy.

The following mitigation measures for the Sonoran Desert Tortoise are recommended during construction:

- limit vehicles and activity to designated construction areas
- maintain a 20-miles per hour speed limit on the right-of-way
- all dogs in the project area must be on a leash
- all trash must be placed in predator-proof, sealable receptacles
- always check under vehicles and equipment before moving them
- notify the biological monitor of a Tortoise encounter
- only the biological monitor is allowed to handle Desert Tortoises

Additional Sonoran Desert Tortoise stipulations are included in Appendix C, and will be included in the POD. The BLM requires mitigation for Desert Tortoise habitat loss within those areas they designate as habitat. In accordance with these requirements, the proponent will coordinate with the BLM on what, if any, compensation is required.

Gila Monster (*Heloderma suspectum*)

Potential impacts to the Gila Monster from the construction could include destruction of burrows with or without Gila Monsters in residence. During the construction period, there would be heavy traffic, including small and large trucks and other construction vehicles, on the access roads. Any Gila Monsters present on the roads during construction hours would be highly vulnerable to direct mortality from crushing. Other machinery could collapse burrows, both occupied and not. The biological monitor present for the Sonoran Desert Tortoise monitoring would check for the presence of Gila Monsters and remove them from the project site as required.

Arizona Chuckwalla (*Sauromalus ater*)

Impacts to the Chuckwalla could include loss of habitat by removal of boulders or bedrock for tower placement and crushing by construction equipment. There also would be temporary impacts to habitats in construction areas. Construction monitoring for chuckwallas could be extended to minimize impacts to this species. A biologist should check construction areas before any ground-disturbing activities take place. This would give the biologist the opportunity to remove any wildlife that is above ground from the area to be disturbed. A walk-around should be performed before moving any equipment that has been parked, looking underneath the equipment for wildlife.

Cowl's Fringe-toed Lizard (*Uma notata rufopunctata*)

No effects on the Cowl's Fringe-toed Lizard are anticipated because of the low likelihood of it occurring in the project area.

Western Burrowing Owl (*Athene cunicularia hypugaea*)

Potential impacts to Western Burrowing Owls from the construction of this proposed project would include destruction of burrows with or without the owls in residence, resulting in displacement of the birds or mortality. A biological monitor would be present and would conduct surveys prior to construction activities to ensure burrowing owls are safely removed or relocated from the construction area.

American Peregrine Falcon (*Falco peregrinus anatum*)

This species is not known to occur in the project area; therefore, no impacts are anticipated for the Peregrine Falcon. The proposed action would not affect any potential habitat for this species because no potential habitat exists for the Peregrine Falcon in the project area. The Peregrine Falcon could utilize transmission line towers as perching sites; however, it would probably only be present in the project area as a transient.

Cactus Ferruginous Pygmy-Owl (*Glaucidium brasilianum cactorum*)

The Pygmy-owl is not known nor is it expected to occur in the project area; therefore, no effects are anticipated for the Pygmy-owl as a result of this proposed project.

Sonoran Pronghorn (*Antilocapra americana sonoriensis*)

No effects are anticipated for the Sonoran Pronghorn Antelope. There would not be any permanent habitat loss as a result of this proposed project, and disturbance would be temporary. The Pronghorn is not expected to occur in the project area.

Spotted Bat (*Euderma maculatum*)

No effects are anticipated for the Spotted Bat. This species is typically found in crevices in cliffs or in caves or buildings. Roosting habitat is unlikely to be found in the project area. However, it is possible the Spotted Bat could be found here during nocturnal foraging activities. Construction activities would take place during daylight hours, outside of the foraging hours of the bats.

Ground clearing associated with the proposed project would remove a negligible amount of foraging habitat.

California Leaf-nosed Bat (*Macrotus californicus*)

Potential impacts to California Leaf-nosed Bats from the construction of this proposed project would include possible displacement from roost locations due to increased disturbance (noise) from construction. There is potential roosting habitat (mines) for this bat in the project area and it is likely the California Leaf-nosed Bat is found here during nocturnal foraging activities. Construction activities would take place during daylight hours, outside of the foraging hours of the bats. Ground clearing associated with the proposed project would remove a negligible amount of foraging habitat.

Cave Myotis (*Myotis velifer*)

Potential impacts to Cave Myotis from the construction of this proposed project would include possible displacement from roost locations due to increased disturbance (noise) from construction. There is potential roosting habitat (mines) for this bat in the project area and it is likely (if free water sources are present) that the Cave Myotis is found here during nocturnal foraging activities. Construction activities would take place during daylight hours, outside of the foraging hours of the bats. Ground clearing associated with the proposed project would remove a negligible amount of foraging habitat.

Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

No effects are anticipated for the Pocketed Free-tailed Bat. There is no roosting habitat (high cliffs) for this bat in the project area; however, it is possible the Pocketed Free-tailed Bat could be found here during nocturnal foraging activities. Construction activities would take place during daylight hours, outside of the foraging hours of the bats. Ground clearing, associated with the proposed project, would remove a negligible amount of foraging habitat.

Desert Bighorn Sheep (*Ovis canadensis*)

No effects are anticipated for Desert Bighorn Sheep. Sheep may pass through the project area; however, lambing does not occur within the project area. Although the project corridor does not cross lambing grounds, construction activities would be undertaken so as to disturb Desert Bighorn Sheep as little as possible. Specific measures would include not constructing any large fences and not disturbing water sources and/or guzzlers. In addition, all areas of surface disturbance would be reseeded to mitigate impacts on annual forage for the Bighorn.

No Action Alternative

Under the No Action Alternative the proposed project would not be constructed, no biological resources would be affected, and no environmental consequences would occur; however, the purpose and need for the project would not be met.

3.6 SOCIOECONOMICS

This section of the EA addresses socioeconomic conditions within the study area including population, principal economic activities, income and employment, and a discussion of environmental justice related to the construction, operation, and maintenance of the proposed transmission line and switchyard/substation facilities. Section 3.6.1 provides a description of the potential socioeconomic conditions within the study area of the proposed project. Section 3.6.2 provides a description of the potential socioeconomic impacts of the proposed project.

3.6.1 Affected Environment

The Proposed Action would be located in a largely rural, undeveloped area of western Maricopa County, Arizona and eastern Yuma County, 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 (Census 2000). The major industries in the county are services, retail trade, and manufacturing. The nearly 3.1 million residents of Maricopa County comprise a majority (60 percent) of the state's population. The county's population is expected to reach 3,709,506 by 2010 (Department of Economic Security 1997); however, if the current rate of growth is maintained (Table 3-4) the population would be nearly 4.5 million.

Yuma County is located in southwestern Arizona and encompasses 5,561 square miles with a population density of about 29 persons per square mile (Census 2000). The major industries in the county are services, retail trade, public administration, and agriculture. The county's population is expected to reach 171,689 by 2010 (Department of Economic Security 1997); however, if the current rate of growth is maintained (Table 3-4) the population would be nearly 240,000.

TABLE 3-4
PERCENTAGE POPULATION INCREASE FOR SELECTED AREAS 1990-2000

Location	1990	2000	Percent Increase
Arizona	3,665,228	5,130,632	40.0
Maricopa County	2,122,101	3,072,149	44.8
Yuma County	106,895	160,026	49.7

The nearest communities to the proposed route are:

- Town of Buckeye, roughly 16 miles east of the PV Hub
- Community of Tonopah, located about 9 miles north of the PV Hub
- Community of Hyder, located about ½ mile south of the proposed transmission line at Link 50 Milepost 35
- Community of Dateland, located about 9 miles south of the proposed transmission line at Link 50 Milepost 48
- Town of Wellton, located about 5 miles south of the proposed transmission line at Link 50 Milepost 85
- Community of Roll, located about 2 miles south of the proposed transmission line at Link 50 Milepost 76
- Community of Dome, located about ½ mile south of the proposed transmission line at Link 50 Milepost 99
- City of Yuma, located about 5 miles southwest of the North Gila Substation

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 for the Buckeye MPA indicate a population of 28,144 by the year 2010 (Department of Economic Security 1997). The 2000 population for the Town of Buckeye was 8,497 (corrected count, Department of Economic Security 2001), and 11,955 in 2002 (Arizona Department of Commerce 2004). The Tonopah community has a population of approximately 1,200 and shares similar employment opportunities with the Town of Buckeye. Both communities are within commuting distance to the Phoenix metropolitan area, which offers a greater diversity of employment opportunities. The communities of Hyder and Dateland are part of the Yuma County Dateland/East County Planning Area. This area contains over 861 square miles, and has a population of approximately 811 persons (Yuma County 2001). The town of Wellton and the communities of Roll and Dome are part of the Yuma County Dome Valley/Wellton Planning Area. This area contains over 404 square miles, and has a population of approximately 3,556 persons (Yuma County 2001). These communities are within commuting distance to the Yuma metropolitan area, which offers a greater diversity of employment opportunities. The City of Yuma contains over 110 square miles. Population projections for the city indicate a population of 81,836 by the year 2010 (Department of Economic Security 1997). The 2000 population for the City of Yuma was 77,515 and 81,605 in 2003 (Census 2003).

Residential development in the study area is primarily located along the Mohawk Canal in the Mohawk Valley, north of the Town of Wellton. Another pocket of residential development also

occurs within the study area in the Dome Valley. Residential development in the Arlington Valley, northeast and east of the PV Hub, falls outside the study area.

Principal Economic Activities

Tonopah and Buckeye historically have been agricultural communities; however, the Town of Buckeye has numerous residential communities planned for development. Agriculture is the predominant employer in Buckeye; however, local power plants and a Department of Corrections prison also are major employers (Arizona Department of Commerce 2004). The PVNGS also plays a major role in the local economy and work force of this area. The facility has an estimated 2,800 permanent on-site employees. Other key developments within the study area include the power plant facilities at Redhawk, Arlington, and Mesquite in the PV Hub. Supporting generation also is a key development component of this area with the location of the Hassayampa Switchyard south of the PVNGS and numerous transmission lines including the Palo Verde–Devers No. 1 and Harquahala–Hassayampa 500kV transmission lines in the eastern portion of the study area.

In addition to electrical generation and transmission facilities, the Town of Buckeye and the surrounding area is a leading producer of Pima cotton. Other area employment includes Wal-Mart (bulk storage and packaging) and Schult Homes (manufactured housing) (Arizona Department of Commerce 2004).

Hyder, Dateland, Wellton, Roll, and Dome also have historically been agricultural communities, and continue to be so; however, the Town of Wellton has several residential communities planned, including commercial areas and several golf courses. Agriculture is still the predominant employer (Yuma County 2001). Other area employment includes retail trade, and transportation and warehousing (Census 2000).

The City of Yuma is the third fastest growing community in the United States. Historically, the area has supported an agricultural base that is still active in the rural areas of Yuma County. There are many residential and commercial developments planned for the city, and the more urban sections of Yuma County. The city is also the home of many military employees and families because of the nearby military installations. Major employers include U.S. MCAS, U.S. Army YPG, Yuma County, Yuma Elementary School District, and Yuma Regional Medical Center. Major agricultural employers include Dole Corporation, Salyer American Fresh, and Growers Company, Inc. (City of Yuma Chamber of Commerce 2005).

Income and Employment

Data collected from the Town of Buckeye indicate an unemployment rate for the area of 11.3 percent in 2003. The unemployment rate for Maricopa County was 4.9 percent for the same

period. The median household income for the Town of Buckeye was $35,383 in 2002 compared to $45,776 for Maricopa County during the same time period.

The City of Yuma had an unemployment rate of 17 percent in 2001. The unemployment rate for Yuma County was 24.4 percent for the same period. The median household income for the City of Yuma was $35,374 in 2000 compared to $32,182 for Yuma County during the same time period.

Environmental Justice

Presidential Executive Order 12898 (EO 12898), regarding "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires that each federal agency identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations.

According to figures from the 2000 Census, the demographics for the Town of Buckeye were 70.9 percent White, 24.3 percent Hispanic, 2.9 percent black or African-American, 1.4 percent American Indian, 0.5 percent Asian/Pacific Islander, and 0.1 percent other races. Maricopa County recorded 66.2 percent White, 24.8 percent Hispanic, 3.5 percent black or African American, 2.1 percent Asian, 1.5 percent American Indian, 1.6 percent two or more races, and 0.3 percent other races. The City of Yuma recorded 68.3 percent White, 3.2 percent black or African American, 1.5 percent Asian, 1.5 percent American Indian, 21.6 percent some other race, and 3.9 percent two or more races. 45.7 percent (among all races) consider themselves of Hispanic ethnicity. Yuma County recorded 68.3 percent White, 2.2 percent black or African American, 0.9 percent Asian, 1.6 percent American Indian, 23.6 some other race, and 3.2 percent two or more races. 50.5 percent (among all races) consider themselves of Hispanic ethnicity.

3.6.2 Environmental Consequences

Proposed Action

The primary effects to socioeconomics associated with the Proposed Action include the construction period and fiscal impacts to local jurisdictions. In general, surrounding communities would likely experience an increase in employment and income from the proposed project construction. Any local hiring would primarily be laborers and depend on the skills of individuals. Other social impacts would include potential short-term impacts from the influx of construction workers such as short-term housing or motel use. Long-term impacts could include economic effects of operation and maintenance activities and tax revenue from easements through federal, Arizona State Trust land, and private land in Maricopa and Yuma counties.

Public contact activities that occurred to ensure that appropriate notification of the proposed project was provided are described in Chapter 5.

Impacts on Minority and Low-Income Communities

No disproportionately high or adverse environmental impacts on minority or low-income communities in surrounding areas are anticipated to occur from the Proposed Action. The proposed project could potentially provide jobs to minority and low-income communities and positive economic effects associated with tax revenues.

No-Action Alternative

Under the No-Action alternative, the proposed project would not be constructed; however, the purpose and need for the project would not be met and ability to meet the demand for electrical transmission in developing areas in the greater Yuma metropolitan area would be compromised. Selection of the No-Action alternative would result in a loss of economic and employment benefits and tax revenues associated with the proposed facilities and future electrical generation.

3.7 EARTH AND WATER RESOURCES

This section of the EA addresses earth and water resources including geology, soils, hazardous and solid wastes, and surface and ground water resources related to the construction, operation, and maintenance of the proposed transmission line. Section 3.7.1 provides a description of the affected earth and water resources environment for the proposed project. Section 3.7.2 provides a description of the potential impacts to earth and water resources.

The proposed project area is located in part of the Basin and Range physiographic province (Fenneman 1931). The Basin and Range is characterized by generally steep, sub parallel, discontinuous mountain ranges which trend northwest to southeast separated by broad, gently sloping to nearly flat, deep alluvial basins. The mountain ranges are formed of Precambrian to Tertiary igneous, metamorphic, and sedimentary rocks. Mineral resources occur in various portions of the study area, at surface and sub-surface level.

The soils in the project area are quite variable due to differing sources, relief, organic material, and degree of weathering. The soils typically include loams, sandy loams, and clayey loams in the alluvial valleys. Gravelly or sandy loams often occur in the steep hills and mountainous portions of the area, while eolian deposits of sand, fine sand, and silt form sand dunes in other areas. Erosion hazards also are quite variable due in part to the physical and/or chemical characteristics of the soil and slope.

The issues of concern to earth resources include increases in soil erosion, loss of soil productivity because of construction and maintenance activities, and loss of prime farmland under agricultural production. Disturbance of soils prone to erosion may result in broad areas of increased erosion. Loss of soil productivity may result from increased erosion or from over-compaction of soils by heavy construction equipment. Areas designated as prime or unique farmland may be taken out of agricultural production due to right-of-way location or placement of transmission line towers. Other issues of concern include loss of access, loss of known mineral resources, or loss of unique geologic features. Mitigation measures are expected to eliminate or reduce potential adverse impacts, as described in Appendix A.

The inventory for earth resources was conducted from September 2005 through November 2006. The inventory is based on literature research; conversations with agency resource specialists; and data provided by various federal, and state agencies. Inventory data were mapped on the 1:175,000 scale project base map, using a 2-mile-wide centerline corridor, and/or discussed in the text of the report. Information included general geology, known mineral resources, unique geologic features or areas, soils and their erosion hazard potential, and prime or unique farmland. This information was used to describe the proposed project area and to assist in determining a preferred alternative route.

3.7.1 Affected Environment

Geology

Southern Arizona is part of the Basin and Range physiographic province. The area includes generally northwest-southeast trending mountains consisting of Precambrian intrusive, metamorphic, metasedimentary and metavolcanic rocks; Jurassic granitic rocks; Tertiary to Cretaceous granitic and granitoid rocks; Tertiary volcanics and sedimentary rocks; and Pliocene and Holocene basalt flows. The intermontane valleys are formed of thick alluvial deposits, mostly silts, sands, clays, and gravels. Basalt flows occur on the Sentinel Plain near Hyder.

The Webb Mining District of the Gila Bend Mountains in Maricopa County had production of copper, gold, and silver from 1935 to 1951. According to BLM files (1993a), active unpatented claims occur in several sections along the route in the Gila Bend Mountains.

Yuma (including LaPaz) County was one of the earliest important mineral-producing areas in Arizona. There are numerous large and small mining and placer operations which were first found and prospected during the mid and late 1800s. The area contains numerous and varied occurrences and deposits of metalliferous and nonmetalliferous minerals.

The proposed project crosses or is adjacent to the Muggins, Vinegarroon, Laguna, and Dome mining districts. Copper, gold, lead, silver, tungsten, molybdenum, uranium, thorium, and vanadium are some of the mineral resources occurring in these districts. The Muggins Mountains were first prospected in the 1860s and placer deposits yielded considerable gold and silver prior

to 1900. Most of the area was withdrawn for military purposes so production ceased around 1942. A U.S. Geologic Survey (1984) study of the Muggins Mountains completed for the BLM, based on geologic and geochemical data, indicates a low potential for metallic minerals and a moderate potential for uranium and thorium in three small areas in the southeastern portion of the Muggins Mountains. The Laguna Mountains were prospected prior to 1865 until recently, but were most productive prior to 1900. Gold, silver, and copper were extracted from the area prior to military withdraw. Some gold, silver, and copper were recovered from the Dome district at the northern part of the Gila Mountains (Keith 1969, 1978a, b; Keith and others 1983; McCrory and others 1965). There are abundant sand and gravel resources along the route. Borrow pits for aggregate occur in the area primarily due to the construction of I-8. Also, there is a reported occurrence of copper near the town of Growler (BLM 1993).

Oil and gas exploration continues in the Yuma area. Several significant exploration wells drilled since 1980 in the San Luis-Fortuna Basins near Yuma have a total depth of approximately 5,000 to 9,000 feet. These holes were dry and have been abandoned. The geometry, location, and stratigraphy of these basins indicate they may have formed adjacent to the very prolific Los Angeles, Ventura, and other California Miocene-Pliocene marine basins, which were subsequently displaced northward along the San Andreas Fault system to their present positions. Exploration continues in the Yuma area (Nations and others 1989). The area along the Gila River from near Hyder and Agua Caliente to near Wellton is considered as prospectively valuable for oil and gas (BLM 1993b).

Soils

The soils in the project area are quite variable because of differing interactions of the major soil-forming factors. These factors include parent material, climate, relief, plants and animals, and time. Parent material is chemically or physically weathered to produce soil material. The composition of the original rock greatly influences the physical properties of a soil. Climate affects soil formation by differences in precipitation and temperature. Relief controls water runoff and drainage and therefore affects the rate of weathering processes. Plants, animals, insects, bacteria and fungi affect the formation of soils by increasing the organic matter content of the soils, producing gains or losses in plant nutrients, and changing structure and porosity. The amount of time available for a soil to form in unconsolidated sediment of a parent material affects the physicochemical characteristics of the soil.

The erosion potential of a soil is the result of several factors including slope, vegetation cover, climate, and the physical/chemical characteristics of the soil. The erosion hazards of slight, moderate, high, and severe have been determined by the National Resource Conservation Service (NRCS) and are used to indicate how susceptible soils are to increases in erosion rates due to disturbances by vehicles and construction activity.

The soils in the project area have been mapped by associations by NRCS. Detailed soil surveys are available for most portions of the alternative routes. Soils mapped by association include soil

series that typically occur together and have similar physical and chemical properties, as well as similar relief, erosion hazard potential, and vegetation cover. Erosion hazards have been determined by NRCS and are used to predict a soils susceptibility to accelerated erosion when disturbed.

Twenty-nine soil associations have been mapped in the project area. These soil associations and their erosion hazards are given in Table 3-5. Descriptions of the soil associations are based on NRCS descriptions (NRCS 1974; 1977; 1980a, b; 1981).

TABLE 3-5
SOIL EROSION HAZARDS BY ASSOCIATION

Soil Association	Erosion Hazard*	
	Wind	Water
Antho-Valencia	S	M
Badland-Carsitas	S	M-H
Carsitas-Myoma-Carrizo	M-H	S-M
Casa Grande-Harqua	-	S
Cherioni-Gachado-Rock Outcrop	S	M
Cherioni-Rock Outcrop	-	S
Chuckwalla-Badland	S	M-H
Gilman-Coachella-Indio	M-H	S
Gilman-Estrella-Avondale	-	S-M
Holtville-Antho	M-H	S
Holtville-Gadsden-Kofa	M	S
Imperial	-	S
Imperial-Holtville-Glenbar	M	S
Indio-Ripley-Lagunita	M-H	S
Laposa-Rock Outcrop	-	M
Laveen-Coolidge	-	S-M
Ligurta-Cristobal-Carrizo	S-M	M-H
Meloland-Vint-Indio	M-H	S
Myoma-Indio-Gilman	M-H	S
Niland-Imperial	H	S
Niland-Imperial-Carsitas	M-H	S-M
Rillito-Gunsight-Pinal	-	S-M
Rositas	H	S
Rositas-Dunes	H	S
Rositas-Superstition	H	S
Torriorthents-Rock Outcrop Complex	-	M
Torriorthents-Torrifluvents Complex	M-H	S
Torripsamments-Torrifluvents Complex	M-H	S
Tremont-Harqua-Rositas	M-H	S

*S=slight M=moderate H=high
Source: NRCS 1974, 1977, 1980a and b, 1981)

Prime farmland is defined by NRCS as "land that is best suited to producing high crop yields for food or fiber due to soil quality, length of growing season, and water supply." Prime farmland produces the highest yields with minimal energy and economic resources, causes the least

disturbance to the environment, and is considered a valuable resource that is to be protected. Prime farmland is addressed as part of the Farmland Protection Policy Act of 1981, as amended. No portions of the proposed project cross areas considered prime or unique farmland.

Water Resources

Surface Water

An arid environment with infrequent rainfall characterizes the study area. The Lower Gila watershed encompasses both the western and eastern portions of the study area. Before connecting to the Colorado River, the entire Gila watershed drains nearly 57,900 square miles, of which 8,200 square miles are within the Lower Colorado River Planning Area. Central and northern portions of the Lower Gila watershed are drained by the Gila River, while the southern portion drains southward into the Sonoyta watershed in Mexico (Arizona Department of Water Resources [ADWR] 2004).

The Gila River is the study area's principal drainage body. The river is mostly ephemeral, flowing only during events of precipitation, or dam releases. The river's direction of flow is from Painted Rock Dam northwest of Gila Bend towards the southwest, until it exits the basin just west of Dome, Arizona (ADWR 2004).

Areas subject to notable flood hazards are delineated by the 100-year floodplain. The Federal Emergency Management Agency has delineated the 100-year floodplain within the study area.

Groundwater

The Lower Gila Basin comprises the project area and can be divided into two groups, the eastern and western regions, and is discussed below.

From Painted Rock Dam to Dateland, alluvial plains within the Gila River floodplain characterize the eastern reaches of the Basin. The main aquifer is situated within the sand and gravel lenses of the alluvial plain basin-fill sediment. Inside the basin-fill sediment are three separate units: an upper sandy unit (200 feet to 380 feet thick), middle fine-grained unit (250 feet to 750 feet), and lower coarse-grained unit (extending to bedrock). In the eastern project area, the middle fine-grained unit does not provide a reliable source of groundwater, although some private wells and low-producing wells have been constructed. While most groundwater is found in an unconfined state, interbedded lava flows and layers of clay confine groundwater in localized areas. Groundwater in this eastern basin area is typically used for agricultural purposes. Recharge comes mainly from runoff, washes, and the Gila River floodplain (ADWR 2004).

In the western part of the project area the Gila River floodplain is the main region of groundwater development. Within this region, streambed alluvium contains the main aquifer.

The structure of the aquifer consists of "an upper sandy unit, 20 to 80 feet thick, consisting of alternating silt, sand, and gravel beds, and a lower gravel unit, 10 to 70 feet thick" (ADWR – Leake and Clay 1979). Under the alluvium, a fine-grained composite of clay, silt, and fine-sand lenses exists, providing insufficient water for irrigation wells. The lack of wells in this area makes it difficult to predict prospective groundwater resources. This western portion of the floodplain exhibits groundwater movement towards the Gila River from adjoining plains and valleys. Groundwater recharge comes mainly from the infiltration of irrigation water. Other recharge sources are upstream and side-valley subsurface flow, rainfall, and a negligible amount of infiltration from Gila River flow (ADWR 2004).

3.7.2 Environmental Consequences

Geology

Based on the assessment of the earth and water resources inventory, impacts to geology, unique geologic features, and known mineral resources are not anticipated. No unique geologic features were noted along the alternative centerline corridors. Although there are known mineral resources and potential mineral resources in the vicinity of the proposed route, no adverse impact is expected.

Soils

Increases in soil erosion rates may occur during construction and maintenance, particularly in areas where the soils are susceptible to wind and/or water erosion.

Direct impacts to soils include increases in soil erosion rates as a result of disturbance during construction and compaction of soil by heavy construction equipment. Generally, construction activities would result in increases in soil erosion, especially when vegetation is removed or when soils are over-compacted so that revegetation is difficult and the ground surface remains exposed. Increased soil erosion may also cause an increase in turbidity in nearby streams and rivers. The level of impact is based on the level of ground disturbance for construction access and the erosion hazard potential for the soil unit mapped along the proposed centerline. Although vegetative cover in the study area is sparse, the quantities of runoff generated are low because of the small amounts of rainfall received in the area.

Indirect impacts due to soil erosion include potentially affecting aquatic animal and plant life in streams due to increased turbidity of the water. Also, with increased soil erosion, more vegetation may be lost thereby affecting the amount of food available for animals in the area. Erosion may also affect the plants by reducing the revegetation potential due to a decrease in the number of plants in the area. With additional loss of vegetation cover, the effect of soil erosion may even extend beyond the project area. Increased soil erosion may also affect tower stability if proper revegetation/reclamation measures are not used.

The erosion hazard potential of a soil is the result of several factors including slope, vegetation cover, climate, and the physical/chemical characteristics of the soil. The erosion hazard designations of slight, moderate, high, and severe have been determined by the NRCS, and are used to indicate how susceptible soils are to increases in erosion rates due to disturbances such as construction and other project-related activities. The POD will include an erosion and sediment control plan.

Water Resources

Impacts to water resources are expected to be minimal and short term. Standard construction and operating procedures and mitigation measures include spanning washes where possible, using existing access roads, limiting surface disturbance, and restoring vegetation to the extent practicable. The POD will include a storm water pollution prevention plan (SWPPP) for the proposed project to ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water. The proposed project will have minimal impacts on groundwater resources.

Hazardous and Solid Wastes

Construction of the transmission line may create construction wastes, which would be disposed of in accordance with the project POD. The POD will include a hazardous materials management plan addressing storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. Surface contamination could occur, resulting from accidental spills of petroleum and other potentially hazardous materials used in construction activities. The POD will also include a spill prevention and response plan identifying where hazardous materials and wastes are stored on site, spill prevention measures to be implemented, training requirements, appropriate spill response actions for each material or waste, the locations of spill response kits on site, a procedure for ensuring that the spill response kits are adequately stocked at all times, and procedures for making timely notifications to authorities. The potential for soil contamination is reduced by requiring prompt removal of petroleum and other hazardous materials.

The POD will also include a waste management plan to address solid and liquid wastes that may be generated at the site, waste storage locations, disposal requirements, inspection procedures, and waste minimization procedures.

No-Action Alternative

Under the No-Action alternative, the proposed project would not be constructed, no earth and water resources would be affected, and no environmental consequences would occur; however, the purpose and need for the project would not be met.

3.8 HEALTH AND SAFETY

This section of the EA addresses health and safety issues including air quality and noise resources related to the construction, operation, and maintenance of the proposed transmission line. Section 3.8.1 provides a description of the affected air and noise resources for the proposed project. Section 3.8.2 provides a description of the potential impacts to air and noise resources. No other health and safety impacts are anticipated to the human environment as a result of the implementation of the Proposed Action.

3.8.1 Affected Environment

Air Quality

The proposed route crosses the low desert region of Arizona which is characterized by hot dry summers and cool dry winters. Large daily and seasonal temperature variations occur because of the coastal mountain ranges that prevent marine air from entering the low desert. Temperature and precipitation measurements are recorded at the two meteorological stations located at Buckeye and Yuma, Arizona. Average daily minimum temperatures vary from 35 to 42 degrees Fahrenheit at the two stations in January and December. Average daily maximum temperatures range from 107 to 109 degrees Fahrenheit at the two stations in July.

Precipitation is infrequent, resulting from occasional storm systems during the winter and summer. The annual average rainfall amounts for the project area are 2.65 at Yuma, and 6.95 inches at Buckeye.

Prevailing wind direction in the area is southwesterly. Surface winds are light and variable, with no major seasonal variations in velocity or direction. Wind speeds are recorded at PVNGS; annual averages range from 6.2 miles per hour at PVNGS. Visibility values are normally high, and fog is extremely rare throughout the project area.

Standards and regulations for primary and secondary federal air quality allowances, monitoring, and permitting for the pollutants of concern are established under the Clean Air Act of 1970, and the 1977 and 1990 amendments. Ambient air quality within the project area is measured by the attainment status for pollutants, determined by monitoring levels of criteria pollutants against the National Ambient Air Quality Standards (NAAQS). Criteria pollutants considered are carbon monoxide, lead, ozone, sulphur dioxide, nitrogen dioxide, and particulate matter. Arizona follows the NAAQS.

The data show that particulates and ozone are the pollutants of greatest concern in the project area. PM_{10} is the term used to describe particulate matter suspended in the air that is less than 10 microns in diameter, and is in non-attainment for Maricopa County for both federal and state standards. Portions of the proposed project route exceed federal and state standards for ozone. Carbon monoxide and nitrogen dioxide vary in their attainment status. Sulphur dioxide is the

only criteria pollutant considered in attainment with federal and state standards for the project area.

Class I attainment designation is given to national parks or larger wilderness areas (exceeding 5,000 acres) that meet specific qualifying criteria under the federal Preservation of Significant Deterioration program. These areas are considered to be pristine areas set aside for preservation and, therefore, are assigned maximum air quality degradation increments. The only Class I area in the vicinity of the project route is the Kofa National Wildlife Refuge, located approximately 25 miles northeast of Yuma. Additionally, the Proposed Action is located adjacent to two Class II Wilderness Areas, the Muggins and Signal Mountain Wilderness Areas. The project study area is approximately 40 miles west of the Phoenix metropolitan non-attainment area (for carbon monoxide, ozone, and PM_{10}), and crosses into the Yuma non-attainment area (PM_{10}) at the western end of the proposed project.

The proposed project is not expected to have any adverse impact on Class I or II air quality related values such as visibility, wildlife, or vegetation. The source of any pollution within the proposed project area is from naturally occurring blowing dust or long-range pollutants from distant areas such as the Phoenix or Yuma metropolitan area.

Noise

Ambient noise in the study area is minimal with intermittent noise from passing vehicles primarily on U.S. 95, Hyder Road, Palomas Road, Agua Caliente Road, and Dome Valley Road.

Corona represents power loss on the transmission line and creates transmission line noise. Audible noise created by corona discharge along the transmission line is directly related to the amount of corona, which is in turn affected by meteorological conditions (most notably rain).

3.8.2 Environmental Consequences

Proposed Action

Construction activities would result in fugitive dust emissions due to earth-moving activities at the transmission structure and switchyard sites. In addition, vehicular travel and operation of construction equipment would generate engine exhaust emissions. Emissions would be managed to comply with applicable federal, state, and local requirements. Fugitive emissions would be reduced through the use of watering and/or surface stabilization measures as required to comply with Maricopa and Yuma County regulations, and BLM requirements. There would be no measurable air emissions associated with operation of the line.

Historical noise measurements along transmission corridors in similar settings (open desert) have shown normal ambient audible noise levels in the range of 43 to 52 decibels (dB), A-weighted

with an average value of 50 dB, A-weighted (USDI 1980). The transmission line noise would normally be inaudible at the edge of the right-of-way during fair weather. Considering the relatively few hours of audible noise producing weather, the location of the transmission line with respect to neighboring land uses, and the calculated audible noise levels during foul weather, minimal audible noise impacts are expected.

Sound levels are specified at the time of purchase of the switchyard equipment. The design of the substation would be such that the hum generated by the transformers would be in compliance with the sound level required by industry standards, governing regulations, and local ordinances.

No-Action Alternative

Under the No-Action alternative, the proposed project would not be constructed, no air and noise resources would be affected, and no environmental consequences would occur; however, the purpose and need for the project would not be met.

CHAPTER 4
CUMULATIVE IMPACTS

4.1 INTRODUCTION

Cumulative impact, as defined by the Council on Environmental Quality (40 CFR 1508.7), is the impact on the environment that results from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts are interdisciplinary, multi-jurisdictional, and usually do not conform to political boundaries.

To determine the cumulative effects in the analysis area, past, present, and future actions were evaluated. In addition, the analysis focused on meaningful effects related to the long-term productivity of the resources analyzed. Impacts to vegetation, soils, wildlife habitat, cultural resources, grazing, and dispersed recreation are accounted for by activities that take place within the analysis boundary. The cumulative impact analysis area for this proposed project is defined for the resource being analyzed. Table 4-1 (at the end of Chapter 4) describes the activities (existing and proposed) that may cumulatively affect resources of concern for the PV Hub to North Gila 500kV Transmission Line Project.

4.2 FINDINGS

The Proposed Action involves one single-circuit 500kV transmission line, which would originate from the PV Hub at the Arlington Valley Energy Facility, Hassayampa Switchyard, or Redhawk Power Plant, and would connect into the North Gila Substation site, located approximately 5 miles northeast of Yuma. The right-of-way would be approximately 200 feet in width and approximately 110 to 112 miles in length. The proposed 500kV transmission line would cross BLM, Reclamation, ASLD, DOD, and/or private land. On BLM land, the proposed project would be located within a 1-mile-wide BLM-designated utility corridor.

4.2.1 Past, Present, and Future Development

To determine the cumulative effects in the study area, past, present, and future actions within the same geographic region were evaluated. These actions predominantly include transmission lines, generation facilities, other utilities, transportation, and future residential, agricultural, and industrial development projects.

Numerous existing linear features, including transmission lines, power distribution lines, pipelines, and other such facilities, are located throughout the project area. The existing linear facilities of most significance that would be paralleled by the proposed route are listed below.

- SWPL 500kV transmission line
- Kinder-Morgan 20-inch petroleum products pipeline

- UPRR
- Several MCI buried fiber-optic lines

Within the BLM-designated utility corridor that includes the SWPL 500kV transmission line, the Proposed Action is the only transmission line or utility currently planned for the corridor.

4.2.2 Summary of Cumulative Impacts

The discussion of the potential cumulative impacts of the proposed project to the categories of resources is provided below. The incremental impact of the Proposed Action would be minimal when added to other past, present, and reasonably foreseeable future actions. The proposed project would not contribute substantially to cumulative impacts on the environment. In addition, Table 4-1 contains a list of past, present, and future activities that may cumulatively affect resources of concern for the Proposed Action.

Land Use

Cumulative impacts to land uses are anticipated to be minimal with the addition of the Proposed Action. The proposed project would be developed primarily on vacant/undeveloped land within the study area. Small areas of rangeland used for grazing and forage, agricultural lands, and mining could be permanently removed from production by tower foundations and spur roads, where necessary. The total area lost from production would be small in the context of the region. The proposed transmission line would be installed within a BLM-designated utility corridor (1 mile wide) on public lands administrated by BLM, thus consolidating transmission lines in a planned location, which is consistent with the Lower Gila South and Yuma District RMP's.

Visual

Cumulative visual impacts would increase, with effects on views from residences, recreational areas, and highways, as well as on natural scenic quality. The first transmission line or industrial linear feature (e.g., the SWPL 500kV 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, such as the Proposed Action, becomes less noticeable than the first; however, the new combination of all the changes (e.g., form, line, color, and texture) is more evident. Existing access would be used to the maximum extent possible for the proposed project in the existing SDG&E Interconnection Designated Utility Corridor, which would reduce exposing lighter colored surface and vegetative removal associated with the development of new access. Applied mitigation that would be effective in reducing visual impacts would include the reclamation of areas disturbed by construction-related activities.

Cultural Resources

Construction of the Proposed Action would directly affect archaeological sites within the corridor. Specific impacts to the archaeological sites will not be fully known until the detailed engineering and design for the transmission line has been completed. While most impacts can be avoided through careful placement of tower locations, there would still be five sites where impacts are unavoidable. The impacts to these five sites may be mitigated through the development of the HPTP. Cumulative damage to cultural resources could result over time from repeated incremental damage caused by motorized vehicles, such as off-highway 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 areas by off-highway vehicle recreationists, due to new access roads. However, the Proposed Action may only potentially require new access roads in selective areas within the Muggins and Laguna mountains, therefore minimizing cumulative impacts to cultural resources. The presence of multiple transmission lines likely would not contribute measurably to this type of a cumulative effect more so than a new single transmission line.

Biology

Cumulative biological impacts generally would be additive, and usually directly proportional to the amount of ground disturbed. Cumulative effects also depend, to some extent, on whether or not construction activities for the Proposed Action are concurrent or overlapping other future projects (see Table 4-1). If construction occurs concurrently, a higher volume of traffic may result, and possibly greater amounts of ground disturbance (erosion, etc.) would occur. Overlapping activity, conversely, may create disturbance to wildlife for a longer period of time, resulting in prolonged or permanent displacement of wildlife from crucial habitats.

Within BLM-designated utility corridors, access roads may serve more than one line and would therefore minimize ground disturbance and the amount of increased access in some areas. Cumulative impacts associated with the SWPL 500kV transmission line and the Proposed Action in one corridor would likely produce impacts that are of a slightly higher degree and possibly longer duration.

Socioeconomics

If the Proposed Action were built, a cumulative beneficial impact to the greater Yuma area, including increased availability of electricity and revenues realized due to construction activities and property tax revenues, would result. Cumulative impacts to socioeconomics generally only would be a concern if they were to over-extend public services and accommodations in the project area.

Earth and Water Resources

It is anticipated that the cumulative effects on earth and water resources would not be measurably different from the additive effects of the Proposed Action. The potential for wind and water erosion could be increased by the proposed project. Ground disturbance would be, in general, incrementally less when paralleling existing transmission lines, associated access roads, railroads, and/or pipelines. Mitigation measures including landscape reclamation, and an erosion and sediment control plan would be implemented for areas disturbed during construction, minimizing ground disturbance.

Health and Safety

It is anticipated that the power transmitted over the proposed transmission line would come from existing capacity generated in the PVNGS region. A potential indirect cumulative impact associated with the transmission line is increased emissions from existing federally and state-permitted natural gas fueled power plants, such as those listed in Table 4-1.

With the addition of the Proposed Action, cumulative impacts associated with corona-generated audible noise would be additive, but not double the level of the SWPL 500kV transmission line. The increased noise levels from the Proposed Action may be discernible. Although noise may be audible during wet-weather conditions, transmission line noise would most often be masked by naturally occurring sounds at locations beyond the right-of-way.

TABLE 4-1
PROJECTS LIST - CUMULATIVE EFFECTS

Activities	Location/Description	Status
Proposed Action – PV Hub to TS-5 500kV Transmission Line		
PV Hub to North Gila 500kV Transmission Line	A proposed 500kV transmission line from the PV Hub to the existing North Gila Substation, 5 miles northeast of Yuma, AZ	Future
Future Utilities/Public Services/Infrastructure		
PV Hub to TS-5 500kV Transmission Line	The 500kV transmission line would connect the PV Hub to the planned TS-5 Substation along the Central Arizona Project Canal west of 291st Avenue and north of the Beardsley Road Alignment, with an optional interconnection at the proposed Harquahala Junction Switchyard	Future
Proposed Palo Verde–Devers No. 2 500kV Transmission Project	The 500kV transmission line would connect at the Harquahala Generation Plant Switchyard, the planned Harquahala Junction Switchyard, or the PVNGS Switchyard and terminate at the Devers Substation, immediately north of Palm Springs, California	Future
San Luis Rio Colorado 500/230kV Line Project	A proposed double-circuit 500/230kV transmission line from San Luis Rio Colorado, Sonora, Mexico, to the North Gila Substation	Future
Gas Refinery	A proposed gas refinery located near Dateland/Aztec	Future
Proposed West Valley North 230kV Transmission Line Project	The 230kV transmission line and substation would be located on the east and north side of the White Tank Mountains and terminate at the TS-5 Substation	Future

TABLE 4-1 PROJECTS LIST - CUMULATIVE EFFECTS		
Activities	**Location/Description**	**Status**
Proposed Hassayampa–Pinal West 500kV Transmission Line	The Hassayampa–Pinal West 500kV transmission line is proposed to connect at the Hassayampa Switchyard south of PVNGS and terminate at a proposed substation near Mobile, Arizona	Future
Proposed PVNGS–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
Planned Northwest Buckeye Electrical Infrastructure	Additional 500kV, 230kV, and 69kV transmission lines identified in the APS 10-year plan. Lines would originate at the TS-5 Substation and provide electrical service to future development in the northeasterly portion of the Town of Buckeye, Arizona	Future
Planned Hassayampa–Jojoba 500kV Transmission Line	The 500kV transmission line would connect the Hassayampa Switchyard near PVNGS to the Jojoba Switchyard south of Buckeye, Arizona	Future
Proposed North Gila—TS-8 230kV Transmission Line	The 230kV transmission line would connect the North Gila Substation, 5 miles NE of Yuma, Arizona, to the planned TS-8 Substation, location to be determined, to serve the increasing need for electric energy in the city of Yuma	Future
Proposed Ethanol Plant	An ethanol plant to be built on a 20 acre site near Tacna, AZ	Future
U.S. 95 Widening	U.S. 95 is proposed to be widened from 2 lanes to 4 between 9E and Aberdeen Road within the YPG	Future
Planned CANAMEX Commercial Transportation Corridor	An inter-continental commercial transportation corridor between Canada and Mexico. Located adjacent to Wickenburg Road in the project area	Future
Existing Utilities/Public Services/Infrastructure		
Southwest Powerlink 500kV Line Clearance Maintenance Project	Conductor ground clearance project from PVNGS to North Gila Substation	Past, Present
PVNGS	Power plant located in unincorporated Arlington Valley, Arizona. Numerous 500kV lines interconnect at the PVNGS Switchyard	Past, Present
PVNGS Switchyard	Located near PVNGS, with numerous 500kV lines interconnecting at this switchyard	Past, Present, Future
Hassayampa 500kV Switchyard	Located south of the PVNGS. Numerous 500kV lines interconnect at this switchyard	Past, Present, Future
Palo Verde–Devers No. 1 Transmission Line	A 500kV line that connects at the PVNGS Switchyard and terminates at the Devers Substation north of Palm Springs, California	Past, Present
Palo Verde–Rudd Transmission Line	A 500kV transmission line that originates at the PVNGS Switchyard and terminates at the Rudd Substation in Avondale, Arizona	Past, Present
PVNGS–Westwing Transmission Line	Two 500kV transmission lines from PVNGS to the Westwing Substation	Past, Present
Southwest Powerlink Transmission Line	A 500kV line that begins at the Hassayampa Switchyard, connects to the North Gila Substation in Yuma, Arizona, and the Imperial Valley Substation near El Centro, California, and terminates at the Miguel Substation in San Diego, California	Past, Present

TABLE 4-1 PROJECTS LIST - CUMULATIVE EFFECTS		
Activities	**Location/Description**	**Status**
PVNGS–Kyrene 500kV Transmission Line	The PVNGS–Kyrene 500kV transmission line originates at the PVNGS Switchyard, ending at the Kyrene Substation in Tempe, Arizona	Past, Present
Harquahala Generating Plant and Harquahala–Hassayampa 500kV Transmission Line	The Harquahala Generating Plant is located approximately 17 miles northwest of the PVNGS. A 500kV transmission line connects the Harquahala Generating Plant and the Hassayampa Switchyard	Past, Present, Future
Arlington Valley Energy Facility	The Arlington facility 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	Past, Present, Future
Mesquite Power Generating Station and 500kV Transmission Line	The Mesquite facility is located south of PVNGS and west of the Hassayampa Switchyard. A 500kV transmission line connects the Mesquite Plant and the Hassayampa Switchyard	Past, Present
Redhawk and 500kV Transmission Line	The Redhawk facility is located south of PVNGS and southeast of the Hassayampa Switchyard. A 500kV transmission line connects the plant and the Hassayampa Switchyard	Past, Present
El Paso Natural Gas Pipelines	El Paso Natural Gas pipelines connect to the various gas-fired generation facilities in the region around PVNGS as well as Harquahala Generating Plant	Past, Present
Kinder-Morgan Petroleum Pipeline	A 20" pipeline between Imperial, California, and Phoenix, Arizona, that is contained within the Southern Pacific Railroad right-of-way	Past, Present
I-8	This major interstate highway lies in an east-west direction south of the project area	Past, Present
I-10	This major interstate highway lies in an east-west direction north of the project area	Past, Present
Canals	The project is roughly parallel to the Mohawk canal in the Wellton mesa area for approximately 15 miles. Other major canals and secondary canals are located in the study area	Past, Present
U.S.-95	This major highway spans a north-south direction in the project study area	Past, Present, Future
Residential		
Rural residential	Throughout project area	Past, Present, Future
Agriculture, Grazing, and Mining		
Farming	Irrigated private land throughout the project area, including many areas that are no longer being cultivated	Past, Present, Future
Grazing	Throughout project area	Past, Present, Future
Wellton-Mohawk Land Exchange	Reclamation transfer of the Gila Irrigation Project to the Wellton-Mohawk Irrigation and Drainage District	Present
Mining	Throughout project area	Past, Present, Future

CHAPTER 5 – CONSULTATION AND COORDINATION

5.1 PUBLIC CONTACT INFORMATION

A public information program for the PV Hub to North Gila 500kV Transmission Line Project was conducted during the preparation of this EA to establish and maintain open communication with the public. The public involvement program included public meetings, jurisdictional and agency meetings and briefings, private land owner meetings, informational mailings, and the provision of other resources of information, such as a project website and phone line. By providing the public with multiple opportunities to access project information and relay comments, the project team was able to educate the public about the proposed project, as well as gather public input, identify issues, and respond to those issues through the planning process.

5.2 AGENCIES, TRIBES, AND ORGANIZATIONS CONSULTED

5.2.1 Federal

U.S. Department of the Interior
- Bureau of Land Management - Lower Sonoran Field Office
- Bureau of Land Management - Yuma Field Office
- Bureau of Reclamation

U.S. Department of Defense
- Yuma Proving Ground
- Marine Corps Air Station, Yuma
- Luke Air Force Base

Western Area Power Administration

5.2.2 Native American

Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community
Hopi Tribe
Quechan Tribe
Salt River Pima-Maricopa Indian Community
Tohono O'odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Indian Tribe

5.2.3 State

Arizona Department of Environmental Quality
Arizona Department of Transportation
Arizona Game and Fish Department
Arizona State Historic Preservation Office
Arizona State Land Department
Arizona State Museum

5.2.4 County and City

Maricopa County Association of Governments
Maricopa County Board of Supervisors
    Mary Rose Wilcox
Maricopa County Department of Transportation
Maricopa County Parks and Recreation Department
Maricopa County Planning Department
Maricopa County Trails Development Committee
Yuma County Board of Supervisors
Yuma County Public Works
City of Yuma
Town of Wellton
Wellton Mohawk Irrigation and Drainage District

5.2.5 Public Meetings

Jurisdictional Meeting

In late January 2006, APS invited members of potentially impacted agencies or jurisdictions to a meeting, at which they could review project information and discuss potential concerns in a small, informal setting. The meeting was scheduled to coincide closely with the mailing of the first project newsletter, which announced the proposed project to the general public. The 37 representatives of 11 separate jurisdictions or agencies were invited to the meeting. There were 17 people representing the City of Yuma, Yuma County, WMIDD, Yuma Irrigation District, YPG, Yuma Mesa Irrigation District, Yuma County Water Users Association, and the MCAS, Yuma at the meeting.

During the meeting, the project team presented a project overview, including a description of other APS projects in the Yuma area, and a summary of past efforts with the BLM to identify utility corridors in the BLM RMP revisions. The presentation also included information on the project description, need, and planning process, including state and federal permitting requirements.

Public Open Houses

Two public open houses were conducted on March 1 and 2, 2006, to introduce the proposed project to the general public and to obtain public feedback. The first meeting was held in Dateland, Arizona, and was attended by 17 people. The second meeting was held in Yuma, Arizona, and was attended by seven people. The open houses were organized in an informal format, allowing community members to attend at their convenience, review displays, and speak with project team members. General information was presented on the project need, description, environmental resources, alternatives evaluated, and the planning process. Comment forms were provided to solicit public comment on the proposed project and information that had been presented. A total of three comment forms were received, either during the open houses or by mail following the meeting.

5.2.6 Informational Mailings

BLM Informational Letters

An informational letter describing the Proposed Action and the project study area was distributed by the BLM in January 2006, to over 3,400 individuals on their mailing list throughout the United States. The letter invited recipients to provide any comments to the BLM within a 30-day period.

The BLM informational letter is included in Appendix D.

Newsletter and Mailing List

An initial newsletter was prepared and distributed to approximately 1,100 people. The mailing list included all APS customers and private landowners within the study area, as well as jurisdictional and local government leaders and addresses on the BLM mailing list. Those who attended the public open house or submitted comments were added to the project mailing list, to receive any future newsletter(s). The newsletter provided information regarding the proposed project, team contact information, including the phone line number and website address, as well as a project update.

The newsletter introduced the proposed project to the public and included a description of the proposed facilities, the need for the project, environmental planning process, public information opportunities, proposed route, state and federal permitting requirements, tentative schedule, and announced both public open houses in March 2006.

A copy of the newsletter is included in Appendix D.

5.2.7 Other Sources of Project Information

Website

A website, www.aps.com/aps/general_info/Siting/siting_14.html, was established and maintained, to provide access to project information and electronic versions of distributed materials. Through the website, viewers could obtain meeting dates; view newsletters and routing maps; submit written comments or requests; and be added to the mailing list. The website address was advertised in the newsletters, on the telephone information line, and in paid newspaper advertisements. 13 comments have been received through the website to date.

Phone Line

A phone information line, (888) 206-6166, was established early in the project, to provide the public with easy access to project information and team members. The phone line relayed project updates and public meeting dates, and allowed callers to leave a comment regarding the project or messages requesting that they be added to the project mailing list or contacted by a team member. This phone line was advertised in the newsletters, on the project website, and in paid newspaper advertisements. Three comments or messages have been received on this phone line to date.

Media Coverage

APS briefed local news sources and placed paid advertisements for the March open house meeting in newspapers in the Yuma and Phoenix areas. In particular, APS briefed the *Yuma Sun* and *Arizona Republic*.

5.3 ISSUE IDENTIFICATION

The project team received 20 formal comments on the proposed project through the open house comment forms, website, phone line, or directly by letters, phone calls, and emails. An additional 19 formal comments were received by the BLM during the first scoping comment period which concluded on March 3, 2006. A review of these comments helped the project team to identify public issues, which were considered during studies conducted as part of the EA. The majority of comments focused on the location of facilities and potential impact to private landowners. A summary of the comments received is provided in Appendix E. In addition to the formal comments received, the project team engaged in several informal discussions with interested parties.

5.4 LIST OF PREPARERS

5.4.1 Bureau of Land Management

Kevin Harper	Field Office Manager
Camille Champion	Project Manager
Jim Andersen	Realty Specialist
Cheryl Blanchard	Archaeologist
Lori Young	Wildlife Biologist
Rich Hanson	Recreation Planner / Visual Resource Specialist
Jack Ragsdale	Recreation Planner / Visual Resource Specialist
Byron Lambeth	Range Management Specialist

5.4.2 Arizona Public Service

Paul Herndon	Project Manager
Bob Smith	Transmission Planning
Jason Spitzkoff	Transmission Planning
Peter Krzykos	Transmission Planning
Jim Looney	Lands
Barbara Heimer	Lands
Paul Richards	Transmission Engineering/Construction
Phil Hobday	Transmission Engineering/Construction
Robin Fries	Transmission Engineering/Construction
Mark Fallon	Communications
Betty Dayyo	Communications
Linda Henrickson	Interconnections/Agreements

5.4.3 Environmental Planning Group

Garlyn Bergdale	Principal-in-Charge
Paul Trenter	Project Manager
Kevin C. Duncan	Project Coordinator, Earth and Water Resources, Health and Safety Resources, Land Use Resources, Socioeconomics
Marc Schwartz	Visual Resources Manager
Glenn Darrington	Cultural Resources Manager
Kris Dobschuetz	Cultural Resources
Linwood Smith	Biological Resources Manager
Jason Corbett	Biological Resources
Scott Woods	Geographic Information Systems Manager
Jeff Barber	Geographic Information Systems

CHAPTER 6 - REFERENCES

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6.3 CULTURAL RESOURCES AND NATIVE AMERICAN CONCERNS

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APPENDIX A
STANDARD CONSTRUCTION AND OPERATING PROCEDURES AND MITIGATION MEASURES

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STANDARD CONSTRUCTION AND OPERATING PROCEDURES AND MITIGATION MEASURES

1.	All construction vehicle movement outside of the right-of-way will be restricted to predesignated access, contractor acquired access, or public roads.
2.	The limits of construction activities will typically be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. The right-of-way boundary will be flagged in environmentally sensitive areas described in the specific plan of development to alert construction personnel that those areas should be avoided.
3.	In construction areas where recontouring is not required, vegetation will be left in place wherever possible to avoid excessive root damage and allow for resprouting.
4.	In construction areas (e.g., marshalling yards, structure sites, spur roads from existing access roads) where ground disturbance is significant or where recontouring is required, surface restoration will occur as required by the landowner or land-management agency. The method of restoration will typically consist of returning disturbed areas to their natural contour (to the extent practical), reseeding or revegetating with native plants (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches. Seed must be tested and certified to contain no noxious weeds in the mix by the State of Arizona Agricultural Department. Seed viability must also be tested at a certified laboratory approved by the authorized officer.
5.	Watering facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced to their predisturbed conditions as required by the landowner or land-management agency if they are damaged or destroyed by construction activities.
6.	Prior to construction, all construction personnel will be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract will address (a) federal and state laws regarding antiquities, fossils, and plants and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.
7.	Impact avoidance and mitigation measures for cultural resources developed in consultation with BLM and the ASLD will be implemented.
8.	The project sponsors will respond to complaints of line-generated radio or television interference by investigating the complaints and implementing appropriate mitigation measures. The transmission line will be patrolled on a regular basis so that damaged insulators or other line materials that could cause interference are repaired or replaced.
9.	The project sponsors will apply necessary mitigation to minimize problems of induced currents and voltages onto conductive objects sharing a right-of-way, to the mutual satisfaction of the parties involved.
10.	All construction and maintenance activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent and perennial streambanks. In addition, all existing roads will be left in a condition equal to or better than their condition prior to the construction of the transmission line.
11.	All requirements of those entities having jurisdiction over air quality matters will be adhered to and any necessary permits for construction activities will be obtained. Open burning of construction debris (cleared trees, etc.) will not be allowed on BLM administered lands.

12.	Fences and gates, if damaged or destroyed by construction activities, will be repaired or replaced to their original predisturbed condition as required by the landowner or the land-management agency. Temporary gates will be installed only with the permission of the landowner or the land-management agency, and will be restored to their original predisturbed condition following construction.
13.	The proposed hardware and conductor will limit the audible noise, radio interference (RI), and television interference (TVI) due to corona. Tension will be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution will be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.
14.	During operation of the transmission line, the right-of-way will be maintained free of construction related non-biodegradable debris.
15.	Totally enclosed containment will be provided for all debris. All construction waste including debris, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials. A Spill Contingency Plan and Spill Prevention Control and Countermeasure (SPCC) Plan will be prepared. The SPCC Plan will address prevention and remediation of oil spills including spills that could enter navigable waters of the United States. Oils or chemicals will be hauled to an approved site for disposal.
16.	Structures will be constructed to conform to "Suggested Practices for Avian Protection on Power Lines" (Avian Power Line Interaction Committee 2006).
17.	Species protected by the Arizona Native Plant Law will be made available for salvage. A salvage plan approved by the BLM will be included in the specific plan of development.
18.	The alignment of any new access roads or overland routes will follow the designated area's landform contours where possible, providing that such alignment does not additionally impact resource values. This would minimize ground disturbance and reduce scarring.
19.	All new access roads not required for maintenance will be permanently closed using the most effective and least environmentally damaging methods appropriate to that area with concurrence of the landowner or land manager (e.g., stock piling and replacing topsoil, or rock replacement). This would limit access into the area. Fencing, signing, and other closure methods will be determined by the BLM and paid for by the contractor or APS.
20.	In designated areas, structures will be placed or rerouted so as to avoid sensitive features such as, but not limited to, riparian areas, watercourses, and cultural sites, or to allow conductors to clearly span the features, within limits of standard tower design.
21.	Transmission line structures will comply with Federal Aviation Administration Guidelines to minimize aircraft hazards (Federal Aviation 77).
22.	Special status species or other species of particular concern will continue to be considered during the construction phase of the Project, in accordance with management policies set forth by the BLM and other appropriate land management agencies. This will entail monitoring for plant and wildlife species of concern along the proposed transmission line and associated facilities (i.e., access roads and staging areas). In cases where such species are identified, appropriate action will be taken to avoid adverse impacts on the species and its habitat.
23.	The contractor or APS will submit to BLM a proposed road development plan for inclusion in the POD for the area in and around the Muggins Mountains. The goal of the plan is to limit new road construction to a minimum, restrict unauthorized use of maintenance roads, and discourage a travel route in the Muggins Mountains.
24.	As-built drawings, including locations of access roads, will be provided to the BLM as required by the right-of-way grant. The drawings will be provided in a format specified by the BLM.

APPENDIX B
VISUAL RESOURCES

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VISUAL RESOURCES

VISUAL RESOURCE MANAGEMENT OBJECTIVES

BLM VRM classes are assigned to specific landscapes by the BLM that direct acceptable levels of visual intrusions within each class. VRM class guidelines are as follows:

- Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

- Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

- Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

- Class IV Objectives. The objective of this class is to provide for management activities, which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

APPENDIX C
BIOLOGICAL RESOURCES

APPENDIX C
BIOLOGICAL RESOURCES

Special status species that are known to be present, or that have reasonable potential to be present within the study area based on known distribution or habitat requirements, are noted in Table C-1. Potential impacts to these species have been described in Section 3.5.2 of this EA.

TABLE C-1
SPECIAL STATUS SPECIES

Common Name	Scientific Name	Habitat	Federal Status	State of Arizona
MAMMALS				
California leaf-nosed bat	*Macrotus californicus*	Sonoran desertscrub with caves or mines for roosts	SC	WC
Cave myotis	*Myotis velifer*	Roosts primarily in mines or caves in xeric habitats such as creosote bush or paloverde mixed scrub plant associations. Requires a permanent water source within a few miles of roost	SC	
Pocketed Free-tailed Bat	*Nyctinomops femorosaccus*	Sonoran desertscrub with cliffs for roosts	SC	
Spotted bat	*Euderma maculatum*	Dry desert environments, and from below sea level up to conifer habitat		WC
Desert Bighorn Sheep	*Ovis canadensis*	Precipitous, desert mountain ranges	SC	
Sonoran Desert Pronghorn	*Antilocapra americana sonoriensis*	Open cover grassland, or grassland with low shrubs and rolling hills	E	WC
BIRDS				
Great Egret	*Ardea alba*	Aquatic habitat generalists		WC
Western burrowing owl	*Athene cunicularia hypugia*	Open country, agricultural areas, urban habitats at golf courses, and airports	SC	
Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	Dense, wooded riparian zones and damp thickets with high humidity	C	WC
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	Lowland riparian woodlands and thickets	E	WC
American Peregrine Falcon	*Falco peregrinus anatum*	Open areas with perches providing good visibility. Found in almost any habitat	SC	WC

TABLE C-1 SPECIAL STATUS SPECIES				
Common Name	**Scientific Name**	**Habitat**	**Federal Status**	**State of Arizona**
Cactus Ferruginous Pygmy-Owl	*Glaucidium brasilianum cactorum*	Sonoran desertscrub with braided wash systems and mesquite, paloverde, saguaro, ironwood, and other shrubs and cacti	SC	WC
Yuma Clapper Rail	*Rallus longirostris yumanensis*	Freshwater marshes	E	WC
REPTILES				
Desert Rosy Boa	*Charina trivirgata gracia*	Rocky areas with basalt and granite soils in desert ranges, especially in canyons with permanent or intermittent streams	SC	
Desert tortoise (Sonoran population)	*Gopherus agassizii*	Completely terrestrial desert species requiring firm, but not hard, ground for construction of burrows, frequents desert oases, riverbanks, washes, and rocky slopes	SC	WC
Common chuckwalla	*Sauromalus ater*	Rock-dwelling, herbivorous lizard, widely distributed in the desert	SC	
Cowl's Fringe-Toed Lizard	*Uma notata rufopunctata*	Sparsely vegetated fine windblown sand dunes, flats, riverbanks, and washes of arid desert	SC	WC
PLANTS				
Kearney sumac	*Rhus kearneyi*	Found on north-facing dry cliffs in desert scrub at elevations from 1,000 to 1,500 feet	SS	
Schott Wire Lettuce	*Stephanomeria schottii*	semi-stabilized sand dunes with creosote bush, white bursage, big galleta grass, and many species of wildflowers at 400 to 800 feet	SS	
Arizona Rosewood	*Vauquelinia californica* spp. *sonorensis*	Woodland or forest at the base of cliffs, along canyon bottoms, and on moderate to steep slopes	SS	

Key: Federal Status: SC = Species of concern , E = Endangered, C = Candidate for listing as Endangered, SS = Sensitive species
State Status: WC = Wildlife of special concern in Arizona. HS = Highly Safeguarded (Native Plant Law)
Sources: AZGFD 2004a, 2004b; AOU 1998; Burt and Grossenheider 1980; Degenhardt et al. 1996; Ehrlich et al. 1988; Glinski 1998; Harvey et al.; 1999; Hoffmeister 1986; ITIS 2005; NGS 2002; Stebbins 2003; Wheeler 2003

TABLE C-2 MIGRATORY BIRD SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Pied-billed grebe	*Podilymbus podiceps*	Lakes, ponds, streams, and canals
Great blue heron	*Ardea herodias*	Lakes, ponds, streams, canals, and marshes
Snowy egret	*Egretta thula*	Ponds, streams, and marshes
White-faced ibis	*Plegadis chihi*	Lakes, ponds, streams, marshes, and fields
Mallard	*Anas platyrhynchos*	Lakes, ponds, streams, and canals
Cinnamon teal	*Anas cyanoptera*	Ponds, streams, and canals
Turkey vulture	*Cathartes aura*	Open country, woodlands, farms
Northern harrier	*Circus cyaneus*	Wetlands, open fields
Sharp-shinned hawk	*Accipiter striatus*	Generally distributed
Cooper's hawk	*Accipiter cooperii*	Broken woodlands or streamside groves
Harris's hawk	*Parabuteo unicinctus*	Semiarid woodland, brushland
Swainson's hawk	*Buteo swainsoni*	Fields and desert
Red-tailed hawk	*Buteo jamaicensis*	Plains, prairie groves, desert
Ferruginous hawk	*Buteo regalis*	Dry, open country
American kestrel	*Falco sparverius*	Open country, cities
Prairie falcon	*Falco mexicanus*	Dry, open country, prairies
Peregrine falcon	*Falco peregrinus*	Cliffs, generally distributed, tops of tall urban buildings
Gambel's quail	*Callipepla gambelii*	Desert scrublands and thickets
Killdeer	*Charadrius vociferus*	Ponds, streams, and fields
White-winged dove	*Zenaida asiatica*	Dense mesquite, mature citrus groves, riparian woodlands, saguaro-paloverde deserts
Mourning dove	*Zenaida macroura*	Wide variety of habitats
Common ground dove	*Columbina passerina*	Fields and hedgerows
Greater roadrunner	*Geococcyx californianus*	Scrub desert and mesquite groves, less common in chaparral and oak woodland
Barn owl	*Tyto alba*	Dark cavities in city and farm buildings, cliffs, trees
Western screech owl	*Otus kennicottii*	Open woodlands, streamside groves, deserts, suburban areas
Great horned owl	*Bubo virginianus*	Common in wide variety of habitats
Elf owl	*Micrathene whitneyi*	Desert lowlands, canyons, foothills
Burrowing owl	*Athene cunicularia*	Open country, golf courses, airports
Lesser nighthawk	*Chordeiles acutipennis*	Dry, open country, scrubland, desert
Common poorwill	*Phalaenoptilus nuttallii*	Sagebrush and chaparral slopes
White-throated swift	*Aeronautes saxatalis*	Mountains, canyons, and cliffs
Black-chinned hummingbird	*Archilochus alexandri*	Lowlands and low mountains
Anna's hummingbird	*Calypte anna*	Coastal lowlands, mountains, deserts
Costa's hummingbird	*Calypte costae*	Desert washes, dry chaparral
Rufous hummingbird	*Selasphorus rufus*	Suburban and riparian areas
Gila woodpecker	*Melanerpes uropygialis*	Towns, scrub desert, cactus country, streamside woods
Ladder-backed woodpecker	*Picoides scalaris*	Dry brushlands, mesquite and cactus country, towns and rural areas
Northern flicker	*Colaptes auratus*	Open woodlands, suburban areas
Gilded flicker	*Colaptes chrysoides*	Low desert woodlands, favors saguaro
Pacific-slope flycatcher	*Empidonax difficilis*	Migrant through lowlands
Say's phoebe	*Sayornis saya*	Dry, open areas, canyons, cliffs
Ash-throated flycatcher	*Myiarchus cinerascens*	Wide variety of habitats

TABLE C-2 MIGRATORY BIRD SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Brown-crested flycatcher	*Myiarchus tyrannulus*	Saguaro desert, river groves, lower mountain woodlands
Western kingbird	*Tyrannus verticalis*	Dry, open country
Common raven	*Corvus corax*	Mountains, deserts, coastal areas
Horned lark	*Eremophila alpestris*	Dirt fields, gravel ridges, shores
Tree swallow	*Tachycineta bicolor*	Streams, ponds, and lakes
Violet-green swallow	*Tachycineata thalassina*	Riparian areas, streams, ponds, and lakes
Northern rough-winged swallow	*Stelgidopteryx serripennis*	Banks of streams and canals, streams, ponds, and lakes
Cliff swallow	*Petrochelidon pyrrhonota*	Lakeside, cliffs, and canals; nesting under nearby bridges, buildings, and other overhangs; streams and ponds
Verdin	*Auriparus flaviceps*	Southwestern desert
Cactus wren	*Campylorhynchus brunneicapillus*	Cholla cactus habitat
Rock wren	*Salpinctes obsoletus*	Arid and semiarid habitats
Canyon wren	*Catherpes mexicanus*	Canyons and cliffs, often near water
Bewick's wren	*Thryomanes bewickii*	Wooded riparian areas
Ruby-crowned kinglet	*Regulus calendula*	Woodlands, thickets
Black-tailed gnatcatcher	*Polioptila melanura*	Desert, especially washes
Northern mockingbird	*Mimus polyglottos*	Variety of habitats
Bendire's thrasher	*Toxostoma bendirei*	Open farmlands, grasslands, brushy desert
Curve-billed thrasher	*Toxostoma curvirostre*	Cholla deserts and suburban areas
Phainopepla	*Phainopepla nitens*	Riparian areas, especially in trees with mistletoe
Loggerhead shrike	*Lanius ludovicianus*	Generally distributed
European starling	*Sturnus vulgaris*	Generally distributed
Orange-crowned warbler	*Vermivora celata*	Riparian and suburban areas in lowlands
Lucy's warbler	*Vermivora luciae*	Mesquites and cottonwoods along watercourses
Yellow-rumped warbler	*Dendroica coronata*	Riparian and suburban areas
Wilson's warbler	*Wilsonia pusilla*	Dense, moist woodlands, bogs, streamside tangles
Western tanager	*Piranga ludoviciana*	Transient in lowlands
Green-tailed towhee	*Pipilo chlorurus*	Brushy areas, riparian, and suburban areas
Canyon towhee	*Pipilo fuscus*	Sonoran desertscrub
Abert's towhee	*Pipilo aberti*	Riparian areas, suburban areas
Chipping sparrow	*Spizella pallida*	Brushy edges and riparian areas
Brewer's sparrow	*Spizella breweri*	Deserts, field edges, and suburban areas
Vesper sparrow	*Pooecetes gramineus*	Open weedy fields, roadsides, and grassy areas
Lark sparrow	*Chondestes grammacus*	Brushy, weedy areas, riparian areas, and field edges
Black-throated sparrow	*Amphispiza bilineata*	Desertscrub
Lark bunting	*Calamospiza melanocorys*	Brushy desert and field edges
Savannah sparrow	*Passerculus sandwichensis*	Open fields, roadsides, and grassy areas
White-crowned sparrow	*Zonotrichia leucophrys*	Suburban, riparian, and other brushy areas
Black-headed grosbeak	*Pheucticus melanocephalus*	Transient in lowlands
Northern cardinal	*Cardinalis cardinalis*	Woodland edges, swamps, streamside thickets, suburban gardens

TABLE C-2 MIGRATORY BIRD SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Pyrrhuloxia	*Cardinalis sinuatus*	Thorny brush, mesquite thickets, desert, woodland edges, ranchlands
Lazuli bunting	*Passerina amoena*	Weedy and shrubby areas along irrigation ditches and other bodies of water and suburban areas
Western meadowlark	*Sturnella neglecta*	Fields and other open areas, deserts
Brown-headed cowbird	*Molothrus ater*	Suburbs and agricultural areas
Hooded oriole	*Icterus cucullatus*	Riparian and suburban areas
House finch	*Carpodacus mexicanus*	Riparian and suburban areas, farmland, desert
Lesser goldfinch	*Carduelis psaltria*	Riparian areas, brushy desert scrub
Sources: National Geographic Society 2002; Witzeman et al. 1997		

Additional Sonoran Desert Tortoise Mitigation

A desert tortoise protection education program shall be presented to all employees, inspectors, supervisors, contractors, and subcontractors who carry out proposed activities at the project site. The education program shall include discussions of the following:

- The legal and sensitive status of the tortoise
- A brief discussion of tortoise life, history, and ecology
- Mitigation measures designed to reduce adverse effects to tortoises
- Protocols to follow if a tortoise is encountered, including appropriate contact points

The project proponent shall designate a field contact representative (FCR) who shall be responsible for overseeing compliance with these mitigation measures and for coordination on compliance with the BLM. The FCR and authorized/qualified biologist(s) shall have the authority and the responsibility to halt all project activities that are in violation of these mitigation measures. The FCR shall be responsible for oversight of compliance with these mitigation measures, coordination with permitting agencies, land managers, and State Game and Fish Departments; and shall serve as a contact point for personnel that encounter desert tortoises. The FCR shall be on site during project activities and shall be familiar with and have a copy of these mitigation measures.

Prior to any surface-disturbing activities, work sites shall be surveyed for desert tortoises by a qualified biologist approved by the BLM. Surveys shall be in accordance with U.S. Fish and Wildlife Service protocol (Service 1992). For surface-disturbing activities occurring during the desert tortoise season (March 1 through November 1), surveys shall be conducted within 24 hours of initiation of surface-disturbing activities. The 100-percent surveys of new areas of disturbance shall be conducted a maximum of three times, or two consecutive times if no desert tortoises are found. During surveys, occupied desert tortoise burrows in or within 40 feet of areas to be disturbed shall be excavated using hand tools by an authorized biologist. Burrows discovered in areas to be disturbed by project activities shall be collapsed or blocked to prevent entry by tortoises (any tortoises in those burrows shall be relocated first). Desert tortoises and

any desert tortoise eggs found in areas to be disturbed shall be relocated and handled in accordance with the following measure.

If a tortoise is found in a project area, activities shall be modified to avoid injuring or harming it. If activities cannot be modified, tortoises shall be moved from harm's way. Upon discovery of a desert tortoise in harm's way, the authorized biologist shall translocate the animal the minimum distance possible (but not more than 2 miles) within appropriate habitat to ensure its safety from death, injury, or collection associated with the project or other activities. The authorized biologist shall be allowed some discretion to ensure that survival of each relocated desert tortoise is likely. Desert tortoises shall not be translocated to lands outside the administration of the Federal government without the written permission of the landowner.

Handling procedures for desert tortoises shall adhere to protocols outlined in the *Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona* (December 1996) (document attached).

Only biologists authorized by the BLM and the appropriate State Fish and Game Department shall handle desert tortoises. The holder shall submit the name(s) of the proposed authorized biologist(s) to the BLM for review and approval at least 45 days prior to the onset of activities that could result in a take.

The authorized biologist shall maintain a record of all desert tortoises encountered during project activities. This information shall include for each desert tortoise:

- The locations and dates of observation;
- General condition and health, including injuries and state of healing and whether animals voided their bladders;
- Location moved from and location moved to; and
- Diagnostic markings; i.e., identification numbers of marked lateral scutes.

No notching of scutes or replacement of fluids with a syringe is authorized.

Vehicle use shall be limited to existing or designated routes.

Areas of new construction or disturbance shall be flagged or marked on the ground prior to construction. All construction workers shall strictly limit their activities and vehicles to areas that have been marked. Construction personnel shall be trained to recognize markers and understand the equipment movement restrictions involved.

Blading of new access or work areas shall be minimized. Disturbance to shrubs shall be avoided. If shrubs cannot be avoided during equipment operation or vehicle use, they shall be crushed rather than excavated or bladed and removed.

Project features that might trap or entangle desert tortoises such as open trenches, pits, open pipes, etc., shall be covered or modified to prevent entrapment. (This may only be necessary

during the tortoise active season and may be unnecessary if an on-site biologist is monitoring activities - see Suggested Mitigation Measures for Projects Conducted During the Tortoise Activity Period below.)

Construction sites shall be maintained in a sanitary condition at all times. The project proponent shall be responsible for controlling and limiting litter, trash, and garbage by immediately placing refuse in predator-proof, sealable receptacles. Trash and debris shall be moved when construction is complete.

After completion of the project, trenches, pits, and other features in which tortoises could be entrapped or entangled, shall be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.

After project completion, measures shall be taken to facilitate restoration, where practicable. Restoration techniques shall be tailored to the characteristics of the site and the nature of project impacts identified in the mitigation plan as developed by project biologists, Arizona Game and Fish Department, and permitting State and Federal agencies. Techniques may include removal of equipment and debris, recontouring, replacing boulders that were moved during construction, seeding, planting, transplanting of cacti and yuccas, etc. Only native plant species shall be used in restoration.

The project proponent shall submit a monitoring report to the BLM within 60 days of project completion. For long-term or ongoing projects that may result in continuing impacts to tortoises and habitat, annual monitoring reports shall be prepared. Monitoring reports shall briefly document the effectiveness of the desert tortoise mitigation measures, actual acreage of desert tortoise habitat disturbed, the number of desert tortoises excavated from burrows, the number of desert tortoises moved from construction sites, and other applicable information on individual desert tortoise encounters. The report shall make recommendations for modifying or refining the mitigation program to enhance desert tortoise protection and reduce needless hardship on the project proponents.

In accordance with Compensation for the Desert Tortoise (Desert Tortoise Compensation Team 1991), signed by Desert Tortoise Management Oversight Group, authorizing agencies shall require compensation for residual impacts to desert tortoise habitat (see Table 4, page 27 of *Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona*).

Oil, fuel, pesticides, and other hazardous material spills shall be cleaned up and properly disposed of as soon as they occur in accordance with applicable State and Federal regulations. All hazardous material spills must be reported promptly to the appropriate surface management agencies and hazardous materials management authorities.

Workers shall check under vehicles for desert tortoises before vehicles are moved. If tortoises are found, they shall be allowed to move out of harm's way on their own or shall be moved by an authorized biologist prior to moving the vehicle.

No unleashed pets (e.g., dogs) shall be allowed on the construction site.

In desert tortoise habitat, project-related vehicles shall not exceed 25 miles per hour on unpaved roads.

Use of roads constructed for specific nonpublic purposes such as access routes to microwave towers shall be gated to limit access.

Temporary access routes created during project construction shall be modified as necessary to prevent further use. Closure of access routes shall be achieved by ripping, barricading, posting the route as closed, and/or seeding and planting with native plants.

Projects Conducted During Tortoise Activity Period (Typically March 1 to November 1)

For projects conducted during normal tortoise activity period (typically March 1 to November 1), construction and operation activities shall be monitored by a qualified biologist (approved by the BLM). The biologist shall be present during all activities in which encounters with tortoises may occur. The biologist shall watch for tortoises wandering into construction areas, check under vehicles, check at least three times per day any excavations that might trap tortoises, and conduct other activities necessary to ensure that death and injury of tortoises in minimized.

If any Gila monsters or desert tortoises are observed, their location shall be recorded and the sighting along with any information concerning the sighting shall be reported to the BLM wildlife biologist at the YFO, 2555 E. Gila Ridge Road, Yuma, AZ, 85365, telephone number (520) 317-3200.

APPENDIX D
PUBLIC CONTACT INFORMATION

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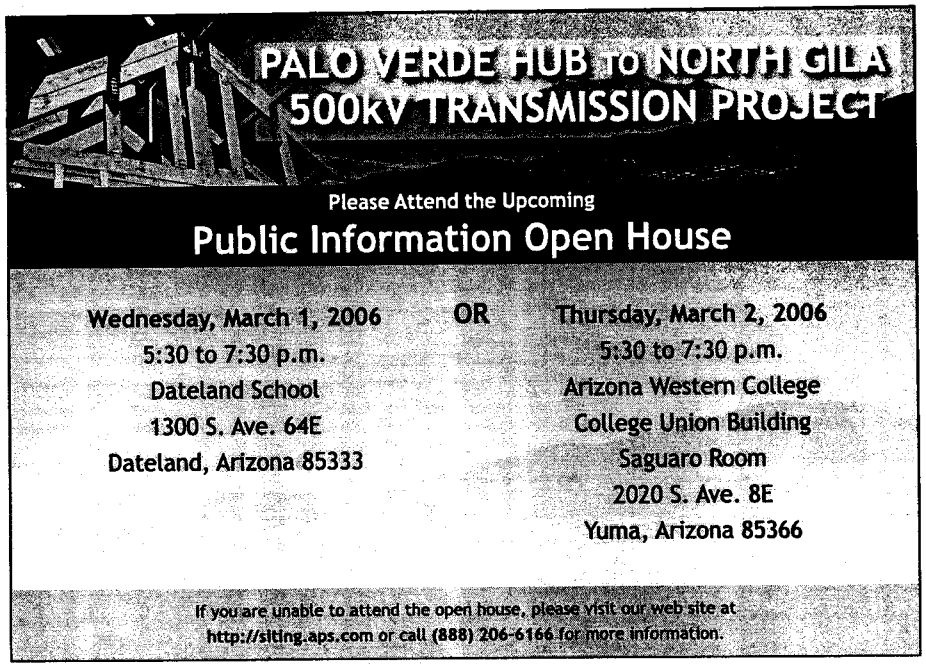

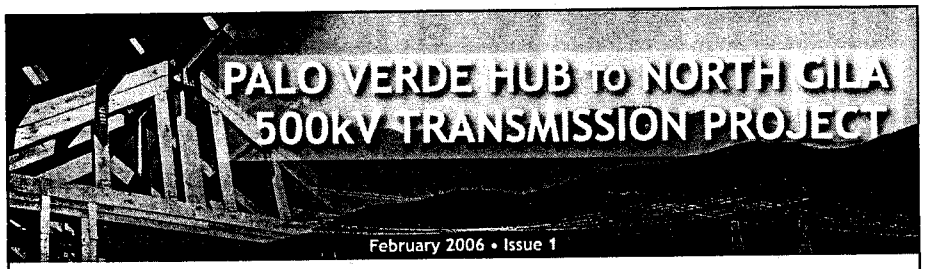

February 2006 • Issue 1

APS Proposes New Transmission Facilities

APS has plans to build a new 500-kilovolt (500kV) transmission line between the Palo Verde Hub (the area around the Palo Verde Nuclear Generating Station) and the Yuma area to accommodate unprecedented growth (see map on next page).

According to the 2000 U.S. Census, the Yuma area grew by almost 50 percent since 1990, making it the third fastest growing area in the United States. In addition, the average household usage of electricity in Arizona has increased by 20 percent over the past decade. Growth figures like these, coupled with limited electrical resources in the area, underscore the need to build new electrical facilities.

APS' Palo Verde Hub to North Gila 500kV Transmission Project will provide the electrical transmission infrastructure needed to import additional electricity from power plants in and around the Palo Verde Hub into this high-growth area. The project will also improve the reliability of the APS electric system in the Yuma area by providing an additional high-voltage transmission source. Additional improvements to the APS electric system in the Yuma area will be ongoing in the next several years.

Project Description

The proposed transmission line will be approximately 115 miles in length and will be constructed on steel towers, typically between 130 to 150 feet high. The line would begin at one of several interconnection points at the Palo Verde Hub and will primarily parallel the existing Southwest Powerlink (SWPL) 500kV transmission line for the entire length of the project. Approximately 55 miles of the proposed line would be placed within the existing one-mile-wide Bureau of Land Management (BLM) designated utility corridor before reaching the existing North Gila Substation, northeast of the City of Yuma.

State and Federal Components of the Project

In the third quarter of 2005, APS began working with the BLM, Phoenix Field Office, to update their resource management plans (RMP). The RMP process included reviewing the need for existing utility corridors and designating new utility corridors through their federal lands. The BLM's final draft plan is expected to continue to include the existing San Diego Gas & Electric Interconnection designated utility corridor, which is one-mile wide, and lies within the BLM's study area. A portion of the study area

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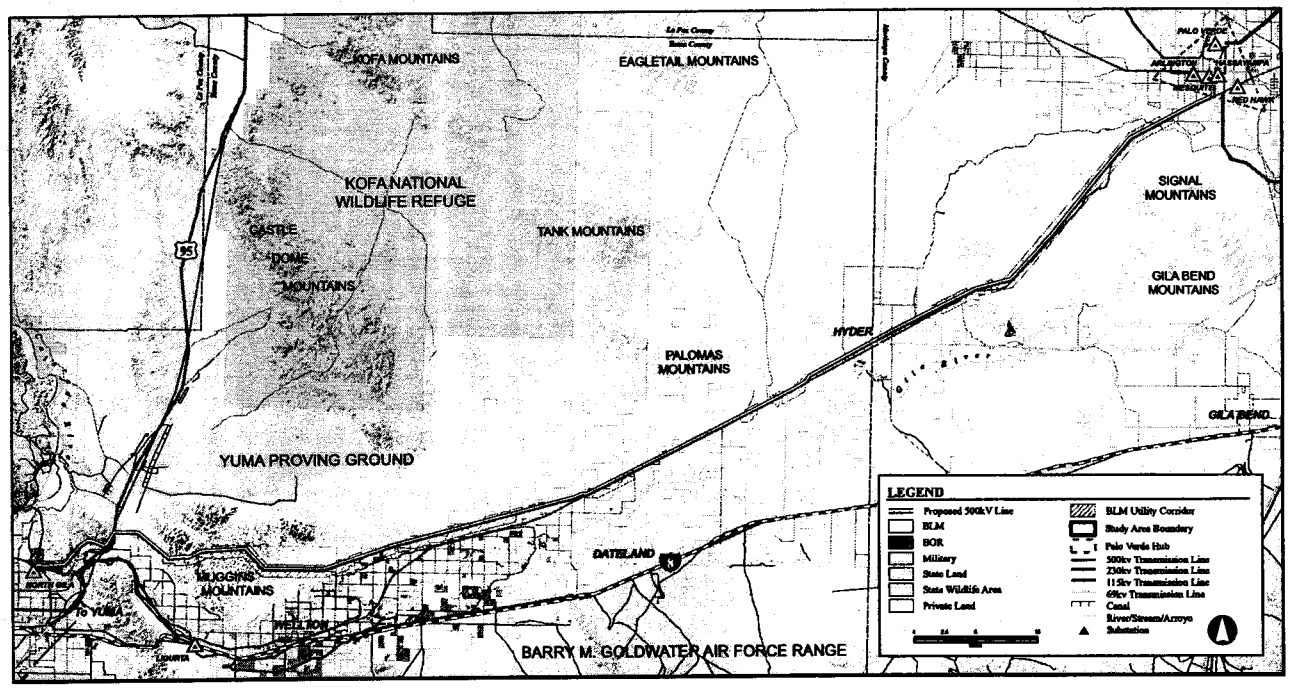
For more information, please visit the project Web site at http://siting.aps.com



also crosses lands administered by the Yuma BLM office, which is currently updating their RMP as well.

Because APS proposes that the new 500kV transmission line, in part, be located on federal land, adherence to the National Environmental Policy Act (NEPA) is required. APS has filed a right-of-way application on the proposed project and, as required under NEPA, will conduct an Environmental Assessment (EA) as part of that right-of-way application process.

In addition to the federal planning requirements for the project, APS will prepare a Certificate of Environmental Compatibility (CEC) application to comply with Arizona Revised Statute 40-360 for state permitting of the project. This application will be filed with the Arizona Power Plant and Transmission Line Siting Committee, which will hold public hearings on the project. The CEC application will document the proposed project's purpose and need, description, cost, federal and state permitting efforts, associated environmental issues and public outreach efforts.

Ultimately, the state siting committee will make a formal recommendation on the project to the Arizona Corporation Commission, which makes a final determination on a power line route.

Environmental Process

APS has retained an environmental consulting firm, the Environmental Planning Group (EPG), based in Phoenix, to conduct the required environmental analysis on the project. EPG will conduct five primary tasks:

1) Regional study/identification of preliminary alternatives;

2) Detailed inventory of resources in the project area;

3) Impact assessment and mitigation planning;

4) Environmental Assessment report preparation; and

5) Preparation of the CEC application.

Public Information

The public is invited to learn more about the project in the following ways:

- Project information will be posted via the internet at http://siting.aps.com
- Project newsletters will be mailed periodically to APS customers and landowners in the area, and others with an interest in the project.
- Public open houses with informal formats allow individuals to meet with project team members one-on-one and discuss the latest project information.
- A project telephone information line at (888) 206-6166 will carry up-to-date information regarding the project.
- The federal NEPA and state siting processes also provide the public with various levels of comment opportunities and involvement.

First Project Open Houses

The first project open house will be held **March 1, 2006** at the Dateland Community Center, 1300 S. Ave. 64E, in Dateland, Ariz. The public may attend any time between 5:30 and 7:30 p.m., to talk one-on-one with project team members. An additional open house will be on **March 2, 2006** at Arizona Western College, College Union Building, Saguaro Room, 2020 S. Ave. 8E, in Yuma, Ariz. between 5:30 and 7:30 p.m. We look forward to seeing you at one of the open houses.

Project Schedule

While the project permitting process informally began through discussions with the BLM in mid-2005, the environmental planning, public, state and NEPA processes will extend into the fourth quarter of 2006. APS plans to file for a CEC with the Arizona Corporation Commission in the third quarter of 2006, with state siting hearings anticipated to conclude in the second quarter of 2007. The entire project is planned to be completed and operational by 2012.

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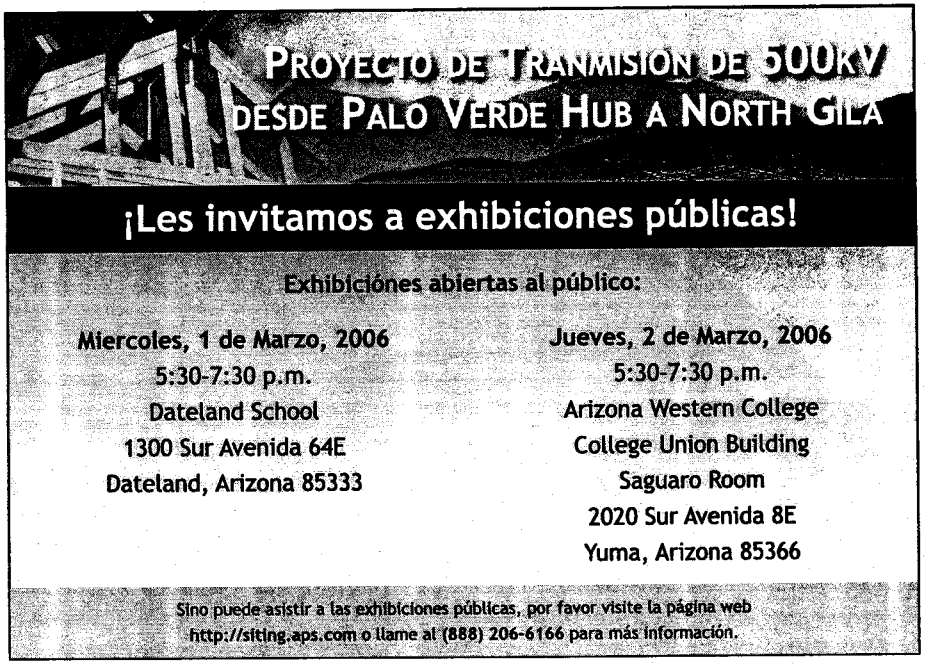

Febrero 2006 • Boletin de Noticias 1

APS Propone Nuevas Instalaciones de Transmisión

APS propone construir una nueva línea de transmisión de 500 kilovoltios (500kV) desde el centro de Palo Verde a la area de Yuma para acomodar el crecimiento de la población (vea el mapa en la página siguiente).

Los resultados del censo de los Estados Unidos tomado en el año 2000 indican que la area de Yuma creció casi 50 por ciento desde el año 1990, haciéndola la area tercera ciudad en este país mas rápida en crecer. Adicionalmente, el uso de electricidad por término medio en Arizona ha subido al porcentaje de 21 en esta última década. Estadisticas como estas realmente demuestran la necesidad de construir nuevas instalaciones eléctricas.

Este proyecto suministruirá la infraestructura eléctrica de transmisión que traerá la mayor parte de electricidad en esta area de rápido crecimiento. Este proyecto también fortalecerá el sistema de transmisión de APS para suministrar una fuente de energía de transmisión adicional de alta voltaje al area metropolitana de Yuma. Esto permitirá la importación de electricidad de fuentes generadas en, y sobre, la planta nuclear Palo Verde Nuclear Generating Station (PVNGS).

Descripción del Proyecto

La línea proponida de transmisión será aproximadamente 115 millas de larga y será construida en torres entramados, típicamente entre 130 a 150 pies de altura. La línea de 500kV proponida por APS comenzaría a una de varias puntos de interconeción en el centro de Palo Verde y por la mayor parte, será pararela a la 500kV línea existente de Southwest Powerlink (SWPL). Aproximadamente 55 millas de la línea, sería entre el existente corredor de utilidad designado del Burea of Land Management (BLM), que es una milla ancha, antes de alcanzar la subestación de North Gila, nordeste de la ciudad de Yuma.

Componentes Estatales y Federales

El el tercer cuarto del año 2005, APS comenzó a trabajar con la oficina de BLM en Phoenix para actualizar los planes de manejar los recursos que incluye designar un corredor de utilidad por medio de tierra federal. Es anticipado que el plan final borrador del BLM incluirá el existente y designado corredor de utilidad apropiado por San Diego Gas & Electric Interconneción que es una milla ancha y contiene parte de la area del estudio de BLM. Una porción de la area de estudio pasará por tierra administrada por la oficina de BLM en Yuma que también está actualizando su propio plan de manejar los

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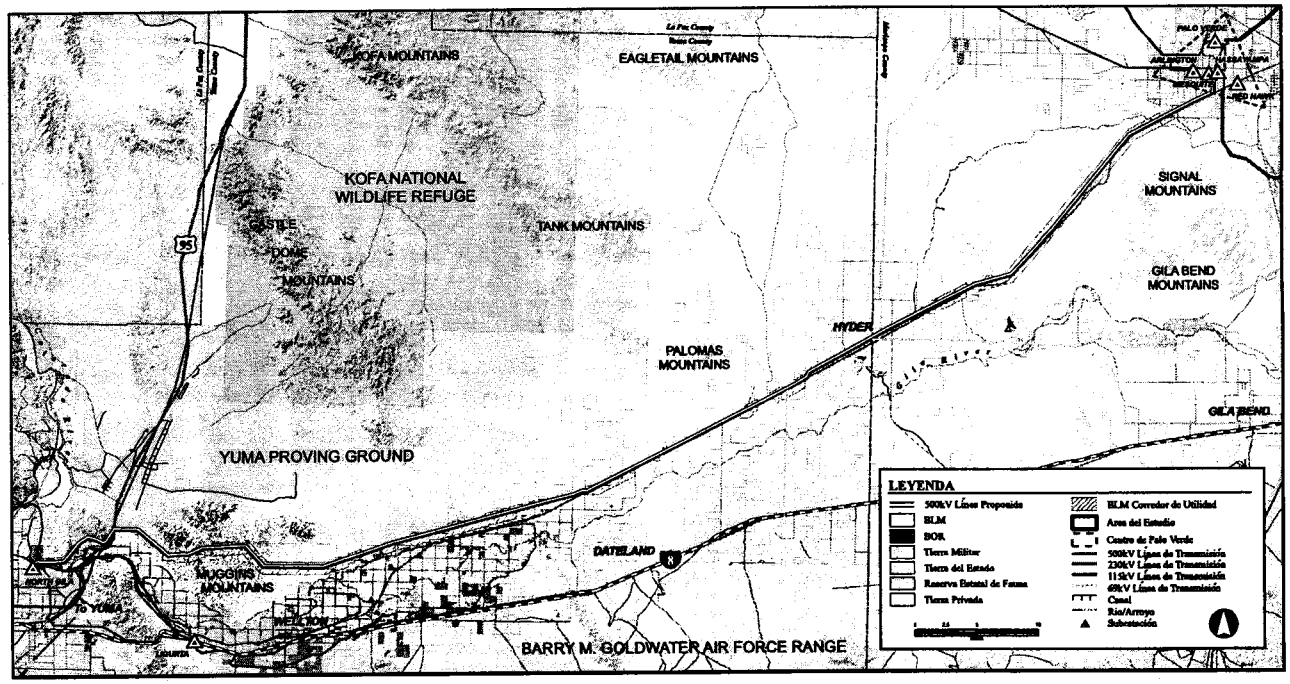

recursos. Es anticipado que el existente y designado corredor de utilidad será transferido al plan final borrador de Yuma.

Adherencia al National Environmental Policy Act (NEPA) es obligatoria porque la nueva 500kV línea de transmisión que APS está proponiendo está, en parte, localizada en tierra federal. APS ha expedido una aplicación por el derecho de paso por el proyecto proponido. APS tambien conductará una evaluación medioambiental (EA) como parte del proceso de aplicar por el derecho de paso.

Además del requisitos de planificación federal del proyecto, APS preparará una aplicación para un Certificado de Compatibilidad Medioambiental (CEC) para cumplir con el estatuto revisado 40-360 de Arizona para que el estado permita el proyecto.

Esta aplicación será expedida con el Comité de Emplazamiento de la Central Eléctrica y Línea de Transmisión de Arizona que administrarán sesiones publicas sobre el proyecto. La aplicación del CEC documentará el propósito, necesidad, descripción, coste, esfuerzos federales y estatales para permitir el proyecto, temas asociados del medioambiente, y esfuerzos de alcanzar al público.

Finalmente, el comité de emplazamiento del estado hará una recomendación formal sobre el proyecto a la Comisión Corporal de Arizona (ACC) que hará la final determinación de la ruta de la linea eléctrica.

Proceso Medioambiental

APS ha retenido a una empresa consultaria, Environmental Planning Group (EPG) basada en Phoenix, para conductar los requisitos analisis medioambiental en el proyecto. EPG conductará cinco tareas primárias:

1) Estudio regional/identificación de alternativas preliminarias;

2) Inventario detallado;

3) Evaluación de impactos y planificación de mitigación;

4) Preparación de la aplicación para el CEC.

Información Pública

El público está invitado a aprender más sobre el proyecto de diferentes maneras:

- Información del proyecto será anunciada en la pagina web http://siting.aps.com.
- Boletines de noticias serán enviados periódicamente por correo a los clientes de APS, terratenientes, y otros con interés en el area del proyecto.
- Exhibiciones abiertas al público con un formato informal permitiendo individuales a conocer miembros del equipo del proyecto y hablar sobre la última información.
- Línea de información (888) 206-6166 que también tendrá la última información sobre el proyecto.
- Los procesos federales de NEPA y estatales de emplazamiento también son públicos y permiten varios niveles de oportunidades para comentarios y participación.

Primeras Exhibiciones Abiertas al Público

La primera exhibición abierta al público será en el día 1 **de marzo del 2006** en el centro comunitaria de Dateland, 1300 Sur Avenida 64E en Dateland, Ariz. El público podrá atender a cualquier hora entre las 5:30 y 7:30 de la noche para hablar con miembros del equipo del proyecto. Habrá otra exhibición abierta al público en el día **2 de marzo del 2006** en Western Nevada College, College Union Building, Saguaro Room, 2020 Sur Avenida 8E, Yuma, Ariz. Esperamos verles a todos.

Horario del Proyecto

Mientras el proyecto informalmente empezó entre discusiónes con el BLM en el medio del año 2005, planificaciones medioambientales, procesos con el estado, NEPA, y el público van a extender al final cuarto del 2006. APS planea expedir documentos para un CEC con la Comisión Corporal de Arizona en el tercer cuarto del 2006, con sesiones de emplazamiento estatal anticipado a concluir el segundo cuarto del 2006. El proyecto entero será finalizada y operacional en el 2012.

APS

APPENDIX E
PUBLIC COMMENT

PALO VERDE HUB TO NORTH GILA
500kV TRANSMISSION LINE PROJECT
BLM ENVIRONMENTAL ASSESSMENT
PUBLIC COMMENT AND RESPONSE SUMMARY TABLE*

Comment No.	Date	Name	Comment Source	Issue	Comment (summary)	EA Location of Response
1	2/6/2006	Richard Issacson, Retired USAF MSGT	Letter	Project description	Approve of proposed 500kV line as submitted	No comment
2	2/7/2006	Shane, Fred Kawasaki	Phone	Project description	Approve of proposed 500kV line as submitted	No comment
3	2/7/2006	Pierre M. Cantou	Letter	Project description	Concern for Yuma Indian Reservation	Refer to Chapter 1, Section 1.1
4	2/8/2006	Peter Steere, Tohono O'odham	Phone	Project alternatives	Location of route within BLM-designated corridor	Refer to Chapter 1, Section 1.1
				Project description	Relationship to the Welton/Mohawk land transfer	Refer to Chapter 1, Section 1.1
5	2/8/2006	Christopher Coover, Parks and Recreation Dept. of Maricopa County	Email	Land use (recreation)	No adverse impact on the Maricopa Trail	Refer to Chapter 3, Section 3.2.1
6	2/9/2006	Ricky L. Rinehart, Adelphia	Letter	None	Approve of proposed 500kV line as submitted	No comment
7	2/10/2006	Jerry Ramirez, ADOT (Yuma)	Phone	Land use	Project must receive an encroachment permit from ADOT prior to any work in ADOT right-of-way	APS will coordinate with ADOT
8	2/10/2006	Ron Pierce, USMC	Phone	Cumulative impacts	Relationship to proposed WAPA line	Refer to Chapter 4, Section 4.2.1
				Project description	Question destination of energy	Refer to Chapter 1, Section 1.2
				Project need	Question need for both APS and WAPA lines	Refer to Chapter 1, Section 1.2
9	2/14/2006	Andy, Rinker Materials	Phone	Land use (mineral rights)	Concern for state lease land	Refer to Chapter 1, Section 1.1
10	2/14/2006	Gayle Rusing, Greater Yuma Economic Development Corporation	Letter	Project description	Approve of proposed 500kV line as submitted	No comment
11	2/14/2006	Carla Cristelli, Department of Energy, Western Area Power Administration	Letter	Construction	Need detailed right-of-way plans; no excavation within 20 feet of WAPA poles; no appreciable change to topography near WAPA line	Refer to Chapter 2, Section 2.2.1
				Mitigation	Maintain clear zone around WAPA poles for maintenance; prevent soil erosion	Refer to Chapter 2, Section 2.2.1
12	2/17/2006	John Eckhardt, ADOT, Intermodal Transportation Division	Letter	Land use	Project must receive an encroachment permit from ADOT prior to any work in ADOT right-of-way	APS will coordinate with ADOT
13	2/21/2006	Mike Cartsonis, City of Litchfield Park	Letter	None	Project distant from jurisdiction	No comment
14	2/23/2006	Sheree Ann Wetjen	Letter	Project description	Project description is vague	Refer to Chapter 1, Section 1.1
				Land use	Question if public land granted for ROW is lost for future use by public	Refer to Chapter 2, Section 2.2.1
				Document review	Would like to receive a copy of the draft/final EA when available	BLM to determine

PALO VERDE HUB TO NORTH GILA
500kV TRANSMISSION LINE PROJECT
BLM ENVIRONMENTAL ASSESSMENT
PUBLIC COMMENT AND RESPONSE SUMMARY TABLE*

Comment No.	Date	Name	Comment Source	Issue	Comment (summary)	EA Location of Response
15	2/27/2006	Frank R. Jozwiak, Morisset, Schlosser, Jozwiak & McGaw Law Offices, on behalf of the Quechan Indian Tribe	Letter	Project description	Location of proposed route	Refer to Chapter 1, Section 1.1
				Earth and water resources	Impacts to allocated Colorado River water	Refer to Chapter 3, Section 3.7
16	3/2/2006	Steven L. Spangle, United States Department of the Interior, USFWS, Arizona Ecological Services Field Office	Letter	Biology	General information on how to obtain lists of threatened, endangered, or sensitive species	Refer to Chapter 3, Section 3.5
17	3/3/2006	Merle Eugene Zunigha, United States Department of the Interior, Bureau of Indian Affairs	Letter	Document review	Would like to receive a copy of the draft/final EA when available	BLM to determine
18	3/15/2006	Gregory T. Glassco, Yavapai-Prescott Indian Tribe	Letter	Project description	Supports Path 49 Conductor Clearance upgrade, unrelated to proposed project	No comment
19	3/15/2006	Laura Verdugo, Southern California Edison Company	Email	Project alternatives	Information on alternatives, interconnection points	Refer to Chapter 1, Section 1.1

*Table reflects comments submitted directly to the BLM in response to informational letters mailed in January 2006

EXHIBIT C
AREAS OF BIOLOGICAL WEALTH

EXHIBIT C
AREAS OF BIOLOGICAL WEALTH

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state the effects, if any, the proposed facilities will have thereon."

Exhibit C includes summaries of areas of biological wealth, as well as the potential impacts the Proposed Route may have on each resource. For further information refer to the EA, included as Exhibit B-1.

BIOLOGICAL WEALTH

Introduction

Special status plant species and wildlife that potentially occur within the study area are listed in Table C-1. These include species listed as endangered, threatened, or candidate species under the Endangered Species Act, wildlife species of special concern identified by the Arizona Game and Fish Department (AZGFD), or highly safeguarded plants by the Arizona Department of Agriculture. The information provided in Table C-1 includes the results of a literature search, secondary data from the BLM, review of previous studies conducted in the area of the proposed action, and field visits conducted from September 2005 to October 2006. Field visits did not include any species-specific surveys, but were performed for reconnaissance purposes only. Table C-1 was compiled utilizing the United States Fish and Wildlife Service (USFWS) endangered species Internet site (TESS), information provided by the AZGFD specific for the Proposed Action (AZGFD 2006), and the AZGFD Heritage Data Management System (HDMS) Internet site (AZGFD 2006).

TABLE C-1
SPECIAL STATUS SPECIES

Common Name	Scientific Name	Habitat	Federal Status	State of Arizona
		MAMMALS		
California leaf-nosed bat	*Macrotus californicus*	Sonoran desertscrub with caves or mines for roosts.	SC	WC
Cave myotis	*Myotis velifer*	Roosts primarily in mines or caves in xeric habitats such as creosote bush or paloverde mixed scrub plant associations. Requires a permanent water source within a few miles of roost.	SC	

TABLE C-1 SPECIAL STATUS SPECIES				
Common Name	**Scientific Name**	**Habitat**	**Federal Status**	**State of Arizona**
Pocketed Free-tailed Bat	*Nyctinomops femorosaccus*	Sonoran desertscrub with cliffs for roosts	SS	
Spotted bat	*Euderma maculatum*	Dry desert environments, and from below sea level up to conifer habitat.	SS	WC
Desert Bighorn Sheep	*Ovis canadensis*	Precipitous, desert mountain ranges.	SC	
Sonoran Desert Pronghorn	*Antilocapra Americana sonoriensis*	Open cover grassland, or grassland with low shrubs and rolling hills.	E	WC
BIRDS				
Great Egret	*Ardea alba*	Aquatic habitat generalists		WC
Western burrowing owl	*Athene cunicularia hypugia*	Open country, agricultural areas, urban habitats at golf courses, and airports.	SC	
Western Yellow-billed Cuckoo	*Coccyzus Americanus occidentalis*	Dense, wooded riparian zones and damp thickets with high humidity	C	WC
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	Lowland riparian woodlands and thickets	E	WC
American Peregrine Falcon	*Falco peregrinus anatum*	Open areas with perches providing good visibility. Found in almost any habitat.	SC	WC
Cactus Ferruginous Pygmy-Owl	*Glaucidium brasilianum cactorum*	Sonoran desertscrub with braided wash systems and mesquite, paloverde, saguaro, ironwood, and other shrubs and cacti	SC	WC
Yuma Clapper Rail	*Rallus longirostris yumanensis*	Freshwater marshes	E	WC
REPTILES				
Desert Rosy Boa	*Charina trivirgata gracia*	Rocky areas with basalt and granite soils in desert ranges, especially in canyons with permanent or intermittent streams.	SS	
Desert tortoise (Sonoran population)	*Gopherus agassizii*	Completely terrestrial desert species requiring firm, but not hard, ground for construction of burrows, frequents desert oases, riverbanks, washes, and rocky slopes.	SC	WC
Common Chuckwalla	*Sauromalus ater*	Rock-dwelling, herbivorous lizard, widely distributed in the desert.	SC	

TABLE C-1 SPECIAL STATUS SPECIES				
Common Name	**Scientific Name**	**Habitat**	**Federal Status**	**State of Arizona**
Yuman Desert Fringe-Toed Lizard	*Uma notata*	Sparsely vegetated fine windblown sand dunes, flats, riverbanks, and washes of arid desert.	SS	WC
PLANTS				
Longleaf sandpaper plant	*Petalonyx linearis*	Sandy or rocky canyons in the Sonoran Desert and the southeastern Mojave Desert.	SS	
Kearney sumac	*Rhus kearneyi*	Found on north-facing dry cliffs in desert scrub at elevations from 1,000 to 1,500 feet.	SS	
Schott Wire Lettuce	*Stephanomeria schottii*	semi-stabilized sand dunes with creosote bush, white bursage, big galleta grass, and many species of wildflowers at 400 to 800 feet	SS	
Arizona Rosewood	*Vauquelinia californica* spp. *sonorensis*	Woodland or forest at the base of cliffs, along canyon bottoms, and on moderate to steep slopes	SS	

Key: Federal Status: SC = Species of concern , E = Endangered, C = Candidate for listing as Endangered, SS = Sensitive species
State Status: WC = Wildlife of special concern in Arizona. HS = Highly Safeguarded (Native Plant Law)
Sources: AZGFD 2006; AOU 1998; Burt and Grossenheider 1980; Degenhardt et al. 1996; Ehrlich et al. 1988; Glinski 1998; Harvey et al.; 1999; Hoffmeister 1986; ITIS 2005; NGS 2002; Stebbins 2003; Wheeler 2003

Vegetation

There are several special status plant species that could potentially occur within the study area as listed by the AZGFD. Prior to construction, a native plant inventory will be conducted on BLM and Arizona State Trust land crossed by the Proposed Route. The inventory will be conducted in accordance with the Arizona Department of Agriculture guidelines. Special status plant species are listed in table C-1.

Wildlife

There are four federally listed endangered or candidate wildlife species that are known to occur in or near the study area that would possibly be affected by the proposed transmission line. Three of the species, the Southwestern Willow Flycatcher, Yuma Clapper Rail, and the Sonoran Pronghorn, are federally listed as endangered, while the fourth, the Western Yellow-billed Cuckoo, is a candidate species. The three birds are unlikely to be found within the project area on any more than a transitory basis as they are riparian obligates. The extreme northern part of the Sonoran Pronghorn's range ends just to the south of the project area making it unlikely that it would venture into the project area.

There are seventeen species of animals listed as sensitive species that could potentially be present in the study area. Eight of these species are federal (BLM) special status species or species of concern. The federal species of concern include 2 species of bats—the California leaf-nosed bat and Cave Myotis, 2 bird species—the Western Burrowing Owl and the Peregrine Falcon, 3 reptile species—the Sonoran Desert Tortoise, the Common Chuckwalla, and the Desert Rosy Boa, and 1 large mammal—the Desert Bighorn Sheep.

The presence of abandoned mineshafts and adits from historic mining activity in the vicinity of the Proposed Route could provide suitable roosting habitat for some of the species of bats mentioned above. There is moderate potential for the California Leaf-nosed Bat, Cave Myotis, and Pocketed Free-Tailed Bat to occur within the study area. Lack of significant cliffs for roosting along the project alignment means there is a small likelihood of Spotted Bats being present.

There are no suitable nesting sites in the study area for the American Peregrine Falcon and there is a low probability for their presence here as a foraging species. Suitable habitat for the Western Burrowing Owl is present along much of the transmission line route, and the probability of their presence along the route is considered to be moderate.

There is a high likelihood of the Sonoran Desert Tortoise occurring in the project area. Link 50 mileposts 4-17, 21-24, 34-35.5, and 100-105 are located within BLM-designated habitat for the Desert Tortoise. Desert Tortoise habitat is grouped into three categories based upon the following four criteria: (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) (AIDTT 1996). Category 1 habitat is considered the highest density, with Category 3 considered the lowest. Link 50 mileposts 4-17 are located within Category 2 habitat and mileposts 21-24, 34-35.5, and 100-105 are located within Category 3 habitat, which is managed by the BLM for the goal of maintaining viable Desert Tortoise populations. There is no Category 1 habitat within the study area.

There is a high likelihood of the Desert Bighorn Sheep occurring in the project area. Link 50 mileposts 10-11 in the Gila Bend Mountains and 85-96 in the Muggins Mountains cross BLM-designated habitat for the Desert Bighorn Sheep.

The Common Chuckwalla and Desert Rosy Boa may be present in rocky areas within the study area. The probability for the presence of Chuckwallas and Rosy Boas within the study area is considered to be moderate.

There is a low likelihood of the Yuman Desert Fringe-toed Lizard occurring in the project area. This species requires fine, windblown sand dunes and the alignment does not pass through any such dunes.

Potential Impacts – Proposed Route

Vegetation

No long-term, adverse effects to special status species or unique habitats will result from construction or operation of the Proposed Route. No long-term loss of habitat will occur except at structure sites.

Wildlife

No long-term, adverse effects to special status species will result from construction or operation of the Proposed Route. The potential for birds to collide with the transmission line is minimal because the dimensions between the components of the proposed 500kV transmission line are sufficient to preclude any potential for electrocution of any bird species. Similarly, birds are unlikely to collide with conductor wires because conductor bundle size makes them readily visible. A biological monitor would be present and would conduct surveys prior to construction activities to ensure burrowing owls are safely removed or relocated from the construction area. In areas where burrowing owls are encountered within the right-of-way, passive relocation or exclusion would be recommended during non-breeding seasons. Exclusion would be accomplished by the placement of a one-way control device at burrow entrances and the subsequent collapsing of burrows after confirmation that the burrow has been vacated.

There is a potential for Desert Tortoise along sections of the Proposed Action, particularly in the Category 2 and 3 habitat areas identified along portions of Link 50. After the final alignment of the transmission line is determined, pre-construction surveys would be performed to determine the presence and relative density of Desert Tortoises. Mitigation efforts would be applied to minimize loss of quality or quantity of Desert Tortoise habitat in accordance with current BLM policy (*Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona,* October 1990).

If construction activity occurs during tortoise season (March through October), monitoring for Desert Tortoises will be required along certain areas of the proposed transmission line. With a Tortoise monitor present during construction activity in tortoise season, impacts to Desert Tortoises could be minimized. Removal of vegetation, which may include plants utilized by Desert Tortoises for food or shade, during clearing of structure pads and access roads can in part be mitigated through post-construction re-seeding of disturbed areas with an appropriate native seed mix.

Construction activities should have little effect on the populations of Desert Bighorn Sheep within the project area as long as water guzzlers or other wildlife water sources are avoided by construction crews to allow free access by the Bighorn Sheep.

If construction avoids placement of structure sites and roadways through areas of large rocks, there should be no impacts to the common Chuckwalla or Desert Rosy Boa. Any effects to other species from construction of the proposed transmission line should be negligible.

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EXHIBIT D
BIOLOGICAL RESOURCES

EXHIBIT D – BIOLOGICAL RESOURCES

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"List the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon."

Exhibit D includes a summary of biological resources, as well as the potential impacts the Proposed Route may have on biological resources. For further information refer to the EA, included as Exhibit B-1.

BIOLOGICAL RESOURCES

Biotic resource inventory studies were conducted for the Proposed Route. Biological resources present in the 4-mile-wide study area that were inventoried include vegetation types and associated wildlife, unique habitats, and special status plant and wildlife species (AZGFD 2006a and 2006b, BLM 2006). Vegetation types were determined during site visits in 2005 and 2006.

Inventory

Vegetation Types

Several vegetation types are present along the Proposed Route. Much of the length of the Proposed Route passes through desertscrub where creosote bush (*Larrea tridentata*) is a prominent component. Areas of saltbush habitat are present along, within, and just west of the PV Hub. Saltbush habitats are characterized by extreme aridity. They may exist either as a product of their topography, climate, and/or soil morphology (xerophytic type) or as a result of the chemical properties of their soil (halophytic type) (Turner 1982).

Throughout the transmission line corridor the plant community is generally creosote bush with scattered saguaro cacti (*Carnegiea gigantea*). This vegetation type is essentially continuous except for areas where the transmission line will cross upland bajadas that have higher species diversity due to increased moisture from runoff.

In the foothills on the south sides of the mountains in the transmission line corridor there are communities of foothill paloverde (*Parkinsonia microphylla*), ironwood (*Olneya tesota*), and saguaro that are almost wholly restricted to drainages, including the smallest runnels, rather than being evenly distributed over the bajadas. Between the drainageways, the landscape is dominated by a creosote bush and bursage (*Ambrosia* spp.) community with localized concentrations of teddybear cholla (*O. bigelovii*), buckhorn chollas (*O. acanthocarpa*), and intermittent hedgehog cactus (*Echinocereus engelmannii*). Vegetation on the interfluvials is minimal in some areas where there is desert pavement and often only rigid spiny herb (*Chorizanthe rigida*) and a few

buckwheat (*Eriogonum* sp.) plants are found.

Blue paloverde communities present in several xeric drainages at the east end of the proposed transmission line are dominated by blue paloverde with burrobrush (*Hymenoclea salsola*) present. Additional species present in the order of prevalence are velvet mesquite (*Prosopis velutina*), catclaw acacia (*Acacia greggii*), and ironwood. The dominant shrub species in many of the xeric areas is desert broom (*Baccharis sarothroides*).

Wildlife

Mammalian fauna within the study area is dominated by species of small, nocturnal rodents and bats including several species of Pocket Mice and Kangaroo Rats. Big game species present include Desert Bighorn Sheep (*Ovis canadensis mexicana*), Mule Deer (*Odocoileus hemionus*), and Javelina (*Pecari tajacu*). Carnivores present likely include Coyote (*Canis latrans*), Gray Fox (Urocyon cinereoargenteus), Badger (*Taxidea taxus*), Bobcat (*Lynx rufus*), and at least two species of skunks.

Because of a general lack of dense vegetation that provides cover and nesting habitat, there are fewer bird species present in the Lower Colorado Subdivision of the Sonoran desertscrub biome. Turner (1982) lists only LeConte's Thrasher (*Toxostoma lecontei*) as representative of this subdivision. Birds observed or documented during field visits to the study area included the following:

- Northern Harrier (*Circus cyaneus*)
- Red-tailed Hawk (*Buteo jamaicensis*)
- American Kestrel (*Falco sparverius*)
- Gambel's Quail (*Callipepla gambelii*)
- Great Horned Owl (*Bubo virginianus*)
- Gila Woodpecker (*Melanerpes uropygialis*)
- Say's Phoebe (*Sayornis saya*)
- Abert's Towhee (*Pipilo aberti*)
- Black-tailed Gnatcatcher (*Polioptila melanura*)
- Loggerhead Shrike (*Lanius ludovicianus*)
- Common Raven (*Corvus corax*)
- Verdin (*Auriparus flaviceps*)
- Canyon Wren (*Catherpes mexicanus*)
- Cactus Wren (*Campylorhynchus brunneicapillus*)
- Black-throated Sparrow (*Amphispiza bilineata*)
- House Finch (*Carpodacus mexicanus*)
- Phainopepla (*Phainopepla nitens*)

The only reptiles observed during site visits were the Zebra-tailed Lizard (*Callisaurus draconoides*) and Common Side-blotched Lizard (*Uta stansburiana*). Amphibian species are

likely to be very limited, but Spadefoot Toads are likely to be present and would be active during the summer rainy season. The Great Plains Toad (*Bufo cognatus*) and Spadefoot Toads (*Spea* spp. and *Scaphiopus* spp.) may be present in the xeroriparian areas, and Woodhouse's Toad (*B. woodhousii*) could be present in any irrigation waters available in the area.

Because of the lack of naturally occurring permanent surface water sources within the study area, no fish species are present except for several species of non-native fish within irrigation canals within the study area. Listings of species of mammals, birds, reptiles and amphibians that may occur in the study area are provided in Tables D-1, D-2, and D-3 respectively at the end of this section.

Potential Impacts – Proposed Route

Potential impacts to biological resources associated with the Proposed Route are related to activities likely to occur during the construction, operation, and maintenance of the line. Overall impact levels were determined to be primarily low, with some areas of moderate impact based on the review of the resources present, anticipated level of disturbance to those resources, and effectiveness of applied mitigation. Biological resources included in the impact assessment were vegetation types, and special status plant and wildlife species.

Vegetation

Impacts to native vegetation are anticipated to be low to moderate since a major access road already exists along the previously constructed SWPL 500kV transmission line. All of the habitat types along the proposed transmission line route, defined primarily by vegetation, are associations within the Sonoran desertscrub biome. Impacts to these habitats would include removal of existing vegetation during the clearing and grading of new access roads, structure sites, crane pads, wire splicing and pulling sites, and lay-down yards. This would impact available forage, nesting sites, and protective cover provided by these plants. Other impacts could include increased human access to previously undisturbed areas and an increase in areas susceptible to colonization by invasive plant species.

Because of increased availability of water, xeroriparian areas often support numerous desert plant species. Since most of the xeroriparian habitats are narrow, the line can span these areas and there would be minimal impact to these habitats.

Impacts of the proposed transmission line also may include ground disturbance and increased human access during construction. Ground disturbance occurring during construction of the Proposed Route would result from upgrading or building access and structure spur roads, placement of structure footings, and from activities at wire-splicing and tensioning sites. Permanent loss of habitat would be restricted to the area required for structure foundations. There could be short-term loss of vegetation due to trampling and soil compaction in the

immediate vicinity of construction areas. The recontouring and revegetation of construction yards after completion of construction will occur per standard construction and operating procedures and mitigation measures. The seed mix used to complete the revegetation will be approved by the BLM and the Arizona Department of Agriculture and will be certified weed free.

Wildlife

Increased noise and activity levels during construction could result in short-term impacts to wildlife. Larger mammals and bird species would likely avoid the area during construction, particularly along washes used as movement corridors. Direct mortality could occur to other wildlife, such as reptiles and small mammals, due to increased vehicular traffic along access roads, and the inability of these smaller animals to avoid such contact. There could also be a loss of burrows and nests for ground-dwelling species. Big game species, including Mule Deer and Javelina, probably utilize xeric washes as movement corridors throughout the study area. Bighorn Sheep may occasionally be present in the vicinity of the western part of the line near the Muggins Mountains and near the northeastern portion of the line where it crosses the Gila Bend Mountains. The Proposed Route will not constitute a barrier to wildlife movement after construction, and habitat fragmentation will not occur, resulting in minimal impacts to wildlife.

TABLE D-1
MAMMAL SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT

Common Name	Scientific Name	Habitat
Desert Shrew	*Notiosorex crawfordi*	Any area with ample ground cover including plant debris, trash, and lumber
California Leaf-nosed Bat	*Macrotus californicus*	Sonoran desertscrub with caves and mines
Cave Myotis	*Myotis velifer*	Desertscrub with caves, mines, or bridges and water nearby
California Myotis	*Myotis californicus*	Desertscrub with rock faces containing crevices, occasionally caves and mines
Western Pipistrelle	*Pipistrellus hesperus*	Areas with canyon walls or cliff faces for roosting, streambeds, and tanks for foraging
Big Brown Bat	*Eptesicus fuscus*	Wooded areas, desertscrub
Townsend's Big-eared Bat	*Plecotus townsendii*	Areas with caves or mines, structures for night roosts
Pallid Bat	*Antrozous pallidus*	Desertscrub with caves, mine, cliffs, bridges, or other structures for roosts
Brazilian Free-tailed Bat	*Tadarida brasiliensis*	Desertscrub and foothills with mines, caves, bridges or old buildings
Pocketed Free-tailed Bat	*Nyctinomops femorosaccus*	Rocky cliffs and slopes, structures
Big Free-tailed Bat	*Nyctinomops macrotis*	Rocky cliffs with crevices
Desert Cottontail	*Sylvilagus audubonii*	Desertscrub, semi-desert grassland
Black-tailed Jackrabbit	*Lepus californicus*	Desertscrub and other areas with open ground cover
Harris' Antelope Squirrel	*Ammospermophilus harrisii*	Rocky areas of creosote bush/saltbush/bursage

TABLE D-1 MAMMAL SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Rock Squirrel	*Spermophilus variegatus*	Rocky areas above 1,600 feet
Round-Tailed Ground Squirrel	*Spermophilus tereticaudus*	Creosote bush/saltbush desert with sandy or gravelly soil
Botta's Pocket Gopher	*Thomomys bottae*	Any area with soil suitable for digging burrows
Little Pocket Mouse	*Perognathus longimembris*	Sandy or gravelly soils in broken or rolling country
Arizona Pocket Mouse	*Perognathus amplus*	Desertscrub
Rock Pocket Mouse	*Chaetodipus intermedius*	Rocky areas of desertscrub
Desert Pocket Mouse	*Chaetodipus penicillatus*	Sandy areas of desertscrub with sparse vegetation
Bailey's Pocket Mouse	*Chaetodipus baileyi*	Flats and lower slope areas of desertscrub
Merriam's Kangaroo Rat	*Dipodomys merriami*	Sandy areas of desertscrub
Desert Kangaroo Rat	*Dipodomys deserti*	Areas with deep sandy soil
Plains Harvest Mouse	*Reithrodontomys montanus*	Desertscrub or chaparral
Western Harvest Mouse	*Reithrodontomys megalotis*	Desertscrub or chaparral
Cactus Mouse	*Peromyscus eremicus*	Desertscrub, rocky areas, chaparral
Deer Mouse	*Peromyscus maniculatus*	Coniferous or riparian woodland, desertscrub adjacent to canals or intermittent creeks
Southern Grasshopper Mouse	*Onychomys torridus*	Desertscrub or semi-desert grassland with compact soil
Arizona Cotton Rat	*Sigmodon arizonae*	Mesquite scrub and weedy areas along canals and washes
White-throated Wood Rat	*Neotoma albigula*	Areas below the conifer belt, especially with *Opuntia* or paloverde
Desert Wood Rat	*Neotoma lepida*	Desertscrub
House Mouse	*Mus musculus*	Weedy areas and cultivated fields, usually near human habitation
Coyote	*Canis latrans*	Cosmopolitan, from spruce forest to low desert
Kit Fox	*Vulpes macrotis*	Desertscrub and desert grassland with sandy or softer clay soils
Gray Fox	*Urocyon cineroargenteus*	Open desertscrub, chaparral, lower elevation woodland
Ringtail	*Bassariscus astutus*	Steep rocky areas near water
Badger	*Taxidea taxus*	Flats and drainages adjacent to mountains, grasslands
Western Spotted Skunk	*Spilogale gracilis*	Low and middle elevations, often in rocky areas or around human habitation
Mountain Lion	*Puma concolor*	Rocky or mountainous areas, especially with many deer
Bobcat	*Felis rufus*	Rocky upland areas interspersed with open desert, grassland or woodland
Collared Peccary	*Pecari tajacu*	Desertscrub, especially in thickets along creeks and old streambeds
Mule Deer	*Odocoileus hemionus*	Pine forest, oak woodland, chaparral, upland desert
Bighorn Sheep	*Ovis canadensis mexicana*	Steep rocky or mountainous habitat that provides steep escape terrain, with low-profile vegetation
Source: Harvey et al. 1999; Hoffmeister 1986		

TABLE D-2 BIRD SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Pied-billed Grebe	*Podilymbus podiceps*	Lakes, ponds, streams, and canals
Great Blue Heron	*Ardea herodias*	Lakes, ponds, streams, canals, and marshes
Snowy Egret	*Egretta thula*	Ponds, streams, and marshes
White-faced Ibis	*Plegadis chihi*	Lakes, ponds, streams, marshes, and fields
Mallard	*Anas platyrhynchos*	Lakes, ponds, streams, and canals
Cinnamon Teal	*Anas cyanoptera*	Ponds, streams, and canals
Turkey Vulture	*Cathartes aura*	Open country, woodlands, farms
Northern Harrier	*Circus cyaneus*	Wetlands, open fields
Sharp-shinned Hawk	*Accipiter striatus*	Generally distributed
Cooper's Hawk	*Accipiter cooperii*	Broken woodlands or streamside groves
Harris's Hawk	*Parabuteo unicinctus*	Semiarid woodland, brushland
Swainson'sHawk	*Buteo swainsoni*	Fields and desert
Red-tailed Hawk	*Buteo jamaicensis*	Plains, prairie groves, desert
Ferruginous Hawk	*Buteo regalis*	Dry, open country
American Kestrel	*Falco sparverius*	Open country, cities
Prairie Falcon	*Falco mexicanus*	Dry, open country, prairies
Peregrine Falcon	*Falco peregrinus*	Cliffs, generally distributed, tops of tall urban buildings
Gambel's Quail	*Callipepla gambelii*	Desert scrublands and thickets
Killdeer	*Charadrius vociferus*	Ponds, streams, and fields
White-winged Dove	*Zenaida asiatica*	Dense mesquite, mature citrus groves, riparian woodlands, saguaro-paloverde deserts
Mourning Dove	*Zenaida macroura*	Wide variety of habitats
Common Ground Dove	*Columbina passerina*	Fields and hedgerows
Greater Roadrunner	*Geococcyx californianus*	Scrub desert and mesquite groves, less common in chaparral and oak woodland
Barn Owl	*Tyto alba*	Dark cavities in city and farm buildings, cliffs, trees
Western Screech Owl	*Otus kennicottii*	Open woodlands, streamside groves, deserts, suburban areas
Great Horned Owl	*Bubo virginianus*	Common in wide variety of habitats
Elf Owl	*Micrathene whitneyi*	Desert lowlands, canyons, foothills
Burrowing Owl	*Athene cunicularia*	Open country, golf courses, airports
Lesser Nighthawk	*Chordeiles acutipennis*	Dry, open country, scrubland, desert
LeConte's Thrasher	*Toxostoma lecontei*	Mojave Desertscrub
Common Poorwill	*Phalaenoptilus nuttallii*	Sagebrush and chaparral slopes
White-throated Swift	*Aeronautes saxatalis*	Mountains, canyons, and cliffs
Black-chinned Hummingbird	*Archilochus alexandri*	Lowlands and low mountains
Anna's Hummingbird	*Calypte anna*	Coastal lowlands, mountains, deserts
Costa's Hummingbird	*Calypte costae*	Desert washes, dry chaparral
Rufous Hummingbird	*Selasphorus rufus*	Suburban and riparian areas
Gila Woodpecker	*Melanerpes uropygialis*	Towns, scrub desert, cactus country, streamside woods
Ladder-backed Woodpecker	*Picoides scalaris*	Dry brushlands, mesquite and cactus country, towns and rural areas
Northern Flicker	*Colaptes auratus*	Open woodlands, suburban areas
Gilded Flicker	*Colaptes chrysoides*	Low desert woodlands, favors saguaro
Pacific-slope Flycatcher	*Empidonax difficilis*	Migrant through lowlands

TABLE D-2 BIRD SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Say's Phoebe	*Sayornis saya*	Dry, open areas, canyons, cliffs
Ash-throated Flycatcher	*Myiarchus cinerascens*	Wide variety of habitats
Brown-crested Flycatcher	*Myiarchus tyrannulus*	Saguaro desert, river groves, lower mountain woodlands
Western Kingbird	*Tyrannus verticalis*	Dry, open country
Common Raven	*Corvus corax*	Mountains, deserts, coastal areas
Horned Lark	*Eremophila alpestris*	Dirt fields, gravel ridges, shores
Tree Swallow	*Tachycineta bicolor*	Streams, ponds, and lakes
Violet-green Swallow	*Tachycineta thalassina*	Riparian areas, streams, ponds, and lakes
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Banks of streams and canals, streams, ponds, and lakes
Cliff Swallow	*Petrochelidon pyrrhonota*	Lakeside, cliffs, and canals; nesting under nearby bridges, buildings, and other overhangs; streams and ponds
Verdin	*Auriparus flaviceps*	Southwestern desert
Cactus Wren	*Campylorhynchus brunneicapillus*	Cholla cactus habitat
Rock Wren	*Salpinctes obsoletus*	Arid and semiarid habitats
Canyon Wren	*Catherpes mexicanus*	Canyons and cliffs, often near water
Bewick's Wren	*Thryomanes bewickii*	Wooded riparian areas
Ruby-crowned Kinglet	*Regulus calendula*	Woodlands, thickets
Black-tailed Gnatcatcher	*Polioptila melanura*	Desert, especially washes
Northern Mockingbird	*Mimus polyglottos*	Variety of habitats
Bendire's Thrasher	*Toxostoma bendirei*	Open farmlands, grasslands, brushy desert
Curve-billed Thrasher	*Toxostoma curvirostre*	Cholla deserts and suburban areas
Phainopepla	*Phainopepla nitens*	Riparian areas, especially in trees with mistletoe
Loggerhead Shrike	*Lanius ludovicianus*	Generally distributed
European Starling	*Sturnus vulgaris*	Generally distributed
Orange-crowned Warbler	*Vermivora celata*	Riparian and suburban areas in lowlands
Lucy's Warbler	*Vermivora luciae*	Mesquites and cottonwoods along watercourses
Yellow-rumped Warbler	*Dendroica coronata*	Riparian and suburban areas
Wilson's Warbler	*Wilsonia pusilla*	Dense, moist woodlands, bogs, streamside tangles
Western Tanager	*Piranga ludoviciana*	Transient in lowlands
Green-tailed Towhee	*Pipilo chlorurus*	Brushy areas, riparian, and suburban areas
Canyon Towhee	*Pipilo fuscus*	Sonoran desertscrub
Abert's Towhee	*Pipilo aberti*	Riparian areas, suburban areas
Chipping Sparrow	*Spizella passerina*	Brushy edges and riparian areas
Brewer's Sparrow	*Spizella breweri*	Deserts, field edges, and suburban areas
Vesper Sparrow	*Pooecetes gramineus*	Open weedy fields, roadsides, and grassy areas
Lark Sparrow	*Chondestes grammacus*	Brushy, weedy areas, riparian areas, and field edges
Black-throated Sparrow	*Amphispiza bilineata*	Desertscrub
Lark Bunting	*Calamospiza melanocorys*	Brushy desert and field edges
Savannah Sparrow	*Passerculus sandwichensis*	Open fields, roadsides, and grassy areas
White-crowned Sparrow	*Zonotrichia leucophrys*	Suburban, riparian, and other brushy areas
Black-headed Grosbeak	*Pheucticus melanocephalus*	Transient in lowlands

TABLE D-2 BIRD SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Northern Cardinal	*Cardinalis cardinalis*	Woodland edges, swamps, streamside thickets, suburban gardens
Pyrrhuloxia	*Cardinalis sinuatus*	Thorny brush, mesquite thickets, desert, woodland edges, ranchlands
Lazuli Bunting	*Passerina amoena*	Weedy and shrubby areas along irrigation ditches and other bodies of water and suburban areas
Western Meadowlark	*Sturnella neglecta*	Fields and other open areas, deserts
Brown-headed Cowbird	*Molothrus ater*	Suburbs and agricultural areas
Hooded Oriole	*Icterus cucullatus*	Riparian and suburban areas
House Finch	*Carpodacus mexicanus*	Riparian and suburban areas, farmland, desert
Lesser Goldfinch	*Carduelis psaltria*	Riparian areas, brushy desert scrub
Sources: National Geographic Society 2002; Witzeman et al. 1997		

TABLE D-3 REPTILE AND AMPHIBIAN SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Sonoran Desert Toad	*Bufo alvarius*	Ranges from arid mesquite-creosote bush lowlands and arid grasslands into the oak-sycamore-walnut groves in mountain canyons, often found near permanent water of springs, reservoirs, canals, and streams, but also frequents temporary pools
Great Plains Toad	*Bufo cognatus*	Inhabits prairies or deserts, often breeding after heavy rains in summer in shallow temporary pools or quiet water of streams, marshes, irrigation ditches, and flooded fields, frequents creosote bush desert, mesquite woodland, and sagebrush plains
Red-spotted Toad	*Bufo punctatus*	Desert streams and oases, open grassland and scrubland, oak woodland, rocky canyons and arroyos, in crevices among rocks for shelter, breeds in rain pools, reservoirs, and temporary pools of intermittent streams
Southwestern Woodhouse Toad	*Bufo woodhousei australis*	Grassland, sagebrush flats, woods, desert streams, valleys, floodplains, farms, and city backyards, in sandy areas, breed in quiet water of streams, marshes, lakes, freshwater pools, and irrigation ditches
Couch Spadefoot	*Scaphiopus couchii*	Frequents shortgrass plains, mesquite savannah, creosote bush desert, thornforest, tropical deciduous forest, and other areas of low rainfall
Southern Spadefoot	*Spea multiplicata*	Frequents desert grassland, shortgrass plains, creosote bush and sagebrush desert, mixed grassland and chaparral, piñon-juniper and pine-oak woodlands, and open pine forests, soil is often sandy or gravelly
Sonoran Desert Tortoise	*Gopherus agassizii*	Completely terrestrial desert species requiring firm but not hard ground for construction of burrows, frequent desert oases, riverbanks, washes, and rocky slopes
Eastern collared Lizard	*Crotaphytus collaris*	Rock-dwelling lizard that frequents canyons, rocky gullies, limestone ledges, mountain slopes, and boulder-strewn alluvial fans, usually where vegetation is sparse
Long-nosed Leopard Lizard	*Gambelia wislizenii wislizenii*	Arid and semiarid plains grown to bunch grass, alkali bush, sagebrush, creosote bush, or other scattered low plants, ground may be hardpan, gravel, or sand
Western Banded Gecko	*Coleonyx variegatus*	Variety of habitats, often associated with rocks
Gila Monster	*Heloderma suspectum*	Canyon bottoms and washes in desert or desert grassland
Desert Iguana	*Dipsosaurus dorsalis*	Creosote bush desert to subtropical scrub, most common in sandy habitats but also occurs along rocky streambeds, on bajadas, silty floodplains, and on clay soils
Common Chuckwalla	*Sauromalus obesus*	Rock-dwelling, herbivorous lizard, widely distributed in the desert
Zebra-tailed Lizard	*Callisaurus draconoides*	Frequents washes, desert pavements of small rocks, and hardpan

TABLE D-3 REPTILE AND AMPHIBIAN SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Desert Horned Lizard	*Phrynosoma platyrhinos*	Arid lands on sandy flats, alluvial fans, along washes, and at the edges of dunes, associated with creosote bush, saltbush, greasewood, cactus, and ocotillo in the desert
Regal Horned Lizard	*Phrynosoma solare*	Frequents rocky and gravelly habitats of the arid and semiarid plains, hills, and lower slopes of mountains, often with cactus, mesquite, and creosote bush
Desert Spiny Lizard	*Sceloporus magister*	Arid and semiarid regions on plains and lower slopes of mountains, found in Joshua tree, creosote bush, and shad-scale deserts, mesquite-yucca grassland, juniper and mesquite woodland, subtropical thornscrub, and along rivers grown to willows and cottonwoods
Brush Lizard	*Urosaurus graciosus*	Desert species, frequents areas of loose sand and scattered bushes and trees, creosote bush, burrobush, galleta grass, catclaw, mesquite, and paloverde
Tree Lizard	*Urosaurus ornatus*	Frequents mesquite, oak, pine, juniper, alder, cottonwood, and non-native trees such as tamarisk and rough-bark eucalyptus, but also may occur in treeless areas, especially attracted to river courses
Side-blotched Lizard	*Uta stansburiana*	Arid or semiarid regions with sand, rock, hardpan, or loam with grass, shrubs, and scattered trees, often found along sandy washes
Western Whiptail	*Cnemidophorus tigris*	Inhabits deserts and semiarid habitats, usually where plants are sparse, also found in woodland, streamside growth, and in the warmer, drier parts of forests
Banded Sand Snake	*Chilomeniscus cinctus*	Loose soils in low desert or upland
Rosy Boa	*Charina trivirgata*	Rocky shrublands and desert, particularly near water source
Western Glossy Snake	*Arizona occidentalis*	Below 6,000 feet in sparsely vegetated woodland, chaparral, grassland or desertscrub with loose soil
Western Shovel-nosed Snake	*Chionactis occipitalis*	Sparsely vegetated desert areas with pockets of loose soil
Night snake	*Hypsiglena torquata*	Various upland and desert habitats used
Coachwhip	*Masticophis flagellum*	Sparsely vegetated areas from juniper woodland to low desert
Saddled Leaf-nosed Snake	*Phyllorhynchus browni*	Desertscrub
Spotted Leaf-nosed Snake	*Phyllorhynchus descurtatus*	Open desert with finer loose soils, especially creosote bush (*Larrea tridentata*)
Gopher Snake	*Pituophis catenifer*	Various habitats from mountain to low desert and coastal
Long-nosed Snake	*Rhinocheilus lecontei*	Desertscrub, prairie, tropical woodland to 5,500 feet
Western Patch-nosed Snake	*Salvadora hexalepis*	Piñon-juniper woodland to low deserts on variety of soil types
Glossy Snake	*Arizona elegans*	Sandy or loamy open areas – light shrubby to barren desert, sagebrush flats, grassland, chaparral-covered slopes, and woodland
Common Kingsnake	*Lampropeltis getulus*	Woodland, swampland, coastal marshes, river bottoms, farmland, prairie, chaparral, and desert

TABLE D-3 REPTILE AND AMPHIBIAN SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROPOSED PROJECT		
Common Name	**Scientific Name**	**Habitat**
Ground Snake	*Sonora semiannulata*	Wide range of habitats in loose soil with some subsurface moisture
Lyre Snake	*Trimorphodon biscutatus*	From oak and juniper woodland to higher elevation desert and grasslands, particularly in rocky areas
Western Coral Snake	*Micruroides euryxanthus*	Wide range of arid habitats including grassland, woodland, scrub and agricultural lands, particularly upland desert in washes and river bottoms
Western Blind Snake	*Leptotyphlops humilis*	Desertscrub and brush covered hillsides with loose soils
Western Diamondback rattlesnake	*Crotalus atrox*	Wide range of habitats below 7,000 feet
Southwestern Speckled Rattlesnake	*Crotalus mitchellii*	From juniper woodland to succulent desert, often in rocky areas
Tiger Rattlesnake	*Crotalus tigris*	Rocky desert canyons and foothills
Source: Degenhardt et al. 1996; Stebbins 2003.		

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EXHIBIT E
SCENIC AREAS, HISTORIC SITES AND STRUCTURES, ARCHAEOLOGICAL SITES

EXHIBIT E
SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

As stated in Arizona Corporation Commission Rules of Practice and Procedure R-14-3-219:

"Describe any existing scenic areas, historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon."

Exhibit E includes summaries of existing visual and cultural resources, as well as the potential impacts the Proposed Route may have on each resource. For further information refer to the EA, included as Exhibit B-1.

SCENIC AREAS AND VISUAL RESOURCES

Overview

The visual resource study included agency visual resource management classes, scenic quality, sensitive viewers, and visibility related to the construction, operation, and maintenance of the proposed transmission line and substation/switchyard facilities. The visual analysis was conducted in compliance with the BLM's Visual Resource Management System (VRM) (Manual 8410-1, 1996) and addresses the potential visual effects of the proposed project on landscape scenic quality, sensitive viewers, and compliance with VRM classifications. Data were collected 2 miles on either side (4-mile buffer total) of the assumed centerline of the Proposed Route in order to characterize the visual resources in the study area including scenic quality, key observation points (KOPs), and established VRM classes.

Existing Conditions – Proposed Route

Landscape Character

The project study area is located within the Basin and Range Physiographic Province in southwest Arizona (Fenneman 1931). The topographic character within the study area can be described as generally flat, with intermittent rolling hills and rock escarpments associated with the Gila Bend Mountains in the eastern portion of the study area and mountainous foothills leading up to coarse jagged peaks associated with the Muggins, Gila, and Laguna mountains in the western portion of the study area. Other major topographic features in this study area include Signal Mountain and Face Mountain.

The predominant vegetation throughout this study area is creosote bush-bursage communities within the desert plains; however, greater density and diversity of vegetation is found along

xeroriparian corridors in the Sonoran Desert section, which include palo verde, ironwood, and a variety of cacti. Open stands of saguaro can be found along the bajadas and foothills associated with Signal Mountain and the Gila Bend Mountains in the eastern portion of the project study area. Mountainous regions in the western portion of the study area, including the Muggins, Gila, and Laguna mountains, are sparsely vegetated by creosote-bursage and other desert scrub communities.

Infrastructure/cultural modifications in the project study area that affect the natural landscape setting include the Palo Verde Hub and associated facilities (PVNGS, Arlington Valley Energy Facility, Mesquite Power Generating Station, Hassayampa Switchyard, and the Redhawk Power Plant), the SWPL 500kV transmission line, 161kV Western Area Power Administration (WAPA) transmission lines, 69kV transmission lines, a Kinder-Morgan petroleum pipeline, the UPRR, and a natural gas pipeline. Communities within the study area are primarily associated with agriculture and are represented by small towns such as Wintersburg, Hyder, and Dome. Historically, mining operations, including copper and gold, occurred throughout the study area. Gravel extraction areas, which are highly visible, are located within the study area.

Scenic Quality

The majority of the proposed Palo Verde-North Gila 500kV corridor traverses Class C landscapes. These areas are generally associated with low isolated desert hills, desert plains, and alluvial slopes with a lower density of vegetation. Examples of Class C landscapes include Dome Valley, Hyder Valley, and plains east of Red Bluff. Class B landscapes that are traversed by the Proposed Route include bajadas west of the Gila Bend Mountains, and the Laguna Mountains. Class B areas are designated where terrain features are more subtle and do not possess great variety, but other characteristics such as interesting vegetation or riparian areas add interest to the scenery. Additionally, agricultural land associated with Dome Valley, Hyder Valley, and the Gila River Corridor, are considered Class B landscapes because of landscape diversity in these areas. Areas designated as Class A scenery, while limited, include mountainous terrain containing an array of distinctive rock formations that are unique to their setting. No Class A landscapes are crossed by the Proposed Route; however, this route would run directly adjacent to the Class A Muggins Mountains and Signal Mountain Wilderness Areas.

Sensitive Viewpoints

Visual sensitivity reflects the degree of concern for change in the scenic quality of the natural landscape or existing conditions from a sensitive viewpoint in the study area. Sensitive viewers identified within the study area include residential, travel route, and recreation viewers as described below.

Residential Viewers

Residential development in the study area is primarily rural in character and associated with agricultural lands. In the easternmost portion of the study area near the Palo Verde Hub there are three isolated residences. These residences are located one mile or greater from the Proposed Route. The landscape in this vicinity has been locally modified by the Arlington Valley Energy Facility, Hassayampa Switchyard, Redhawk Power Plant, Mesquite Power Generating Station, multiple 500kV transmission lines, a 69kV transmission line, the UPRR, and similar industrial facilities. Dispersed rural residences are also found in and around the communities of Hyder, Roll, Growler, and Wellton, and are generally associated with agriculture. In Hyder, there are approximately twelve dispersed residences south of the SWPL 500kV transmission line that are within ½ mile of the Proposed Route. These residences would view the new line in context with the SWPL 500kV transmission line. Residences in Roll and Growler are more than ½ mile from the Proposed Route. Through each of these rural communities the route would parallel the SWPL 500kV transmission line with similar tower structures and spans. Dispersed and low density residences in Dome Valley are exclusively on the south side of the Proposed Route, and the majority or these residences views are screened by topography. There is also an isolated pocket of medium density residences in this area. Many of these residences are located on rolling topography west of the Muggins Mountains, creating a greater potential for screening or backdropping by landforms. Existing modifications include the SWPL 500kV transmission line and the UPRR. The SWPL 500kV transmission line will be paralleled for its entire length on the north side by the Proposed Route.

Recreation Viewers

There are no formally designated or defined high sensitivity trails, parks, or trailheads within the project study area. The Proposed Route is approximately ½ to 1 mile from the boundary for the Signal Mountain Wilderness Area and 0 to ½ mile from the boundary of the Muggins Mountains Wilderness Area. Views from both wilderness areas to the north would involve looking through the existing line. As a result of these conditions, there would be only intermittent and modified views of the proposed project from the wilderness areas. Redondo Pond and Fortuna Pond 14-day camping areas, Adair County Park and shooting range, and several mountain biking trails are located in or near the Laguna Mountains and are considered to have a moderate sensitivity. All other recreation within the study area is widely dispersed.

Transportation Viewers

Yuma County has designated both U.S. 95 and Dome Valley Road as Scenic Corridors. For each of these travel routes, the setting has been modified by existing transmission lines, including the SWPL 500kV transmission line that would be paralleled for the length of the Proposed Route.

Other transportation routes that occur within the study area that would have views of the SWPL 500kV transmission line and the Proposed Route are Wintersburg Road, Elliot Road, Agua Caliente Road, Hyder Road, and Palomas Road.

BLM Visual Resource Management Classes

BLM VRM classes are assigned to lands managed by the BLM and provide direction regarding levels of visual change within each class. VRM class designations are typically dictated by the scenic quality of the landscape, public concern for the maintenance of the scenic quality, KOPs and associated visibility, and specific management prescriptions based on land use, such as wilderness study areas or areas of critical concern (see Appendix B).

VRM classes were inventoried within the study area using Geographic Information System data acquired from the BLM, and past project-specific data for the same study area. The majority of land crossed by the proposed project is designated as Class IV and is generally characterized by open desert scrub lands consisting of creosote-bursage. Class III areas that would be crossed by the proposed project are isolated landforms such as Yellow Medicine Hills, as well as open desert east of the Muggins Mountains. Areas of Class II are associated with moderate to high topographic relief landforms. These areas that are crossed by the proposed route include the Gila Bend Mountains, the Laguna Mountains, and foothills to the east and west of the Muggins Mountains. The proposed route would not cross any Class I areas. Because the Proposed Route will parallel the SWPL 500kV transmission line and will be located in a BLM-designated utility corridor, the Proposed Route will comply with VRM objectives (see Appendix B of Exhibit B-1).

Potential Impacts – Proposed Route

No high impacts to visual resources are anticipated as a result of the construction, operation, and maintenance of the Proposed Route. The majority of impacts that are anticipated to occur are low with isolated areas of moderate impact. Low impacts primarily occur because (1) the Proposed Route would be located in a designated BLM utility corridor on BLM-managed land; (2) the proposed project would parallel the SWPL 500kV transmission line, and the UPRR; (3) structure types and spans will match existing facilities to reduce the visibility of the proposed project; (4) sensitive viewers only occur along the proposed project in small, dispersed groups with partially screened views of the proposed project. Moderate impacts could occur to residential viewers located immediately adjacent and south of the SWPL 500kV transmission line when viewing the proposed project in context with the SWPL 500kV transmission line.

Scenic Quality

Low impacts to scenic quality would occur for the majority of the Proposed Route because the proposed transmission line will parallel the SWPL 500kV transmission line within a BLM-designated utility corridor within Class C landscapes. Low-moderate impacts are anticipated for isolated areas of Class B landscapes associated with the Laguna and Gila Bend mountains and portions of the foothills and mountains associated with the Muggins Mountains. These impacts will be minimized because the Proposed Route parallels the SWPL 500kV transmission line within a BLM-designated utility corridor in these areas as well.

Sensitive Viewers

Residential Viewers

Impacts that may occur to residential viewers as a result of the construction, operation, and maintenance of the Proposed Route are anticipated to range from primarily low to low-moderate. These impacts occur throughout the study area, because the residences are typically located over ½ mile from the proposed project. Additionally, the existing conditions adjacent to the residences have been locally modified by the SWPL 500kV transmission line that the Proposed Route would parallel. Low impacts would occur to several dispersed residences in the vicinity of the PVNGS. Dispersed rural residences in Hyder, Roll, Growler, Wellton, and Dome Valley would incur low to low-moderate impacts as a result of the Proposed Route. Residences that fall within ½ mile of the Proposed Route would result in low-moderate impacts, based on the proximity of the viewers to the proposed line. Residences at a distance greater than ½ mile from the Proposed Route would have low impacts. Impacts to future residential viewers are anticipated to be low because the Proposed Route would directly parallel the SWPL 500kV transmission line.

Recreation Viewers

Low to moderate impacts to dispersed recreation viewers are anticipated to occur as a result of the construction, operation, and maintenance of the Proposed Route. Typical conditions for viewers from the foothills adjacent to Signal Mountain and the Muggins Mountains will be intermittent screened views of the Proposed Route. Furthermore, the Proposed Route will parallel existing visually dominant features, including the SWPL 500kV transmission line. Views from the Signal Mountain Wilderness Area would be greater than ½ mile from the Proposed Route. These views would be partially to fully screened, and seen in context of the SWPL 500kV transmission line, thus resulting in low impacts to dispersed recreation viewers. Views from the Muggins Mountains would be from a distance of ½ mile or less. Impacts to recreation viewers in the Muggins Mountains would range from low-moderate to moderate, and depend on specific viewing conditions or viewer location. Moderate sensitivity recreation viewers, including Fortuna Pond, Redondo Pond, mountain biking trails in the Laguna

Mountains, and Adair County Park and shooting range, would incur low impacts from the proposed project.

Transportation Views

Impacts to viewers on moderate and high sensitivity travel routes would range from low to moderate. The SWPL 500kV transmission line would reduce the structure and landform contrast of the Proposed Route as viewed from these travel routes. Furthermore, varied topography and vegetation result in a variety of viewing conditions (screening and backdropping) that reduce the visibility of the Proposed Route. Viewer impacts from Wintersburg and Elliot roads would be low, based on existing modifications (PVNGS) and the viewer proximity to the Proposed Route. Impacts to viewers on Agua Caliente Road would be low-moderate based on viewing duration and sensitivity along this travel route. Impacts to viewers along Hyder and Palomas Roads would generally be low where the proposed route parallels the existing line; however, there is a section of Palomas Road that would have the proposed route on the opposite side of the road from the existing line. In this case Palomas Road would incur moderate impacts. Impacts to viewers traveling on U.S. 95 would range from low to moderate. The Proposed Route would intersect U.S. 95 near the Laguna Mountains. Impacts to viewers on Dome Valley Road would range from low to low-moderate. The Proposed Route would come within ½ mile of a small section of this roadway.

HISTORIC SITES AND STRUCTURES AND ARCHAEOLOGICAL SITES

Introduction

A cultural resource study consisting of a detailed records review and an intensive pedestrian survey was conducted by EPG in support of the Proposed Route (Rowe 2007). The study was conducted to determine the presence of any historic sites and structures or archaeological sites within a 2-mile corridor surrounding the proposed project and how they might be affected by the construction of the project.

The cultural resource study for the proposed project identified 33 isolated occurrences (IOs), 16 previously recorded sites and five newly recorded sites. A list of the previously and newly recorded sites that could be potentially affected by the Proposed Route is presented in Table E-1 below.

TABLE E-1 SUMMARY OF SITES LOCATED WITHIN THE AREA OF POTENTIAL EFFECT OF THE PROPOSED ALIGNMENT				
Site Number	**Recording Status**	**Jurisdiction**	**Description**	**Eligibility and Criterion**
AZ L:12:15 (ASM)	Previously recorded	BLM YFO and DOD	69kV powerline, Post World War II	Not Eligible
AZ S:15:7 (ASM)	Previously recorded	BLM YFO, ASLD, and private	69/12kV powerline, Post World War II	Eligible
AZ S:15:10 (ASM)	Previously recorded	Private	Camp Hyder - World War II (1942-1944) military training base	Eligible – A, B
AZ S:16:37 (ASM)	Previously recorded	BLM PDO	Prehistoric artifact scatter	Eligible – D
AZ S:16:38 (ASM)	Previously recorded	BLM PDO	Historic Saddle Railroad Station	Eligible – A
AZ S:16:39 (ASM)	Previously recorded	BLM PDO	Papago Maneuvering Area	Eligible – A, B
AZ S:16:80 (ASM)	Newly recorded	BLM PDO	Historic trash scatter	Eligible – A, D
AZ T:9:27 (ASM)	Previously recorded	BLM PDO	Lithic scatter	Not Eligible
AZ T:9:104 (ASM)	Newly recorded	BLM PDO	Historic Gillespie Siding	Eligible – A
AZ T:10:84 (ASM)	Previously recorded	BLM YFO	Historic Southern Pacific Railroad	Eligible – A
AZ X:3:382 (ASM)	Previously recorded	BLM YFO	Prospecting pit, trail, and cairn	Eligible – D
AZ X:3:415 (ASM)	Previously recorded	DOD	Mining claim and historic trash scatter	Not Eligible
AZ X:7:10 (ASM)	Previously recorded	Reclamation	Prehistoric lithic scatter and associated features	Eligible – D
AZ X:7:20 (ASM)	Previously recorded	Reclamation	Gila Gravity Canal	Eligible – A
AZ Y:1:148 (ASM)	Newly recorded	ASLD	Rock piles	Eligible – D
AZ Y:2:29 (ASM)	Previously recorded	BLM YFO and Private	Historic Horn Railroad Siding	Eligible – A
AZ Y:2:30 (ASM)	Previously recorded	ASLD	Historic Kofa Railroad Siding	Eligible – A
AZ Y:2:48 (ASM)	Newly recorded	BLM YFO	Collapsed corral and light historic trash scatter	Not Eligible
AZ Y:2:49 (ASM)	Newly recorded	ASLD and Private	Camp Horn – World War II (1942-1944) military training base	Eligible – A, B, D
AZ Y:3:29 (ASM)	Previously recorded	ASLD	Lithic scatter	Not Eligible
AZ Y:3:30 (ASM)	Previously recorded	ASLD	Lithic scatter	Not Eligible

Of the 21 sites, 5 have been determined to be eligible for listing on the National Register of Historic Places (NRHP) and 10 are recommended as eligible for listing on the NRHP. The IOs are not eligible for listing on the NRHP because they do not meet the necessary criteria for listing.

It may be possible to avoid most of the NRHP eligible sites by spanning through careful positioning of tower locations. However, a total of five sites would not be able to be spanned given their large sizes. These include three historic military training camps (AZ S:15:10 (ASM),

AZ S:16:39 (ASM), and AZ Y:2:49 (ASM)) and two prehistoric lithic scatters (AZ X:7:10 (ASM) and AZ S:16:37 (ASM)).

Site AZ S:15:10 (ASM) is the remains of Camp Hyder. The site is the easternmost of the four Desert Training Centers – California Arizona Maneuver Area (DTC-CAMA) divisional training camps that were established in Arizona in 1942. Site AZ S:15:10 (ASM) is located on privately owned land and consists of a series of stone alignments lining tent platforms, walkways, and roads. The camp was originally laid out in an orderly, triangular shape; however, through the years since the abandonment of the site, it has been heavily disturbed by several sources, including the local jojoba agriculture common in the area. Other disturbances include mechanical clearing, construction, access roads, and the existing SWPL 500kV transmission line. Although there is some depth to the local sediments, the site is surficial in nature. Site AZ S:15:10 (ASM) is recommended to be eligible for listing on the NRHP under Criterion A and B for its association with military training in Arizona during World War II and its association with General Patton. The proposed project is located in the northern portion of the site. Anticipated disturbance to the site consists of the placement of two lattice structures.

Site AZ S:16:39 (ASM) is the remains of the Papago Maneuvering Area, a previously recorded historic military activity area located on lands under the jurisdiction of the BLM PDO. Features on the site consist of tent platforms, stone circles, redoubts, stone alignments, foxholes, and cleared/graveled areas. Disturbances to the site include the existing SWPL 500kV transmission line. Based on the geologic deposition, there is no potential for intact subsurface remains at this site. Site AZ S:16:39 (ASM) is also recommended to be eligible for listing on the NRHP under Criterion A and B for its association with military training camps within Arizona during World War II and its association with General Patton. The proposed project is located in the northern portion of the site. Anticipated disturbance to the site consists of the placement of three lattice structures.

Site AZ Y:2:49 (ASM) is the remains of Camp Horn, a newly recorded historic military base located on lands under the jurisdiction of ASLD and on privately owned land. The site is one of four DTC-CAMA division training camps that were established in Arizona in 1942. The site consists of a series of stone alignments, outlining tent platforms, walkways, and other activity areas. Since the site was abandoned it has been heavily disturbed by several sources, including pivot irrigation fields, however the southern half still retains some integrity. Site AZ Y:2:49 (ASM) is recommended to be eligible for listing on the NRHP under Criterion A, B, and D for its association with military training camps within Arizona during World War II, its association with General Patton, and its potential to provide information concerning military training activities conducted in southwestern Arizona during this period.. The proposed project is located along the southern edge of the site. Anticipated disturbance to the site consists of the placement of undetermined number of lattice structures, although there is good potential to reduce the level of disturbance through careful placement of these structures.

Site AZ S:16:37 (ASM) is a large artifact scatter with a feature on lands under the jurisdiction of the BLM PDO. The site consists of a thin scatter of chipped stone and ceramics over the entire

area of the site, with thirteen distinct clusters of chipping stations, as well as a possible sleeping circle. This site represents the only source for good quality chipping stone material for several miles. Disturbances to the site include cattle grazing, road maintenance, the existing SWPL 500kV transmission line, as well as the UPRR. The AZ S:16:37 (ASM) site is recommended eligible for listing on the NRHP under Criterion D for its potential to provide significant information on the organization of resource exploitation, technology, and social interaction during prehistory within the Dendora Valley. The proposed project extends across the central portion of the site. Anticipated disturbances across this approximately 3-mile site consist of the placement of approximately 12 lattice structures.

Site AZ X:7:10 (ASM) is a large lithic scatter located on land managed by Reclamation. The site consists of 17 loci that that consist of flaked stone concentrations. The site also contains a light scatter of ceramics and two trail features. Disturbances to the site include the existing SWPL 500kV transmission line. The AZ X:7:10 (ASM) site has been previously determined to be eligible for listing on the NRHP under Criterion D for its potential to provide information on the subsistence and settlement strategies of the inhabitants of the North Gila Valley during the prehistoric period. The proposed project extends across the southern portion of the site. Anticipated disturbances across this approximately 1-mile-wide site consist of the placement of approximately four lattice structures.

Construction of the proposed project would directly affect the five sites outlined above. Specific effects to the archaeological sites would not be known fully until the detailed engineering and design for the transmission line have been completed. While most impacts can be avoided through spanning, there are five very large sites that are likely to be affected. Any adverse effects to these five sites would be mitigated by the development and implementation of a Historic Properties Treatment Plan (HPTP). The HPTP would be developed with the various land managing agencies and submitted to the Arizona State Historic Preservation Office (SHPO) for approval and the plan would be implemented prior to and during construction of the proposed project. Possible mitigation measures that would be identified in the HPTP include archival research, data recovery, and construction monitoring.

The project corridor maintains a distance from Anza National Historic Trail of between 1 and 5 miles and the trail is not crossed by the proposed project. The proposed transmission line will have no effect, physically or visually, upon the Anza National Historic Trail.

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EXHIBIT F
RECREATIONAL PURPOSES AND ASPECTS

EXHIBIT F
RECREATIONAL PURPOSES AND ASPECTS

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"*State the extent, if any, the proposed site or route will be available to the public for recreational purposes, consistent with safety considerations and regulations and attach any plans the applicant may have concerning the development of the recreational aspects of the proposed site or route.*"

There are no plans at present to formally designate land within the requested right-of-way for public recreational purposes. The Applicant shall affirmatively offer to work with the affected jurisdictions to join in long-range plans for the corridor. Portions of the Proposed Route will be located on land managed by the BLM as utility/multiple-use corridors including dispersed and informal recreation uses. The location of the transmission line facilities in these areas are consistent with recreation opportunity spectrum management objectives and will not restrict continued informal recreational activity.

As noted in Exhibit B of this Application, the BLM YFO has designated two 14-day camping areas that are within the study area of the proposed project: Fortuna Pond and Redondo Pond. Fortuna Pond is located approximately 1 mile north of U.S. 95 and 3 miles east of Avenue 7E, and is approximately 2 miles south of the proposed transmission line. Redondo Pond is located approximately 3 miles north of U.S. 95 off of County 6th Street, and is approximately ½ mile south of the proposed transmission line. Both areas offer camping and fishing recreational opportunities.

As also noted in Exhibit B of this Application, the Maricopa County Board of Supervisors approved the Maricopa County Regional Trail System Plan in 2004, which identifies future trail corridors throughout the county. The plan identifies corridors according to segments with a corresponding priority level. One corridor identified in the plan is located within the study area that includes the Old Camp Wash in the eastern portion of the study area. The portion of the proposed MCRT along the Old Camp Wash was identified as a Priority Four segment. This segment was identified as a future trail corridor (5 miles wide) worthy of further study. Maricopa County generally considers transmission line corridors as opportunities for trails.

As further noted in Exhibit B of this Application, the Yuma County 2010 Comprehensive Plan mentions a conceptual proposed 56-mile multi-use (equestrian and non-motorized) trail that will largely circle the perimeter of the greater Yuma area. The Proposed Route would cross this proposed trail just north of the existing North Gila Substation while parallel to the SWPL 500kV transmission line.

The Yuma County 2010 Comprehensive Plan also lists the 2,348 acre Camp Hyder U.S. Training Center as conceptual open space. The site is located west of Avenue 64E north of the UPRR,

approximately 9 miles north of Dateland, Arizona. The area is currently owned by ASLD, and is leased for pivot-agriculture.

REFERENCES

EPG. 2005. Palo Verde Hub to TS-5 Substation 500kV Transmission Project EA. May 2005.

Maricopa County Trail Commission. 2004. Maricopa County Regional Trail System Plan. August.

Yuma County. 2001. Yuma County 2010 Comprehensive Plan. December 2001.

EXHIBIT G
CONCEPTS OF TYPICAL FACILITIES

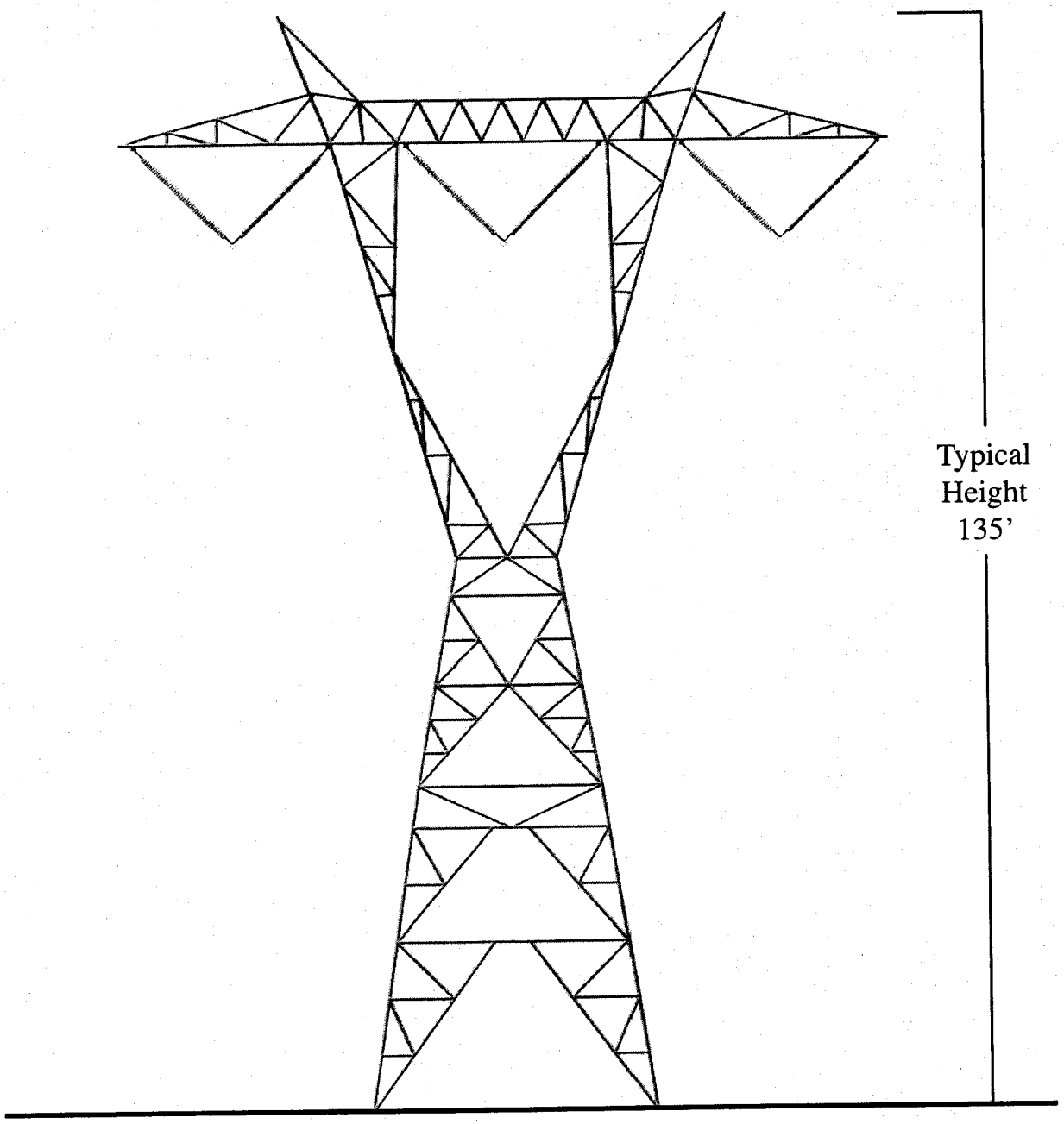
EXHIBIT G
CONCEPTS OF PROPOSED FACILITIES

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"*Attach any artist's or architect's conception of the proposed plant or transmission line structures and switchyards, which applicant believes may be informative to the committee.*"

Exhibit G-1 to G-8	Typical 500kV Structures
Exhibit G-9	Typical 500kV Switchyard Layout
Exhibit G-10 to G-14	Simulations

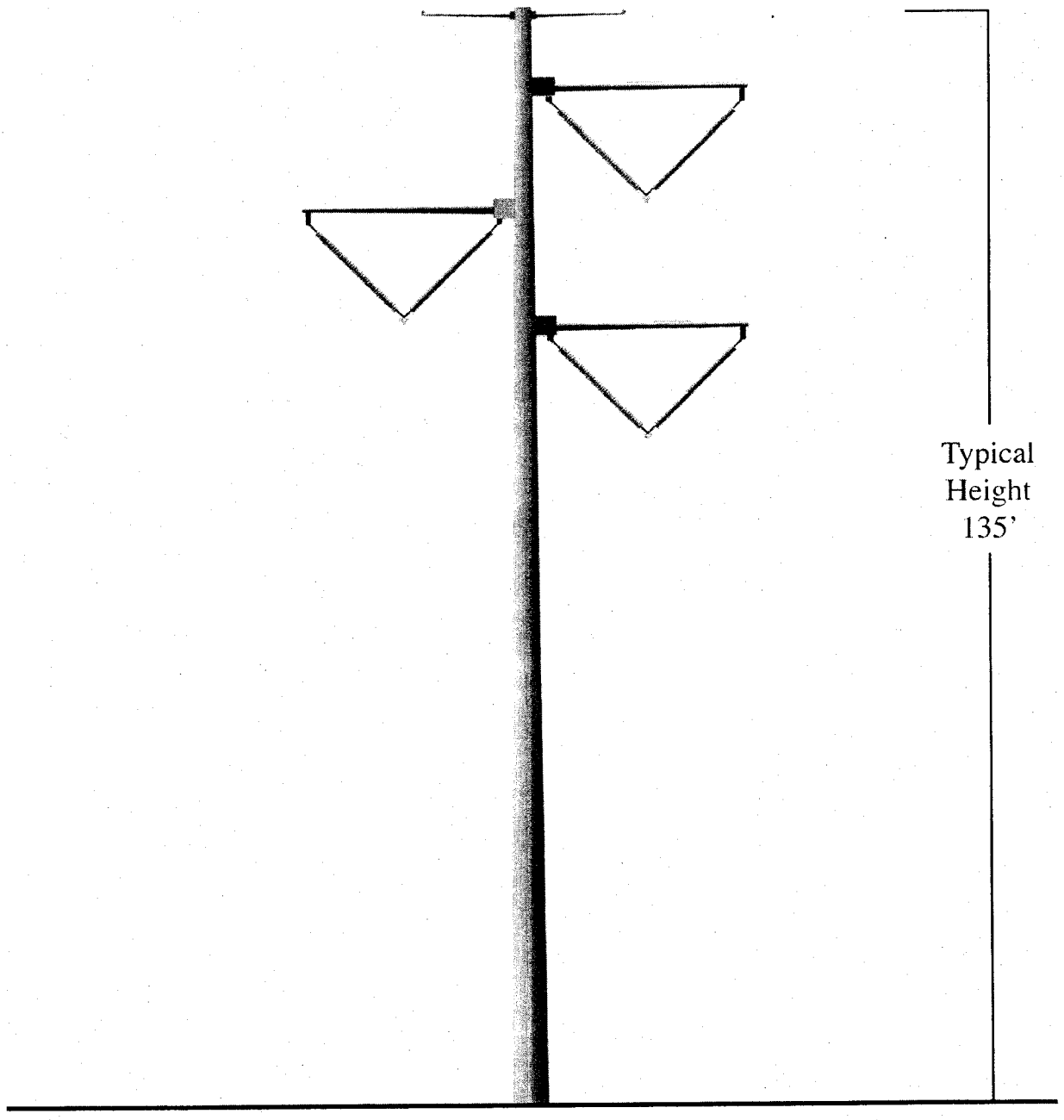
Typical 500kV Single-Circuit Steel Lattice Structure



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-1

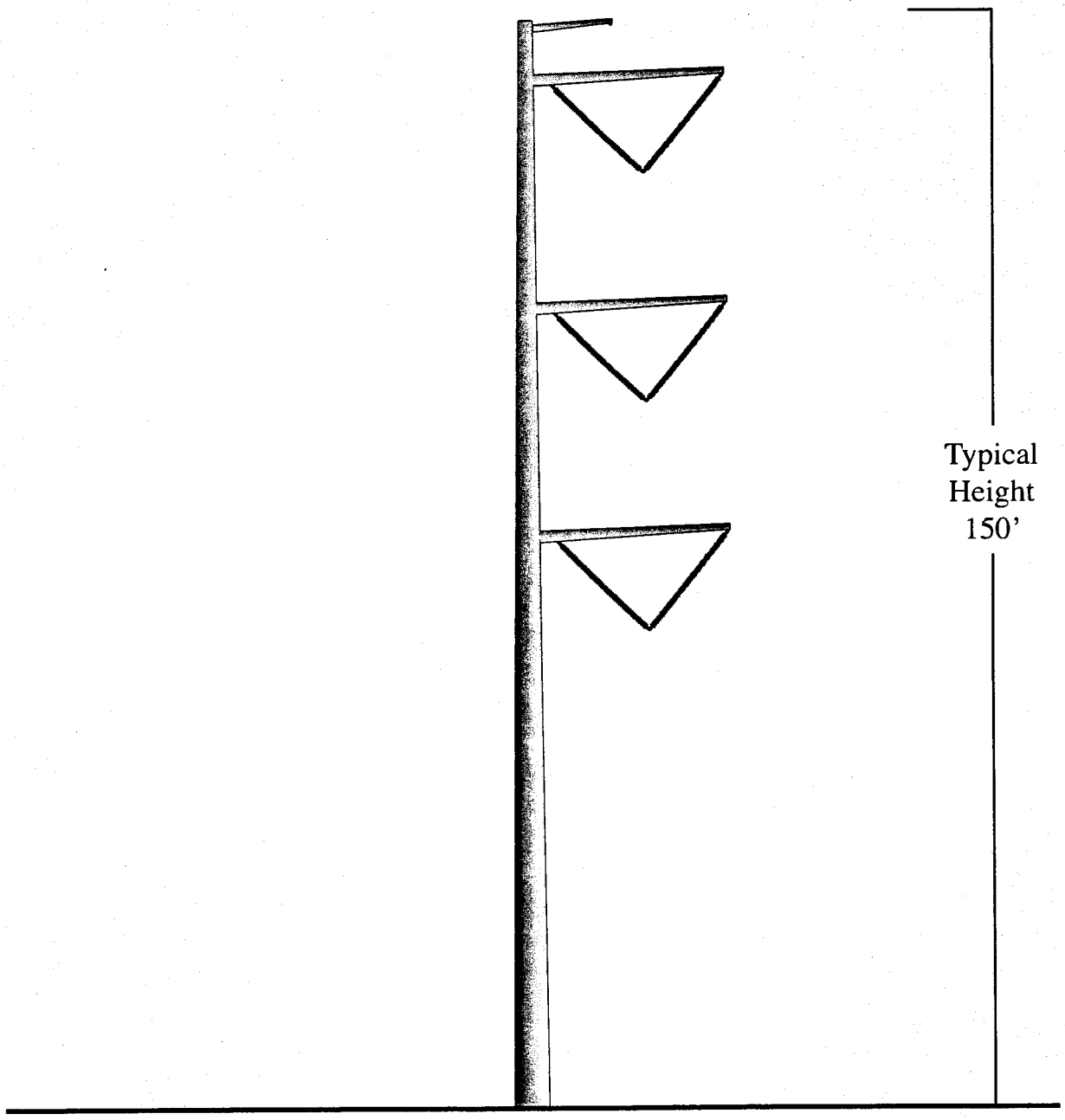
Typical 500kV Single-Circuit Tubular Steel Pole Structure



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-2

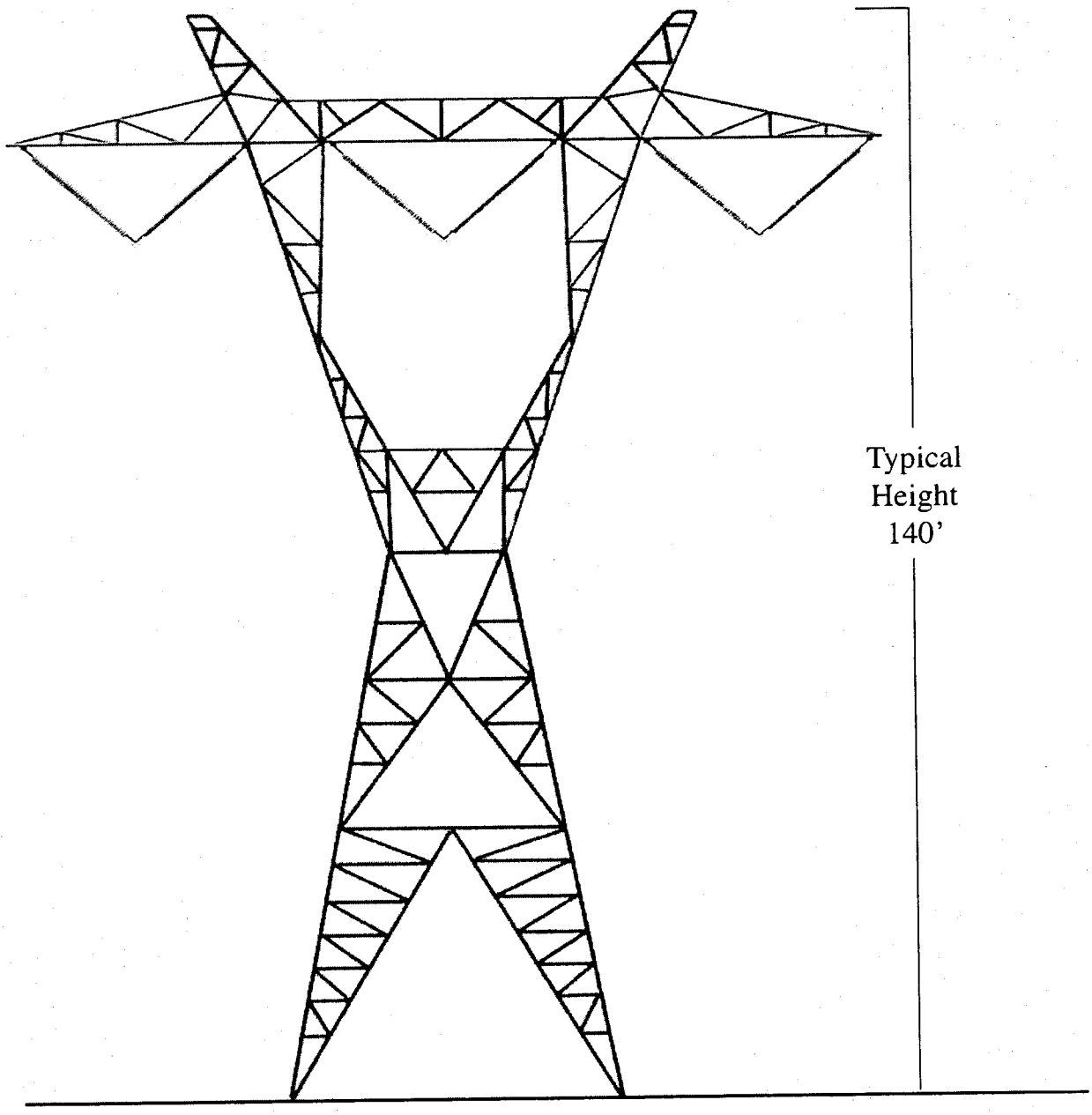
Typical 500kV Tangent Vertical Configuration



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-3

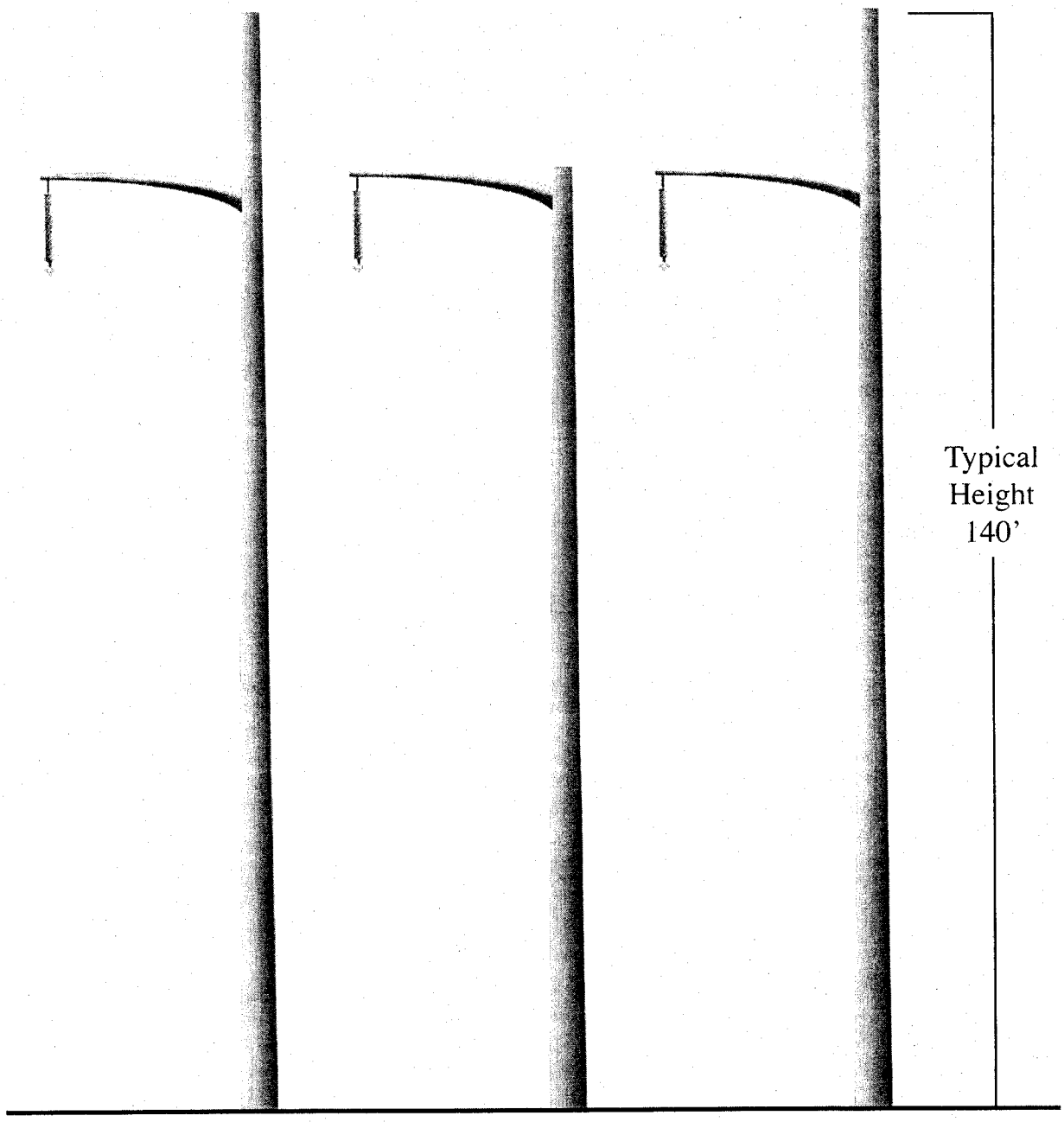
Typical 500kV Single-Circuit Dead-End Steel Lattice Structure



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-4

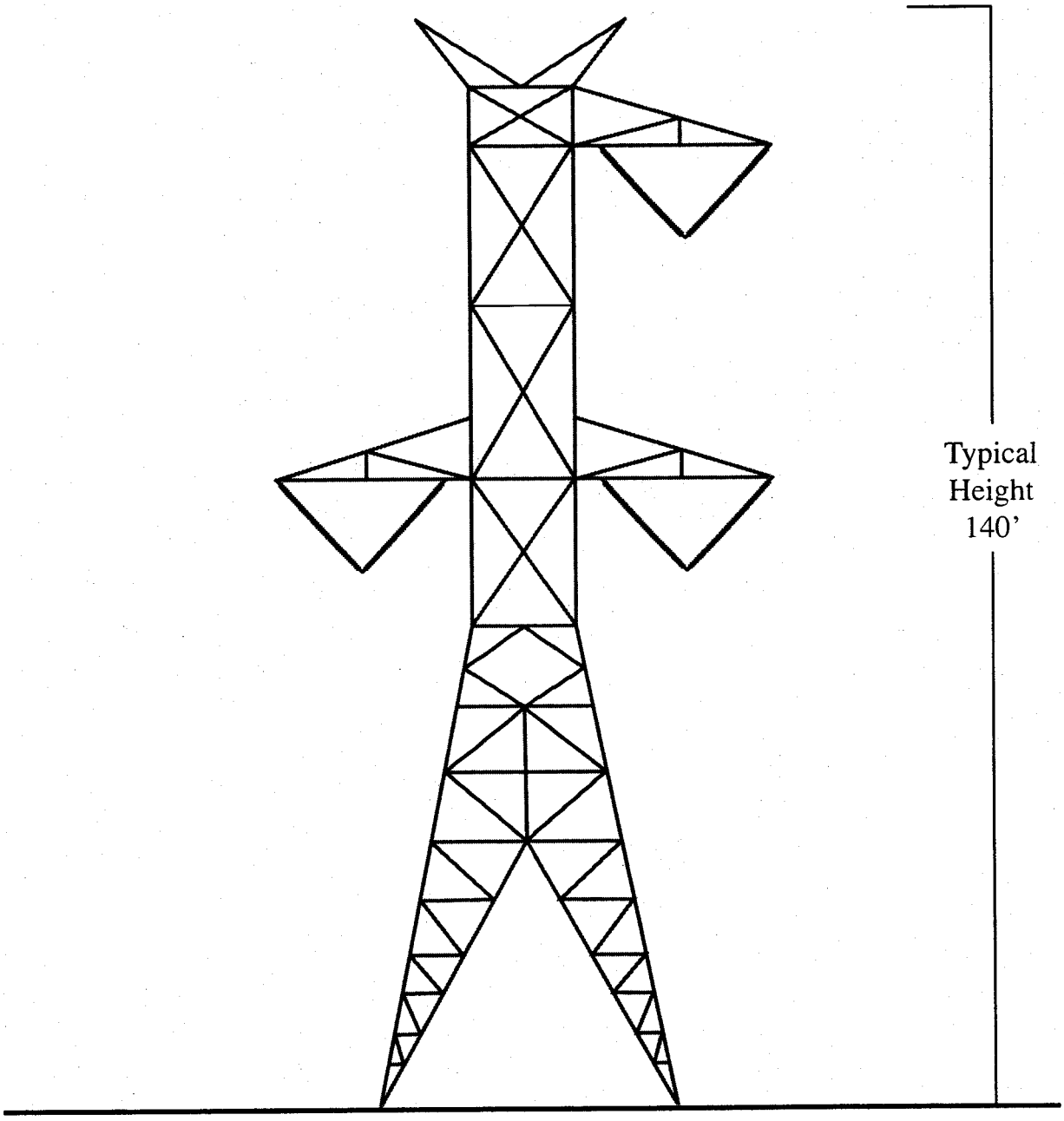
Typical 500kV Single-Circuit Dead-End Steel Three-Pole Structure



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-5

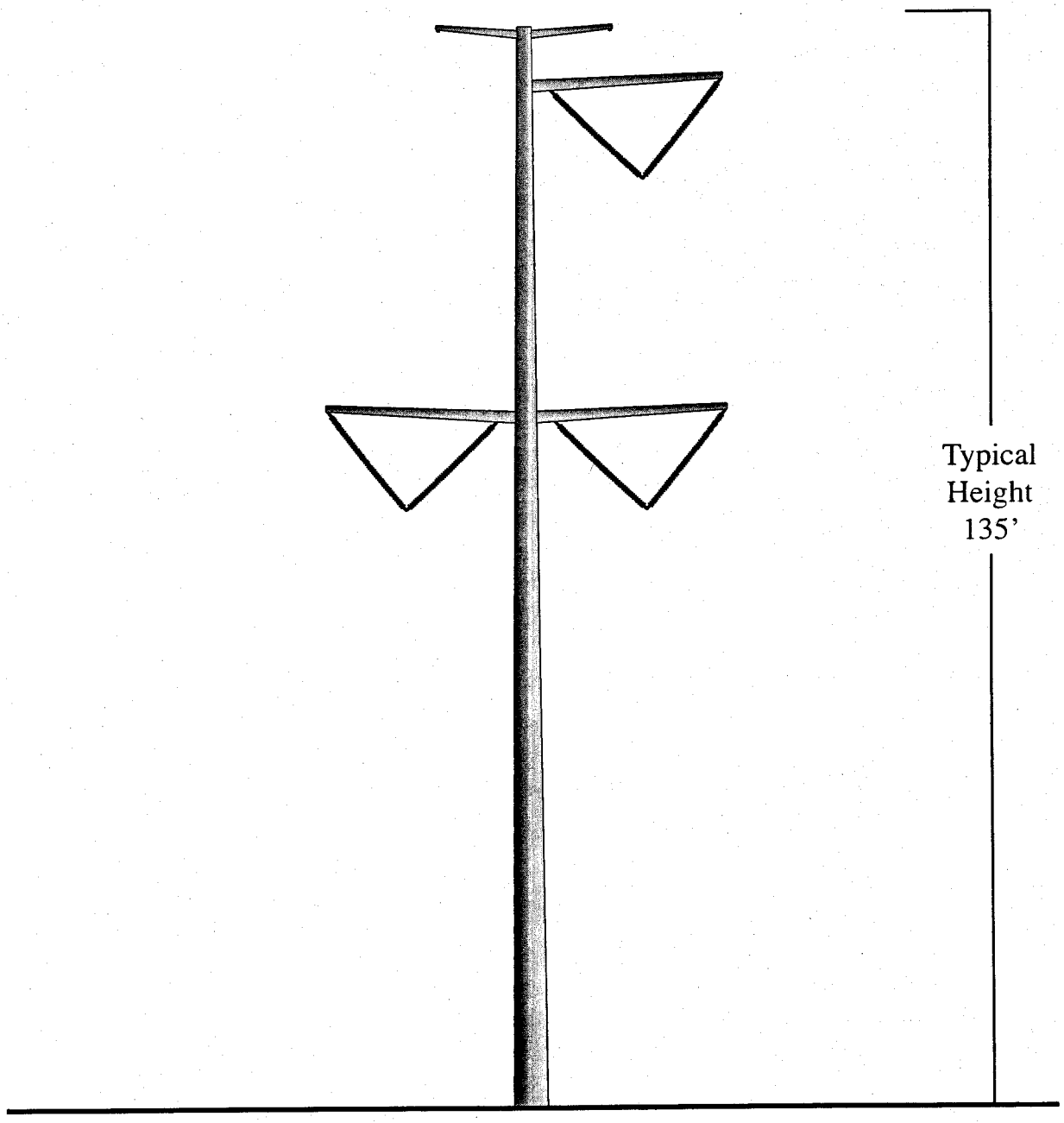
Typical 500kV Lattice Tower Transposition Structure



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-6

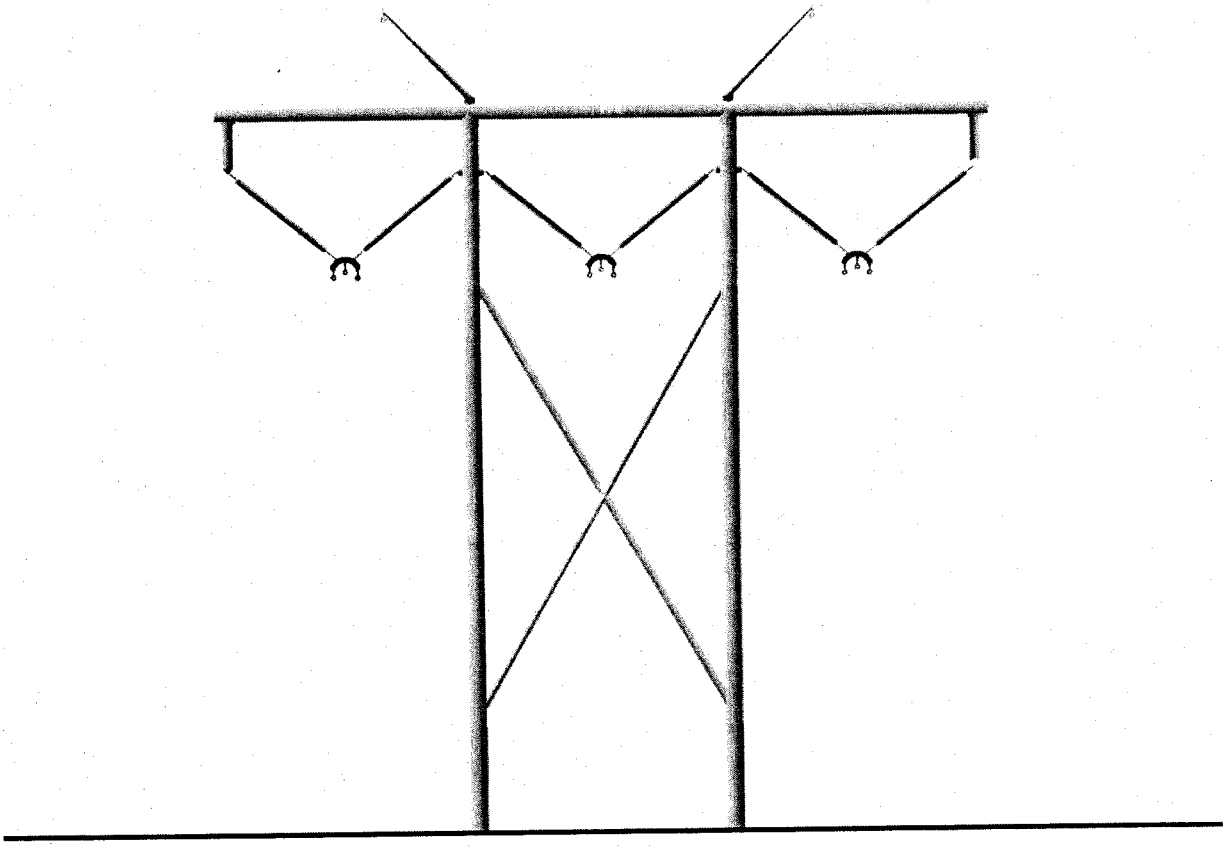
Typical 500kV Steel-Pole Transposition Structure



Palo Verde Hub to North Gila
Transmission Line Project

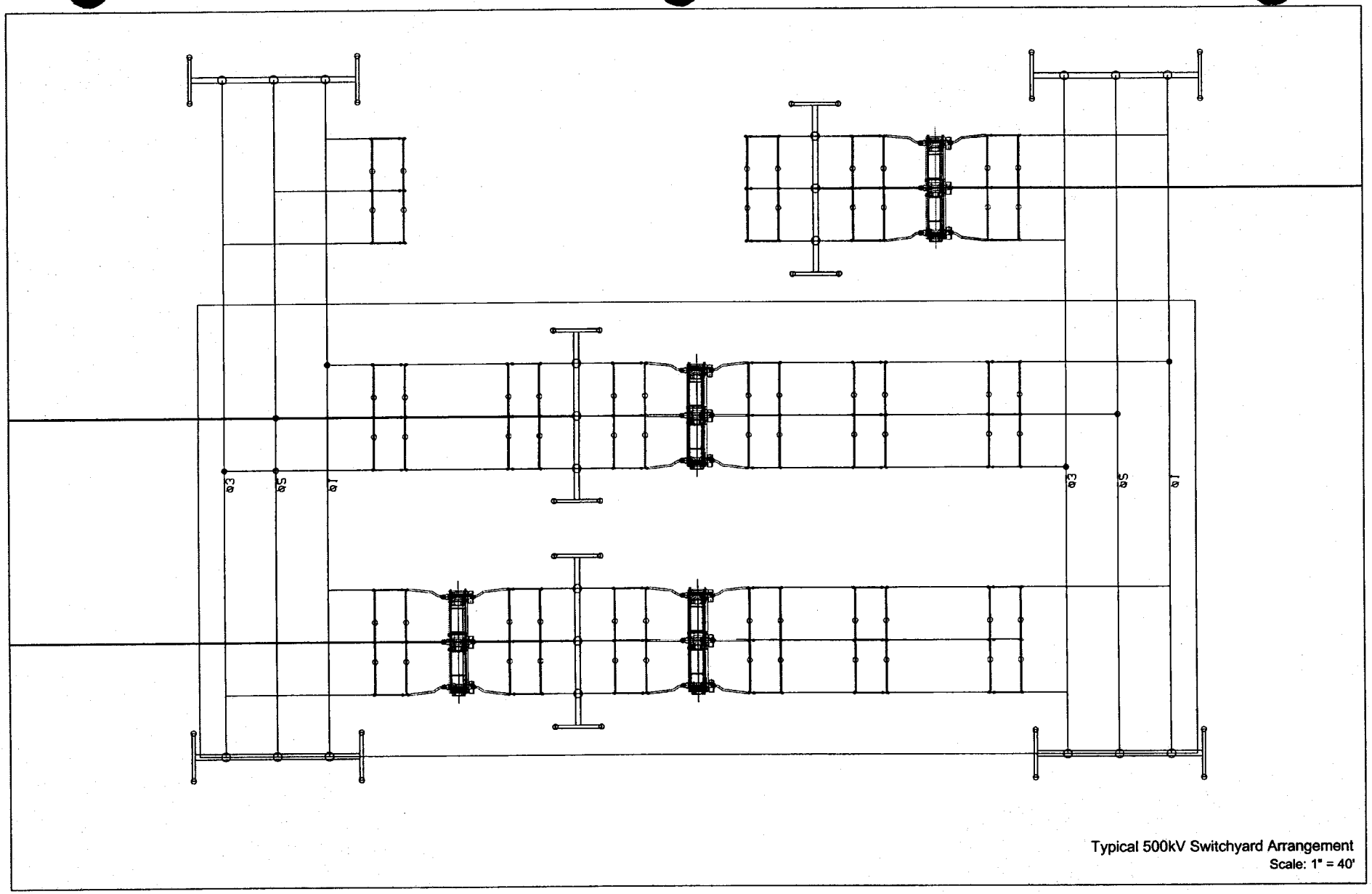
Exhibit G-7

Modified 500kV Single-Circuit Steel H-Frame Structure



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-8



Palo Verde Hub to North Gila
Transmission Line Project

Exhibit G-9

Existing Condition - 500kV single-circuit dull grey steel lattice transmission line crossing Agua Caliente Road within a BLM-designated utility corridor.

Simulated Condition - Proposed 500kV single-circuit dull grey steel lattice transmission line crossing Agua Caliente Road within a BLM-designated utility corridor.

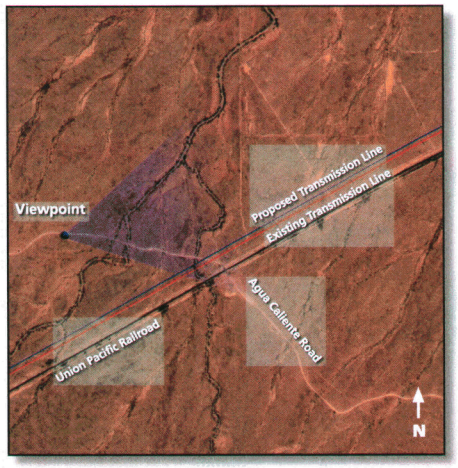
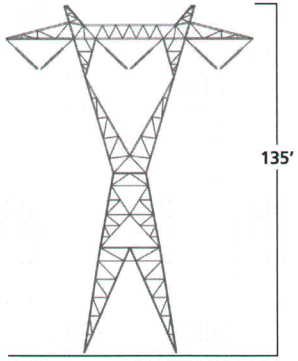


Photo Location: Viewpoint located 1/2 mile from the crossing of Agua Caliente Road, looking east toward the existing 500kV transmission line and the Union Pacific Railroad.

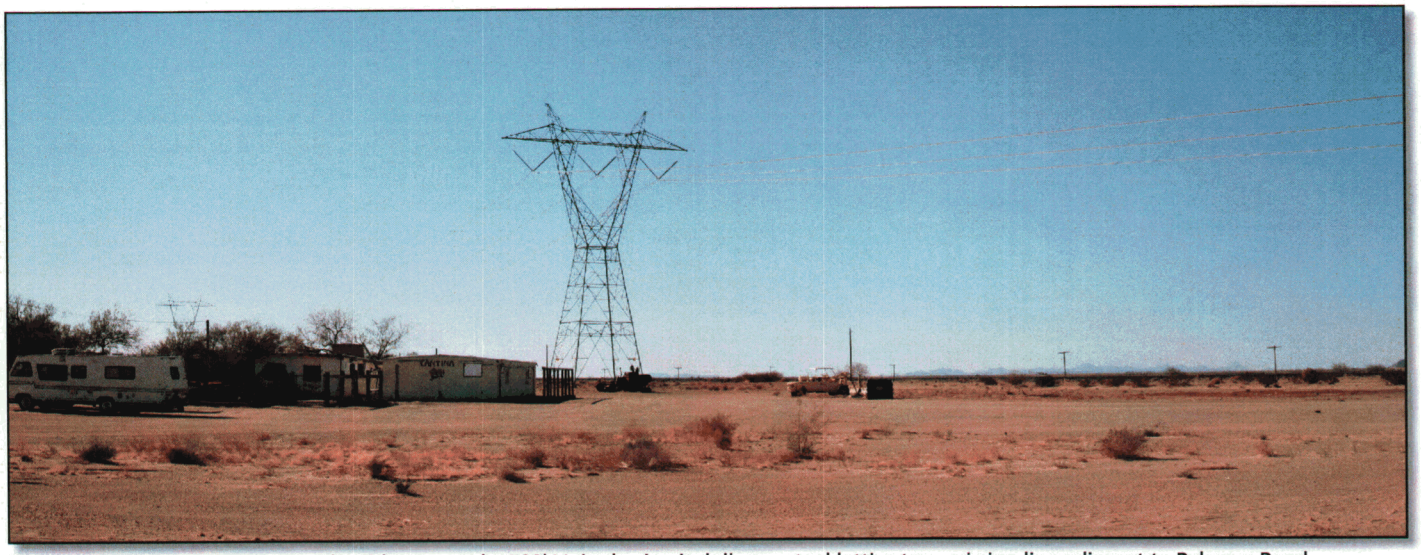
Photographic Details:
Date: January 19, 2007
Time: 11:43am
Focal Length: 50mm
Atmospheric Conditions: Mostly clear

Typical 500kV single-circuit steel lattice structure

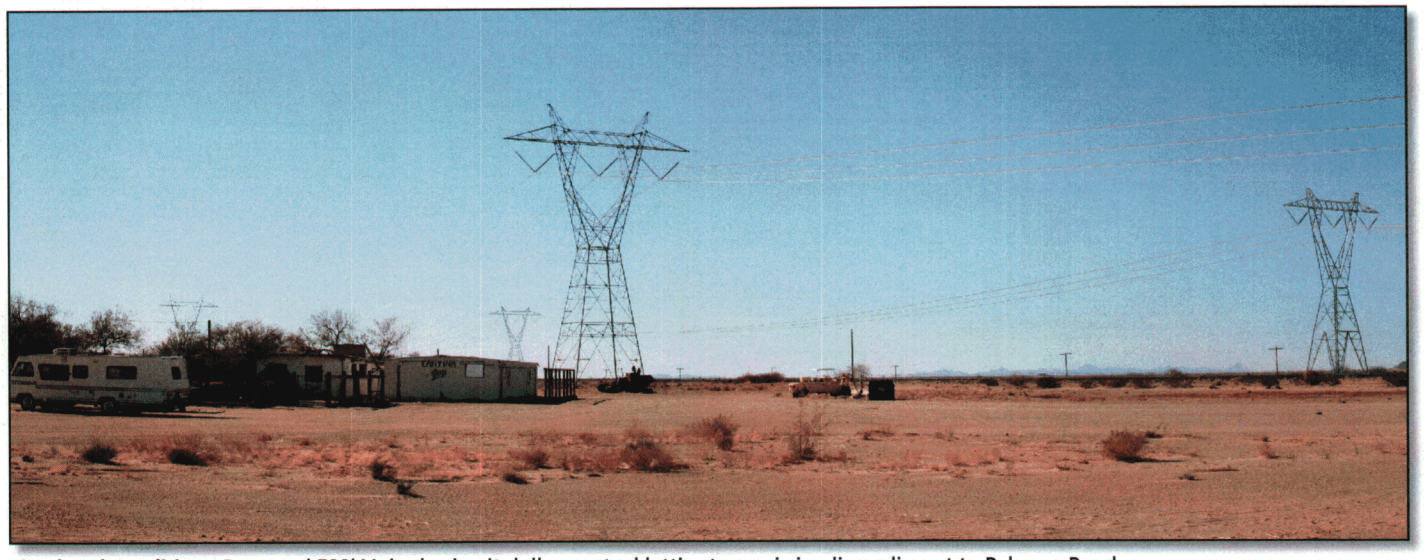


APS

DRAFT
Exhibit G-10



Existing Condition - Cantina, Rural residences, and a 500kV single-circuit dull grey steel lattice transmission line adjacent to Palomas Road.

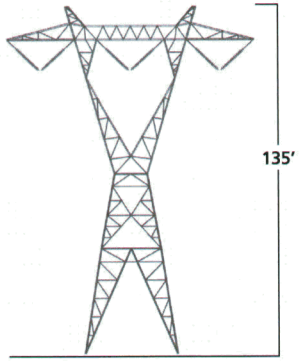


Simulated Condition - Proposed 500kV single-circuit dull grey steel lattice transmission line adjacent to Palomas Road.

Photo Location: Viewpoint located 1/8 mile from the proposed transmission line, on the west side of N. Avenue 64 East, looking west toward Palomas Road and the existing 500kV transmission line.

Photographic Details:
Date: January 19, 2007
Time: 2:40pm
Focal Length: 50mm
Atmospheric Conditions: Clear

Typical 500kV single-circuit steel lattice structure



APS eng

DRAFT
Exhibit G-11

Existing Condition - Dispersed rural residence and 500kV single-circuit dull grey steel lattice transmission line.

Simulated Condition - Proposed 500kV single-circuit dull grey steel lattice transmission line.

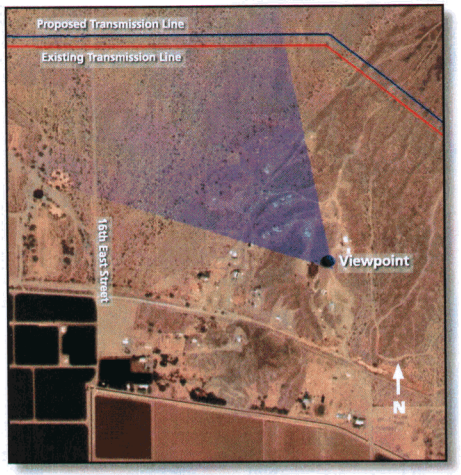
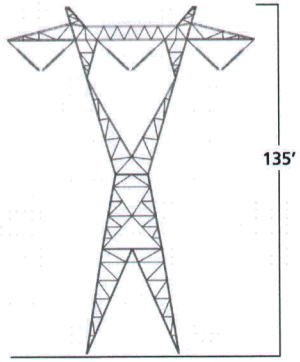


Photo Location: Viewpoint located 1/2 mile from proposed transmission line, within a rural residential community looking northwest toward the existing 500kV transmission line.

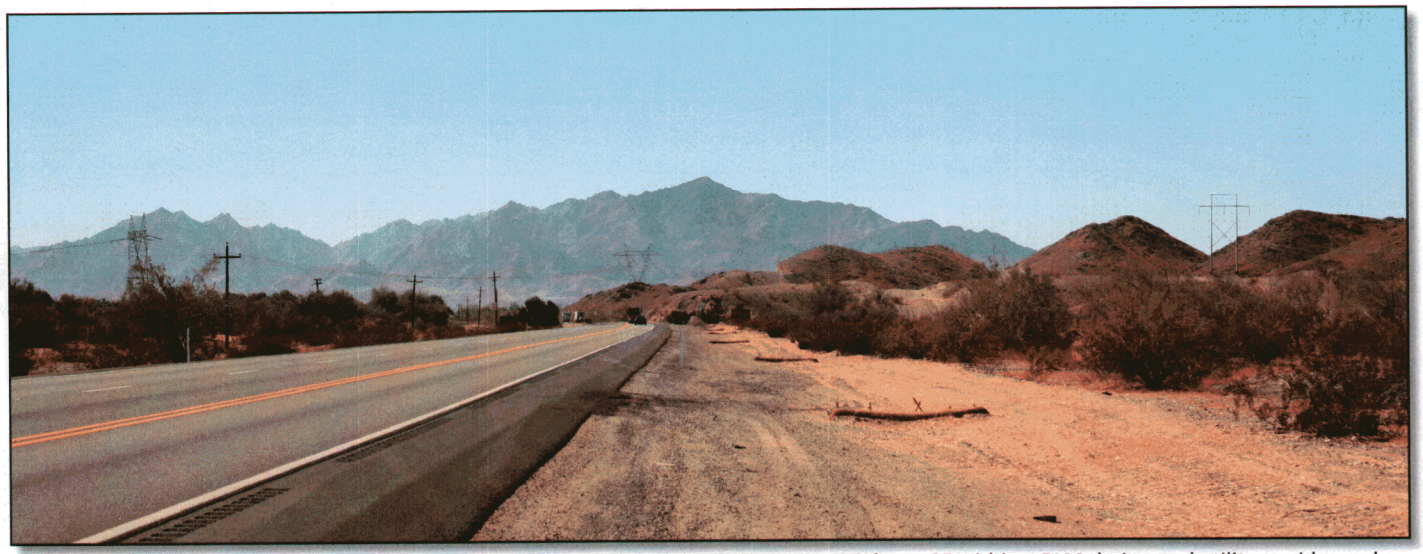
Photographic Details:
Date: March 7, 2007
Time: 2:39pm
Focal Length: 50mm
Atmospheric Conditions: Mostly clear

Typical 500kV single-circuit steel lattice structure

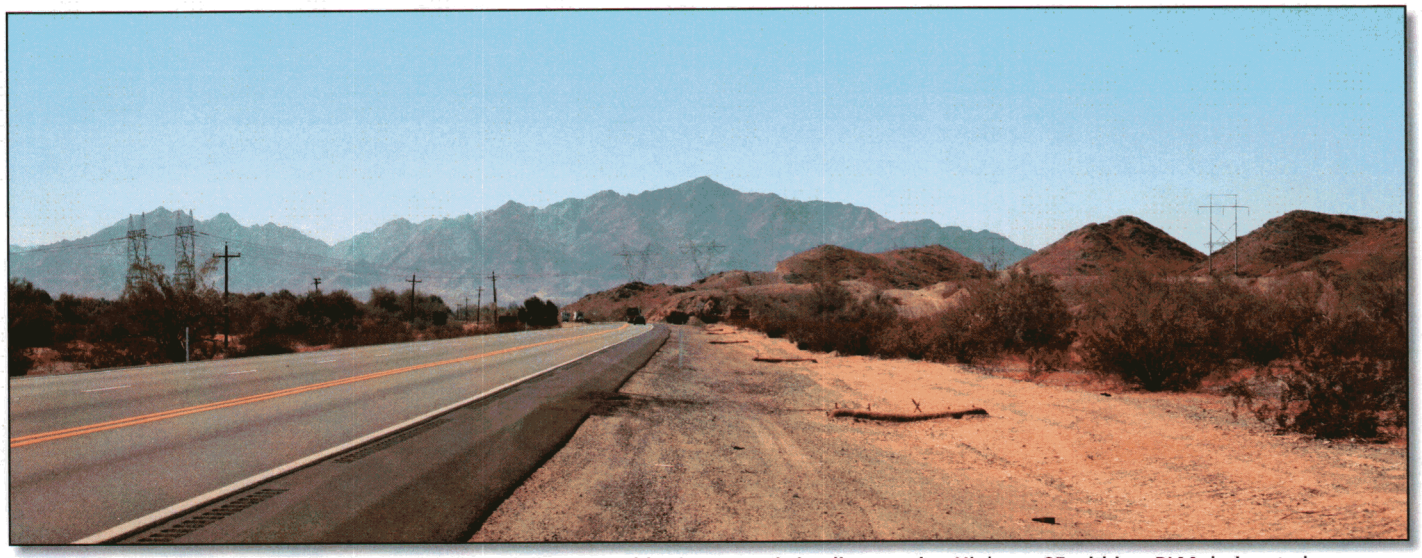


APS

DRAFT
Exhibit G-12



Existing Condition - 500kV single-circuit dull grey steel lattice transmission line crossing Highway 95 within a BLM-designated utility corridor and a 161kV steel H-frame paralleling the highway.



Simulated Condition - Proposed 500kV single-circuit dull grey steel-lattice transmission line crossing Highway 95 within a BLM-designated utility corridor.

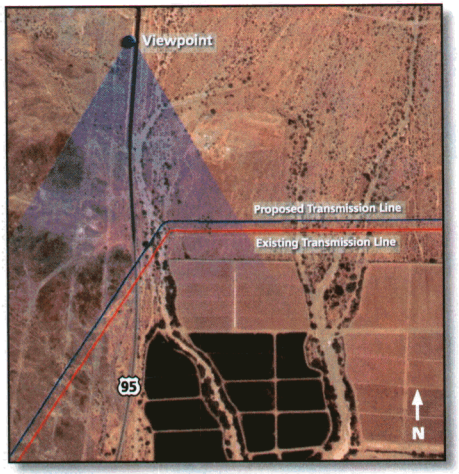
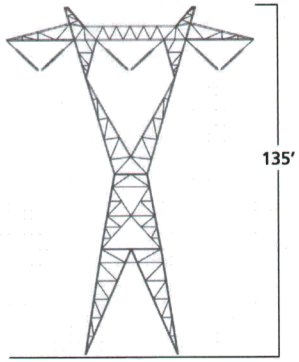


Photo Location: Viewpoint located 1/2 mile from the crossing of U.S. 95, adjacent to the southbound lane of the highway looking south.

Photographic Details:
Date: March 15, 2007
Time: 10:38am
Focal Length: 50mm
Atmospheric Conditions: Clear

Typical 500kV single-circuit steel lattice structure



APS egg

DRAFT
Exhibit G-13

Existing Condition - 500kV single-circuit dull grey steel lattice transmission line crossing Highway 95 within a BLM-designated utility corridor.

Simulated Condition - Proposed 500kV single-circuit dull grey steel lattice transmission line crossing Highway 95 within a BLM-designated utility corridor.

Photo Location: Viewpoint located 1/2 mile from the crossing of U.S. 95, adjacent to the northbound lane of the highway, looking north.

Photographic Details:
Date: March 7, 2007
Time: 2:54pm
Focal Length: 50mm
Atmospheric Conditions: Clear

Typical 500kV single-circuit steel lattice structure

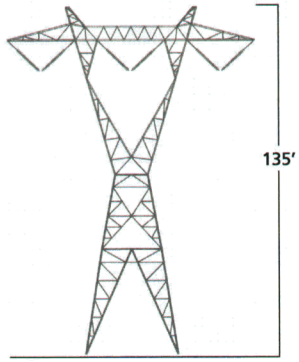


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Exhibit G-14

EXHIBIT H
EXISTING PLANS

EXHIBIT H
EXISTING PLANS

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"*To the extent applicant is able to determine, state the existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site or route.*"

Existing and planned land uses are mapped in Exhibits A-2 and A-3, respectively, and discussed in Exhibit B. For further information refer to the EA, included as Exhibit B-1.

AGENCY AND PUBLIC COORDINATION

A public contact program was conducted throughout the life of the project to provide information to and receive input from federal, state, and local government agencies, as well as private entities. Representatives from various planning departments were asked to provide their review and comment of the existing and future land use maps to ensure consistency with current planning documents and to identify potential issues associated with the siting of the proposed 500kV transmission line. Details regarding the project public involvement process, as well as copies of the BLM scoping letter, are located in Exhibit J. Additionally, copies of public notices and project newsletters are located in Exhibit J.

As part of the land use study for the project, general and specific plans were gathered from federal, state, and local jurisdictions. Project meetings and presentations were held with representatives of these entities throughout the planning process to gather information about planned development and potential issues. Initial federal agency coordination commenced in mid 2005 when the Applicant met with BLM representatives to initiate the development of the EA. Subsequent meetings with the BLM Project Manager and resource representatives were held throughout the EA development. The Applicant also met with representatives of Reclamation and YPG throughout the planning process to coordinate issues associated with placing proposed facilities on Reclamation and YPG land.

The Applicant held meetings with State and County representatives throughout the planning process. Meetings were held with ASLD representatives to coordinate the Applicant's right-of-way terms along with existing agricultural leases on Arizona State Trust land. Maricopa and Yuma County officials also were briefed regarding the proposed project. Additionally, the project team met with representatives of the planning departments from Yuma and Maricopa County (as described in Exhibit J).

REFERENCES

References from which the consultant received information regarding the various jurisdictional plans consist of the following:

Arizona Game and Fish Department, *Boundaries of Arizona Game and Fish Wildlife Areas.* 1999

EPG. 2005. Palo Verde Hub to TS-5 Substation 500kV Transmission Project EA. May 2005.

Maricopa County Trail Commission, *Maricopa County Regional Trail System Plan*, 2004.

Maricopa County, *Maricopa County Comprehensive Plan - 2020 Eye to the Future*, 2002.

Maricopa County. *Old U.S. 80 Area Plan – 2020 Eye to the Future*, 2007

Maricopa County, *Tonopah/Arlington Area Plan*, 2000.

United States Department of the Interior – Bureau of Land Management, *Final Lower Gila South Resource Management Plan and Environmental Impact Statement.* 1988.

_____, *Yuma Resource Management Plan and Environmental Impact Statement.* 1985

Yuma County. December 2001. Yuma County 2010 Comprehensive Plan.

4141 NORTH 32nd STREET
SUITE 102
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602 956-4370
602 956-4374
www.epgaz.com

September 13, 2007

Kevin Harper, Field Office Manager
BLM - Phoenix District
Lower Sonoran Field Office
21605 N. 7th Avenue
Phoenix, Arizona 85027-2099

Dear Mr. Harper:

Arizona Public Service Company (APS) plans to file an Application for a Certificate of Environmental Compatibility (CEC) for the Palo Verde Hub to North Gila 500kV (kilovolt) Transmission Project with the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) in October 2007. The proposed project is needed to support the increased development and growth, occurring and anticipated, in the Yuma Region. The project will strengthen the entire Yuma area transmission system by providing an additional electrical transmission source to the region. This project primarily involves a single-circuit 500kV electric transmission line and upgrades to two existing switchyards (see attached map). The project is designed to interconnect at one of three sites at the Palo Verde Hub and proceed southwest where the project will interconnect with APS' existing North Gila Substation, northeast of Yuma, Arizona. The proposed route parallels an existing 500kV transmission line for the entire length of the project and will be located on the north side of the existing line, within a Bureau of Land Management (BLM) designated utility corridor on BLM land (see attached map). APS will request Siting Committee approval for a CEC for the route as it has been determined as being environmentally compatible and would adequately address the project need.

Arizona Administrative Code Rule R14-2-219 directs an applicant to include in its Application an Exhibit H addressing the following:

"To the extent the applicant is able to determine, state the existing plans of the State, local government and private entities for other developments at or in the vicinity of the proposed site or routes."

This letter is a request for any information or comments that your organization wishes to provide regarding development plans for inclusion in the Application. Specifically, please advise me of any existing or future plans that may have changed since the completion of our data collection efforts in November 2006.

To allow your information to be included in the Application, please forward it to me no later than Friday, September 28th, at the address above.

Thank you for your cooperation.

Sincerely,

Paul J. Trenter, Project Manager
Environmental Planning Group

cc: Paul Herndon, APS Project Manager

EXHIBIT I
ANTICIPATED NOISE AND INTERFERENCE WITH COMMUNICATION SIGNALS

EXHIBIT I
ANTICIPATED NOISE AND INTERFERENCE WITH COMMUNICATION SIGNALS

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities."

Certain electromagnetic effects are inherently associated with overhead transmission of electrical power at extra high voltage. These effects are produced by the electric and magnetic fields of the transmission line with one of the primary effects being corona discharge. Corona effects are manifest as audible noise (AN), radio interference, and television interference. These particular effects will be minimized by line location, line design, and construction practices. Results presented in this exhibit are based on consideration of the various possible construction configurations along the line route. Because this line parallels an existing 500kV line with somewhat similar construction, similar electromagnetic effects will be experienced as currently exist along the present line.

CORONA

Corona is a luminous discharge due to ionization of the air surrounding a conductor and is caused by a voltage gradient, which exceeds the breakdown strength of air. Corona is a function of the voltage gradient at the conductor surface. This voltage gradient is controlled by engineering design and is a function of voltage, phase spacing, height of conductors above ground, phase geometry, and meteorological conditions. In particular, irregularities on the surface of the conductor such as nicks, scratches, contamination, insects, and water droplets, increase the amount of corona discharge. Consequently, during periods of rain and foul weather, corona discharges increase. Two transmission designs are being considered for the project: a triple-bundle Chukar configuration, and a two-bundle Bluebird configuration. For the Chukar design, the maximum calculated voltage gradient at the conductor surface of the existing line is 16.86 kVrms/cm and at the surface of the new 500kV line it is somewhat lower (14.54kVrms/cm). For the Bluebird design, the maximum calculated voltage gradient at the conductor surface was 16.84kVrms/centimeters. For comparison purposes, the breakdown strength of air is 21.1kVrms/cm at 25 degrees Celsius and 76 millimeters barometric pressure.

Corona represents power loss on the transmission line and creates transmission line noise. Successful operation of 500kV lines with similar gradients indicates that this transmission line will not create adverse corona effects.

TRANSMISSION LINE AUDIBLE NOISE

AN is created by corona discharge along the transmission line. As a result, the amount of AN is related directly to the amount of corona, which is in turn affected by meteorological conditions (most notably rain). Transmission line AN is categorized into broadband high frequency sounds, which can be described as hissing or sputtering, and low frequency tones, which are best described as humming sounds.

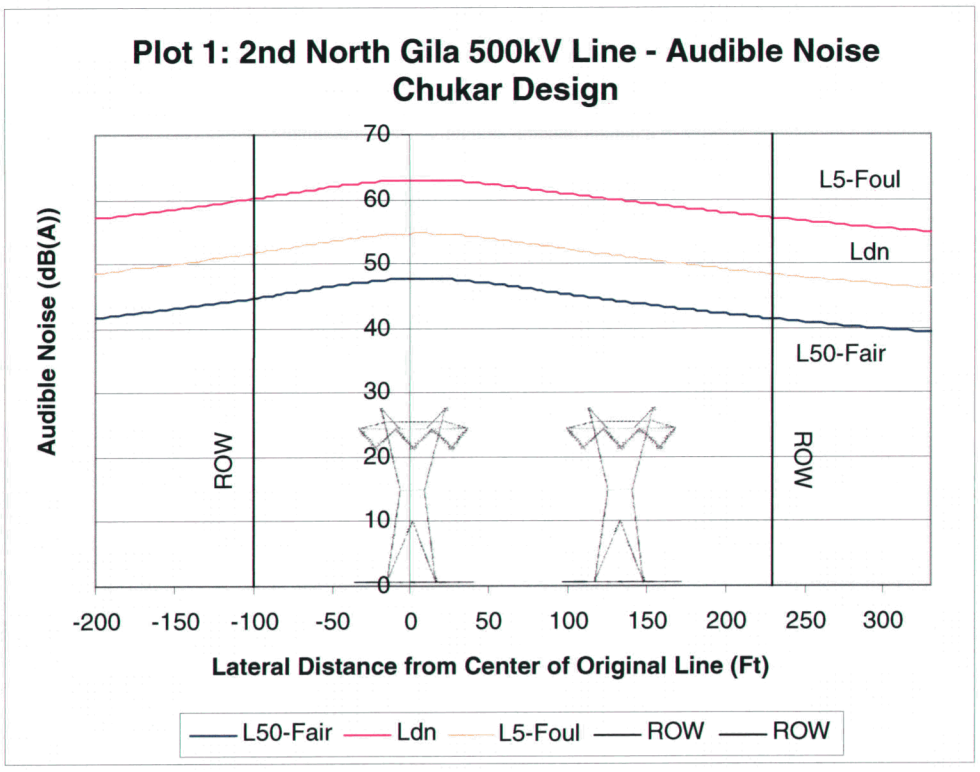
The highest calculated AN levels at the edge of the right-of-way for the Chukar design during foul weather (rain) is 60.1 decibels (dB) measured on an "A" weighted scale at the edge of the right-of-way near the existing 500kV line. A slightly lower value is calculated at the edge of the right-of-way of the new line (57 dB[A]). The highest calculated AN levels for the Bluebird design during foul weather (rain) may reach 61.5 dB measured on an "A" weighted scale at the edge of the right-of-way. These noise levels will occur during heavy rain (L5 – Rain), which will serve to mask the noise. During moderate rain and wet conductor conditions, the noise levels for the Chukar design may reach 53.5 and 50.5 dB(A) respectively (L50 – Rain), and 54.9 dB(A) (L50 – Rain) for the Bluebird design. During fair weather, the AN for the Chukar design is significantly reduced with maximum values of 44.7 and 41.4 dB(A) calculated for each respective side of the ROW (L50 – Fair), whereas the AN for the Bluebird design at the edge of the right-of-way is also significantly reduced with a maximum value of 46.2 dB(A) (L50 – Fair). Plot 1 shows the L5 foul weather and L50 fair weather calculated AN profiles for the line using a Chukar Design, and Plot 2 shows the same information for the Bluebird Design. In addition, the day/night (Ldn) calculated noise profile is shown.

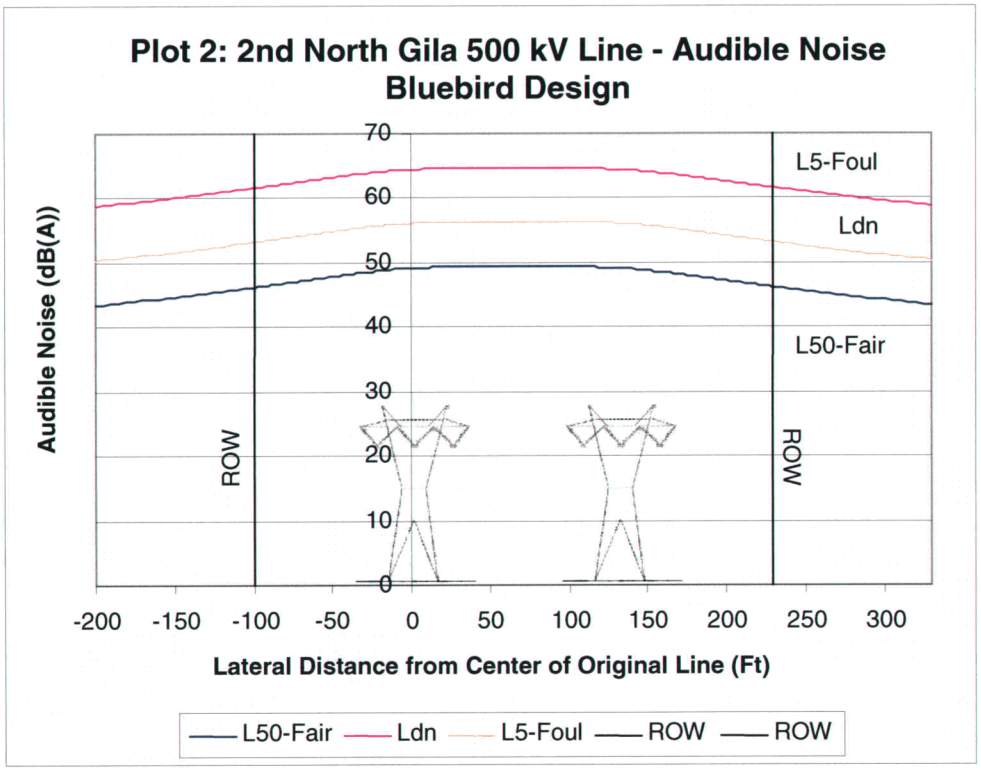
Considering the relatively few hours of AN producing weather, the location of the line with respect to neighboring land uses, and the calculated AN levels, no serious AN problems are expected even during foul weather.

RADIO INTERFERENCE

Radio interference is the reception of spurious energy not generated by the transmitting station. In general, this energy affects the amplitude modulated (AM) radio band, but not the frequency modulated (FM) radio band. Transmission line radio interference is caused by corona and by gap discharges. Gap discharges are electrical discharges across a small gap with the most common cause being loose hardware. Gap discharges comprise a large percentage of all interference problems and are easily remedied. Experience shows that gap discharges are not a problem with steel structures, but are more prevalent with wood structures due to the expansion and contraction of the wood causing hardware to loosen.

Corona caused radio interference impact is dependent on various factors including distance from the line to the receiver, radio signal strength, ambient radio noise level, receiving antenna orientation, and weather conditions. A common practice of determining the expected level of radio interference is to calculate the transmission line radio interference at a frequency of 1 MHz


Plot 1: 2nd North Gila 500kV Line - Audible Noise
Chukar Design
Audible Noise (dB(A))
70
60
50
40
30
20
10
0
L5-Foul
Ldn
L50-Fair
ROW
ROW
-200
-150
-100
-50
0
50
100
150
200
250
300
Lateral Distance from Center of Original Line (Ft)
L50-Fair
Ldn
L5-Foul
ROW
ROW


Plot 2: 2nd North Gila 500 kV Line - Audible Noise
Bluebird Design
Audible Noise (dB(A))
70
60
50
40
30
20
10
0
L5-Foul
Ldn
L50-Fair
ROW
ROW
-200
-150
-100
-50
0
50
100
150
200
250
300
Lateral Distance from Center of Original Line (Ft)
L50-Fair
Ldn
L5-Foul
ROW
ROW

Comparison of the calculated radio noise levels for the transmission line design shows fair weather radio noise levels in the range of 39 – 44 dB for the Chukar design, and 43.9 – 44.8 dB for the Bluebird design (above 1 μV/meter) at a distance of 100 feet from the outside phase, depending on the ROW side (Plots 3 and 4). With the Chukar design, as distance from the line increases, these levels fall off so that at 150 feet from the outside phase of the existing line, the noise levels are below 40 dB (above 1 μV/m). With the Bluebird design, at 130 – 140 feet from the outside phase the noise levels are below 40 dB (above 1 μV/m). Experience shows that there are generally no problems with radio interference when calculated noise interference levels are below 40 dB (above 1 μV/m) at 100 ft from the outside phase (IEEE 1980). This is not a precise value as the interference is a function of radio signal strength and other factors so the fact that calculated interference levels for this line are above 40 dB (above 1 μV/m) at the prescribed distance does not mean that unacceptable interference will occur. During inclement weather, transmission line noise levels increase to levels in the range of 60 – 65 dB for the Chukar design, and 65.5 – 66.4 dB for the Bluebird design, above 1 μV/meter 100 ft from the outside phase. Even though radio reception quality is reduced during periods of rainy weather, the impact is expected to be minimal due to several factors including the low frequency of inclement weather, and the very sparse habitation in the vicinity of the line. Transmission line experience for the existing North Gila 500kV line has shown radio interference to be insignificant.

TELEVISION INTERFERENCE

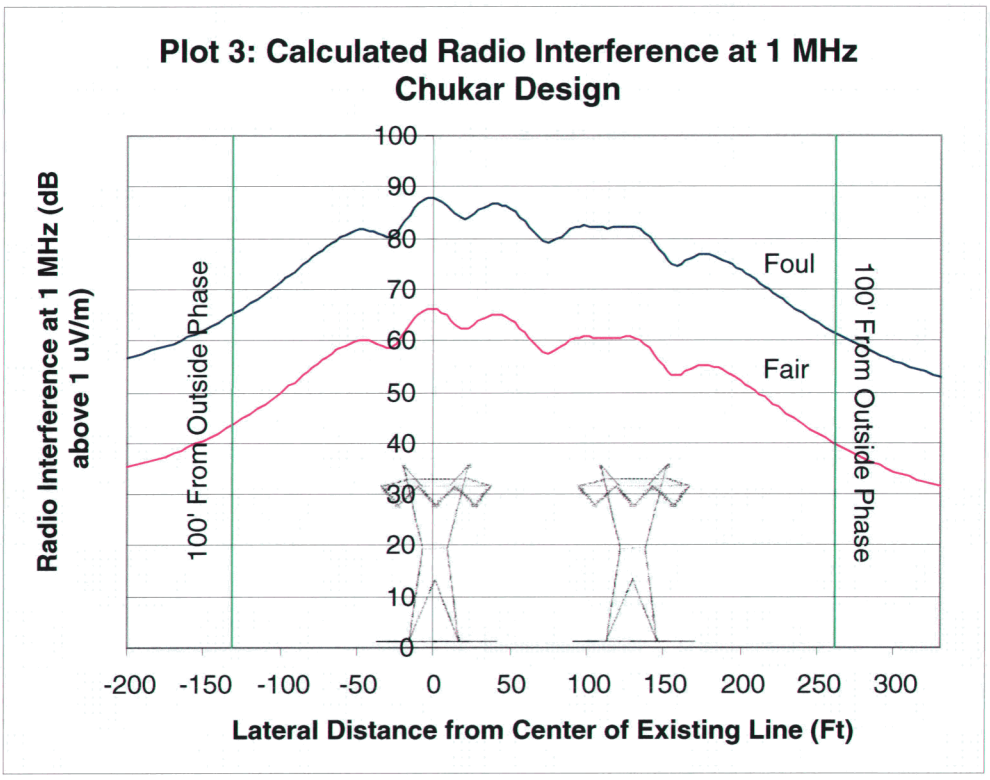
Traditional analog television broadcasts occur in three ranges:

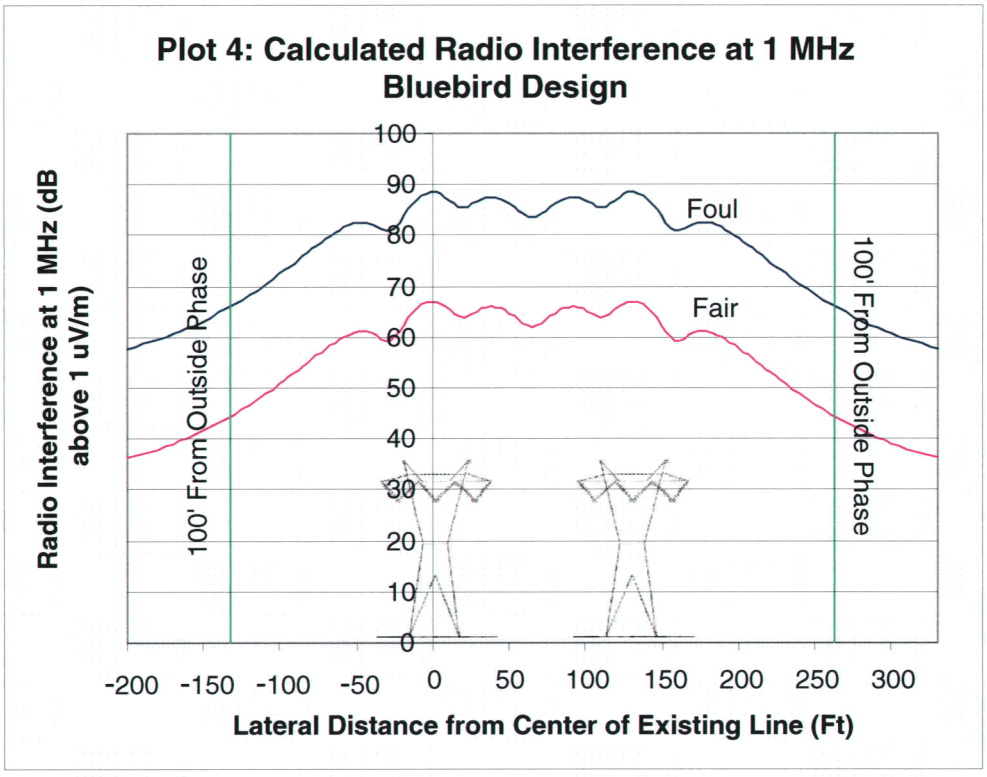
54 - 88 MHz (Channels 2 - 6)
174 - 216 MHz (Channels 7 - 13)
470 - 890 MHz (Channels 14 - 83)

Transmission line interference reduces with increasing frequency above 100 MHz. Consequently, television interference (TVI) only affects the lower VHF band (Channels 2 through 6) and no interference will be experienced in the upper VHF (Channels 7 - 13) and UHF bands (Channels 14 - 83) even during foul weather. Television interference noise levels can potentially affect AM signals; therefore the picture quality, which is AM, can be affected, but not the sound quality as these signals are FM.

Calculation of expected television interference levels at the edge of the right-of-way show levels in the range of 23 dB (above 1 μV/m) during foul weather and around 3 dB (above 1 μV/m) during fair weather. These levels are in line with expected levels for 500kV lines.

Where transmission line generated television interference has been found to be a problem, it is generally the result of induced voltage on fences, conductors, and hardware, which are adjacent to the right-of-way. In these situations, the interference can be easily corrected by grounding the objects, or by realigning, relocating, or providing higher gain television antennas. As in the past,


Plot 3: Calculated Radio Interference at 1 MHz
Chukar Design
Radio Interference at 1 MHz (dB above 1 uV/m)
100
90
80
70
60
50
40
30
20
10
0
Foul
Fair
100' From Outside Phase
100' From Outside Phase
-200 -150 -100 -50 0 50 100 150 200 250 300
Lateral Distance from Center of Existing Line (Ft)


Plot 4: Calculated Radio Interference at 1 MHz
Bluebird Design
Radio Interference at 1 MHz (dB above 1 uV/m)
100
90
80
70
60
50
40
30
20
10
0
Foul
Fair
100' From Outside Phase
100' From Outside Phase
-200 -150 -100 -50 0 50 100 150 200 250 300
Lateral Distance from Center of Existing Line (Ft)

APS is prepared to assist affected parties in resolving TVI problems resulting from the operation of our facilities. However, because all analog television broadcasts will cease in 2009 and will be replaced with digital broadcasts, television interference problems will cease to be an issue because digital television does not experience the interference problems that analog television does. Hence, no objectionable noise or interference with television signals is anticipated after 2009.

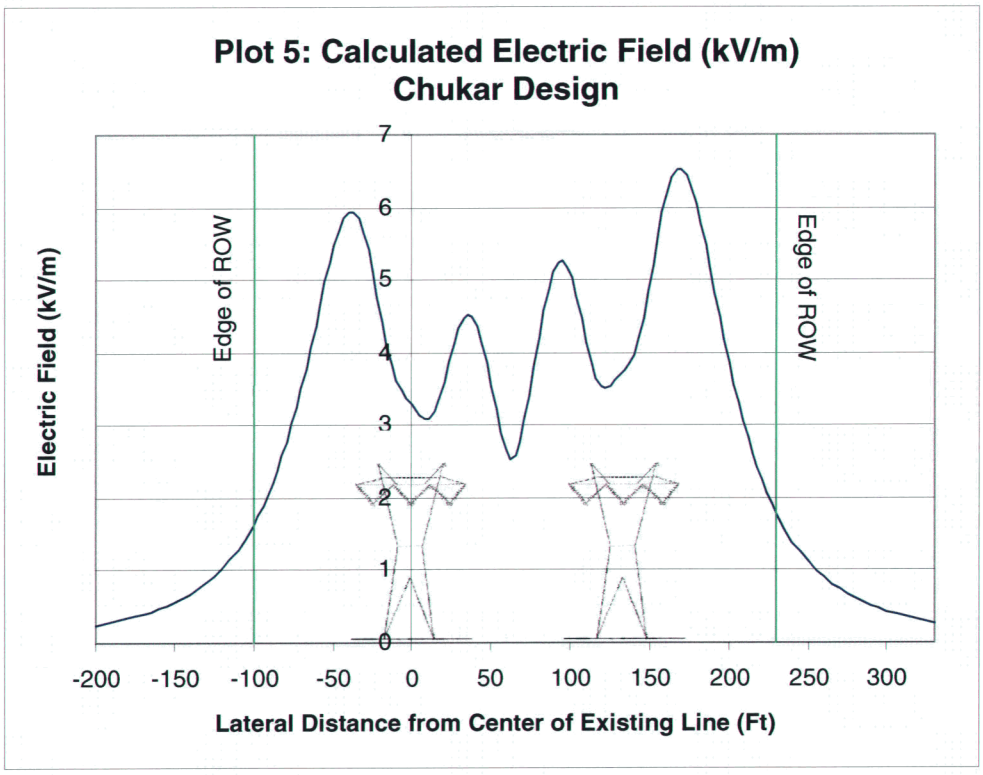
ELECTRIC AND MAGNETIC FIELD EFFECTS

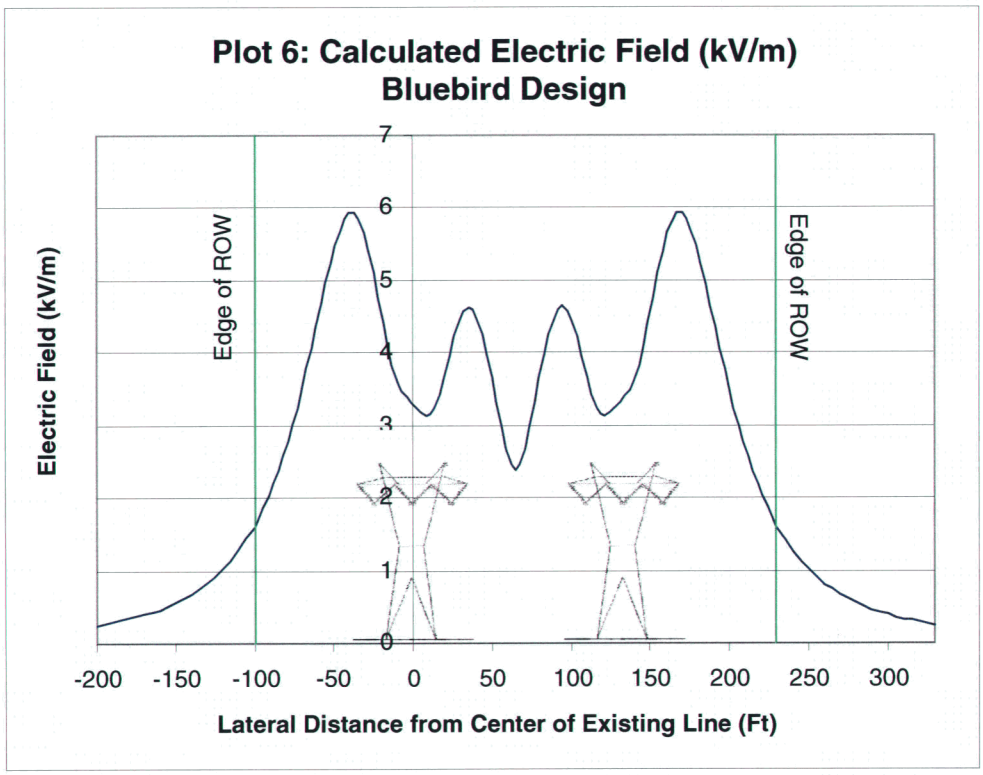
Electric and magnetic field (EMF) effects are primarily electric and magnetic induction effects whereby voltages and currents are induced in nearby conductive objects by the voltage and current on the line.

Electrostatic induction is the capacitive coupling of a voltage onto insulated objects near the transmission line. The induced voltage is a function of the electric field associated with the line, which in turn is a function of the line voltage. Other factors, which affect the level of induced voltage include insulation, object orientation and dimensions, and line height. When a person reaches to touch a conducting object which has been charged by electrostatic induction, a spark discharge will occur similar to that experienced by a person reaching for a doorknob after walking on a nylon carpet with the difference that sparking will continue to occur as long as the person's hand remains close enough to the object for the sparks to occur. Based on computer modeling the electric fields associated with the proposed transmission lines will be consistent with the electric field values of other similarly configured 500kV transmission lines in the state. Based on this, it is anticipated that any electrostatic induction problems that occur can be easily corrected by grounding the conductive objects. The transmission line will be designed to limit the value of short-circuit current from a conductive object to 5 milliamps (mA) or below, which is the maximum design limit permitted by the National Electrical Safety Code (NESC). Plots 5 and 6 show the expected electric field for the two sections of the line that were modeled.

The magnetic fields associated with transmission lines can also induce voltages and currents in conductive objects (e.g. fences, communication lines, railroads, pipelines), which are close to and run parallel to the transmission line. The magnetic field level is a function of the current level in the transmission line, which in turn is a function of the line loading.

In addition to the electric and magnetic field induction issues described above, scientific and public interest regarding potential health effects of human exposure to 60 hertz EMF has led to extensive study for more than 20 years. The number of scientific reports are too numerous to detail here. The following provides a sampling of the conclusions of some of the more recent United States and International scientific consensus reports. One example of such research was a 5-year study completed in 1999, which was jointly coordinated by the National Institute of


Plot 5: Calculated Electric Field (kV/m)
Chukar Design
Electric Field (kV/m)
Edge of ROW
Edge of ROW
0
1
2
3
4
5
6
7
-200
-150
-100
-50
0
50
100
150
200
250
300
Lateral Distance from Center of Existing Line (Ft)

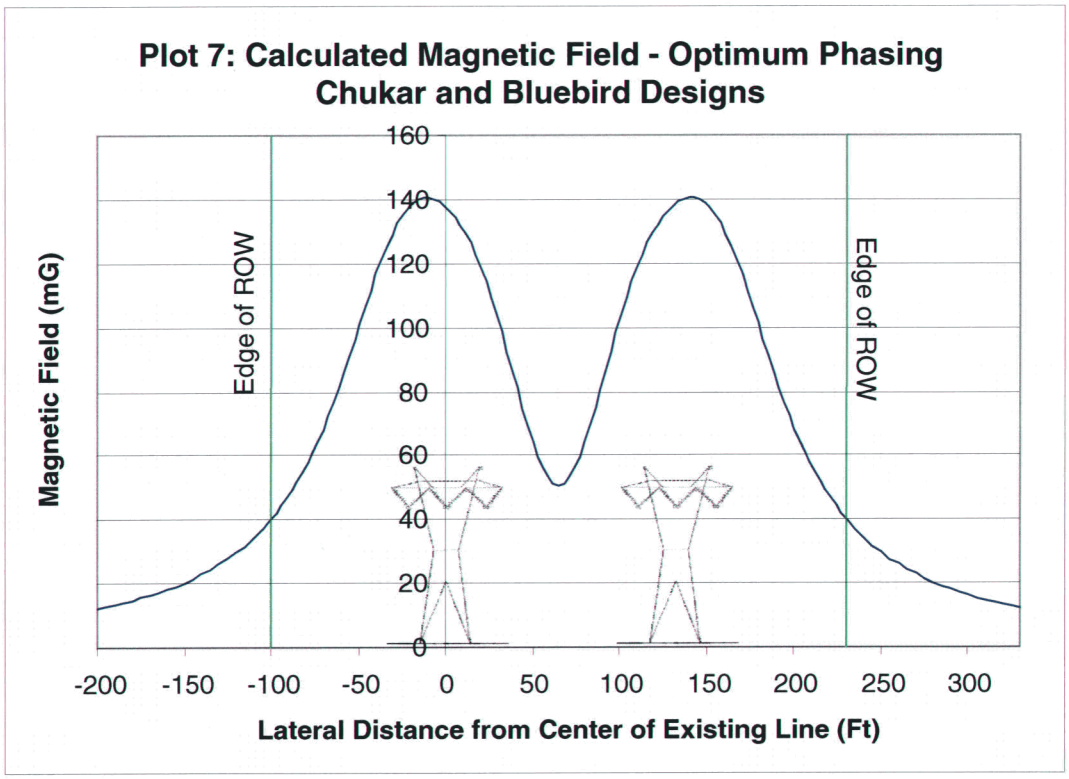

Plot 6: Calculated Electric Field (kV/m)
Bluebird Design
Electric Field (kV/m)
Edge of ROW
Edge of ROW
0
1
2
3
4
5
6
7
-200
-150
-100
-50
0
50
100
150
200
250
300
Lateral Distance from Center of Existing Line (Ft)

Environmental Health Sciences (NIEHS) and the DOE. In its May 1999 report to Congress, the NIEHS concluded that there was insufficient evidence of any health risk associated with EMF that would warrant new regulatory action (NIEHS). An additional review of this 5-year research program conducted by the National Research Council of the National Academy of Sciences in 1999 concluded "the results of the EMF Rapid program do not support the contention that the use of electricity poses a major unrecognized public-health danger" (NAS). A Question and Answer booklet published by the NIEHS in 2002 (EMF Questions and Answers: Electric and Magnetic Fields Associated with the Use of Electric Power) states the following: "Over the past 25 years, research has addressed the question of whether exposure to power-frequency EMF might adversely affect human health. For most health outcomes, there is no evidence that EMF exposures have adverse effects. There is some evidence from epidemiology studies that exposure to power-frequency EMF is associated with an increased risk for childhood leukemia. This association is difficult to interpret in the absence of reproducible laboratory evidence or a scientific explanation that links magnetic fields with childhood leukemia."

This focus on the potential relationship, as noted in epidemiologic research, between magnetic field exposure and the occurrence of childhood leukemia was also a subject of a recent report from the International Agency for Research on Cancer (IARC). While IARC did not conclude that power frequency fields present a specific health risk, IARC did state that, with respect to childhood leukemia, power frequency magnetic fields are 'possibly carcinogenic to humans' based on limited human evidence and inadequate evidence in experimental animals (IARC).

The World Health Organization summarized their review of Electric and Magnetic Fields and Public Health and published both an Environmental Health Criteria (No. 238) and a Fact Sheet (No. 322) in June 2007. These WHO documents conclude that the 2002 IARC classification of "possibly carcinogenic" should not be altered based on studies since that time (WHO).

The actual electric and magnetic fields associated with these power lines will depend on the construction type, the amount of current in the lines, height of the conductors, and other nearby sources of fields. Based on computer modeling of various construction options and operating conditions, the electric and magnetic fields associated with these lines is comparable to other already existing lines of this voltage in the state. Further, where there are multiple transmission lines in the same corridor, phase management of the subject line will be utilized to minimize the resulting magnetic fields. Plot 7 shows the expected magnetic field for optimum phasing in the parallel lines modeled. Plot 7 simulation cases were modeled with 75% of the expected heavy summer peak flow. Actual flows are expected to be below this value over 90% of the time.


Plot 7: Calculated Magnetic Field - Optimum Phasing
Chukar and Bluebird Designs
Magnetic Field (mG)
160
140
120
100
80
60
40
20
0
Edge of ROW
Edge of ROW
-200
-150
-100
-50
0
50
100
150
200
250
300
Lateral Distance from Center of Existing Line (Ft)

REFERENCES

(IEEE) 1980. "Review of Technical Considerations on Limits to Interference from Power Lines and Stations", IEEE Radio Noise and Corona Subcommittee Report, RI Limits Task Force, Working Group #3, IEEE Transactions on Power Apparatus and Systems, Vol. PAS-99, No. 1, Jan./Feb. 1980, pages 365-388.

(NIEHS) Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields, National Institute of Environmental Health Sciences, National Institutes of Health, NIH Publication No. 99-4493, May 1999.

(NAS) Research on Power Frequency Fields Completed Under the Energy Policy Act of 1992, National Research Council, National Academy of Sciences, ISBN: 0-309-06543-7, 1999.

(NIEHS) EMF Questions and Answers: Electric and Magnetic Fields Associated with the Use of Electric Power, June 2002, available at www.niehs.nih.gov/emfrapid/home.htm

(IARC) IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 80, Non-Ionizing Radiation, Part 1: Static and Extremely Low Frequency (ELF) Electric and Magnetic Fields, 2002: Lyon, France.

(WHO) World Health Organization Environmental Health Criteria (No. 238) Extremely Low Frequency (ELF) Fields (2007), WHO, Geneva, Switzerland ISBN 978-92-4-157238-5; and Fact Sheet No 322 Exposure to Extremely Low Frequency Fields (2007) available at www.who.int/peh-emf/en/

EXHIBIT J
SPECIAL FACTORS

EXHIBIT J
SPECIAL FACTORS

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Describe any special factors not previously covered herein, which Applicant believes to be relevant to an informed decision on its application."

Exhibit J-1	Website
Exhibit J-2	Project Newsletter One
Exhibit J-3	Project Newsletter One (Spanish)
Exhibit J-4	Open House Comment Form
Exhibit J-5	Display Advertisement
Exhibit J-6	BLM Informational Letter
Exhibit J-7	Public Comment and Response Summary Table

INTRODUCTION

This exhibit includes information on the public involvement program that has been conducted for the PV Hub to North Gila Project. Public outreach efforts began in January 2006 to provide information to agencies and individuals, solicit information on the project area, and identify potential issues relative to the project.

PUBLIC INVOLVEMENT PROGRAM SUMMARY

The Applicant and EPG have studied over 550 miles of alternatives for a new 500kV transmission line between the PV Hub and Yuma, Arizona. The regional study area included unincorporated areas of Maricopa County and Yuma County, as well as the unincorporated communities of Wintersburg, Hyder, Growler, Roll, and Dome. A public involvement program was initiated at the onset of the planning process to ensure that local jurisdictions and community residents were provided with the opportunity to relay information or potential concerns.

To reach the affected communities, the Applicant utilized a number of methods including a telephone information line, project website, newsletter and mailing list, public open houses, media relations, a jurisdictional meeting, and small group meetings and local official briefings. The BLM also provided a project letter to notify people on the BLM mailing list about the project. By providing the public with multiple opportunities to access project information and relay comments, the project team was able to identify potential issues and address them through the planning process and environmental studies.

Telephone Information Line

A telephone information line, (888) 206-6166, was established early in the project to provide the public with easy access to project information and team members. The telephone line relayed project updates and public meeting dates, and allowed callers to leave a comment regarding the project or a message requesting they be added to the project mailing list or contacted by a team member. This telephone line was advertised in newsletters, on the project website, and in paid advertisements. To date, three comments or messages have been received on this telephone line.

Website

A website, http://siting.aps.com, was utilized and maintained to provide access to project information and electronic versions of distributed materials. Through the website, viewers could obtain meeting dates, view current and past newsletters, routing maps, submit written comments or requests, and be added to the mailing list. The website address was advertised in newsletters, on the telephone information line, and in paid advertisements. To date, 14 comments have been received through the website. A copy of the website home page is included in Exhibit J-1.

Newsletters and Mailing List

The first project newsletter was prepared and distributed to approximately 1,100 people in February 2006. The mailing list included all APS customers and private landowners within the study area, as well as jurisdictional and local government leaders and the BLM mailing list. Because of the likelihood of Spanish-speaking residents receiving the newsletter, a Spanish version was prepared and a note was added to the English language version with instructions on how to request a Spanish language copy. Those who attended the public open houses or submitted comments were added to the project mailing list to receive any future newsletter(s). English and Spanish language versions of the newsletter were available at the open houses. The newsletter provided team contact information, including the phone line number and website address, as well as a project update. A copy of each newsletter can be found in Exhibit J-2 and J-3. The newsletter served to introduce the project to the public and included a description of the proposed facilities, need for the project, environmental planning process, public information opportunities, proposed route, state and federal permitting requirements, and announced the public open houses for March 2006. A second newsletter is planned for distribution in November 2007.

Public Open Houses

Two public open houses were conducted on March 1 and 2, 2006, to introduce the project and obtain public feedback. The first meeting was held in Dateland, Arizona and was attended by 17 people. The second meeting was held in Yuma, Arizona and was attended by 7 people. The open

houses were announced through paid newspaper advertisements, the initial project newsletter, the telephone information line, and the project website. The open houses were organized in an informal format, allowing community members to attend at their convenience, review displays, and speak with project team members. General information was presented on project need, description, environmental resources, alternatives evaluated, and the planning process. Comment forms were provided to solicit public comment on the Proposed Route and information that had been presented. A total of 3 public comment forms were received either during the open houses or by mail following the meeting. A sample open house comment form is included in Exhibit J-6.

Media Relations

The Applicant briefed local news sources and placed paid advertisements for the March open house meetings. In particular, the Applicant briefed the *Yuma Sun* and *Arizona Republic*. Display advertisements announcing the open house were placed in the *Yuma Sun*, and *Arizona Republic*. The display advertisement is included in Exhibit J-7.

Jurisdictional Meetings and Local Official Briefings

Jurisdictional Meeting

In late-January 2006, the Applicant invited members of agencies or jurisdictions within the study area to a meeting at which they could review project information and discuss potential concerns in a small, informal setting. The meeting was scheduled to closely coincide with the mailing of the first project newsletter, which announced the project to the general public. 37 representatives of 11 separate jurisdictions or agencies were invited to the meeting. 17 people representing the City of Yuma, Yuma County, WMIDD, YPG, Yuma Mesa Irrigation District, Yuma County Water Users Association, and Marine Corps Air Station (MCAS) Yuma, attended the meeting.

During the meeting, the project team presented a project overview, including a description of other APS projects in Yuma. The presentation also included information on the project description and planning process, including state and federal permitting requirements.

Local Official Briefings

Throughout the project, team members held meetings with local jurisdiction representatives, including elected officials and planning organizations, to relay project information and answer questions. A meeting was held with Maricopa County supervisor Mary Rose Wilcox. Presentations also were provided for ASLD, Maricopa County Planning Department, YPG, and MCAS Yuma. These meetings enabled the project team to identify issues held, consider suggestions during the planning process, and relay information on current project developments.

The Applicant met with and received information from private landowners/lessees during the planning process. A meeting was offered to representatives of farming developments in the Hyder area to introduce the project and solicit feedback from attendees. Based on the project location and the minimal impacts to agricultural operations, the farmers declined.

Table J-1 provides a summary of the small group meetings and local official briefings that occurred as part of the planning process.

TABLE J-1
LOCAL OFFICIAL BRIEFINGS

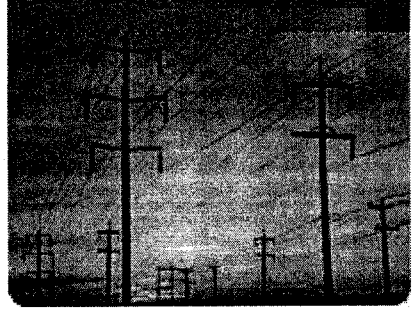
Jurisdiction/Representation	Date	Summary/Topic
FEDERAL		
BLM Lower Sonoran Field Office	01/18/06	Interdisciplinary team meeting to introduce project
Yuma Proving Ground	08/29/06	Project briefing
BLM Lower Sonoran Field Office	09/12/06	Coordination meeting
MCAS Yuma	09/14/06	Project briefing
Yuma Proving Ground	10/19/06	Coordination meeting
BLM Lower Sonoran Field Office	02/1/07	Coordination meeting
BLM Lower Sonoran Field Office	03/22/07	Field visit
Yuma Proving Ground	09/27/07	Coordination meeting
STATE		
Arizona State Land Dept. Linda Beals	03/28/06	Discussed PV to North Gila project
Arizona Corporation Commission Mike Gleason Jeff Hatch-Miller Gary Pierce	08/23/07	Project briefing
Arizona Corporation Commission Kristin Mayes William Mundell	08/24/07	Project briefing
Arizona Corporation Commission Staff Prem Bahl	09/10/07	Project briefing
COUNTY		
Maricopa County Planning Matt Holm	04/14/06	Project briefing
Mary Rose Wilcox, Supervisor	04/18/06	Project briefing

TABLE J-1 LOCAL OFFICIAL BRIEFINGS		
Jurisdiction/Representation	**Date**	**Summary/Topic**
MISCELLANEOUS		
City of Yuma, Yuma County, Wellton Mohawk Irrigation and Drainage District, Yuma Irrigation District, Yuma Proving Ground, Yuma Mesa Irrigation District, Yuma County Water Users Association, MCAS Yuma	01/26/06	Jurisdictional meeting (see meeting summary on page J-3)

BLM Informational Letter

An informational letter describing the proposed project and the project study area was distributed by the BLM in January 2006 to over 3,400 individuals on their mailing list who live both within and outside the study area. The letter invited recipients to provide any comments to the BLM within a 30-day period. A copy of the letter is included in Exhibit J-8.

EXHIBIT J-1
WEBSITE



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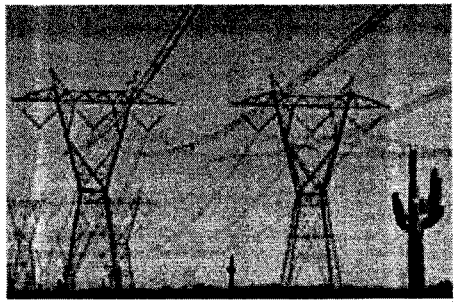
Transmission and Facility Siting - Current Projects

Palo Verde Hub to North Gila 500kV Transmission Line Project



APS has plans to build a new 500-kilovolt (500kV) transmission line between the Palo Verde Hub (the area around the Palo Verde Nuclear Generating Station) and the Yuma Area to accommodate unprecedented growth.

According to the 2000 U.S. Census, the Yuma area grew by almost 50 percent between 1990 and 2000, thereby making it the third fastest growing area in the United States. In addition, the average household usage of electricity in Arizona has increased about 20 percent over the past decade. Growth figures like these coupled with limited electrical resources in the area underscore the need to build new electrical facilities.

APS' Palo Verde Hub to North Gila 500kV Transmission Project will provide the electrical transmission infrastructure to import additional generation resources from the power plants in and around the Palo Verde Hub into this high-growth area. The project will also improve the reliability of the APS electric system in the Yuma area by providing an additional high-voltage transmission source to that region.

The public is invited to learn more about the project in the following ways:

- Project newsletters will be mailed to APS customers and landowners in the area, and others with an interest in the project.
- Public open houses, with their informal formats allow individuals to meet with project team members one-on-one and discuss the latest project information.
- A project telephone information line at (888) 206-6166 also will carry up-to-date information regarding the project.
- Federal NEPA and state siting processes also provide the public with various levels of comment opportunities and involvement.

Please send us your comments or call Paul Herndon, APS Project Manager, at (623) 932-6729 for more

EXHIBIT J-2
PROJECT NEWSLETTER ONE

APS
Mail Station 8508
P.O. Box 53999
Phoenix, AZ 85072

PRSRT STD
U.S. POSTAGE
PAID
PHOENIX, AZ
PERMIT NO. 90

Para ver el boletín de noticias en español, por favor visite **http://www.siting.aps.com**
Para un boletín de noticias en español, por favor llame al **(888) 206-6166**

PALO VERDE HUB TO NORTH GILA 500kV TRANSMISSION PROJECT

Please Attend the Upcoming

Public Information Open House

Wednesday, March 1, 2006
5:30 to 7:30 p.m.
Dateland School
1300 S. Ave. 64E
Dateland, Arizona 85333

OR

Thursday, March 2, 2006
5:30 to 7:30 p.m.
Arizona Western College
College Union Building
Saguaro Room
2020 S. Ave. 8E
Yuma, Arizona 85366

If you are unable to attend the open house, please visit our web site at **http://siting.aps.com** or call **(888) 206-6166** for more information.

PALO VERDE HUB TO NORTH GILA 500kV TRANSMISSION PROJECT

February 2006 • Issue 1

APS Proposes New Transmission Facilities

APS has plans to build a new 500-kilovolt (500kV) transmission line between the Palo Verde Hub (the area around the Palo Verde Nuclear Generating Station) and the Yuma area to accommodate unprecedented growth (see map on next page).

According to the 2000 U.S. Census, the Yuma area grew by almost 50 percent since 1990, making it the third fastest growing area in the United States. In addition, the average household usage of electricity in Arizona has increased by 20 percent over the past decade. Growth figures like these, coupled with limited electrical resources in the area, underscore the need to build new electrical facilities.

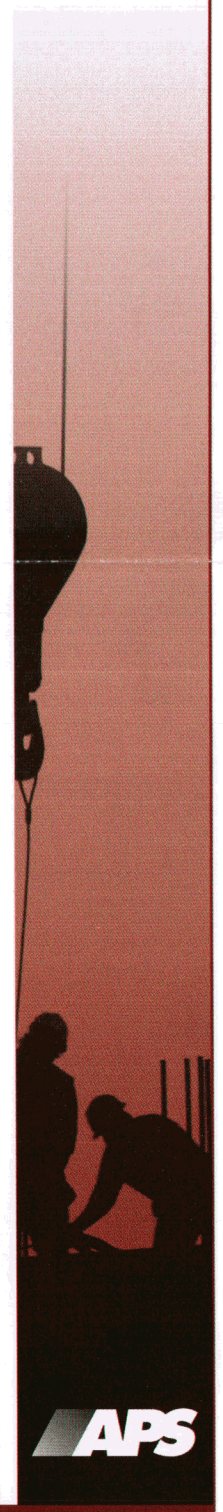
APS' Palo Verde Hub to North Gila 500kV Transmission Project will provide the electrical transmission infrastructure needed to import additional electricity from power plants in and around the Palo Verde Hub into this high-growth area. The project will also improve the reliability of the APS electric system in the Yuma area by providing an additional high-voltage transmission source. Additional improvements to the APS electric system in the Yuma area will be ongoing in the next several years.

Project Description

The proposed transmission line will be approximately 115 miles in length and will be constructed on steel towers, typically between 130 to 150 feet high. The line would begin at one of several interconnection points at the Palo Verde Hub and will primarily parallel the existing Southwest Powerlink (SWPL) 500kV transmission line for the entire length of the project. Approximately 55 miles of the proposed line would be placed within the existing one-mile-wide Bureau of Land Management (BLM) designated utility corridor before reaching the existing North Gila Substation, northeast of the City of Yuma.

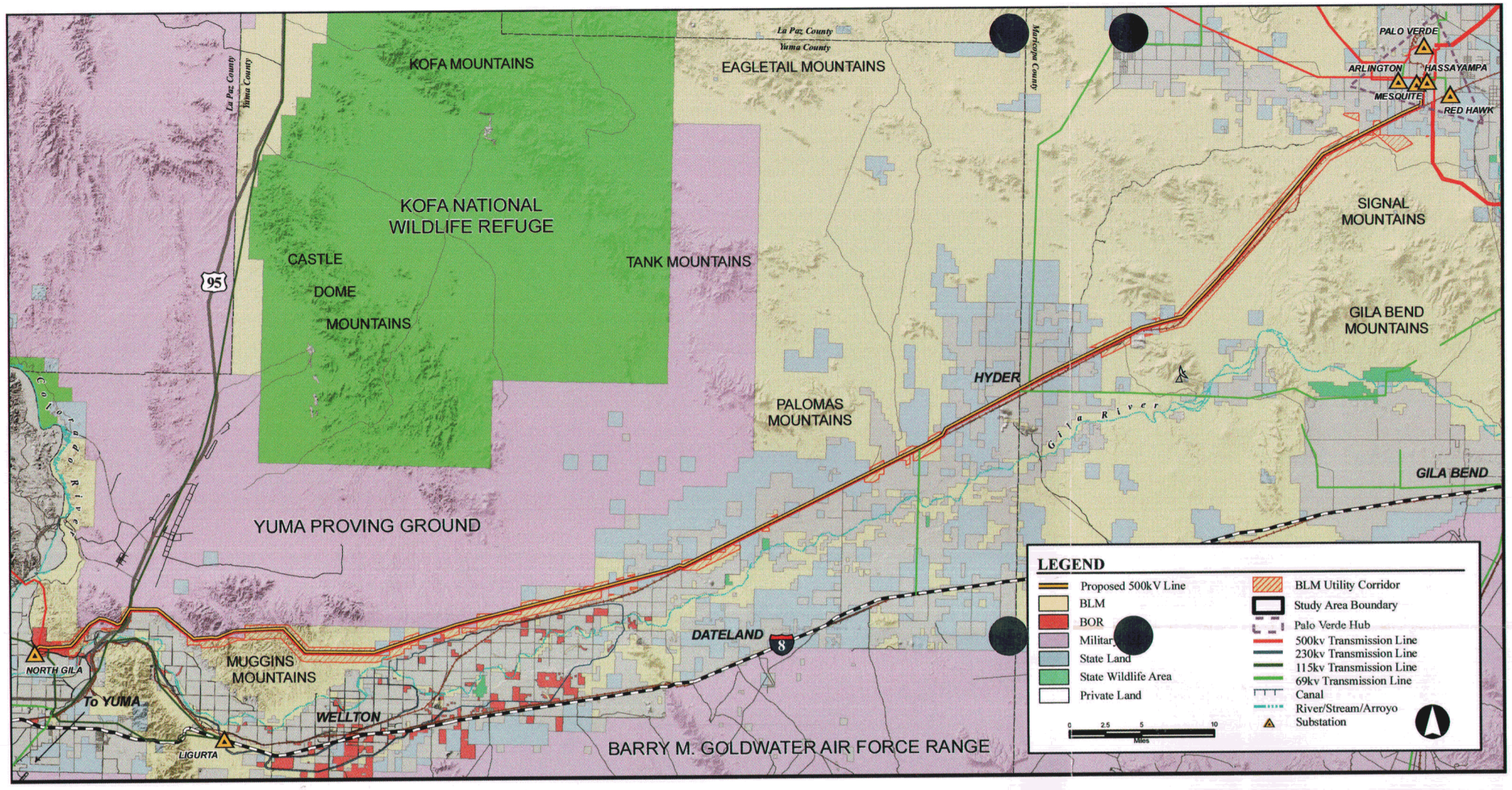
State and Federal Components of the Project

In the third quarter of 2005, APS began working with the BLM, Phoenix Field Office, to update their resource management plans (RMP). The RMP process included reviewing the need for existing utility corridors and designating new utility corridors through their federal lands. The BLM's final draft plan is expected to continue to include the existing San Diego Gas & Electric Interconnection designated utility corridor, which is one-mile wide, and lies within the BLM's study area. A portion of the study area



APS

For more information, please visit the project Web site at http://siting.aps.com



also crosses lands administered by the Yuma BLM office, which is currently updating their RMP as well.

Because APS proposes that the new 500kV transmission line, in part, be located on federal land, adherence to the National Environmental Policy Act (NEPA) is required. APS has filed a right-of-way application on the proposed project and, as required under NEPA, will conduct an Environmental Assessment (EA) as part of that right-of-way application process.

In addition to the federal planning requirements for the project, APS will prepare a Certificate of Environmental Compatibility (CEC) application to comply with Arizona Revised Statute 40-360 for state permitting of the project. This application will be filed with the Arizona Power Plant and Transmission Line Siting Committee, which will hold public hearings on the project. The CEC application will document the proposed project's purpose and need, description, cost, federal and state permitting efforts, associated environmental issues and public outreach efforts.

Ultimately, the state siting committee will make a formal recommendation on the project to the Arizona Corporation Commission, which makes a final determination on a power line route.

Environmental Process

APS has retained an environmental consulting firm, the Environmental Planning Group (EPG), based in Phoenix, to conduct the required environmental analysis on the project. EPG will conduct five primary tasks:

1) Regional study/identification of preliminary alternatives;

2) Detailed inventory of resources in the project area;

3) Impact assessment and mitigation planning;

4) Environmental Assessment report preparation; and

5) Preparation of the CEC application.

Public Information

The public is invited to learn more about the project in the following ways:

- Project information will be posted via the internet at http://siting.aps.com
- Project newsletters will be mailed periodically to APS customers and landowners in the area, and others with an interest in the project.
- Public open houses with informal formats allow individuals to meet with project team members one-on-one and discuss the latest project information.
- A project telephone information line at (888) 206-6166 will carry up-to-date information regarding the project.
- The federal NEPA and state siting processes also provide the public with various levels of comment opportunities and involvement.

First Project Open Houses

The first project open house will be held **March 1, 2006** at the Dateland Community Center, 1300 S. Ave. 64E, in Dateland, Ariz. The public may attend any time between 5:30 and 7:30 p.m., to talk one-on-one with project team members. An additional open house will be on **March 2, 2006** at Arizona Western College, College Union Building, Saguaro Room, 2020 S. Ave. 8E, in Yuma, Ariz. between 5:30 and 7:30 p.m. We look forward to seeing you at one of the open houses.

Project Schedule

While the project permitting process informally began through discussions with the BLM in mid-2005, the environmental planning, public, state and NEPA processes will extend into the fourth quarter of 2006. APS plans to file for a CEC with the Arizona Corporation Commission in the third quarter of 2006, with state siting hearings anticipated to conclude in the second quarter of 2007. The entire project is planned to be completed and operational by 2012.

APS

EXHIBIT J-3
PROJECT NEWSLETTER ONE (SPANISH)

Mail Station 8508
P.O. Box 53999
Phoenix, AZ 85072

PRSRT STD
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To request a copy of this newsletter in English, please call **(888) 206-6166**

Proyecto de Tranmisión de 500kV desde Palo Verde Hub a North Gila

¡Les invitamos a exhibiciones públicas!

Exhibiciónes abiertas al público:

Miercoles, 1 de Marzo, 2006
5:30-7:30 p.m.
Dateland School
1300 Sur Avenida 64E
Dateland, Arizona 85333

Jueves, 2 de Marzo, 2006
5:30-7:30 p.m.
Arizona Western College
College Union Building
Saguaro Room
2020 Sur Avenida 8E
Yuma, Arizona 85366

Sino puede asistir a las exhibiciones públicas, por favor visite la página web **http://siting.aps.com** o llame al **(888) 206-6166** para más información.

Proyecto de Tranmisión de 500kV desde Palo Verde Hub a North Gila

Febrero 2006 • Boletín de Noticias 1

APS Propone Nuevas Instalaciones de Transmisión

APS propone construir una nueva línea de transmisión de 500 kilovoltios (500kV) desde el centro de Palo Verde a la area de Yuma para acomodar el crecimiento de la población (vea el mapa en la página siguiente).

Los resultados del censo de los Estados Unidos tomado en el año 2000 indican que la area de Yuma creció casi 50 por ciento desde el año 1990, haciéndola la area tercera ciudad en este país mas rápida en crecer. Adicionalmente, el uso de electricidad por término medio en Arizona ha subido al porcentaje de 21 en esta última década. Estadísticas como estas realmente demuestran la necesidad de construir nuevas instalaciones eléctricas.

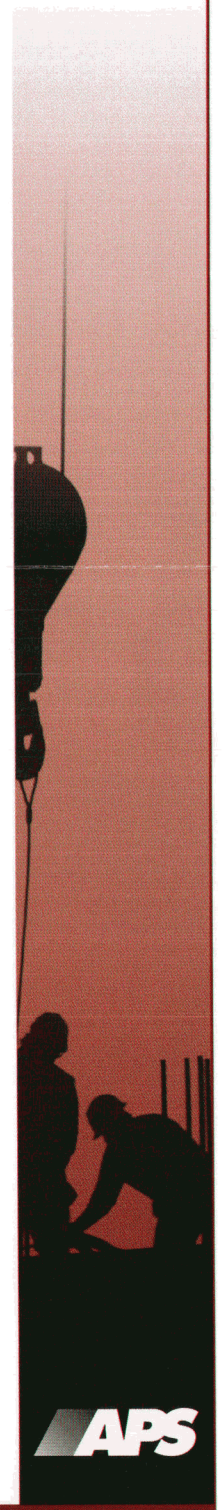
Este proyecto suministruirá la infraestructura eléctrica de transmisión que traerá la mayor parte de electricidad en esta area de rápido crecimiento. Este proyecto también fortalecerá el sistema de transmisión de APS para suministrar una fuente de energía de transmisión adicional de alta voltaje al area metropolitana de Yuma. Esto permitirá la importación de electricidad de fuentes generadas en, y sobre, la planta nuclear Palo Verde Nuclear Generating Station (PVNGS).

Descripción del Proyecto

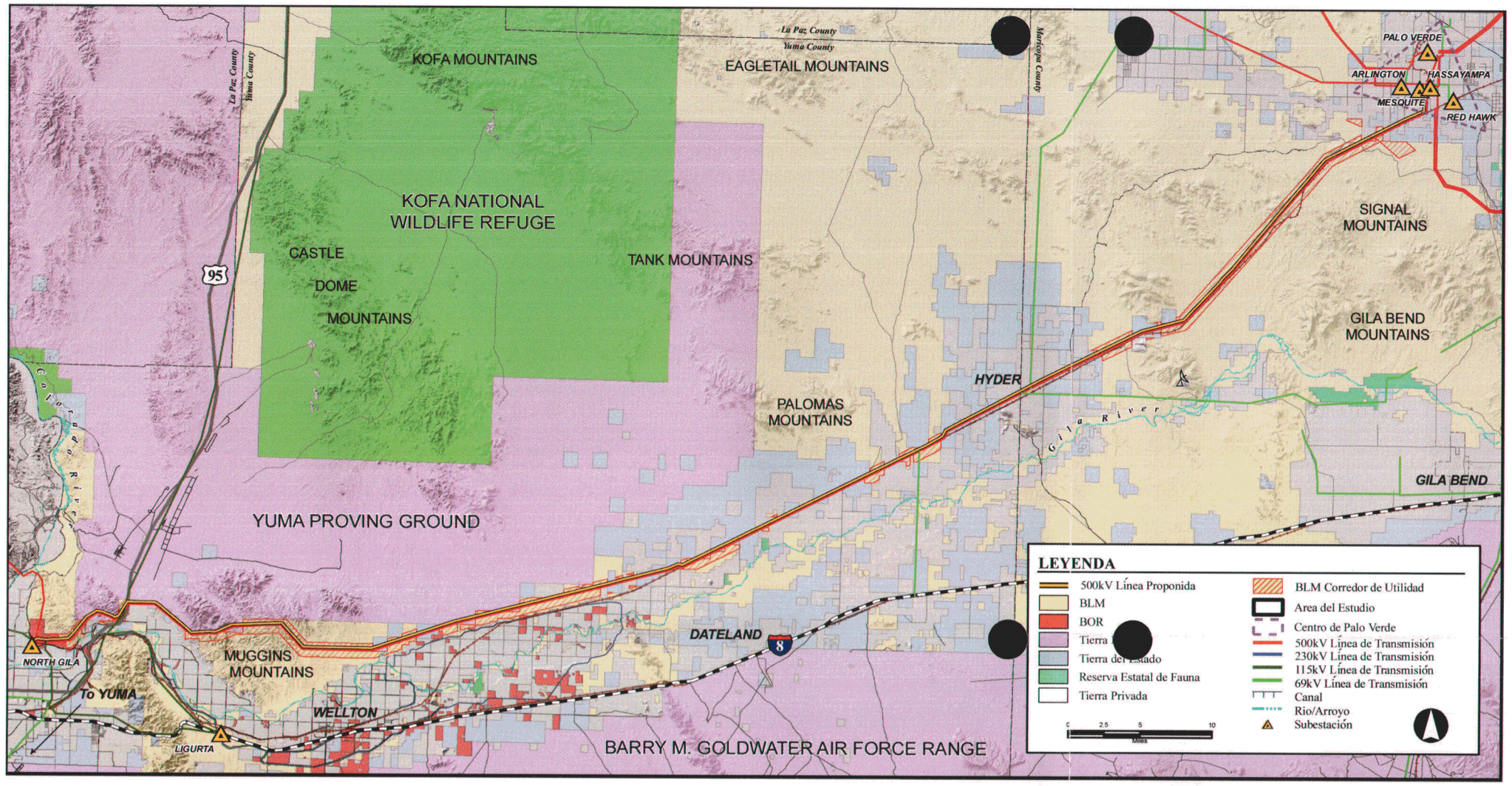
La línea proponida de transmisión será aproximadamente 115 millas de larga y será construida en torres entramados, típicamente entre 130 a 150 pies de altura. La línea de 500kV proponida por APS comenzaría a una de varias puntos de interconeción en el centro de Palo Verde y por la mayor parte, será pararela a la de 500kV línea existente de Southwest Powerlink (SWPL). Aproximadamente 55 millas de la línea, sería entre el existente corredor de utilidad designado del Burea of Land Management (BLM), que es una milla ancha, antes de alcanzar la subestación de North Gila, nordeste de la ciudad de Yuma.

Componentes Estatales y Federales

El el tercer cuarto del año 2005, APS comenzó a trabajar con la oficina de BLM en Phoenix para actualizar los planes de manejar los recursos que incluye designar un corredor de utilidad por medio de tierra federal. Es anticipado que el plan final borrador del BLM incluirá el existente y designado corredor de utilidad apropiado por San Diego Gas & Electric Interconneción que es una milla ancha y contiene parte de la area del estudio de BLM. Una porción de la area de estudio pasará por tierra administrada por la oficina de BLM en Yuma que también está actualizando su propio plan de manejar los



Para más información, por favor visite la página web: http://siting.aps.com



recursos. Es anticipado que el existente y designado corredor de utilidad será transferido al plan final borrador de Yuma.

Adherencia al National Environmental Policy Act (NEPA) es obligatoria porque la nueva 500kV línea de transmisión que APS está proponiendo está, en parte, localizada en tierra federal. APS ha expedido una aplicación por el derecho de paso por el proyecto proponido. APS tambien conductará una evaluación medioambiental (EA) como parte del proceso de aplicar por el derecho de paso.

Además del requisitos de planificación federal del proyecto, APS preparará una aplicación para un Certificado de Compatibilidad Medioambiental (CEC) para cumplir con el estatuto revisado 40-360 de Arizona para que el estado permita el proyecto.

Esta aplicación será expedida con el Comité de Emplazamiento de la Central Eléctrica y Línea de Transmisión de Arizona que administrarán sesiones publicas sobre el proyecto. La aplicación del CEC documentará el propósito, necesidad, descripción, coste, esfuerzos federales y estatales para permitir el proyecto, temas asociados del medioambiente, y esfuerzos de alcanzar al público.

Finalmente, el comité de emplazamiento del estado hará una recomendación formal sobre el proyecto a la Comisión Corporal de Arizona (ACC) que hará la final determinación de la ruta de la linea eléctrica.

Proceso Medioambiental

APS ha retenido a una empresa consultaria, Environmental Planning Group (EPG) basada en Phoenix, para conductar los requisitos analisis medioambiental en el proyecto. EPG conductará cinco tareas primárias:

1) Estudio regional/identificación de alternativas preliminarias;

2) Inventario detallado;

3) Evaluación de impactos y planificación de mitigación;

4) Preparación de la aplicación para el CEC.

Información Pública

El público está invitado a aprender más sobre el proyecto de diferentes maneras:

- Información del proyecto será anunciada en la pagina web http://siting.aps.com.
- Boletines de noticias serán enviados periódicamente por correo a los clientes de APS, terratenientes, y otros con interés en el area del proyecto.
- Exhibiciones abiertas al público con un formato informal permitiendo individuales a conocer miembros del equipo del proyecto y hablar sobre la última información.
- Línea de información (888) 206-6166 que también tendrá la última información sobre el proyecto.
- Los procesos federales de NEPA y estatales de emplazamiento también son públicos y permiten varios niveles de oportunidades para comentarios y participación.

Primeras Exhibiciones Abiertas al Público

La primera exhibición abierta al público será en el día **1 de marzo del 2006** en el centro comunitaria de Dateland, 1300 Sur Avenida 64E en Dateland, Ariz. El público podrá atender a cualquier hora entre las 5:30 y 7:30 de la noche para hablar con miembros del equipo del proyecto. Habrá otra exhibición abierta al público en el día **2 de marzo del 2006** en Western Nevada College, College Union Building, Saguaro Room, 2020 Sur Avenida 8E, Yuma, Ariz. Esperamos verles a todos.

Horario del Proyecto

Mientras el proyecto informalmente empezó entre discusiónes con el BLM en el medio del año 2005, planificaciones medioambientales, procesos con el estado, NEPA, y el público van a extender al final cuarto del 2006. APS planea expedir documentos para un CEC con la Comisión Corporal de Arizona en el tercer cuarto del 2006, con sesiones de emplazamiento estatal anticipado a concluir el segundo cuarto del 2006. El proyecto entero será finalizado y operacional en el 2012.

APS

EXHIBIT J-4
OPEN HOUSE COMMENT FORM

Palo Verde Hub to North Gila 500kV Project
Public Information Open House #1
Wednesday, March 1, 2006

APS

COMMENT FORM

At this early stage of the Palo Verde Hub to North Gila 500kV Project, we want to hear your initial views on the project and the proposed transmission line route. Your comments are important to help develop and enhance the planning studies. Please take a few minutes to consider the information provided and complete and return this form. Comment forms may also be mailed to Christina White, c/o EPG, 4141 North 32nd Street, Suite 102, Phoenix, Arizona, 85018.

Name _____

Address _____

City, Zip _____

Email/Phone number (optional) _____

Please print so we can record your information accurately. Requests to be added to the project mailing can also be submitted by calling (888) 206-6166 or by visiting the project website at http://siting.aps.com.

COMMENTS: _____

EXHIBIT J-5
DISPLAY ADVERTISEMENT

APS

THE POWER TO MAKE IT HAPPEN®

You are invited to one of the upcoming

PUBLIC INFORMATION OPEN HOUSE/SCOPING MEETINGS

Wednesday, March 1 – 5:30 to 7:30 p.m.
Dateland School
1300 S. Ave. 64E, Dateland

or

Thursday, March 2 – 5:30 to 7:30 p.m.
Saguaro Room, College Union Building
Arizona Western College
2020 S. Ave. 8E, Yuma

APS is proposing the construction of a new 500-kilovolt transmission line between the Palo Verde Hub (near the Palo Verde Nuclear Generating Station) and the Yuma area designed to improve the reliability of the APS electric system in the Yuma area by providing an additional high-voltage transmission source. The meetings will be informal, allowing people to drop in at any time during an open house to review displays, speak with project team members and provide input.

For more information, visit http://siting.aps.com or call 888-206-6166 (toll free)

EXHIBIT J-6
BLM INFORMATIONAL LETTER

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Phoenix District
Lower Sonoran Field Office
21605 North 7th Avenue
Phoenix, AZ 85027
www.az.blm.gov

TAKE PRIDE IN AMERICA

In Reply Refer To:
2800 (220)
AZA-33305

January 30, 2006

Request for Comments for the Proposed Right-of-Way for the Arizona Public Service Palo Verde to North Gila Transmission Project, Arizona.

INTRODUCTION

The Bureau of Land Management (BLM) requests your comments relating to the proposed Right-of-Way (R/W) on public lands for the Arizona Public Service (APS) Palo Verde to North Gila (PV-N.Gila) Project located in Maricopa and Yuma County (see enclosed project map).

The purpose of this mailer is to notify potentially interested parties including local, state, and federal agencies and adjacent landowners of the proposed project. All comments must be received by March 03, 2006 and will be reviewed as part of the environmental analysis for the project. At this time, the BLM has decided to prepare an Environmental Assessment (EA) to determine whether the project will have significant environmental effects. The EA is expected to be available for public comment by the fall of 2006.

PROPOSED ACTION

The Proposed Action involves one 500 kV transmission power line on steel lattice structures which would be constructed within a R/W that is approximately 200 feet in width and approximately 110 to130 miles in length. The proposed R/W, as it affects public land, would be built within the San Diego Gas and Electric utility corridor as identified in the Lower Gila South Resource Management Plan (1988) and the Interconnection and ROW 3 utility corridors as identified in the Yuma District Resource Management Plan (1985). The proposed action requires environmental compliance subject to the National Environmental Policy Act (NEPA).

The R/W of the proposed action would directly affect up to approximately 60 miles of public lands.

DECISION TO BE MADE

The decision to implement the Proposed Action involves the BLM, which has jurisdiction for approximately 60 miles of public lands involved in the project.

Implementation of the Proposed Action will depend on the following: 1) BLM District Manager reviews the EA, including comments received, and documents the decision in a Decision Record that contains a Finding of No Significant Impact (FONSI); or 2) makes the decision to prepare an Environmental Impact Statement (EIS).

ISSUES

At a minimum, the EA will discuss the existing conditions of each resource and environmental consequences of the Alternative(s) on the following issues:

- Biological Resources (plants, wildlife, threatened and endangered species, and livestock grazing)
- Cultural Resources (archaeological sites)
- Land Use (recreation, access, R/W, etc.)
- Socio-economics
- Physical Resources (waters of the U.S., ground/surface water use, air quality, etc.)

NEPA PROCESS

- 30-day public comment period
- Preparation of EA
- Decision Record issued
- Public Protest & Appeal Period

If you have any questions, please contact Camille Champion at (623) 580-5526.

Sincerely,

Kevin Harper
Field Office Manager

Enclosure
(1) Project Map

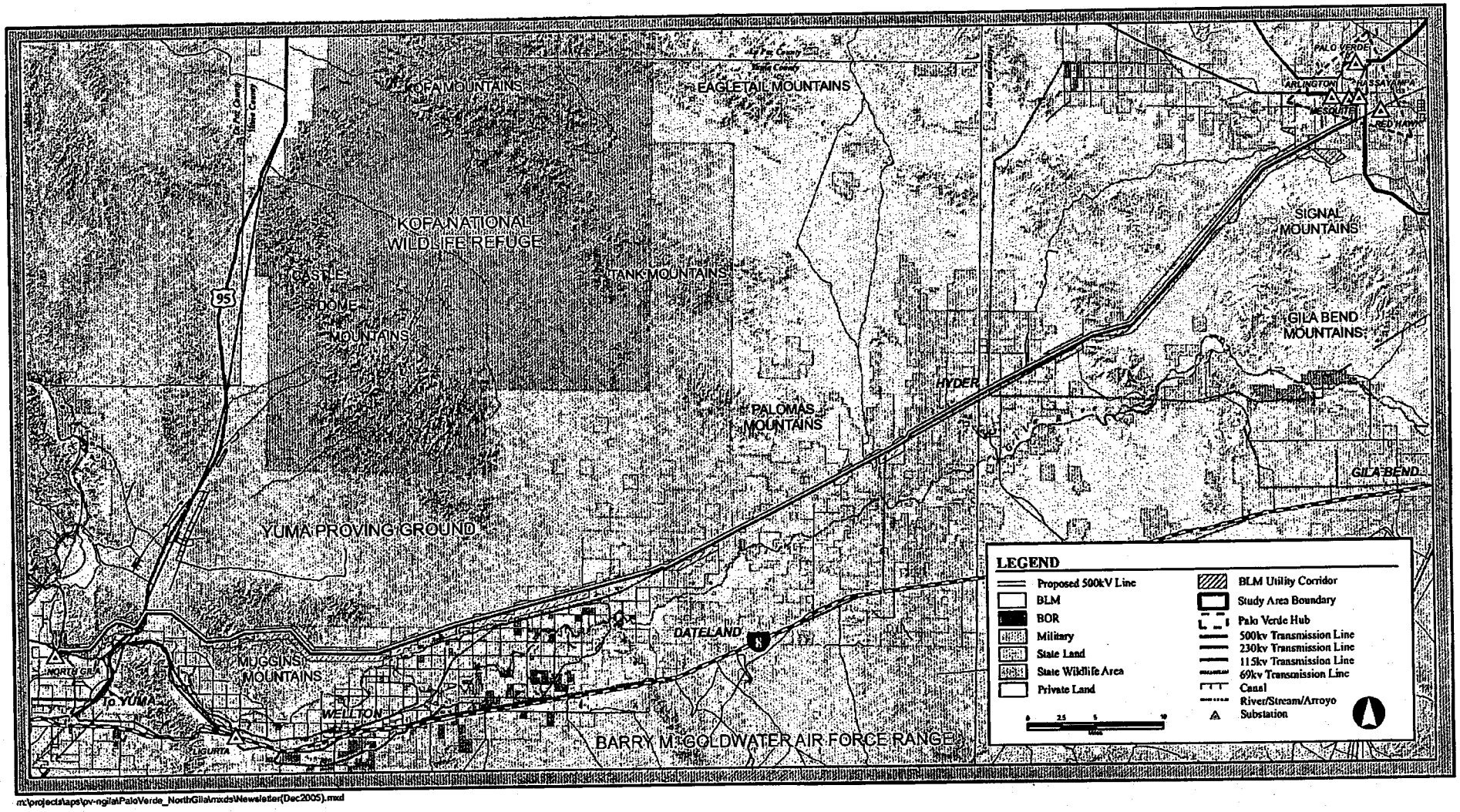


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EXHIBIT J-7
PUBLIC COMMENT AND RESPONSE SUMMARY TABLE

PALO VERDE HUB TO NORTH GILA
500kV TRANSMISSION LINE PROJECT
PUBLIC COMMENT AND RESPONSE SUMMARY TABLE

Comments received during public scoping by the BLM

Comment No.	Date	Name	Comment Source	Issue	Comment (summary)	Location of Response
1	2/6/2006	Richard Issacson, Retired USAF MSGT	Letter	Project description	Approve of proposed 500kV line as submitted	No comment
2	2/7/2006	Shane, Fred Kawasaki	Phone	Project description	Approve of proposed 500kV line as submitted	No comment
3	2/7/2006	Pierre M. Cantou	Letter	Project description	Concern for Yuma Indian Reservation	Refer to EA, Chapter 1, Section 1.1
4	2/8/2006	Peter Steere, Tohono O'odham	Phone	Project alternatives	Location of route within BLM-designated corridor	Refer to EA, Chapter 1, Section 1.1
5	2/8/2006	Christopher Coover, Parks and Recreation Dept. of Maricopa County	Email	Project description Land use (recreation)	Relationship to the Welton/Mohawk land transfer No adverse impact on the Maricopa Trail	Refer to EA, Chapter 1, Section 1.1 Refer to EA, Chapter 3, Section 3.2.1
6	2/9/2006	Ricky L. Rinehart, Adelphia	Letter	None	Approve of proposed 500kV line as submitted	No comment
7	2/10/2006	Jerry Ramirez, ADOT (Yuma)	Phone	Land use	Project must receive an encroachment permit from ADOT prior to any work in ADOT right-of-way	APS will coordinate with ADOT
8	2/10/2006	Ron Pierce, USMC	Phone	Cumulative impacts Project description	Relationship to proposed WAPA line Question destination of energy	Refer to EA, Chapter 4, Section 4.2.1 Refer to EA, Chapter 1, Section 1.2
9	2/14/2006	Andy, Rinker Materials	Phone	Project need	Question need for both APS and WAPA lines	Refer to EA, Chapter 1, Section 1.2
10	2/14/2006	Gayle Rusing, Greater Yuma Economic Development Corporation	Letter	Land use (mineral rights) Project description	Concern for state lease land Approve of proposed 500kV line as submitted	Refer to EA, Chapter 1, Section 1.1
11	2/14/2006	Carla Cristelli, Department of Energy, Western Area Power Administration	Letter	Construction Mitigation	Need detailed right-of-way plans; no excavation within 20 feet of WAPA poles; no appreciable change to topography near WAPA line Maintain clear zone around WAPA poles for maintenance; prevent soil erosion	No comment
12	2/17/2006	John Eckhardt, ADOT, Intermodal Transportation Division	Letter	Land use	Project must receive an encroachment permit from ADOT prior to any work in ADOT right-of-way	Refer to EA, Chapter 2, Section 2.2.1
13	2/21/2006	Mike Cartsonis, City of Litchfield Park	Letter	None	Project distant from jurisdiction	Refer to EA, Chapter 2, Section 2.2.1
14	2/23/2006	Sheree Ann Wetjen	Letter	Project description Land use Document review	Project description is vague Question if public land granted for ROW is lost for future use by public Would like to receive a copy of the draft/final EA when available	APS will coordinate with ADOT No comment Refer to EA, Chapter 1, Section 1.1 Refer to EA, Chapter 2, Section 2.2.1 Sent as requested

PALO VERDE HUB TO NORTH GILA
500kV TRANSMISSION LINE PROJECT
PUBLIC COMMENT AND RESPONSE SUMMARY TABLE

Comment No.	Date	Name	Comment Source	Issue	Comment (summary)	Location of Response
Comments received during public scoping by the BLM (continued)						
15	2/27/2006	Frank R. Jozwiak, Morisset, Schlosser, Jozwiak & McGaw Law Offices, on behalf of the Quechan Indian Tribe	Letter	Project description	Location of proposed route	Refer to EA, Chapter 1, Section 1.1
				Earth and water resources	Impacts to allocated Colorado River water	Refer to EA, Chapter 3, Section 3.7
16	3/2/2006	Steven L. Spangle, United States Department of the Interior, USFWS, Arizona Ecological Services Field Office	Letter	Biology	General information on how to obtain lists of threatened, endangered, or sensitive species	Refer to EA, Chapter 3, Section 3.5
17	3/3/2006	Merle Eugene Zunigha, United States Department of the Interior, Bureau of Indian Affairs	Letter	Document review	Would like to receive a copy of the draft/final EA when available	Sent as requested
18	3/15/2006	Gregory T. Glassco, Yavapai-Prescott Indian Tribe	Letter	Project description	Supports Path 49 Conductor Clearance upgrade, unrelated to proposed project	No comment
19	3/15/2006	Laura Verdugo, Southern California Edison Company	Email	Project alternatives	Information on alternatives, interconnection points	Refer to EA, Chapter 1, Section 1.1
Public Comments Received by APS						
20	2/8/2006	Kenneth Baughman, WMIDD	Website	Mailing list	Request to be added to the mailing list	Added
21	2/8/2006	Edwin Morgan, Arizona Clean Fuels Yuma	Website	Mailing list	Request to be added to the mailing list	Added
22	2/15/2006	Jim Marler, U.S. Army Garrison Yuma, YPG	Website	Mailing list	Request to be added to the mailing list	Added
23	2/20/2006	Kimberly Windsor	Website	Mailing list	Request to be added to the mailing list	Added
24	2/20/2006	Denis Delaney, K. R. Saline & Associates, PLC	Website	Mailing list	Request to be added to the mailing list	Added
25	2/24/2006	Ruth Landau	Website	Mailing list	Request to be added to the mailing list	Added
26	2/28/2006	Sharon Williams, S-E-W Consulting	Website	Mailing list	Request to be added to the mailing list	Added
27	3/1/2006	Carol Tracy Stu Tracy	Open House	Land use	Requested maps and information in order to determine distance from property line to proposed transmission line.	Mapping information provided.
28	3/2/2006	Carl E. Ingersoll	Open House	Project description	Expects that new transmission line will be built north of the existing transmission line, and be no taller than existing structures.	CEC Application Section 4.2.5
29	3/2/2006	Sharon Ileen Ingersoll	Open House	Project description	Supports need for transmission line. Requests that they are built on north side of existing transmission line.	CEC Application Section 4.2.5

PALO VERDE HUB TO NORTH GILA
500kV TRANSMISSION LINE PROJECT
PUBLIC COMMENT AND RESPONSE SUMMARY TABLE

Comment No.	Date	Name	Comment Source	Issue	Comment (summary)	Location of Response
Public Comments Received by APS (continued)						
30	3/1/2006	Brian Rusch	Website	Mailing list	Request to be added to the mailing list	Added
31	3/6/2006	Genevieve Thomas	Website	Mailing list	Request to be added to the mailing list	Added
32	3/24/2006	Pauline Holmes	Website	Mailing list	Request to be added to the mailing list	Added
33	4/20/2006	Mark Dice	Phone	Mailing list	Request to be added to the mailing list	Added
34	4/20/2006	Joe Unruh	Phone	Mailing list	Request to be added to the mailing list	Added
35	4/20/2006	Scott Anderson	Phone	Mailing list	Request to be added to the mailing list	Added
36	4/25/2006	Tamara McDermaid	Website	Mailing list	Request to be added to the mailing list	Added
37	4/26/2006	Alisha White	Website	Mailing list	Request to be added to the mailing list	Added
38	11/21/2006	US Army Yuma Proving Ground	Letter	Project Alternatives	Will support a route not exceeding 500' north of existing line	Refer to EA Chapter 2, Section 2.4.5
39	7/25/2007	Bridget Nash-Chrabascz, Quechan Indian Tribe	Website	Cultural Resources	Concern about impacts to cultural resources, requests cultural resource survey, requests meeting to discuss the project with Quechan Cultural Committee	EPG Cultural Staff contacted Ms. Nash-Chrabascz and informed her that the BLM LSFO is directing the tribal consultation on this project, and informed her that a copy of the full cultural survey report will me given to the tribe for their review and comment.

Palo Verde Hub to North Gila Substation 500kV Transmission Project

Application for a Certificate of Environmental Compatibility

Supplemental Packet

EXHIBIT
APS-2
Admitted

Prepared for

Arizona Corporation Commission

Arizona Power Plant and Transmission Line Siting Committee

Submitted by

APS

Arizona Public Service

November 2007

TABLE OF CONTENTS

Tab 1	CEC Testimony Presentation Slides
Tab 2	Proposed Certificate of Environmental Compatibility
Tab 3	Project Newsletter #2
Tab 4	Project Correspondence
Tab 5	BLM Finding of No Significant Impact (FONSI)
Tab 6	Final EA Changes
Tab 7	Virtual Route Tour CD

Palo Verde Hub to North Gila Substation
500kV Transmission Line Project

Application for a Certificate of Environmental Compatibility
Case No. 135

Prepared for

Arizona Corporation Commission

Arizona Power Plant and Transmission Line Siting Committee

November 19 and 20, 2007

APS

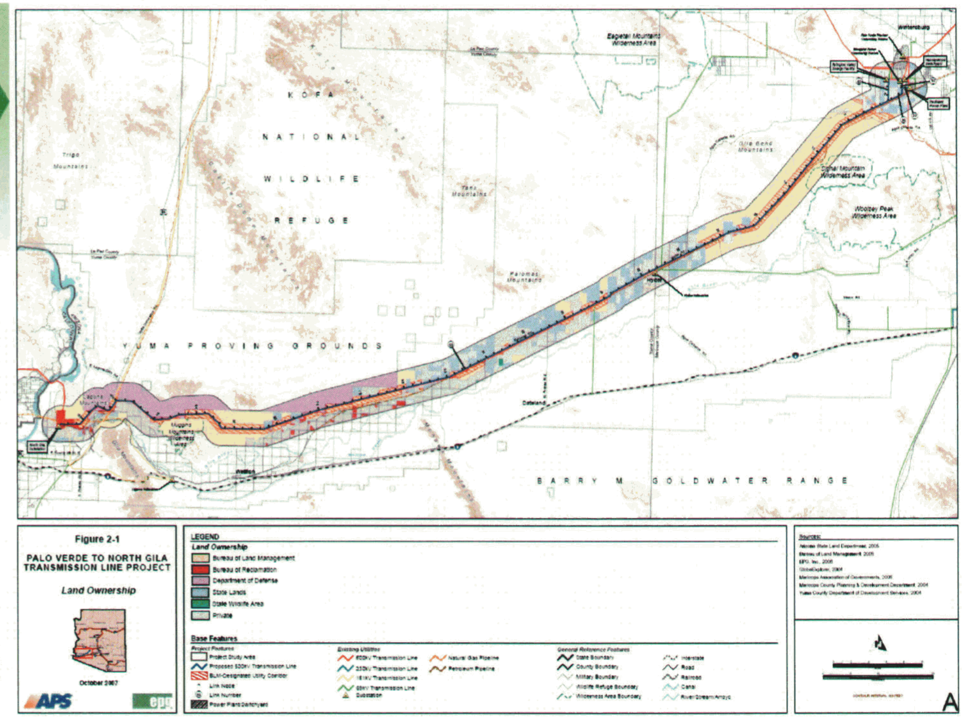
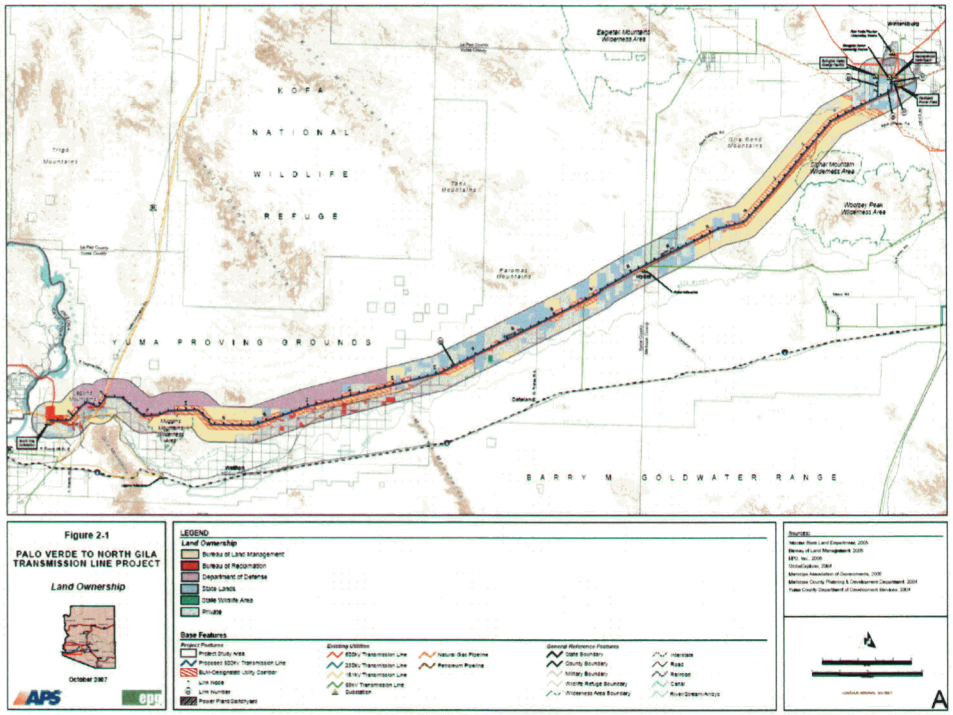


Figure 2-1
PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT
Land Ownership
October 2007

Introduction

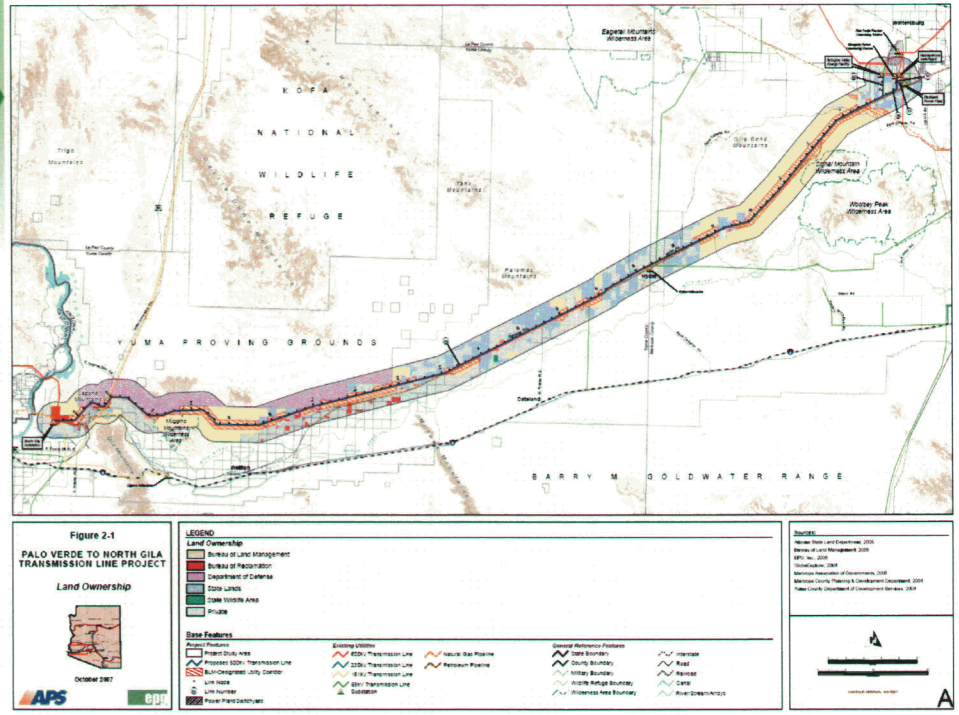
- The Palo Verde Hub to North Gila Project helps meet a significant need for additional reliable power in the fast growing Yuma area
- The Proposed Route is primarily on public land, within a BLM-designated utility corridor on BLM land, and parallels an existing 500kV transmission line
- The Palo Verde Hub to North Gila Project is the result of a public process
- The Palo Verde Hub to North Gila Project is environmentally compatible

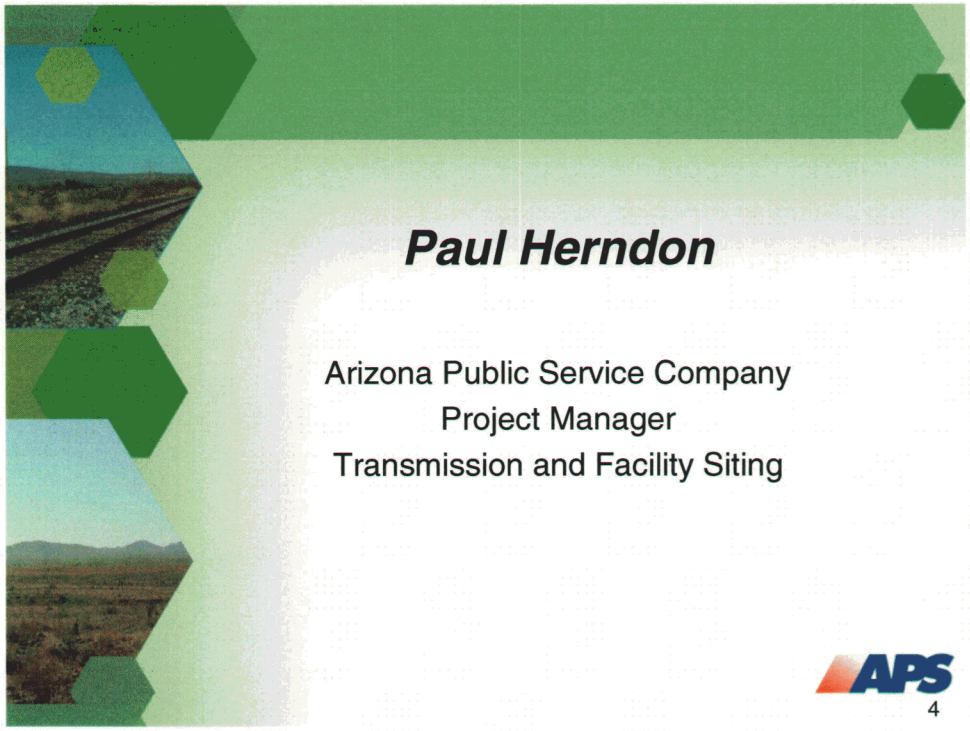
APS



Witnesses

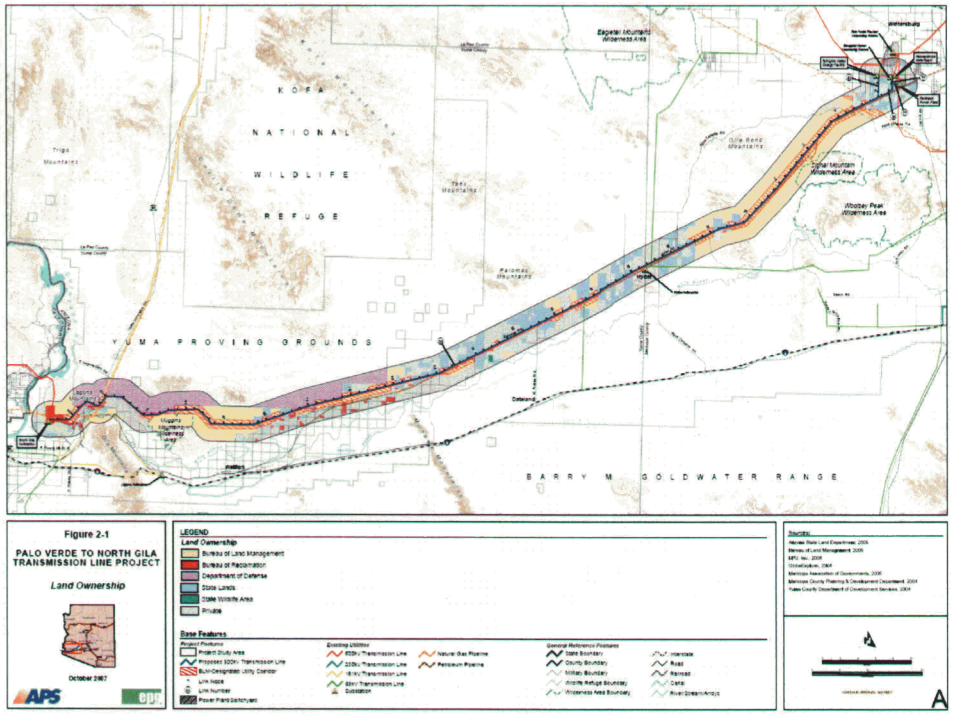
- Paul Herndon – Project Description
- Bob Smith – Transmission Planning
- Paul Trenter – Environmental Studies





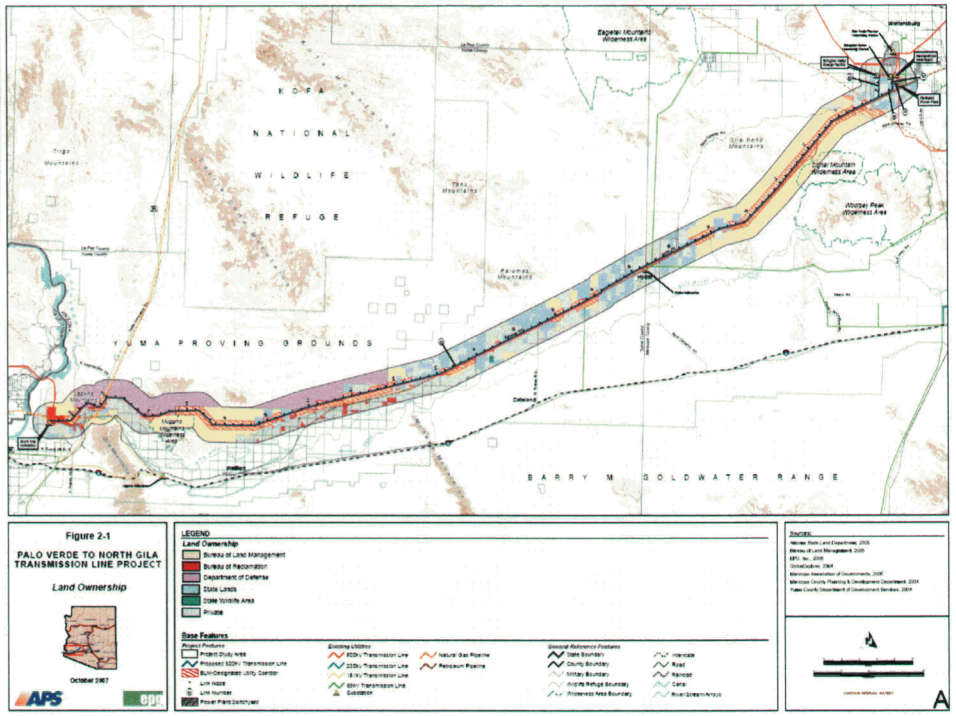
Paul Herndon

Arizona Public Service Company
Project Manager
Transmission and Facility Siting



Witness Background

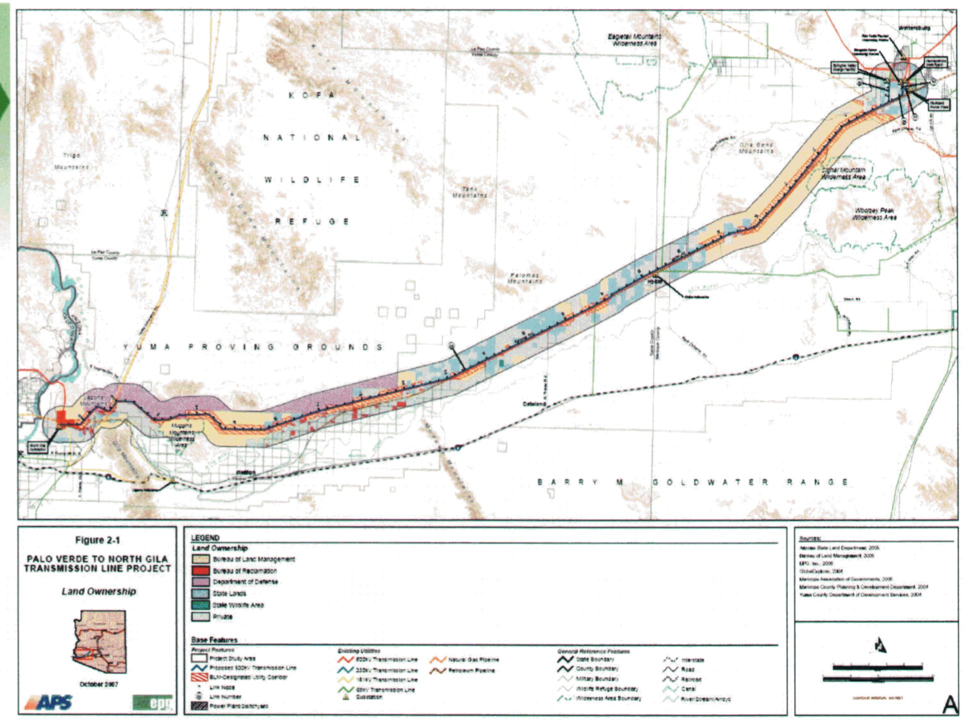
- APS Siting Project Manager
  - Responsible for numerous APS 500/230kV line siting projects and sub-transmission line sitings
- Professional Background
  - 31 years of electric utility experience at APS
  - Approximately 17 years of experience in transmission line siting
  - Extensive real estate education and experience
    - Senior Right-of-Way Professional and former Local Chapter President, Director
    - Member of the International Utility Committee with the International Right-of-Way Association



Witness Background Cont.

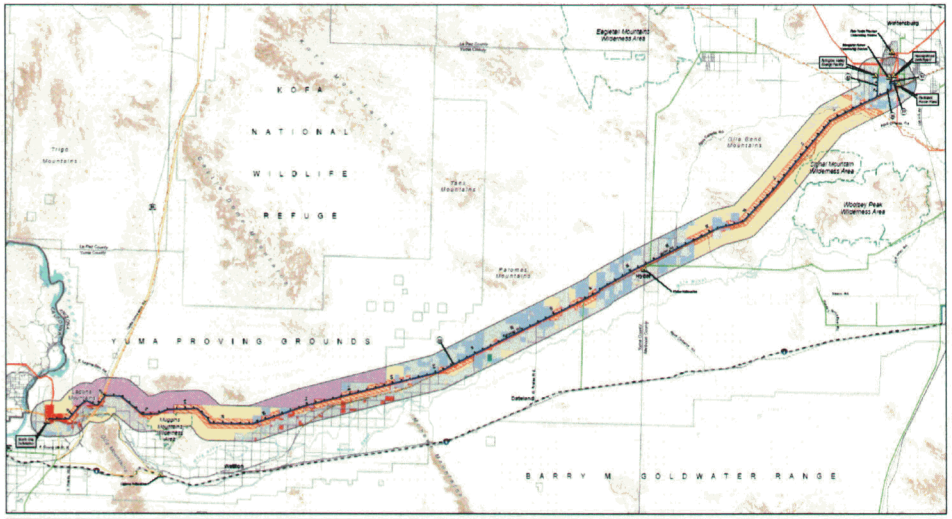
- Project Manager for and testified in Case Numbers:
  - 85: APS Yavapai 230kV Transmission Line and Switchyard Project
  - 89: Gila Bend to Ajo 230kV Transmission Line Project
  - 102: Gila River Transmission Project
  - 115: Southwest Valley 500kV Transmission Line Project
  - 128: Palo Verde Hub to TS-5 Substation 500kV Transmission Project

APS



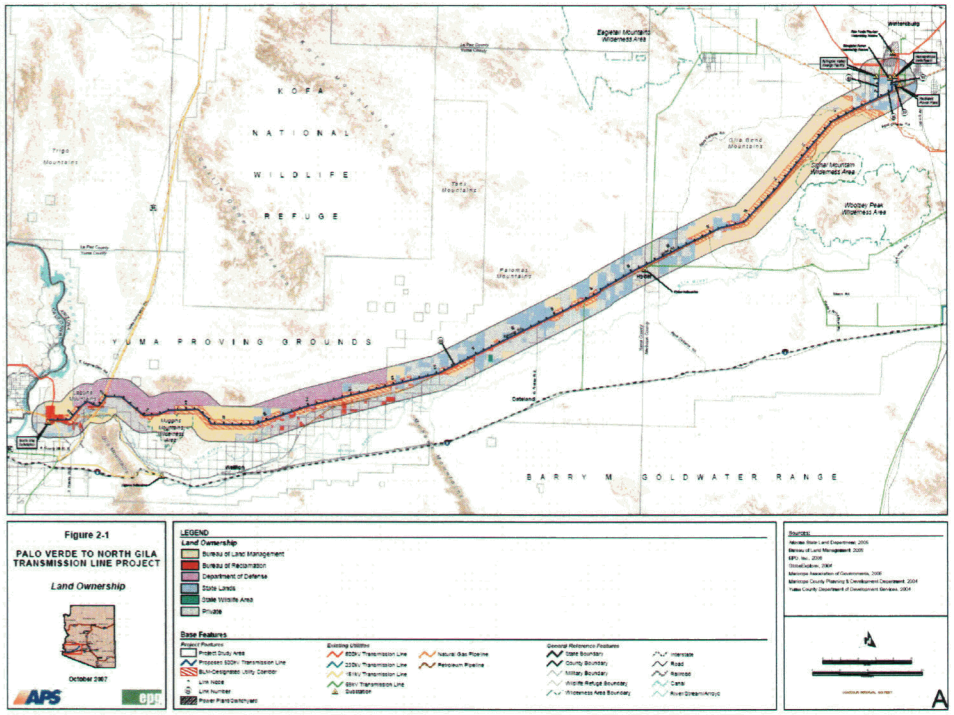
Project Overview

- Approximately 110 mile single-circuit 500kV transmission line
- 1,250 MW anticipated capability
- Participants in permitting:
  - APS 40%
  - Wellton Mohawk Irrigation and Drainage District (WMIDD) 20%
  - Imperial Irrigation District (IID) 20%
  - SRP 20%



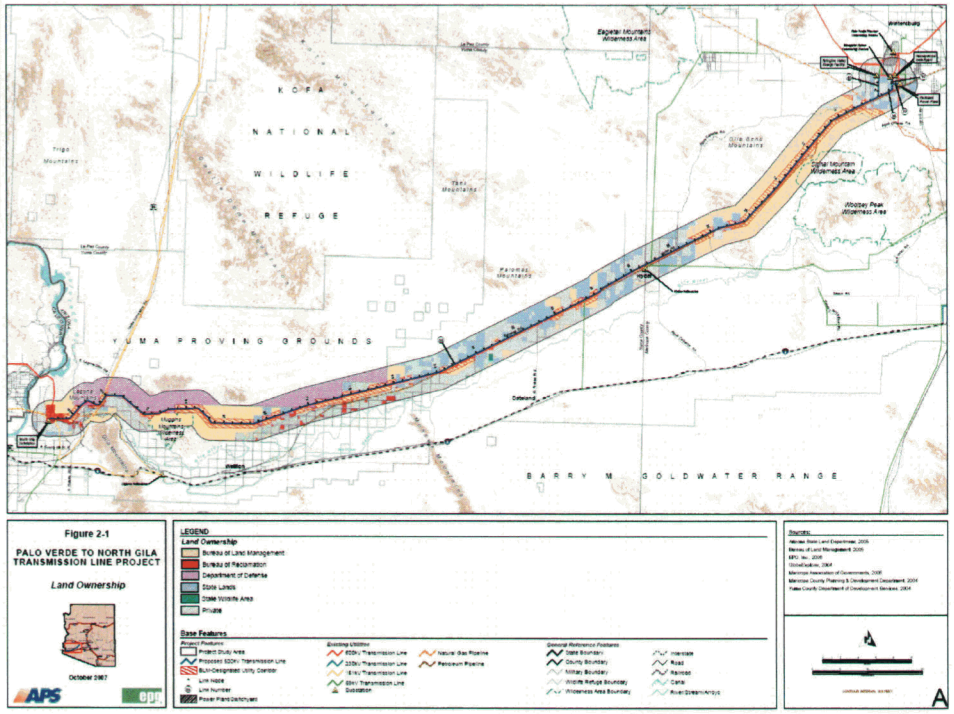
Outline of Testimony

- Project Benefits and Need
- Project Description
- Public Participation



Project Benefits and Need

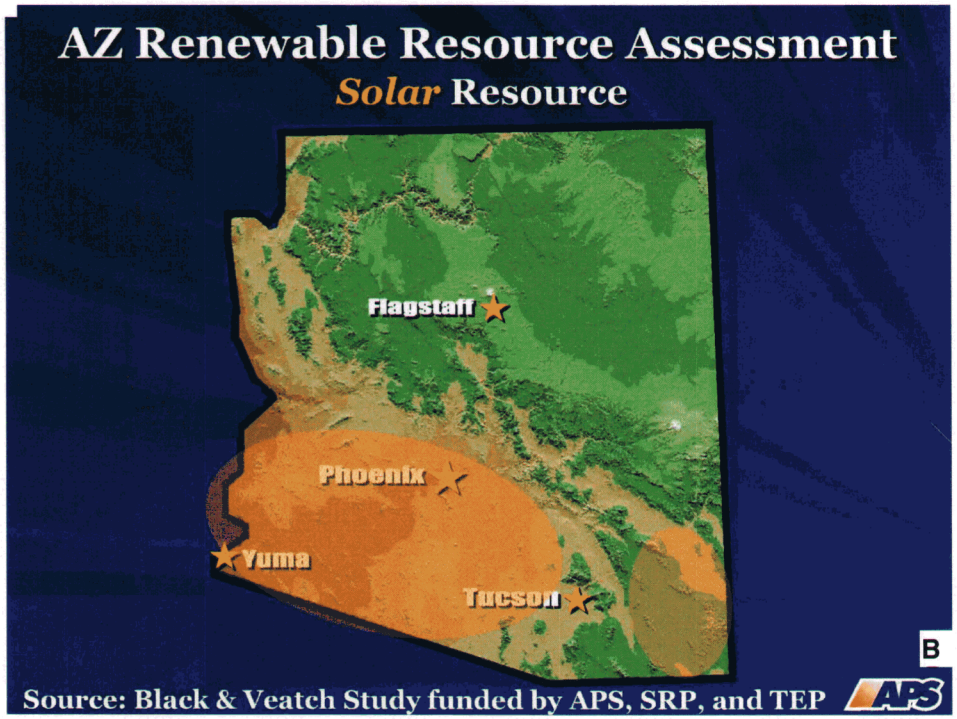
- Support load growth in the Yuma area
- Strengthen Yuma area transmission system
- Increase Yuma area import capability
- Increase export capability from the Palo Verde Hub
- Increase access for future renewable projects
- Participant benefits



APS

Project Benefits and Need

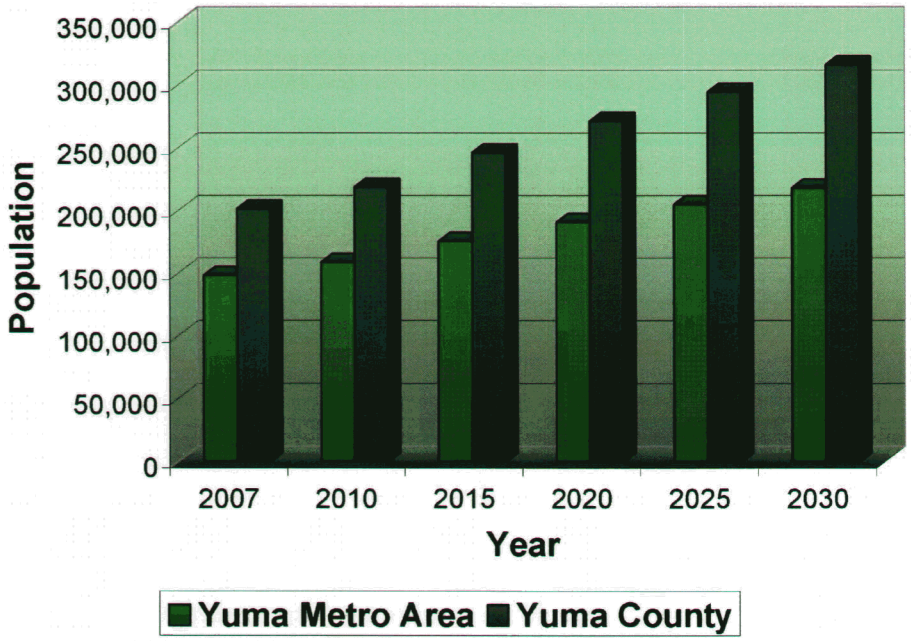
- Support load growth in the Yuma area
- Strengthen Yuma area transmission system
- Increase Yuma area import capability
- Increase export capability from the Palo Verde Hub
- Increase access for future renewable projects
- Participant benefits



Population Growth Projections

Year vs. Jurisdiction	2007	2010	2015	2020	2025	2030
Yuma Metro Area	148,091	158,696	175,450	190,770	204,995	218,112
Yuma County	201,435	218,810	246,260	271,361	294,666	316,158

Source: Arizona Department of Economic Security, 2007
http://www.workforce.az.gov/?PAGEID=67&SUBID=138



APS

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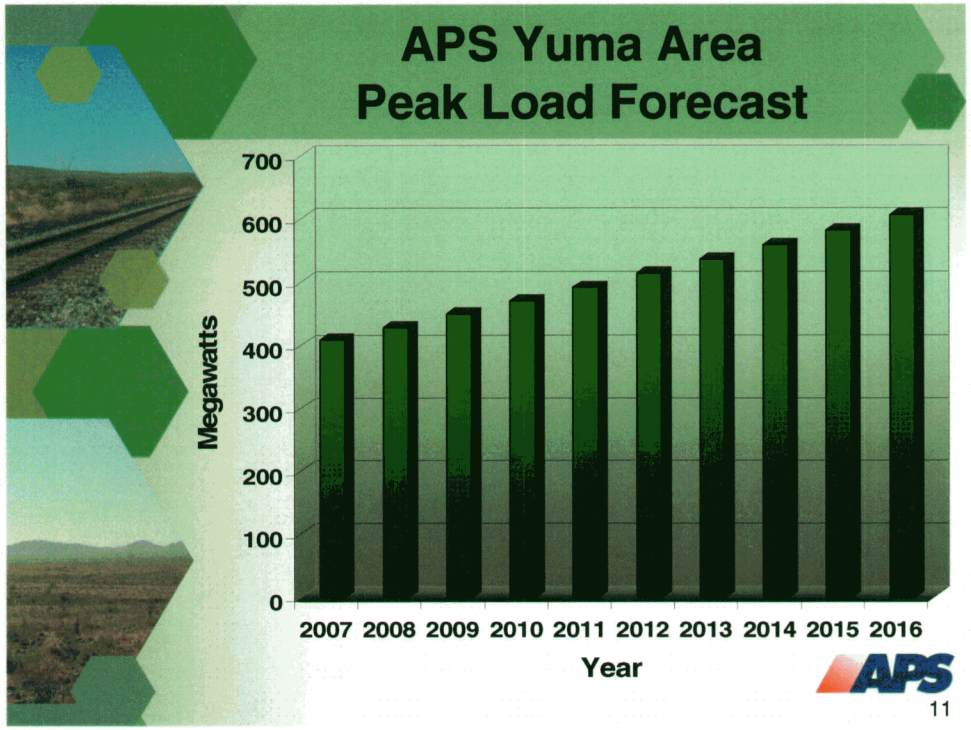
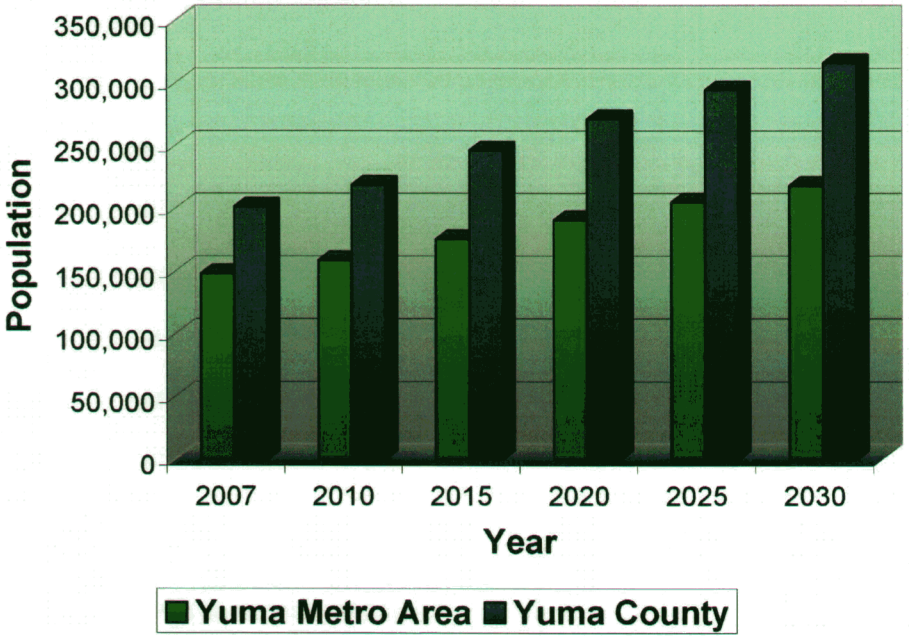
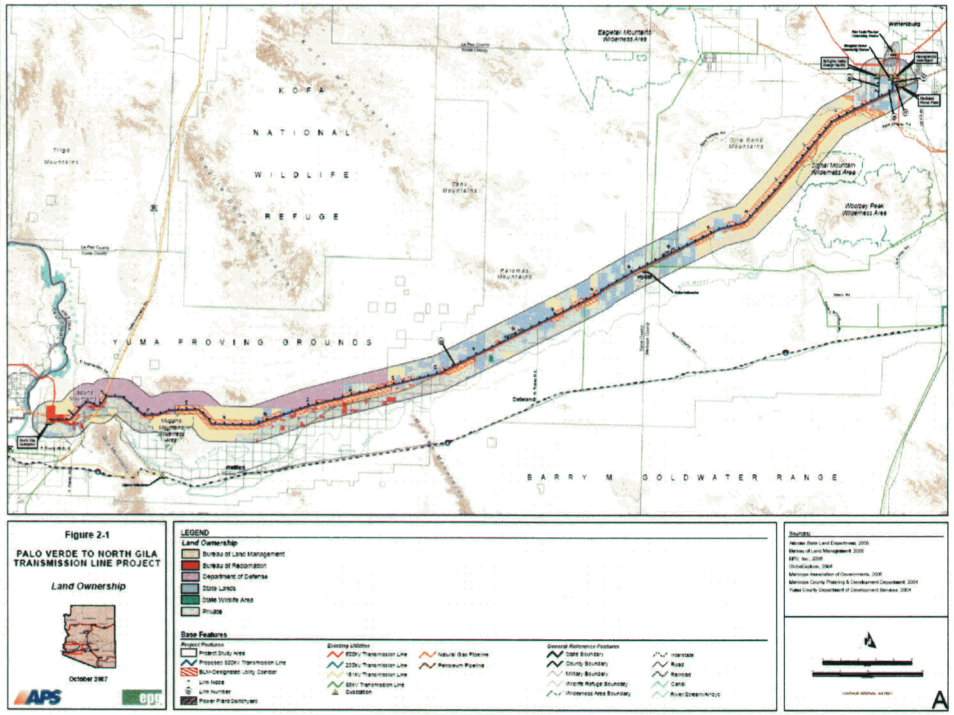

APS Yuma Area
Peak Load Forecast
Megawatts
700
600
500
400
300
200
100
0
2007 2008 2009 2010 2011 2012 2013 2014 2015 2016
Year
APS


Population
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
2007 2010 2015 2020 2025 2030
Year
Yuma Metro Area
Yuma County

C

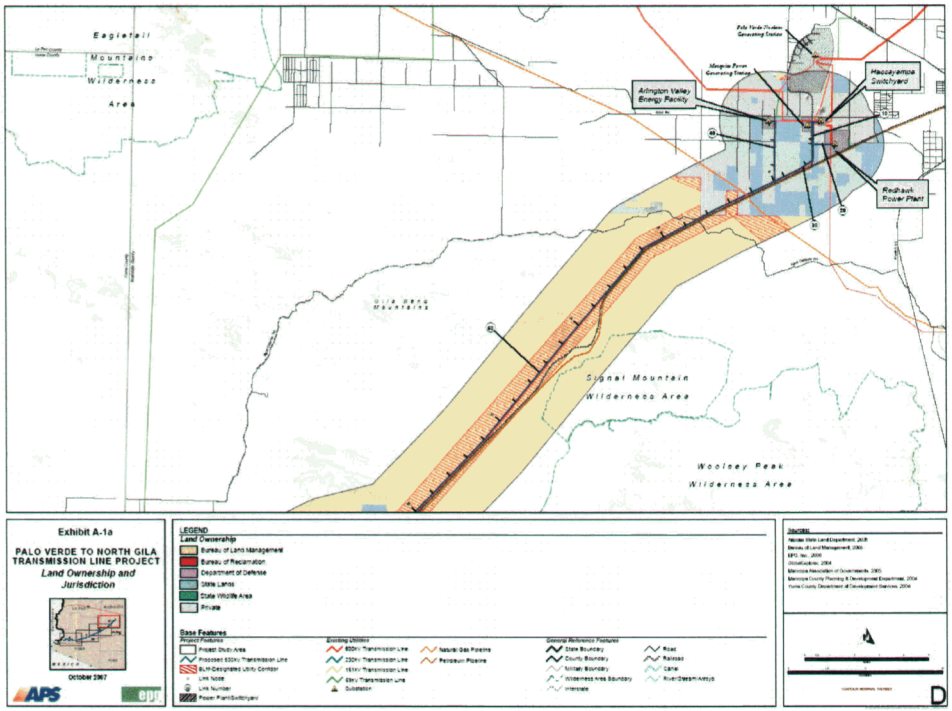
Project Description

- Proposed Route
- Jurisdiction and land ownership
- Palo Verde Hub interconnection alternatives
  - Arlington Valley Energy Facility
  - Hassayampa Switchyard
  - Redhawk Power Plant
- Alternative routes considered



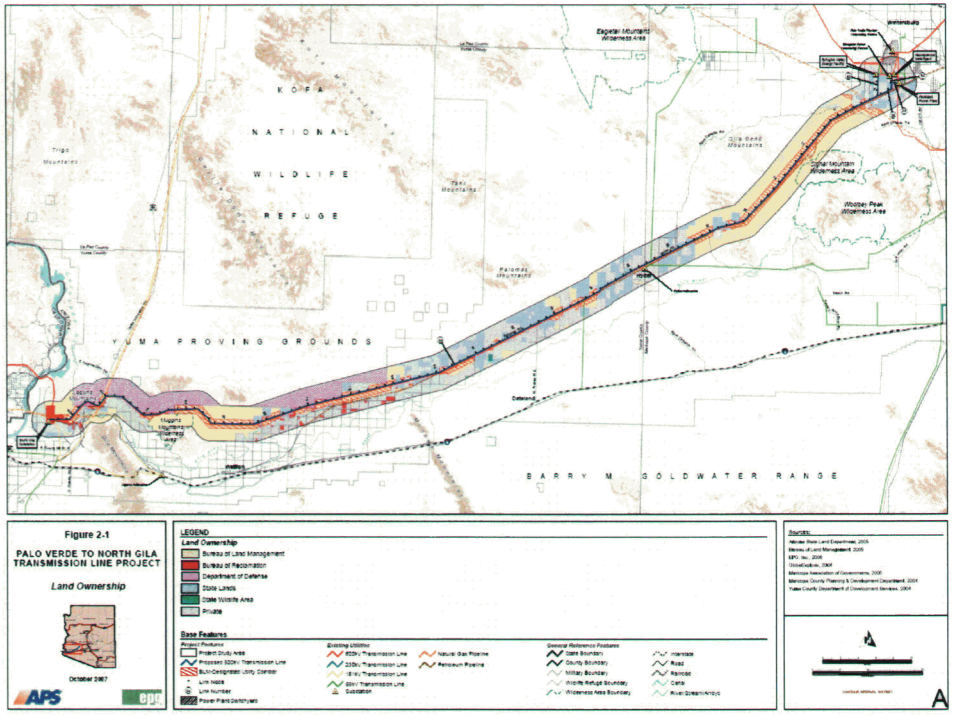
Project Description

- Proposed Route
- Jurisdiction and land ownership
- Palo Verde Hub interconnection alternatives
  - Arlington Valley Energy Facility
  - Hassayampa Switchyard
  - Redhawk Power Plant
- Alternative routes considered



Project Description

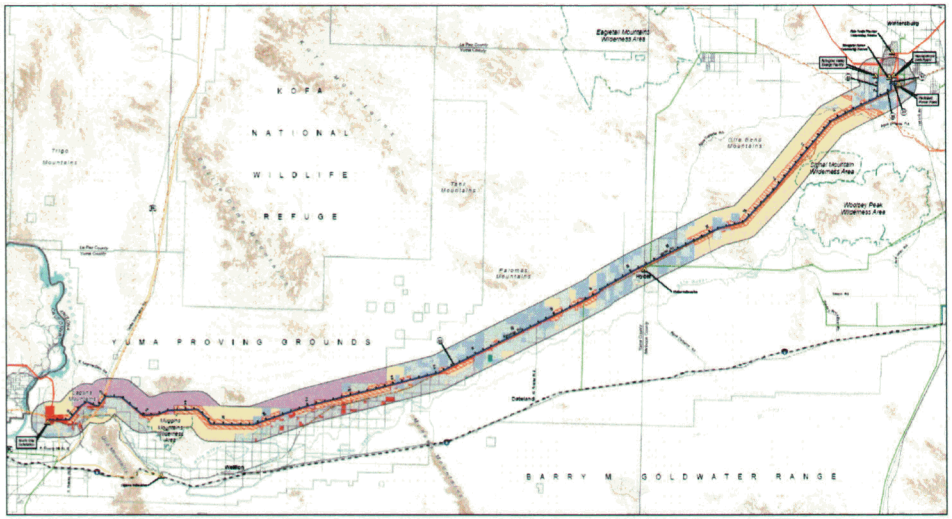
- Proposed Route
- Jurisdiction and land ownership
- Palo Verde Hub interconnection alternatives
  - Arlington Valley Energy Facility
  - Hassayampa Switchyard
  - Redhawk Power Plant
- Alternative routes considered



Project Description

Selection Criteria

- Environmental compatibility
- Public and jurisdictional input
- Engineering
- Cost
- Right-of-way acquisition



Project Description

Proposed Route

- Crosses 80% public land
- Parallels an existing 500kV transmission line for its entire length
- Located within a BLM-designated utility corridor on BLM land
- Finding of No Significant Impact (FONSI) issued November 2007

APS

FINDING OF NO SIGNIFICANT IMPACT

Name of Environmental Assessment: Palo Verde Hub to North Gila Substation
Environmental Assessment No.: AZ-220-2006-008
Case File No: AZA-33305
Bureau of Land Management Office: Phoenix District, Lower Sonoran Field Office

Finding of No Significant Impact: Upon review of the Environmental Assessment (EA) prepared for the above-named project and incorporated herein by reference, no significant long-term impacts on the human (socioeconomic) or natural environment would result. Short-term, temporary impacts on soils, water resources, biological resources, cultural resources, air quality, noise, and land use associated with construction activities of the proposed transmission line were identified which could be reduced by mitigation, and therefore are not considered significant. Long-term impacts on scenic quality were considered low to moderate, while the potential for long-term residual collision hazard for birds was considered low.

Recommendation: Grant a right-of-way to Arizona Public Service Company (APS) for construction, operation, and maintenance of a 500 kilovolt (kV) transmission line. The transmission line would originate from the Palo Verde Hub (PV Hub) at either an open transmission interconnection position in the Arlington Energy Facility, the Hassayampa Switchyard, or the Redhawk Power Plant. The transmission line would be constructed primarily with lattice tower structures paralleling the existing Southwest Power Link 500 kV Transmission line (SWPL) and connect into the North Gila Substation in Yuma, Arizona. The proposed right-of-way would be 200 feet wide, approximately 110 to 130 miles in length, of which approximately 55 miles would be located on Bureau of Land Management (BLM) administered lands. APS would implement the recommended Standard Operating Procedures and Mitigation Measures listed in Attachment A. The transmission line would be owned by APS and operated by APS and other project proponents.

Stipulations: APS is to implement the recommended Standard Operating Procedures and Mitigation Measures listed in Attachment A. Compliance with stipulations and mitigation measures will be monitored during project implementation. BLM issuance of the right-of-way grant is conditional upon APS obtaining all other federal, state, and local permits required to construct and operate the transmission line. APS is required to obtain the required Certificate of Environmental Compatibility from the Arizona Corporation Commission. The BLM has fulfilled requirements in accordance with the Section 106 process regarding cultural resource issues and requirements regarding biological resource issues.

Rationale: The EA for the Proposed Action has been prepared in accordance with National Environmental Policy Act (NEPA) requirements, including the public involvement procedures prescribed by 40 CFR §1506.6. The project design and mitigation measures proposed in the EA are integral to the Proposed Action and would reduce short-term and long-term environmental impacts to a level of insignificance. Issuance of right-of-way grant AZA-33305 to APS for the construction, operation, and maintenance of an electric transmission line is consistent with the Lower Gila South Resource Management Plan (BLM, 1988) which defines land uses along the San Diego Gas and Electric utility corridor and the Yuma District Resource Management Plan (BLM, 1986 and 1987) which defines uses along the Interconnection utility corridor.

Recommendation of Finding: Project Manager — Date 11/6/07

I concur:

Approval of Finding: Field Manager — Date 11/06/07 **E**

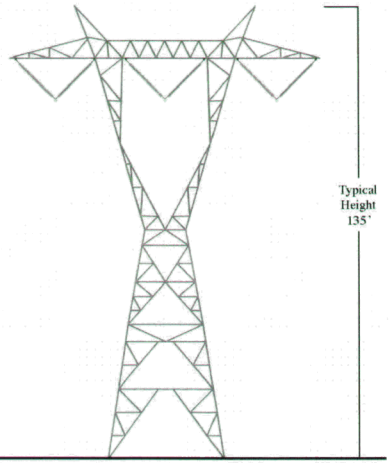
Project Description

Facilities

- Transmission Structures
  - Lattice structures
  - Typical height
  - Typical span
  - Materials
  - Special structures
- Switchyards

APS

Typical 500kV Single-Circuit Steel Lattice Structure



Palo Verde Hub to North Gila
Transmission Line Project

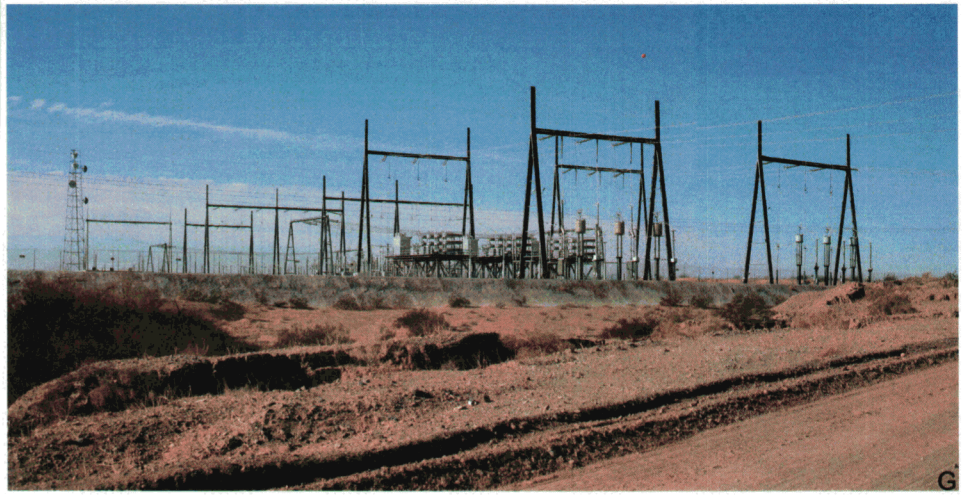
Exhibit G-1

F

Project Description

Facilities

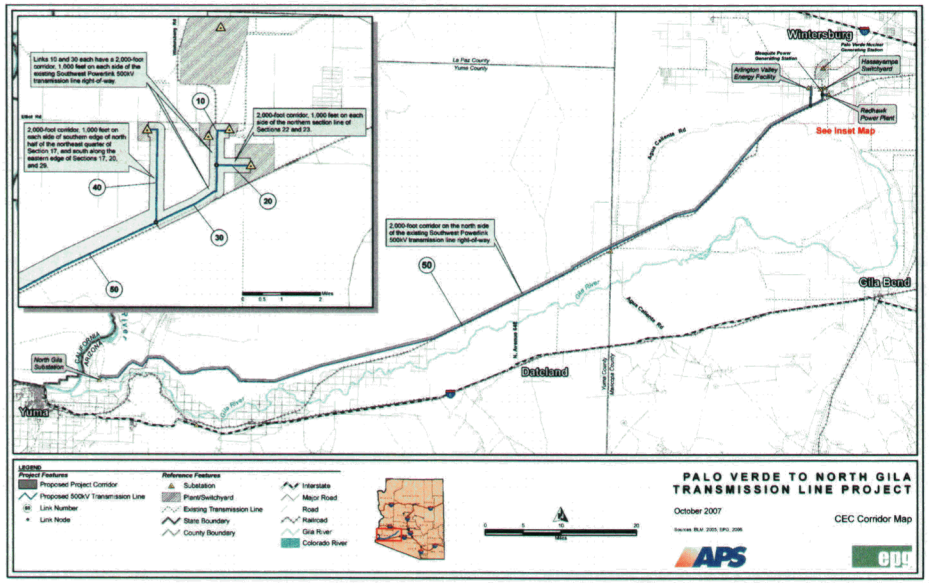
- Transmission Structures
  - Lattice structures
  - Typical height
  - Typical span
  - Materials
  - Special structures
- Switchyards



Project Description

Corridor/Right-of-Way

- Corridor description
- Requested right-of-way



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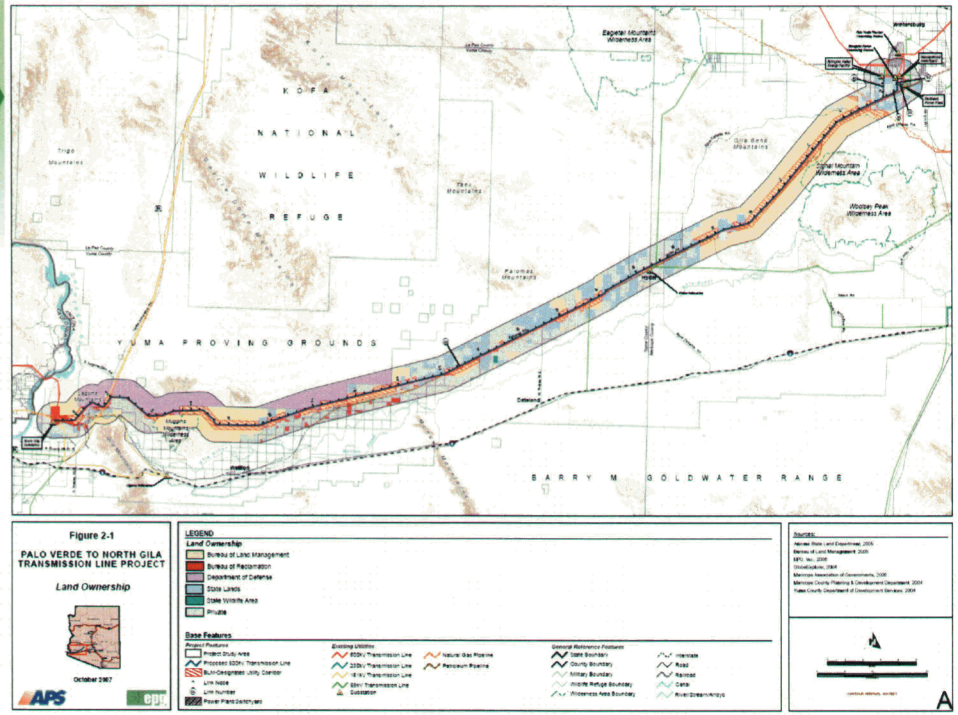
Project Description

Schedule

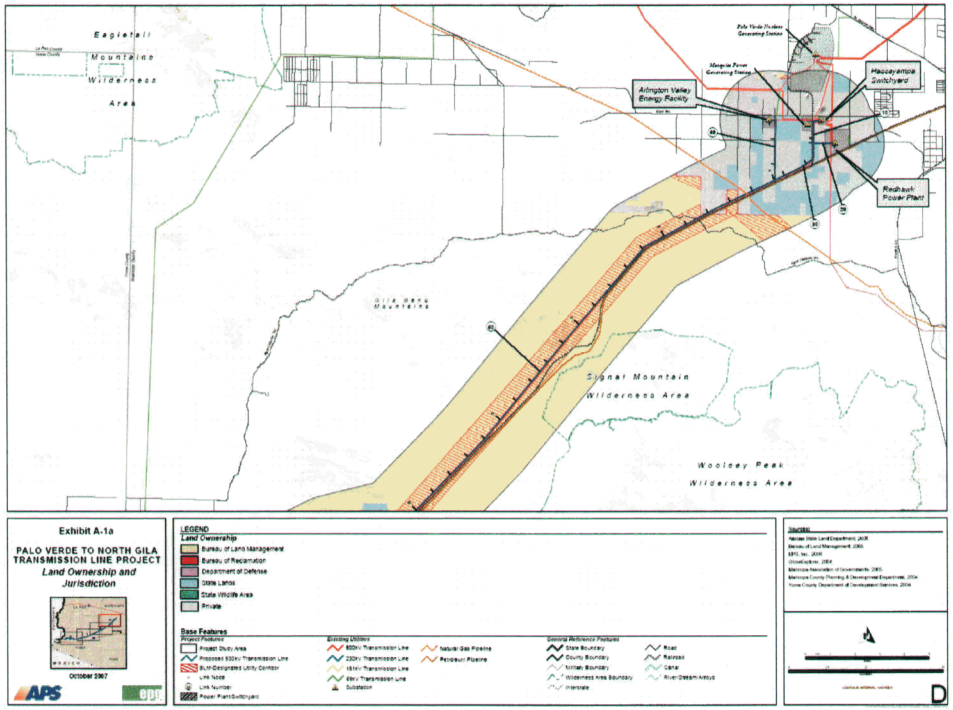
- Right-of-way acquisition and project design begin in 2008
- Begin construction in 2010
- Project in-service date is 2012



Project Cost

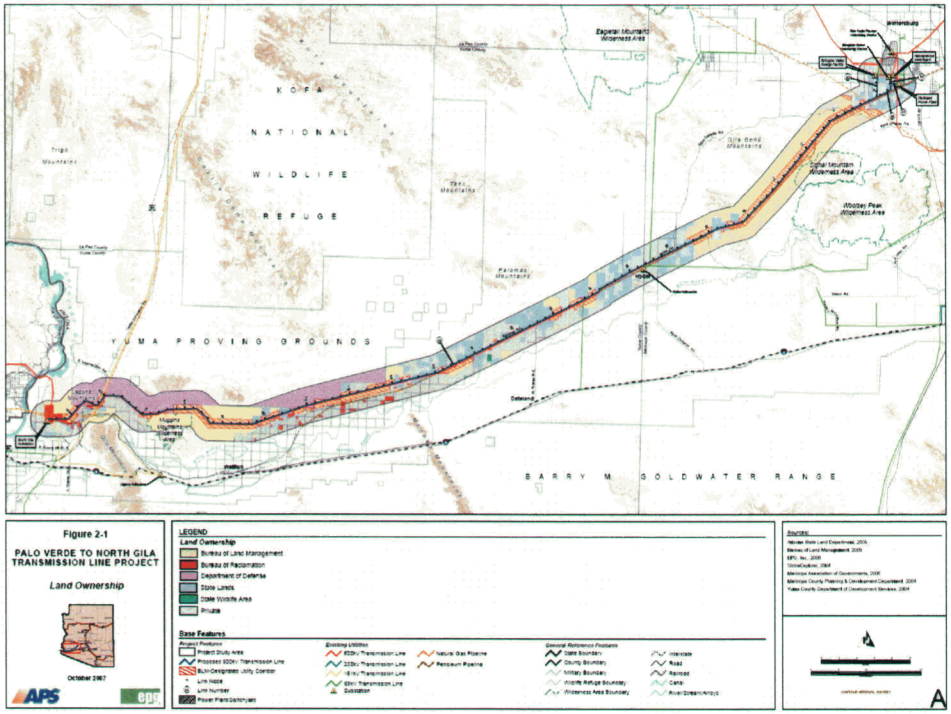
	Right-of-Way	Construction	Switchyard Facilities	Total
Proposed Route (Arlington Valley Energy Facility) 110.6 miles	$18.0	$167.1	$19.9	$205.0
Proposed Route (Hassayampa Switchyard) 111.6 miles	$18.0	$170.6	$14.4	$203.0
Proposed Route (Redhawk Power Plant) 111.3 miles	$18.0	$168.2	$12.9	$199.1

Costs in millions of dollars



Regional Planning Participation

- APS 10 Year Plans
- ACC Biennial Transmission Assessments (BTA)
- Southwest Area Transmission (SWAT)
- Western Electricity Coordinating Council (WECC)
- BLM Resource Management Plans



Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
- Public open houses
- Newsletters
- Web site
- Telephone information line (888-206-6166)
- Written notice
  - BLM informational letter
  - Exhibit H letters
- Publication of notice of hearing
- Signs

APS

TABLE J-1
LOCAL OFFICIAL BRIEFINGS

Jurisdiction/Representation	Date	Summary/Topic
FEDERAL		
BLM Lower Sonoran Field Office	01/18/06	Interdisciplinary team meeting to introduce project
Yuma Proving Ground	08/29/06	Project briefing
BLM Lower Sonoran Field Office	09/12/06	Coordination meeting
MCAS Yuma	09/14/06	Project briefing
Yuma Proving Ground	10/19/06	Coordination meeting
BLM Lower Sonoran Field Office	02/1/07	Coordination meeting
BLM Lower Sonoran Field Office	03/22/07	Field visit
Yuma Proving Ground	09/27/07	Coordination meeting
STATE		
Arizona State Land Dept. Linda Beals	03/28/06	Discussed PV to North Gila project
Arizona Corporation Commission Mike Gleason Jeff Hatch-Miller Gary Pierce	08/23/07	Project briefing
Arizona Corporation Commission Kristin Mayes William Mundell	08/24/07	Project briefing
Arizona Corporation Commission Staff Prem Bahl	09/10/07	Project briefing
COUNTY		
Maricopa County Planning Matt Holm	04/14/06	Project briefing
Mary Rose Wilcox, Supervisor	04/18/06	Project briefing
MISCELLANEOUS		
City of Yuma, Yuma County, Wellton Mohawk Irrigation and Drainage District, Yuma Irrigation District, Yuma Proving Ground, Yuma Mesa Irrigation District, Yuma County Water Users Association, MCAS Yuma	01/26/06	Jurisdictional meeting (see meeting summary on page J-3)

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THE POWER TO MAKE IT HAPPEN®

You are invited to one of the upcoming

PUBLIC INFORMATION
OPEN HOUSE/SCOPING MEETINGS

Wednesday, March 1 – 5:30 to 7:30 p.m.
Dateland School
1300 S. Ave. 64E, Dateland

or

Thursday, March 2 – 5:30 to 7:30 p.m.
Saguaro Room, College Union Building
Arizona Western College
2020 S. Ave. 8E, Yuma

APS is proposing the construction of a new 500-kilovolt transmission line between the Palo Verde Hub (near the Palo Verde Nuclear Generating Station) and the Yuma area designed to improve the reliability of the APS electric system in the Yuma area by providing an additional high-voltage transmission source. The meetings will be informal, allowing people to drop in at any time during an open house to review displays, speak with project team members and provide input.

For more information, visit http://siting.aps.com or call 888-206-6166 (toll free)

Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
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- Newsletters
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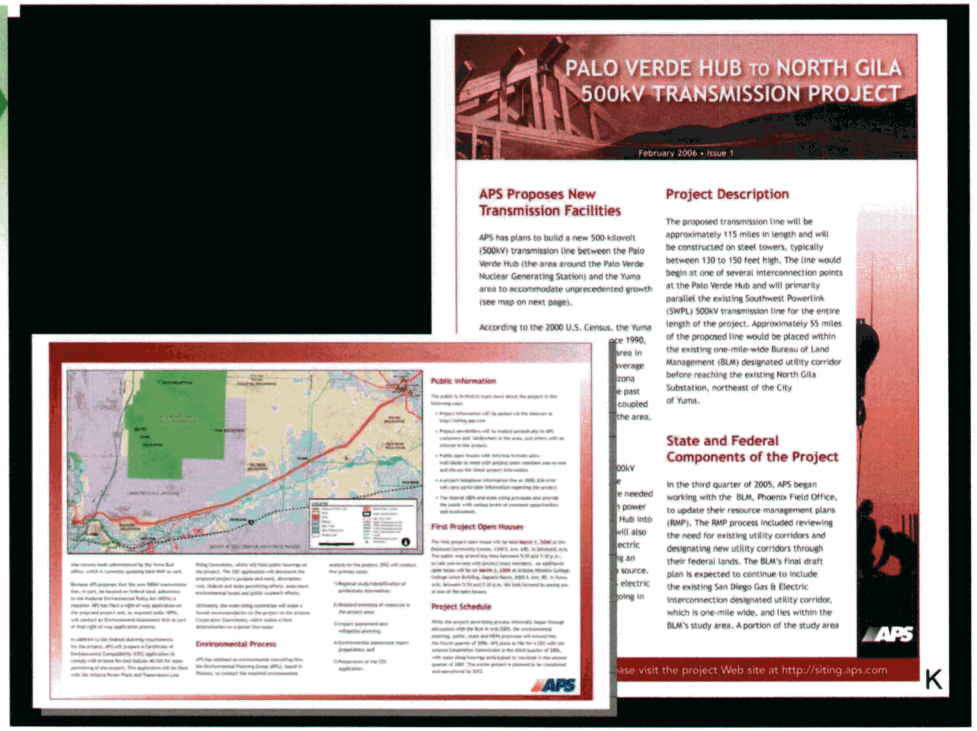


PALO VERDE HUB TO NORTH GILA 500kV TRANSMISSION PROJECT

February 2006 • Issue 1

APS Proposes New Transmission Facilities

APS has plans to build a new 500-kilovolt (500kV) transmission line between the Palo Verde Hub (the area around the Palo Verde Nuclear Generating Station) and the Yuma area to accommodate unprecedented growth (see map on next page).

According to the 2000 U.S. Census, the Yuma

Project Description

The proposed transmission line will be approximately 115 miles in length and will be constructed on steel towers, typically between 130 to 150 feet high. The line would begin at one of several interconnection points at the Palo Verde Hub and will primarily parallel the existing Southwest Powerlink (SWPL) 500kV transmission line for the entire length of the project. Approximately 55 miles of the proposed line would be placed within the existing one-mile-wide Bureau of Land Management (BLM) designated utility corridor before reaching the existing North Gila Substation, northeast of the City of Yuma.

State and Federal Components of the Project

In the third quarter of 2005, APS began working with the BLM, Phoenix Field Office, to update their resource management plans (RMP). The RMP process included reviewing the need for existing utility corridors and designating new utility corridors through their federal lands. The BLM's final draft plan is expected to continue to include the existing San Diego Gas & Electric Interconnection designated utility corridor, which is one-mile wide, and lies within the BLM's study area. A portion of the study area

ase visit the project Web site at http://siting.aps.com

Public Information

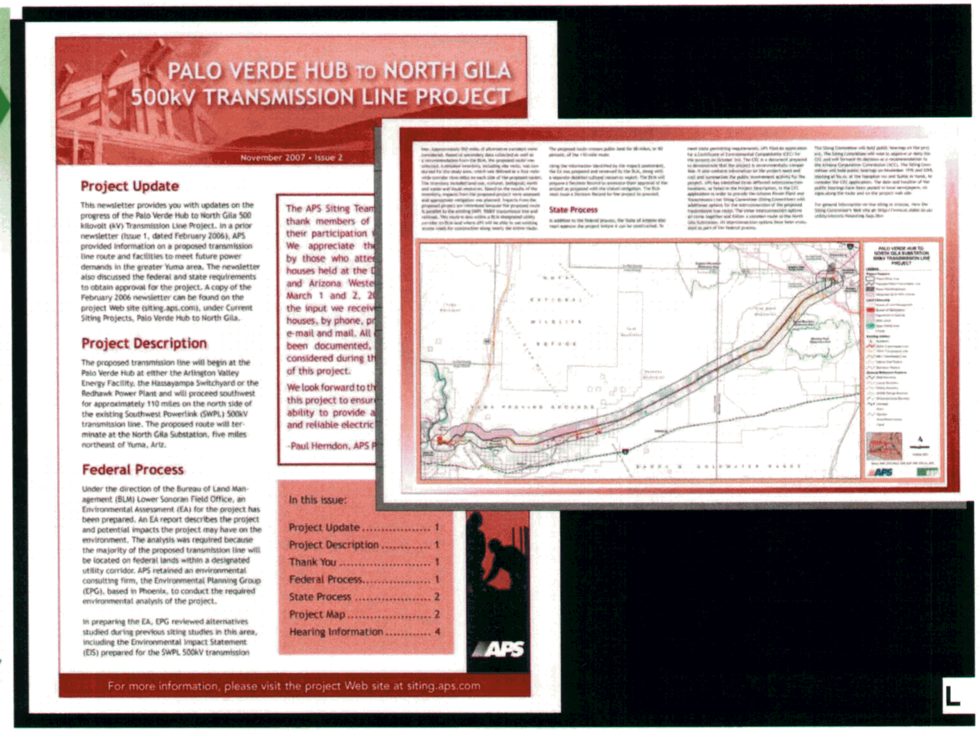
First Project Open Houses

Project Schedule

Environmental Process

Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
- Public open houses
- Newsletters
- Web site
- Telephone information line (888-206-6166)
- Written notice
  - BLM informational letter
  - Exhibit H letters
- Publication of notice of hearing
- Signs



PALO VERDE HUB TO NORTH GILA 500kV TRANSMISSION LINE PROJECT

November 2007 • Issue 2

Project Update

This newsletter provides you with updates on the progress of the Palo Verde Hub to North Gila 500 kilovolt (kV) Transmission Line Project. In a prior newsletter (Issue 1, dated February 2006), APS provided information on a proposed transmission line route and facilities to meet future power demands in the greater Yuma area. The newsletter also discussed the federal and state requirements to obtain approval for the project. A copy of the February 2006 newsletter can be found on the project Web site (siting.aps.com), under Current Siting Projects, Palo Verde Hub to North Gila.

Project Description

The proposed transmission line will begin at the Palo Verde Hub at either the Arlington Valley Energy Facility, the Hassayampa Switchyard or the Redhawk Power Plant and will proceed southwest for approximately 110 miles on the north side of the existing Southwest Powerlink (SWPL) 500kV transmission line. The proposed route will terminate at the North Gila Substation, five miles northeast of Yuma, Ariz.

Federal Process

Under the direction of the Bureau of Land Management (BLM) Lower Sonoran Field Office, an Environmental Assessment (EA) for the project has been prepared. An EA report describes the project and potential impacts the project may have on the environment. The analysis was required because the majority of the proposed transmission line will be located on federal lands within a designated utility corridor. APS retained an environmental consulting firm, the Environmental Planning Group (EPG), based in Phoenix, to conduct the required environmental analysis of the project.

In preparing the EA, EPG reviewed alternatives studied during previous siting studies in this area, including the Environmental Impact Statement (EIS) prepared for the SWPL 500kV transmission

The APS Siting Team thank members of their participation We appreciate th by those who atte houses held at the and Arizona Weste March 1 and 2, 2 the input we recei houses, by phone, p e-mail and mail. All been documented, considered during th of this project.

We look forward to th this project to ensur ability to provide a and reliable electric

-Paul Herndon, APS

In this issue:

Project Update 1
Project Description 1
Thank You 1
Federal Process 1
State Process 2
Project Map 2
Hearing Information 4

For more information, please visit the project Web site at siting.aps.com

State Process

Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
- Public open houses
- Newsletters
- Web site
- Telephone information line (888-206-6166)
- Written notice
  - BLM informational letter
  - Exhibit H letters
- Publication of notice of hearing
- Signs

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Transmission and Facility Siting - Current Projects

Palo Verde Hub to North Gila 500kV Transmission Line Project

APS has plans to build a new 500-kilovolt (500kV) transmission line between the Palo Verde Hub (the area around the Palo Verde Nuclear Generating Station) and the Yuma Area to accommodate unprecedented growth.

According to the 2000 U.S. Census, the Yuma area grew by almost 50 percent between 1990 and 2000, thereby making it the third fastest growing area in the United States. In addition, the average household usage of electricity in Arizona has increased about 20 percent over the past decade. Growth figures like these coupled with limited electrical resources in the area underscore the need to build new electrical facilities.

APS' Palo Verde Hub to North Gila 500kV Transmission Project will provide the electrical transmission infrastructure to import additional generation resources from the power plants in and around the Palo Verde Hub into this high-growth area. The project will also improve the reliability of the APS electric system in the Yuma area by providing an additional high-voltage transmission source to that region.

The public is invited to learn more about the project in the following ways:

- Project newsletters will be mailed to APS customers and landowners in the area, and others with an interest in the project.
- Public open houses, with their informal formats allow individuals to meet with project team members one-on-one and discuss the latest project information.
- A project telephone information line at (888) 206-6166 also will carry up-to-date information regarding the project.
- Federal NEPA and state siting processes also provide the public with various levels of comment opportunities and involvement.

Please send us your comments or call Paul Herndon, APS Project Manager, at (623) 932-6729 for more

M

Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
- Public open houses
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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Phoenix District
Lower Sonoran Field Office
21605 North 7th Avenue
Phoenix, AZ 85027
www.az.blm.gov

TAKE PRIDE IN AMERICA

In Reply Refer To:
2800 (220)
AZA-33305

January 30, 2006

Request for Comments for the Proposed Right-of-Way for the Arizona Public Service Palo Verde to North Gila Transmission Project, Arizona.

INTRODUCTION

The Bureau of Land Management (BLM) requests your comments relating to the proposed Right-of-Way (R/W) on public lands for the Arizona Public Service (APS) Palo Verde to North Gila (PV-N.Gila) Project located in Maricopa and Yuma County (see enclosed project map).

The purpose of this mailer is to notify potentially interested parties including local, state, and federal agencies and adjacent landowners of the proposed project. All comments must be received by March 03, 2006 and will be reviewed as part of the environmental analysis for the project. At this time, the BLM has decided to prepare an Environmental Assessment (EA) to determine whether the project will have significant environmental effects. The EA is expected to be available for public comment by the fall of 2006.

PROPOSED ACTION

The Proposed Action involves one 500 kV transmission power line on steel lattice structures which would be constructed within a R/W that is approximately 200 feet in width and approximately 110 to130 miles in length. The proposed R/W, as it affects public land, would be built within the San Diego Gas and Electric utility corridor as identified in the Lower Gila South Resource Management Plan (1988) and the Interconnection and ROW 3 utility corridors as identified in the Yuma District Resource Management Plan (1985). The proposed action requires environmental compliance subject to the National Environmental Policy Act (NEPA).

The R/W of the proposed action would directly affect up to approximately 60 miles of public lands.

DECISION TO BE MADE

The decision to implement the Proposed Action involves the BLM, which has jurisdiction for approximately 60 miles of public lands involved in the project.

Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
- Public open houses
- Newsletters
- Web site
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4141 NORTH 32nd STREET
SUITE 102
PHOENIX, ARIZONA 85018
T 602 956-4370
F 602 956-4374
www.epgar.com

epg

September 13, 2007

Kevin Harper, Field Office Manager
BLM - Phoenix District
Lower Sonoran Field Office
21605 N. 7th Avenue
Phoenix, Arizona 85027-2099

Dear Mr. Harper:

Arizona Public Service Company (APS) plans to file an Application for a Certificate of Environmental Compatibility (CEC) for the Palo Verde Hub to North Gila 500kV (kilovolt) Transmission Project with the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) in October 2007. The proposed project is needed to support the increased development and growth, occurring and anticipated, in the Yuma Region. The project will strengthen the entire Yuma area transmission system by providing an additional electrical transmission source to the region. This project primarily involves a single-circuit 500kV electric transmission line and upgrades to two existing switchyards (see attached map). The project is designed to interconnect at one of three sites at the Palo Verde Hub and proceed southwest where the project will interconnect with APS' existing North Gila Substation, northeast of Yuma, Arizona. The proposed route parallels an existing 500kV transmission line for the entire length of the project and will be located on the north side of the existing line, within a Bureau of Land Management (BLM) designated utility corridor on BLM land (see attached map). APS will request Siting Committee approval for a CEC for the route as it has been determined as being environmentally compatible and would adequately address the project need.

Arizona Administrative Code Rule R14-2-219 directs an applicant to include in its Application an Exhibit H addressing the following:

"To the extent the applicant is able to determine, state the existing plans of the State, local government and private entities for other developments at or in the vicinity of the proposed site or routes."

This letter is a request for any information or comments that your organization wishes to provide regarding development plans for inclusion in the Application. Specifically, please advise me of any existing or future plans that may have changed since the completion of our data collection efforts in November 2006.

To allow your information to be included in the Application, please forward it to me no later than Friday, September 28th, at the address above.

Thank you for your cooperation.

Sincerely,

Paul J. Trenter, Project Manager
Environmental Planning Group

cc: Paul Herndon, APS Project Manager

Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
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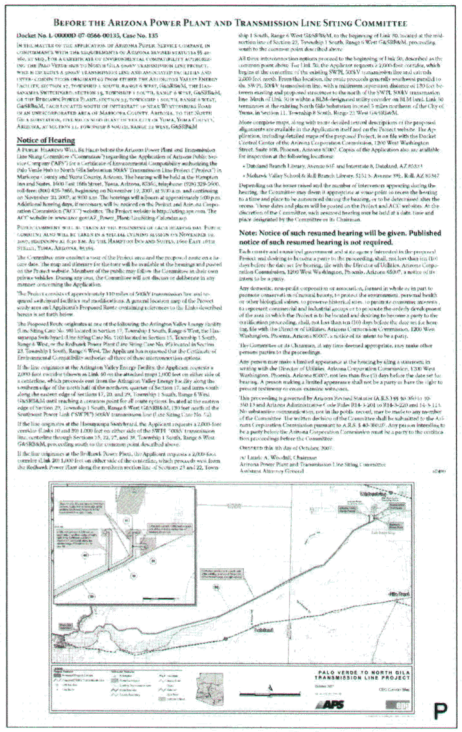

BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

Docket No. L-00000D-07-0566-00133, Case No. 135

IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY, IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES §§ 40-360 ET SEQ., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING THE PALO VERDE–NORTH GILA 500 KV TRANSMISSION LINE PROJECT, WHICH IS A LINE IN A GRID TRANSMISSION LINE AND ADVANCED BY THE ARIZONA ENERGY COORDINATION TEAM ORIGINATED FROM STUDIES THE ARIZONA VALLEY ENERGY FACILITY, SECTION 27, TOWNSHIP 1 SOUTH, RANGE 6 WEST, GILA RIVER, THE HASSAYAMPA SWITCHYARD, SECTION 19, TOWNSHIP 1 SOUTH, RANGE 4 WEST, GILA RIVER, OR THE RUDHAMA POWER PLANT, SECTION 23, TOWNSHIP 1 SOUTH, RANGE 6 WEST, GILA RIVER, EACH LOCATED SOUTH OF INTERSTATE 10 NEAR EL MIRAGE ROAD OR AT OTHER CHOSEN AREAS OF MARICOPA COUNTY, ARIZONA, TO THE NORTH GILA SUBSTATION, ONE MILE SOUTH OF EXIT 39 OF I-8 IN YUMA, YUMA COUNTY, ARIZONA, AT SECTION 3, TOWNSHIP 8 SOUTH, RANGE 22 WEST, GILA RIVER

Notice of Hearing

A PUBLIC HEARING WILL BE HELD BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE ("COMMITTEE") REGARDING THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY ("APS") FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING THE PALO VERDE–NORTH GILA SUBSTATION 500 KV TRANSMISSION LINE PROJECT ("PROJECT") IN MARICOPA COUNTY AND YUMA COUNTY, ARIZONA. THE HEARING WILL BE HELD AT THE HOLIDAY INN AND SUITES, 1660 EAST 16TH STREET, YUMA, ARIZONA, 85365, TELEPHONE (928) 329-2000, TOLL-FREE (800) 426-7860, BEGINNING ON NOVEMBER 12, 2007, AT 9:00 A.M. AND CONTINUING ON NOVEMBER 21, 2007, AT 9:00 A.M. THE HEARINGS WILL BEGIN AT APPROXIMATELY 9:00 A.M. ADDITIONAL HEARING DATES, IF NECESSARY, WILL BE NOTICED ON THE PROJECT AND ACC CONSTITUTION COMMITTEE ("ACC") WEBSITES. THE PROJECT WEBSITE IS http://palovdeg.com. THE ACC WEBSITE IS www.azcc.gov/AZ_Power_Plant/Upcoming-Calendar.asp

PUBLIC COMMENT WILL BE TAKEN AT THE BEGINNING OF EACH HEARING DATE. PUBLIC COMMENT ALSO WILL BE TAKEN ON A REGULAR COMMITTEE AGENDA ON NOVEMBER 16, 2007, BEGINNING AT 1:30 P.M. AT THE HARRY ROSS AND STUDIO, 1500 EAST 8TH STREET, YUMA, ARIZONA, 85366.

The Committee may conduct a tour of the Project area and the proposed routes on a future date. The map and itinerary for the tour will be available at the hearings and posted on the Project website. Members of the public may follow the Committee in their own private vehicles. During any tour, the Committee will not discuss or deliberate in any manner concerning the Application.

The Project consists of approximately 110 miles of 500kV transmission line and associated substation facilities and modifications. A general location map of the Project and routes and Applicant's Proposed Route containing a detailed map of the Gila Substation Site is set forth below.

The Proposed Route originates at one of the following: the Arlington Valley Energy Facility Site, Siting Case No. 90 located in Section 17, Township 1 South, Range 6 West, the Hassayampa Switchyard Site Siting Case No. 110 located in Section 19, Township 1 South, Range 4 West, or the Rudhama Power Plant Site Siting Case No. 95 located in Section 23, Township 1 South, Range 6 West. The Applicant has proposed that the Committee of Environmental Compatibility authorize all three of these interconnection options.

If the line originates at the Arlington Valley Energy Facility, the Applicant requests a 2,000-foot corridor (shown as Link 10) on the attached map) 1,000 feet on either side of a centerline, which proceeds east from the Arlington Valley Energy Facility along the southern edge of the north half of the northern quarter of Sections 17, and turns south along the eastern edge of Sections 17, 20, and 29, Township 1 South, Range 5 West, GILA RIVER, until reaching a common point for all routes options located at the eastern edge of Section 29, Township 1 South, Range 5 West GILA RIVER, 330 feet north of the Southwest Power Link ("SWPL") 500kV transmission line (Line Siting Case No. 74).

If the line originates at the Hassayampa Switchyard, the Applicant requests a 2,000-foot corridor (Links 10 and 9) 1,000 feet on either side of the SWPL 500kV transmission line, centerline through Sections 19, 20, 17, and 16, Township 1 South, Range 4 West GILA RIVER, proceeding south to the common point described above.

If the line originates at the Rudhama Power Plant, the Applicant requests a 2,000-foot corridor (Link 20) 1,000 feet on either side of the centerline, which proceeds west from the Rudhama Power Plant along the southern section line of Sections 23 and 22, Township 1 South, Range 6 West GILA RIVER, to the beginning of Link 10, located at the southwestern corner of Section 22, Township 1 South, Range 6 West GILA RIVER, proceeding south to the common point described above.

All three interconnection options proceed to the beginning of Link 10, described as the common point above. For Link 10, the Applicant requests a 2,000-foot corridor, which begins at the centerline of the existing SWPL 500kV transmission line and extends 2,000 feet south. From this location, the route proceeds generally southwest parallel to the SWPL 500kV transmission line, with a maximum separation distance of 150 feet between existing and proposed structures to the north of the SWPL 500kV transmission line. Mesh of Link 10 is within a BLM-designated utility corridor on BLM land. Link 10 terminates at the existing North Gila Substation located 3 miles northeast of the City of Yuma, in Section 13, Township 8 South, Range 22 West GILA RIVER.

More complete maps, along with more detailed textual descriptions of the proposed alignments are available in the Application itself and on the Project website. The Application, including detailed maps of the proposed Project, is on file with the Docket Control Center of the Arizona Corporation Commission, 1200 West Washington Street, Suite 105, Phoenix, Arizona 85007. Copies of the Application also are available for inspection at the following locations:

- Dateland Branch Library, Avenue 64 and Interstate 8, Dateland, AZ 85333
- Mohawk Valley School District Hall Branch Library, 5151 S. Avenue 99, Hall, AZ 85367

Depending on the issues raised and the number of intervenors appearing during the hearing, the Committee may deem it appropriate at some point to recess the hearing to a time and place to be announced during the hearing, or to be determined after the recess. Those dates and places will be posted on the Project and ACC websites. At the discretion of the Committee, such continued hearing may be held at a later time and place designated by the Committee or its Chairman.

Note: Notice of such resumed hearing will be given. Published notice of such resumed hearing is not required.

Each county and municipal government and any agency interested in the proposed Project and desiring to become a party to the proceeding shall, no later than ten (10) days before the date set for hearing, file with the Director of Utilities, Arizona Corporation Commission, 1200 West Washington, Phoenix, Arizona 85007, a notice of intent to be a party.

Any domestic, non-profit corporation or association, formed in whole or in part to promote conservation or natural beauty, to protect the environment, personal health or other biological values, to preserve historical sites, to promote economic growth to represent commercial and industrial groups or to promote the orderly development of the area in which the Project is to be located and desiring to become a party to the certification proceeding, shall, not later than ten (10) days before the date set for hearing, file with the Director of Utilities, Arizona Corporation Commission, 1200 West Washington, Phoenix, Arizona 85007, a notice of its intent to be a party.

The Committee or its Chairman, at any time deemed appropriate, may name other persons parties to the proceeding.

Any person may make a limited appearance at the hearing by filing a statement in writing with the Director of Utilities, Arizona Corporation Commission, 1200 West Washington, Phoenix, Arizona 85007, not less than five (5) days before the date set for hearing. A person making a limited appearance shall not be a party or have the right to present testimony or cross-examine witnesses.

This proceeding is governed by Arizona Revised Statutes (A.R.S.) §§ 40-360 to 40-360.10 (2006) and Arizona Administrative Code Title R14-3-219 (as of February 2, 2006) and Title 14, Chapter 3, Article 2 (as of March 30, 2006), and the rules and procedures established by the Committee. Copies of the Committee's rules and procedures shall be available for inspection by the Arizona Corporation Commission pursuant to A.R.S. § 40-360.07. Any person intending to be a party before the Arizona Corporation Commission must be a party to the certification proceeding before the Committee.

Dated this 4th day of October, 2007.

/s/ Louis A. Weisberg, Chairman
Arizona Power Plant and Transmission Line Siting Committee
Arizona Attorney General

P

Public Participation

- BLM process
- Jurisdictional and stakeholder meetings
- Public open houses
- Newsletters
- Web site
- Telephone information line (888-206-6166)
- Written notice
  - BLM informational letter
  - Exhibit H letters
- Publication of notice of hearing
- Signs

APS

PUBLIC HEARING

APS-Palo Verde Hub to
North Gila Substation 500kV
Transmission Line Project
Arizona Corporation Commission
Docket No. L-00000D-07-0566-00135

The public is invited to participate at a public hearing before the Arizona Power Plant and Transmission Line Siting Committee

Commencing on:
November 19, 2007 at 9:00AM
(Special Public Comment Session at 6:30PM)
November 20, 2007 at 9:00AM
Hampton Inn and Suites
1600 East 16th Street
Yuma, Arizona 85365

Additional hearing days, if necessary, will be noticed on the Project and Arizona Corporation Commision websites. The Project website is listed below and the ACC website is:
www.azcc.gov/AZ_Power_Plant/LineSiting-Calendar.asp

APS INFO: 623-932-6729 or http://siting.aps.com
ACC INFO: http://www.cc.state.az.us/divisions/utilities/electric/faqs.asp

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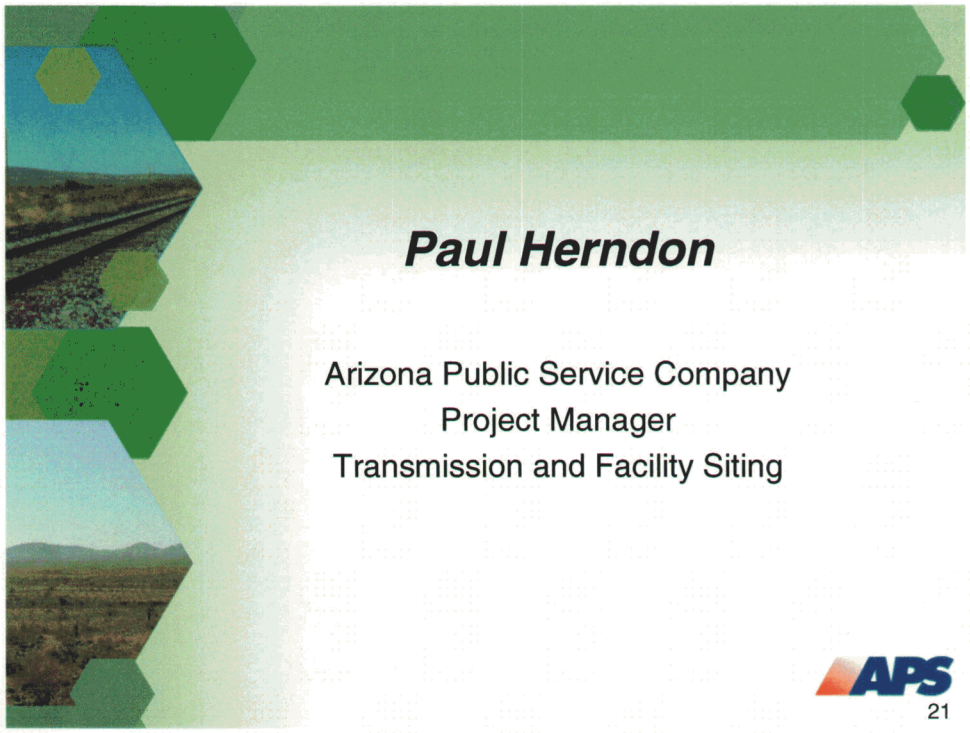
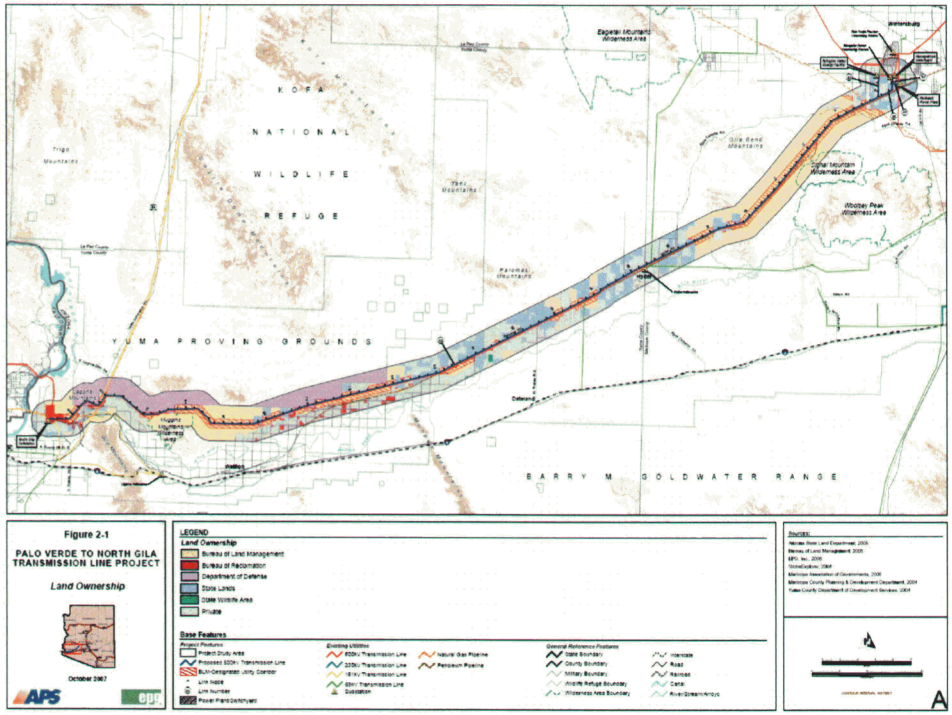
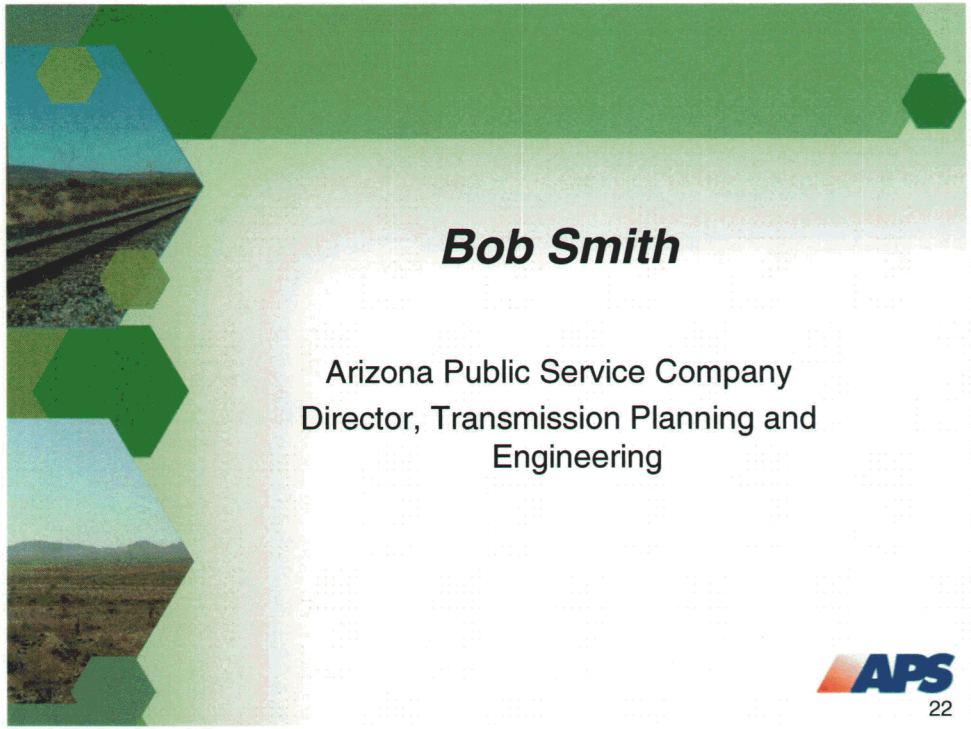


Paul Herndon

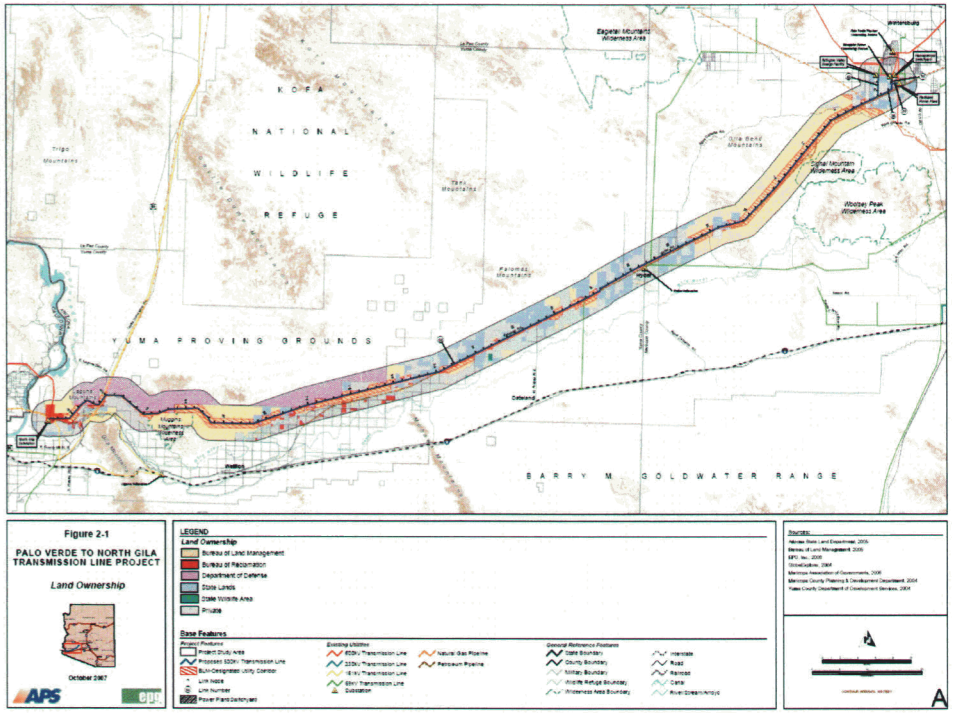
Arizona Public Service Company
Project Manager
Transmission and Facility Siting





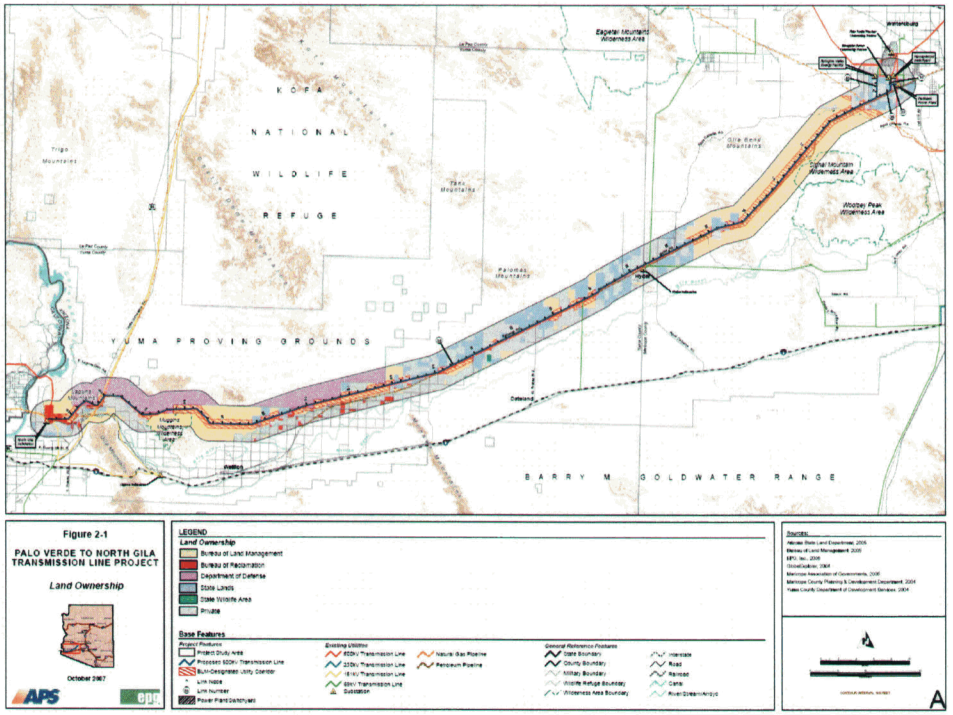
Bob Smith

Arizona Public Service Company
Director, Transmission Planning and Engineering



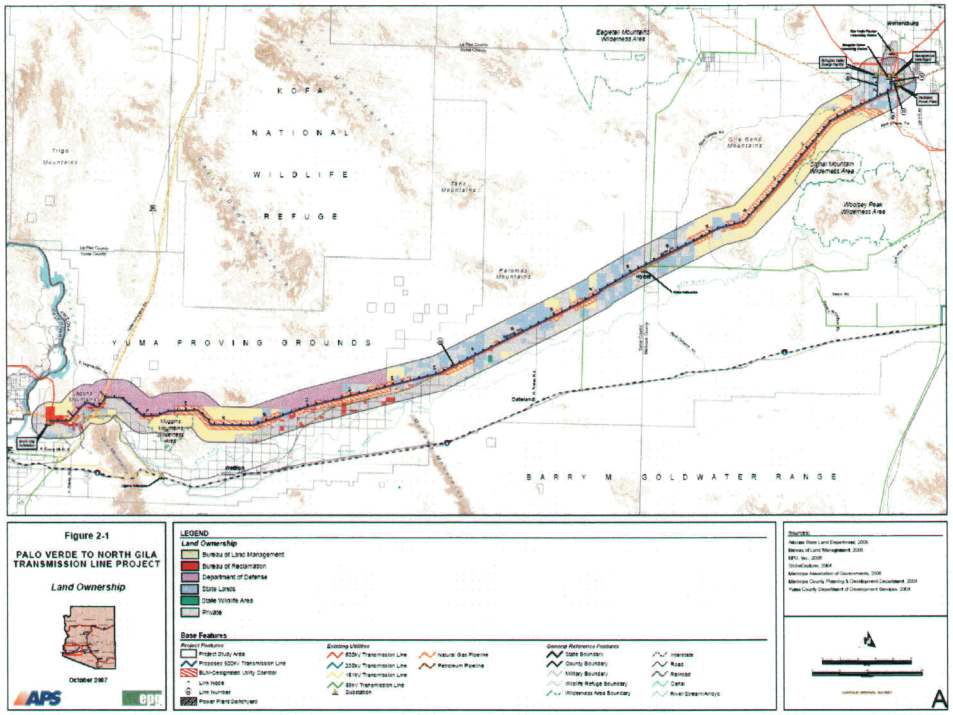
Witness Background

- Professional Background
  - APS transmission operations manager 1997-2002
  - APS transmission planning manager since November 2002
  - 21 years experience in electric utility industry transmission operations and planning
  - Arizona registered professional engineer
  - 14 years extensive involvement with WECC
  - Member of various planning committees, e.g. SWAT, WestConnect, WECC Transmission Expansion Planning Policy Committee (TEPPC)
- Educational Background
  - BS Pharmacy, University of Utah
  - MSEE, New Mexico State University



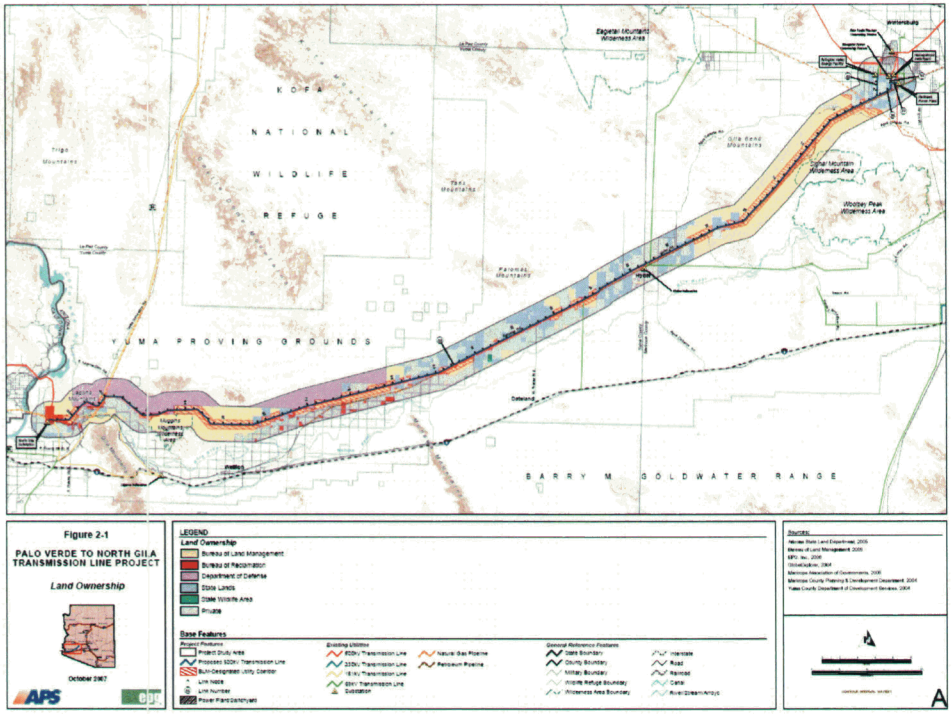
Witness Background Cont.

- Provided technical testimony before the Siting Committee for APS Case Numbers:
  - 122: West Valley-South Power Line and Substation Project
  - 127: West Valley-North Power Line and Substation Project
  - 128: Palo Verde Hub to TS-5 Substation 500kV Transmission Project
  - 131: TS-9 to Pinnacle Peak 500/230kV Transmission Line Project



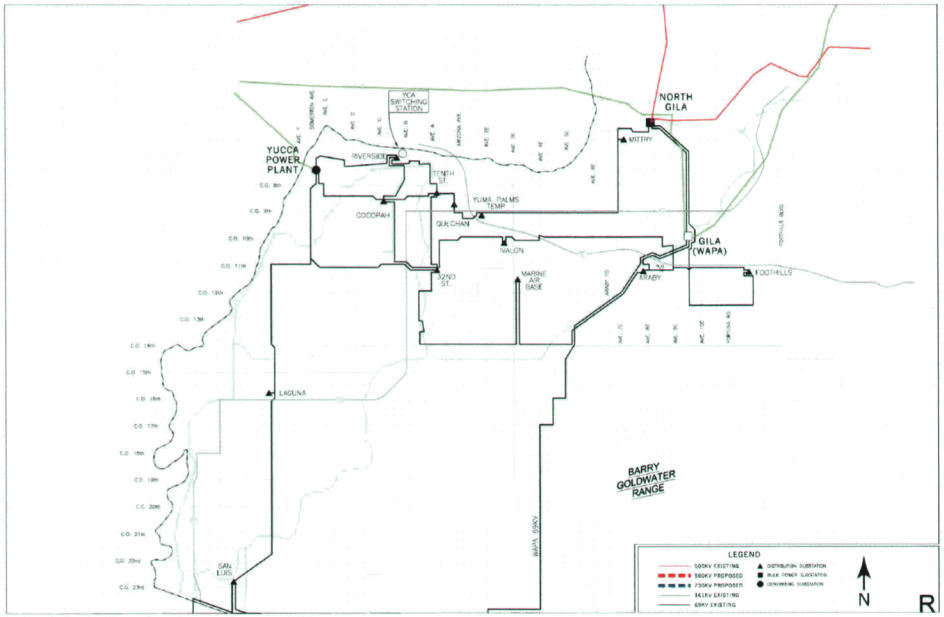
Testimony Overview

- Yuma Area System
- Yuma Area Recent Improvements
- Yuma Area Planned Improvements
- Palo Verde Hub to North Gila 500kV Transmission Line Project Benefits
- Regional Planning and Coordination



Yuma Area System

- Local 69kV sub-transmission system
- Three existing sources into Yuma Area
  - North Gila Substation
    - 500kV line from PV Hub
  - Yucca Power Plant
    - 265 MW generation
      - 140 MW APS
      - 75 MW IID
      - 50 MW Merchant Generation
    - 161kV IID line to IID service area
  - Gila Substation
    - Two WAPA 161kV lines from federal hydro system



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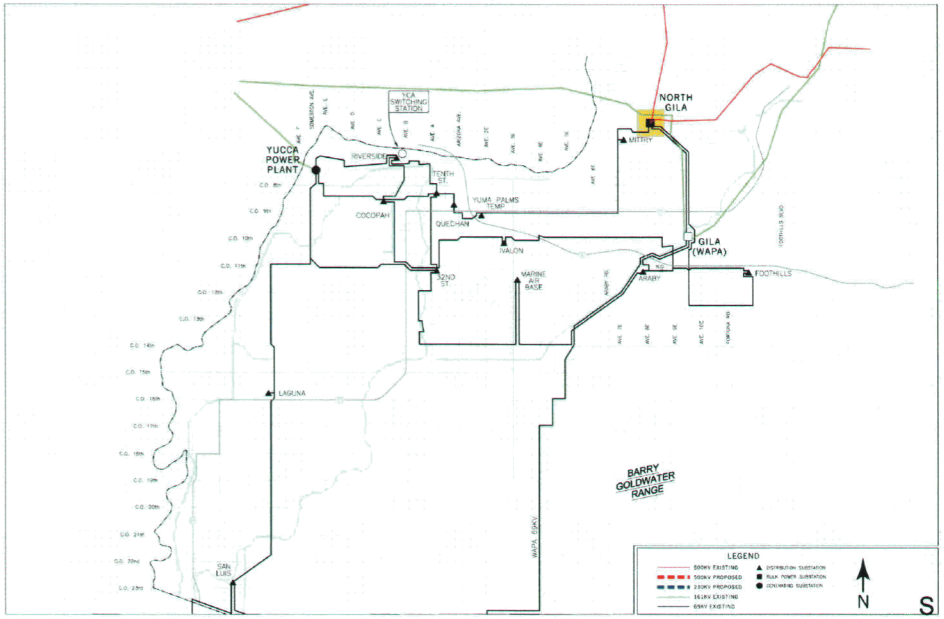

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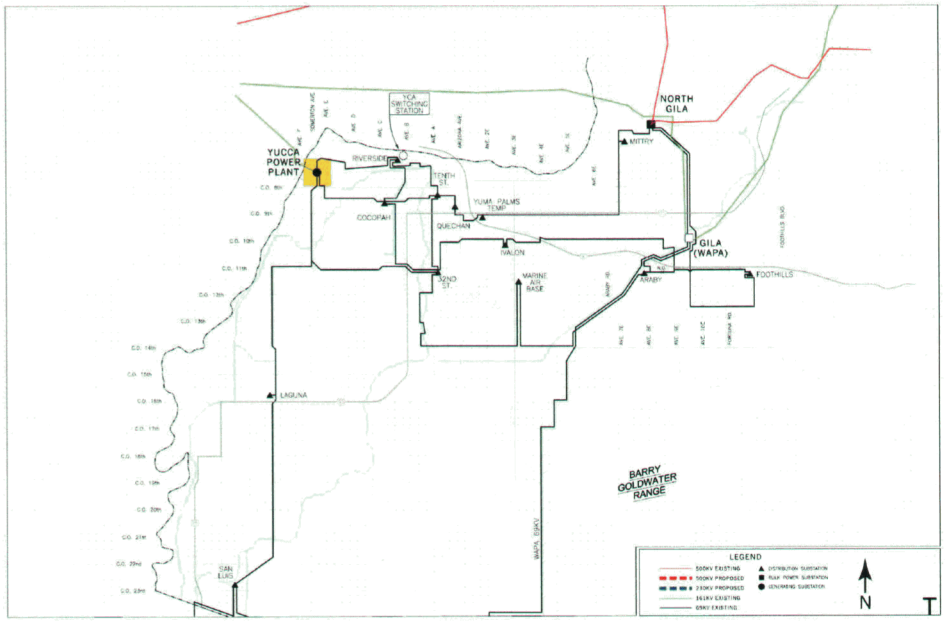

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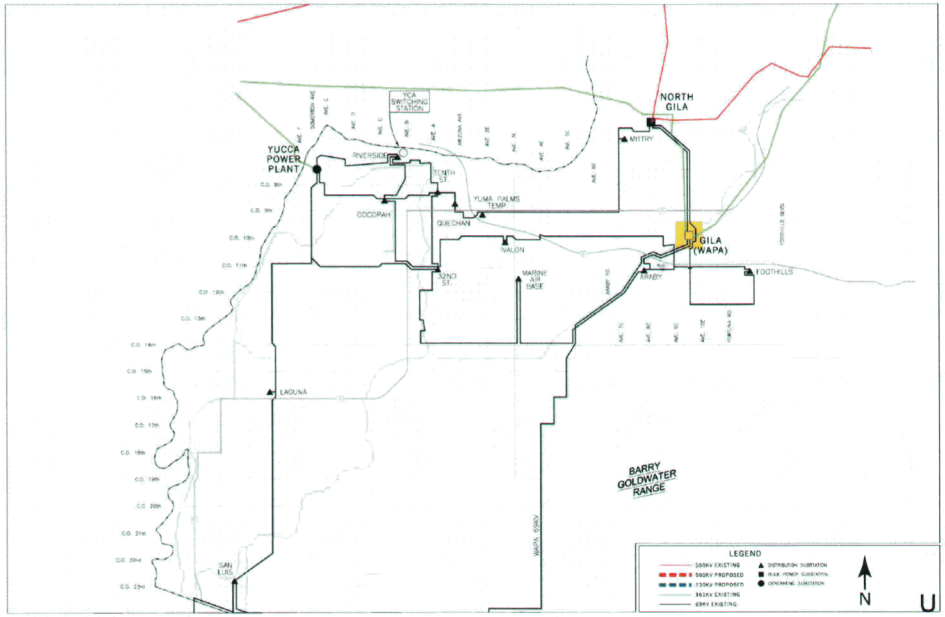

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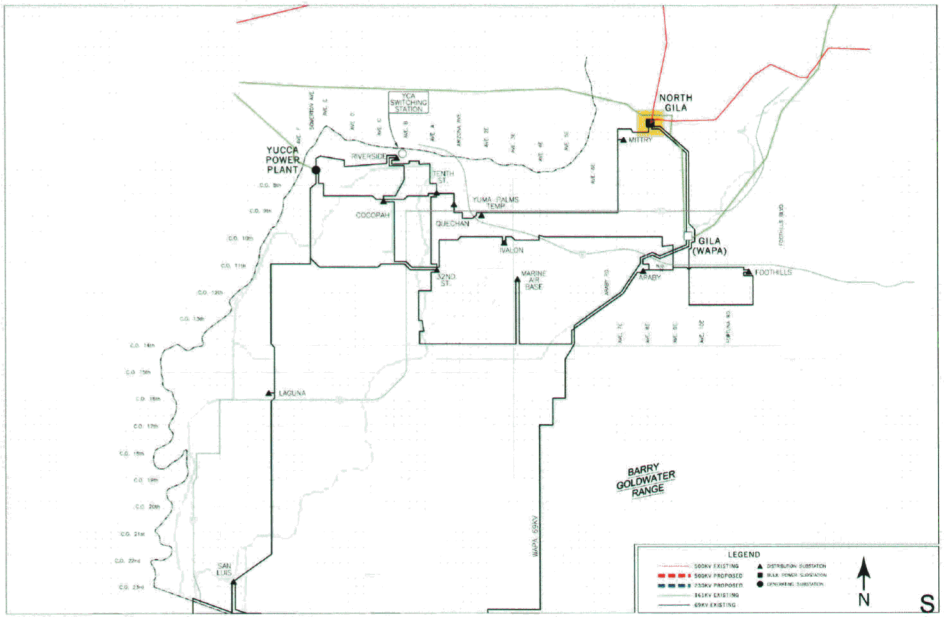
Yuma Area
Recent Improvements

- 2005 Second North Gila 500/69kV transformer
- 2006 Upgrade of Yucca 161kV IID line
- 2006 Upgrade of Hassayampa-North Gila 500kV line
- Annual 69kV improvements



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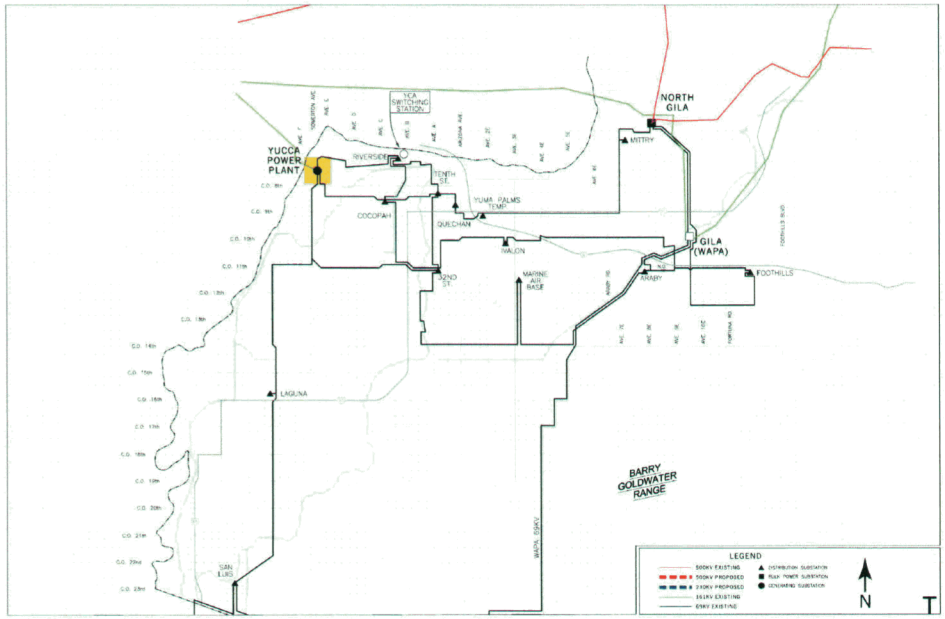

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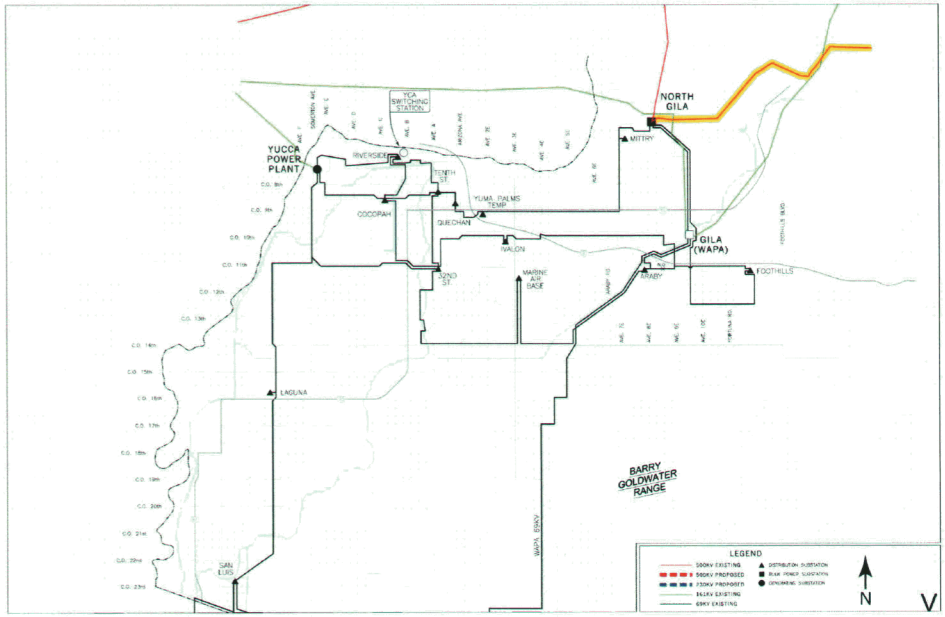

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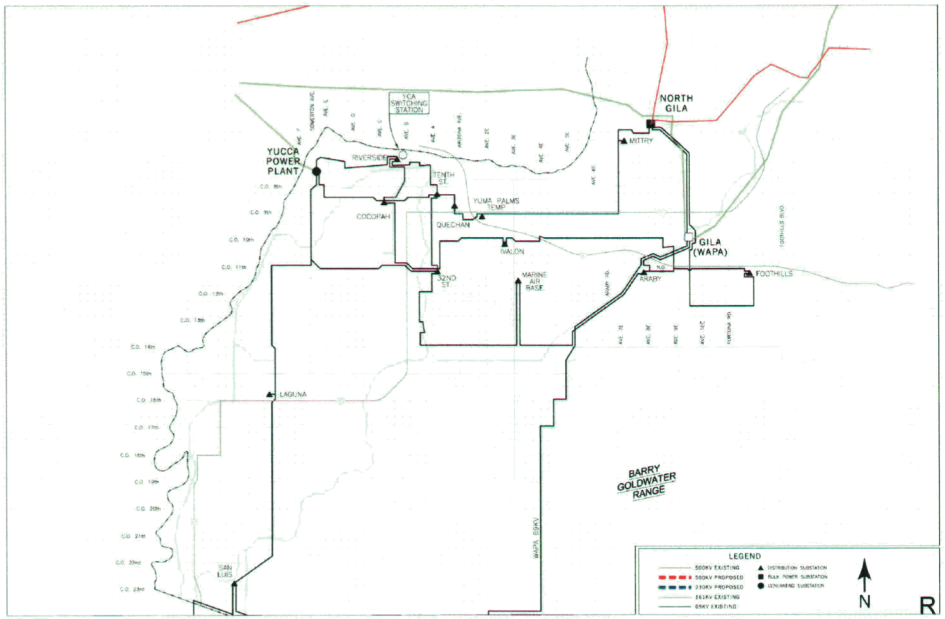
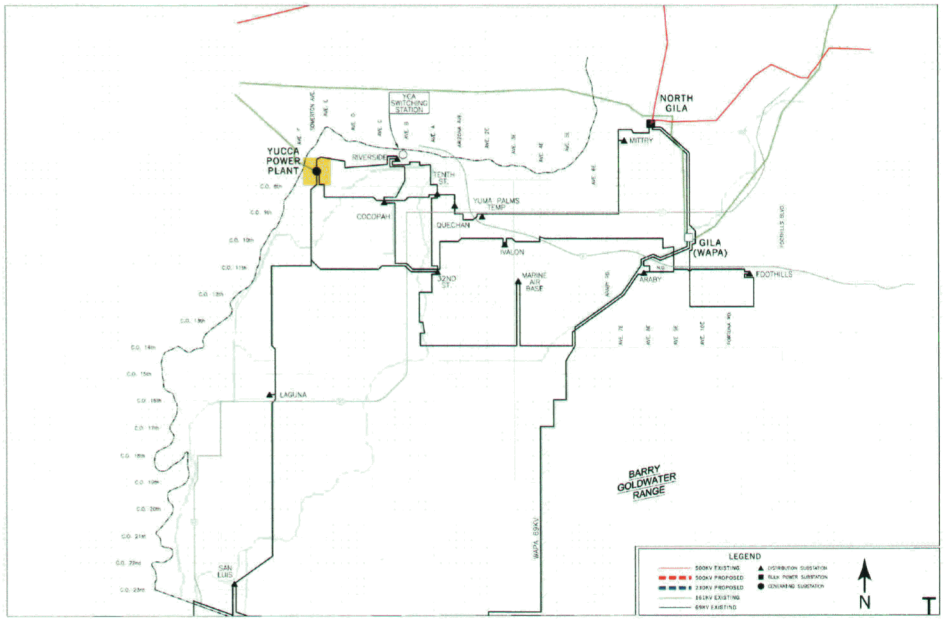


Yuma Area Planned Improvements

- 2008 - APS generation addition at Yucca Power Plant
  - (2) 48 MW combustion turbines
- 2012 - PV to North Gila 500kV line
- 2012 - North Gila to TS-8 230kV line



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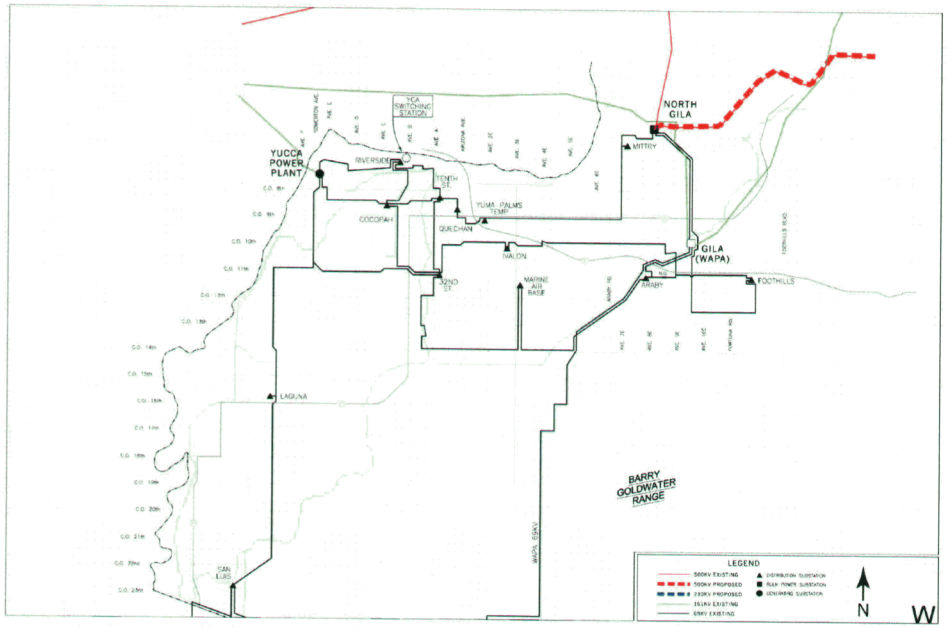

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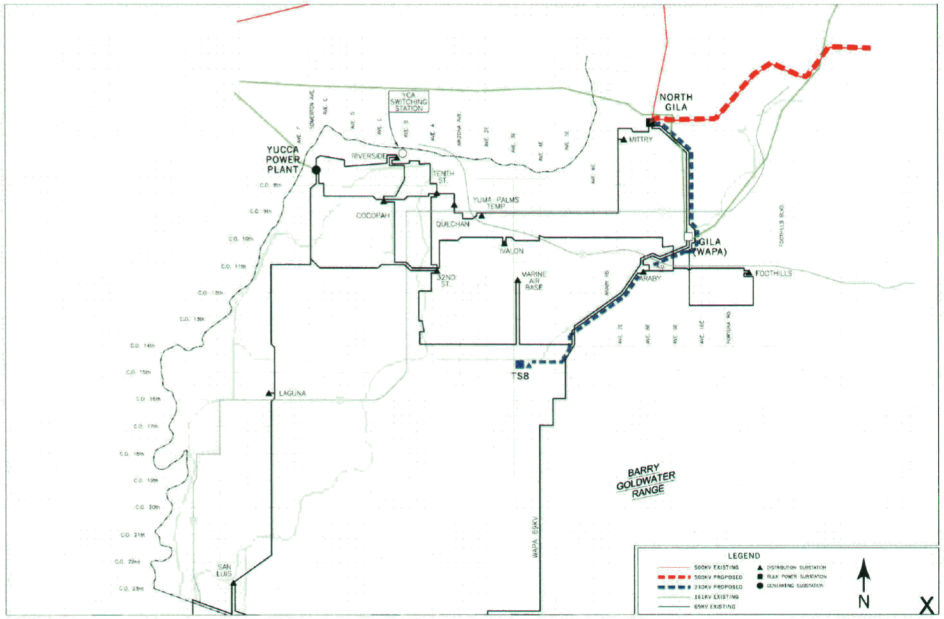
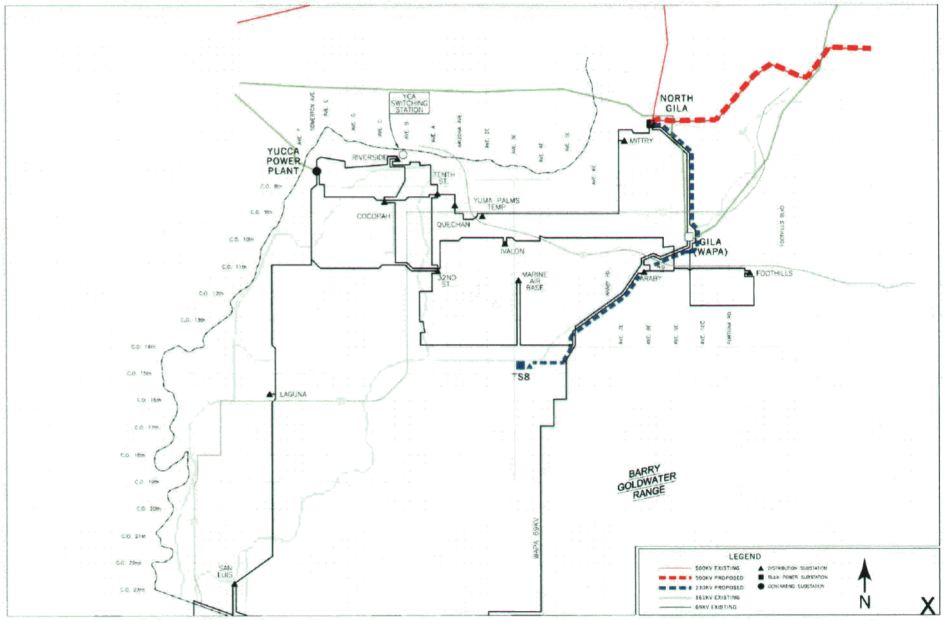


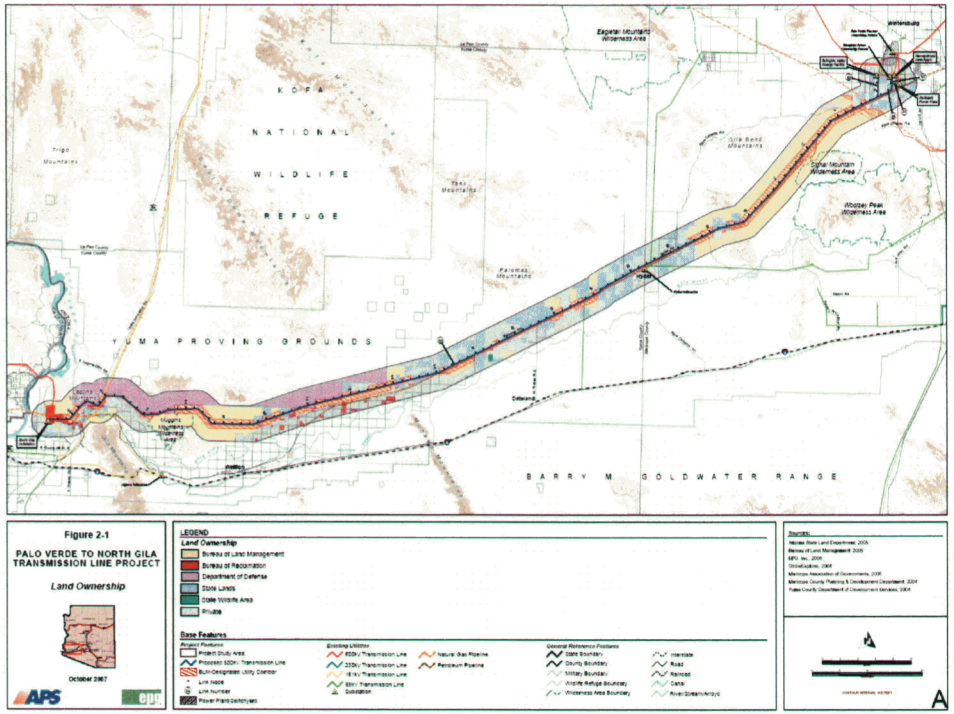
Project Benefits

- APS 500 MW scheduling rights to Yuma from PV Hub
- Import capability increase
  - When combined with North Gila to TS-8 230kV line and 69kV improvements
- Provide contingency for outage of existing Palo Verde Hub to North Gila 500kV line
  - Most recent PV Hub operating study shows outage of existing PV Hub to North Gila 500kV line only single contingency requiring potential generation curtailment



Project Benefits

- WMIDD
  - Support fast growing load
  - Increased reliability
- SRP
  - Access to California renewables
- IID
  - Export California renewables
  - Increased reliability
  - Support peak load



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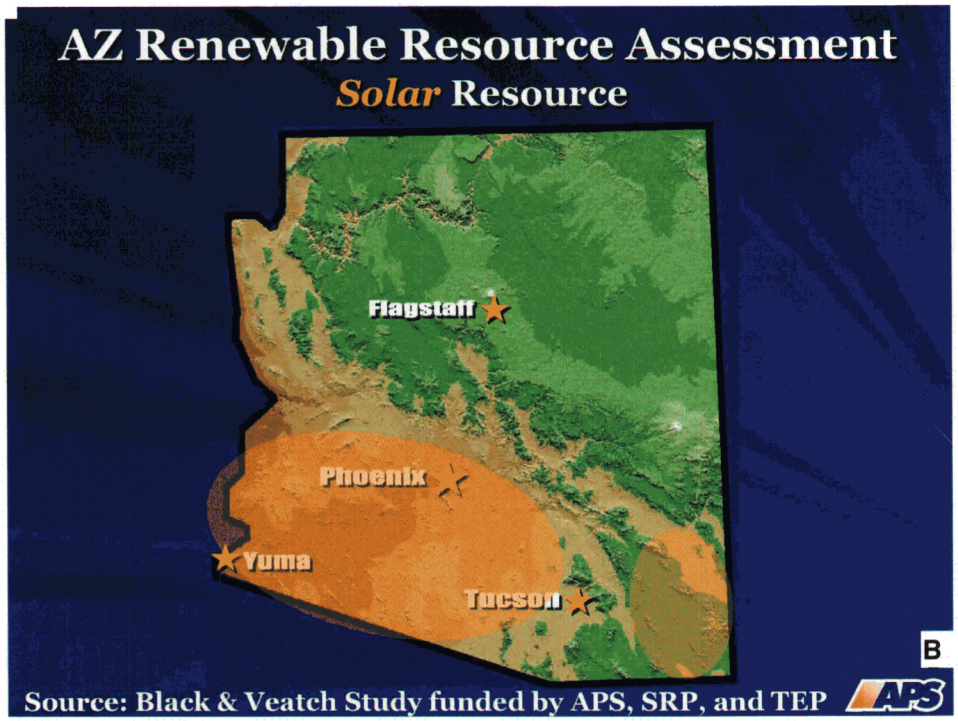
Project Benefits

- Provide significant transmission for development of solar energy in Western Arizona to help provide for Arizona load growth



Regional Planning and Coordination

- APS Ten Year Plan
  - PV Hub to North Gila 500kV Transmission Line Project has been in Plan since 2005
- ACC BTA
  - PV Hub to North Gila 500kV Transmission Line Project reviewed in 3rd and 4th BTA
  - Reliability Must Run (RMR) studies for Yuma
  - PV Hub Risk Assessment Performed

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"The proposed second Palo Verde/Hassayampa-North Gila 500kV line offers a good example of the type of collaboration that can be achieved between transmission providers in Arizona."

"Yuma area 2006 RMR study findings are as follows:

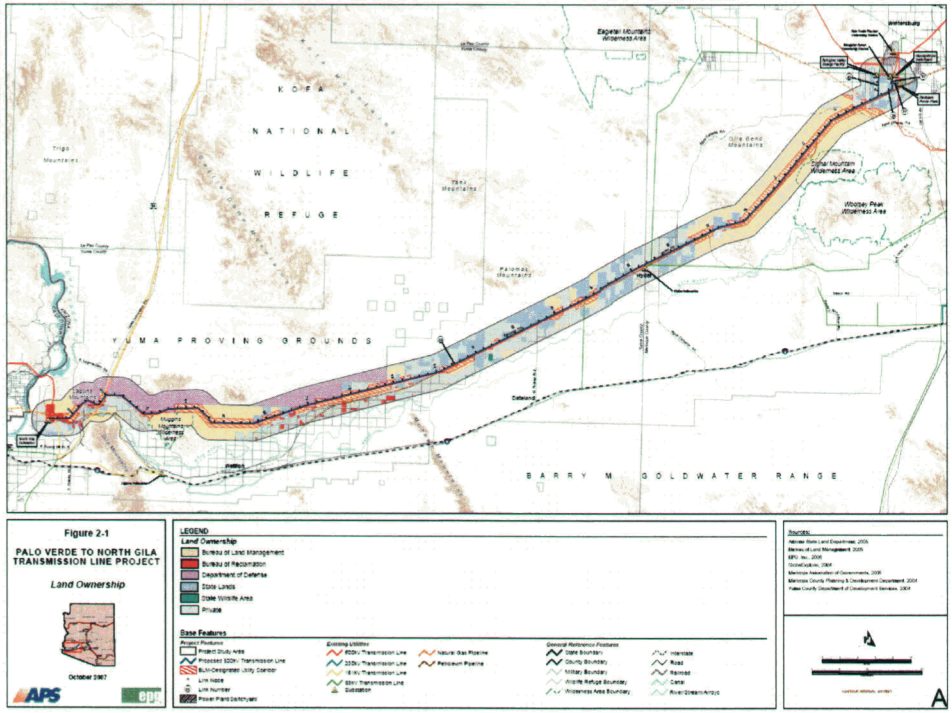
All existing and planned Yuma area generation and transmission projects are needed to reliably serve the area."

-- From the Fourth Biennial Transmission Assessment for 2006-2015

Y

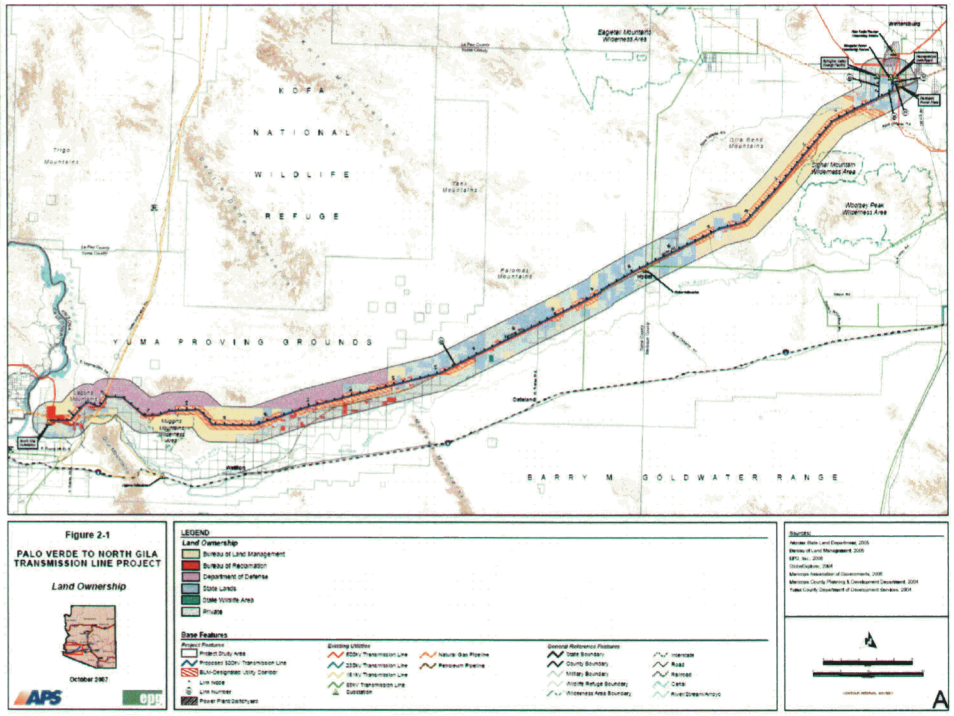
Regional Planning and Coordination

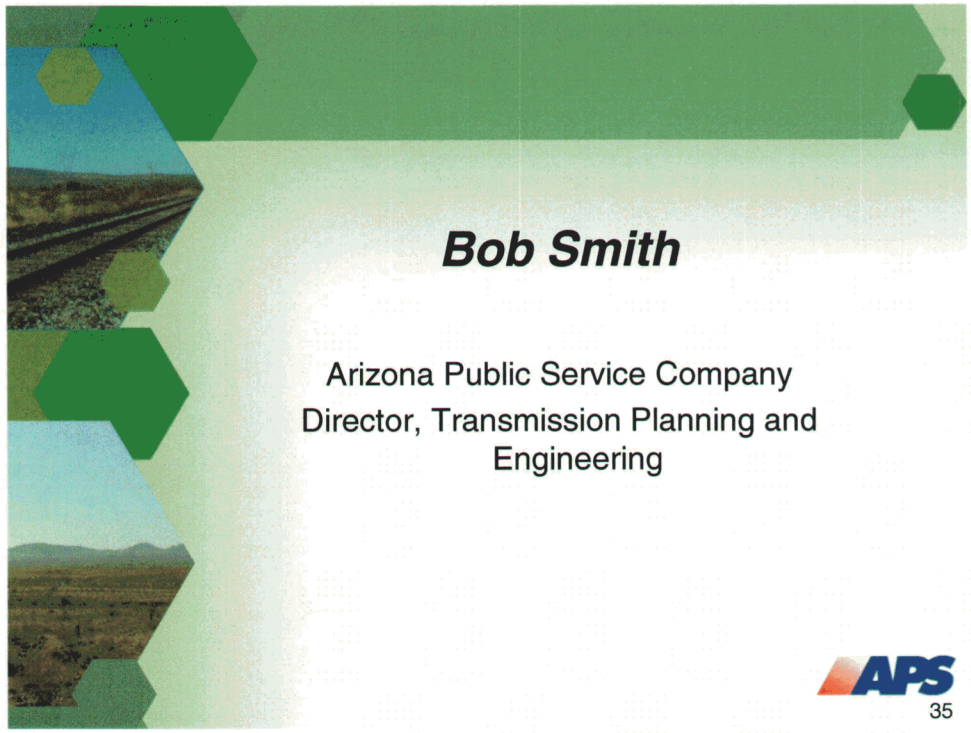
- SWAT
  - Solicitation of interest sent October 2004
  - Project updates at all SWAT meetings
- Southwest Transmission Expansion Plan (STEP)
  - Project updates at all STEP meetings
- WECC
  - Regional Planning Project Review process
  - Preliminary Rating Studies



Summary

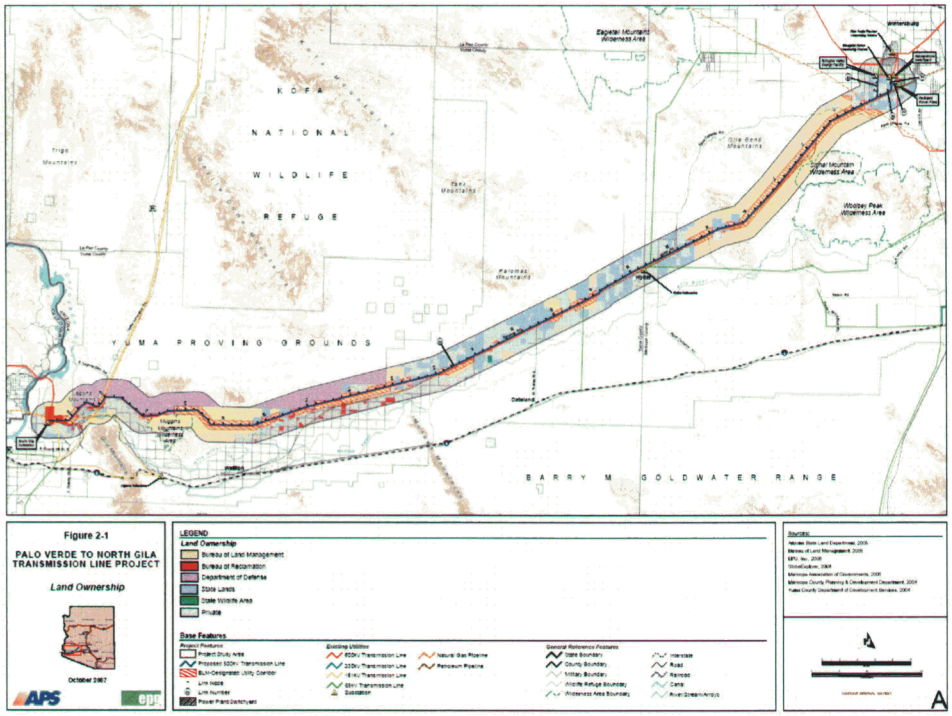
- Yuma Area Transmission System
- PV Hub to North Gila 500kV Transmission Line Project Benefits
- Regional Planning and Coordination
- Project supported by ACC BTA

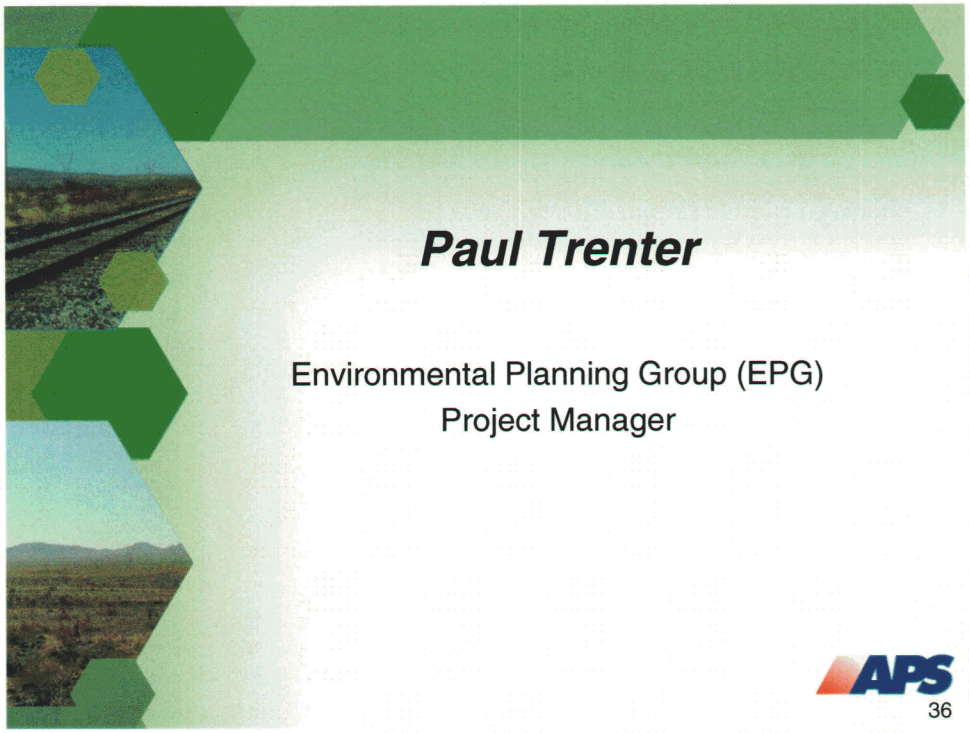




Bob Smith

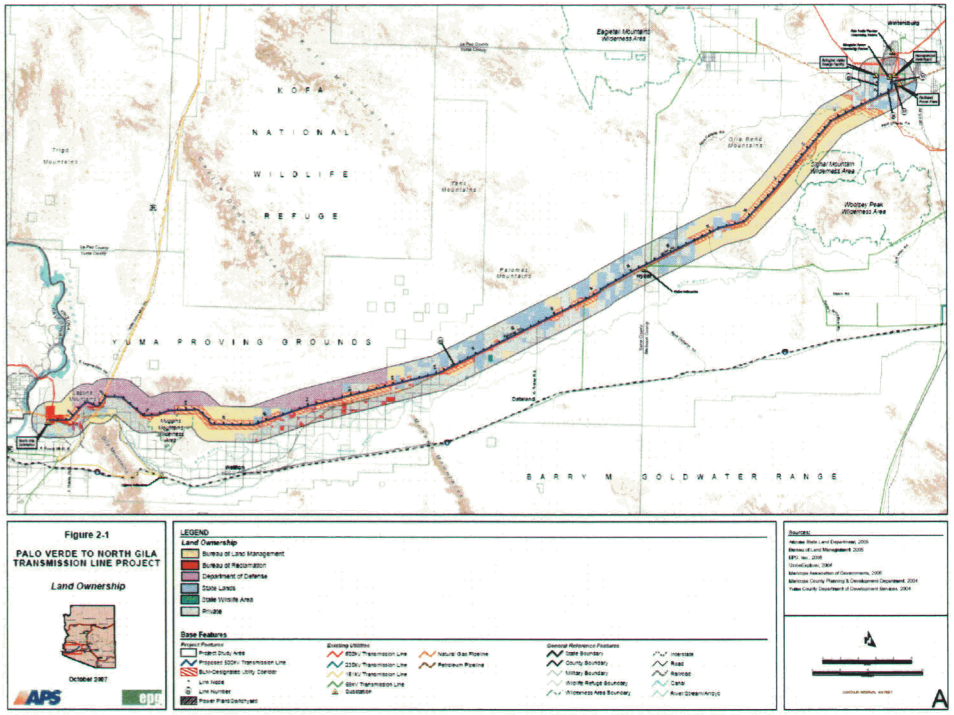
Arizona Public Service Company
Director, Transmission Planning and Engineering





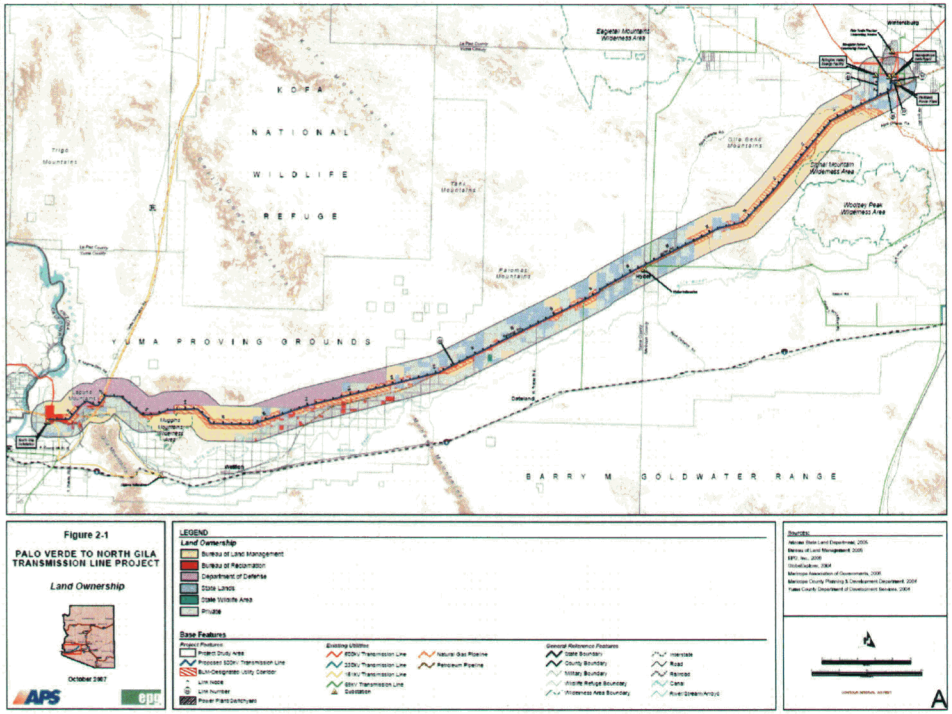
Paul Trenter

Environmental Planning Group (EPG)
Project Manager



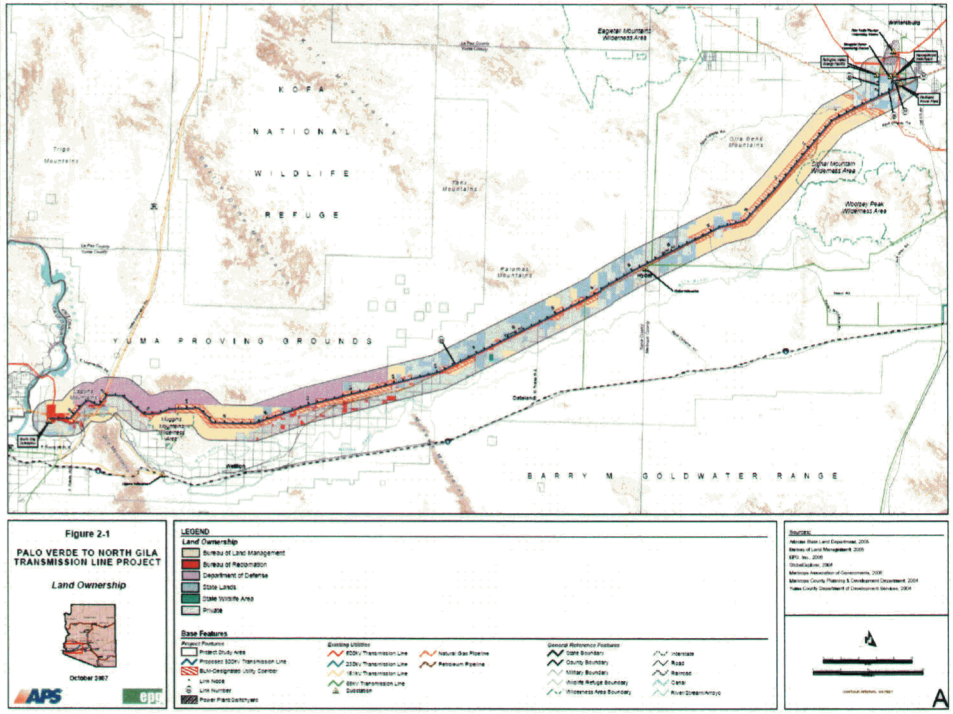
Witness Background

- Professional Credentials
  - BS, Landscape Architecture, University of Wisconsin
  - Principal at EPG
  - 19 years of experience in siting and environmental work with major utility projects
  - Managed or participated in over 40 major transmission line projects



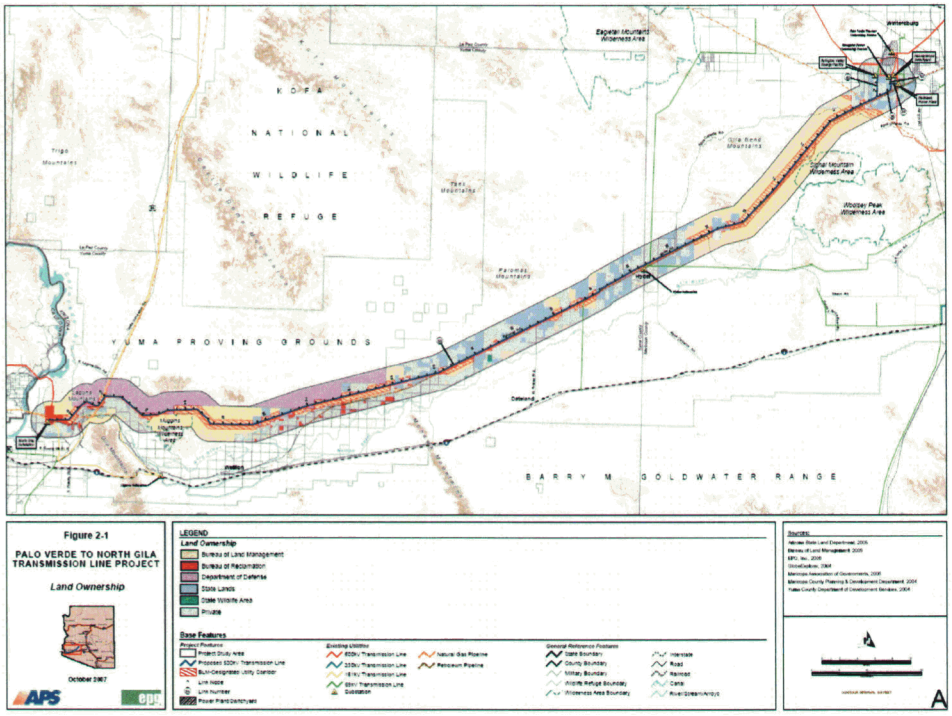
Witness Background

- Environmental studies project manager and provided testimony before the Siting Committee in Case Numbers:
  - 86: RS 16 Project
  - 89: Gila Bend to Ajo 230kV Transmission Line Project
  - 97: Morenci Water & Electric 345kV Intertie Project
  - 115: Southwest Valley 500kV Transmission Line Project
  - 120: North Valley 230kV Facility Siting Project
  - 128: Palo Verde Hub to TS-5 Substation 500kV Transmission Project



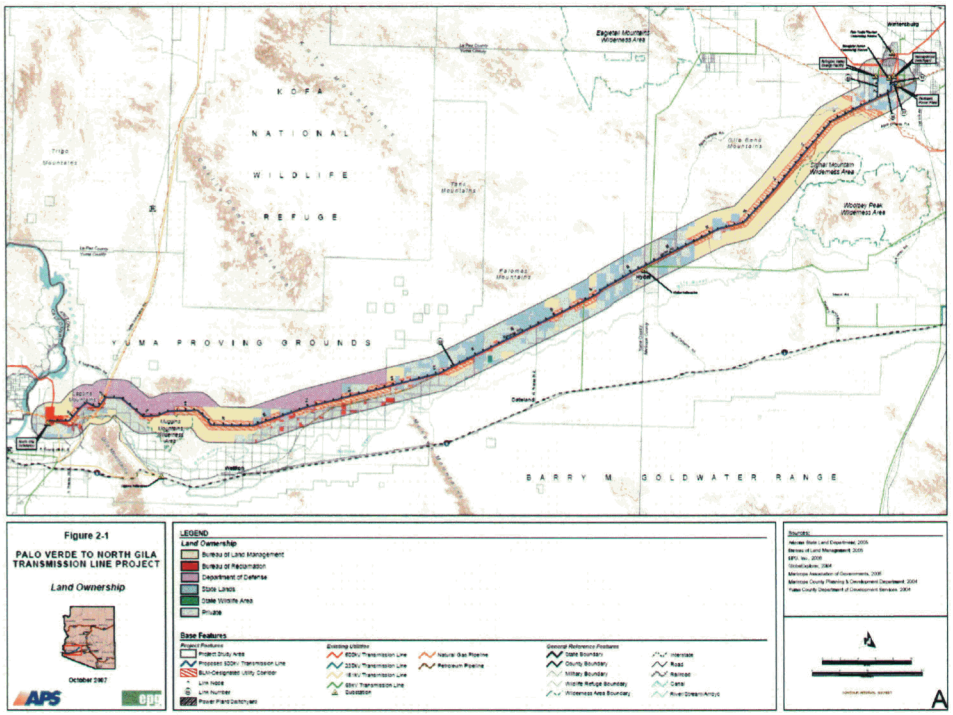
Outline of Testimony

- Overview of the environmental studies
- Environmental resource analysis
- Virtual tour of proposed route
- Environmental compatibility



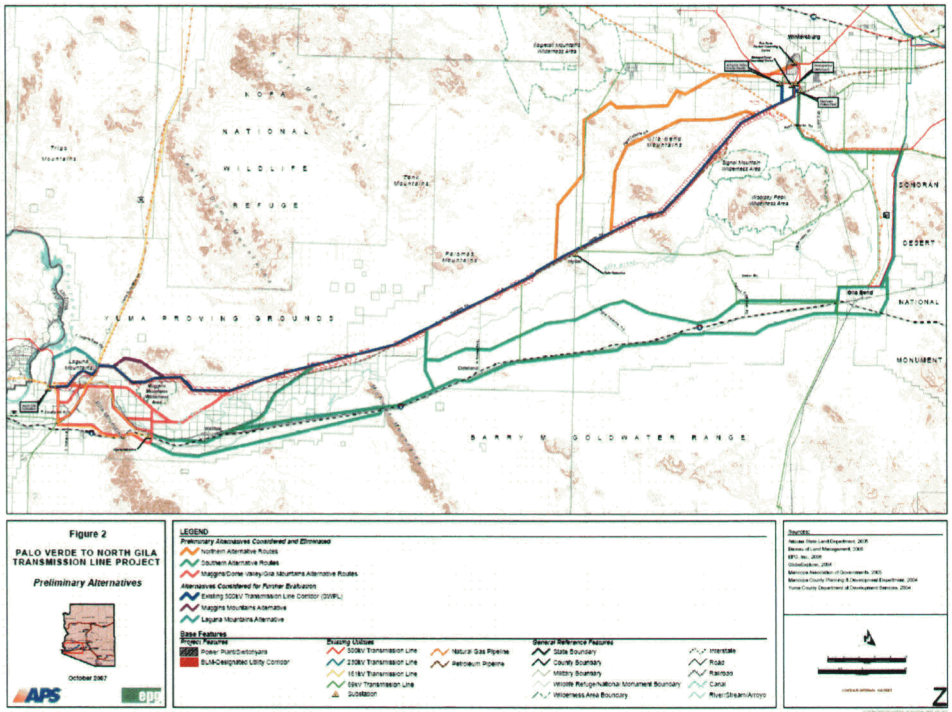
Overview of the Environmental Studies

- Initial review of a broad range of transmission line alternatives and sites
- Prepared Environmental Assessment
- Prepared environmental exhibits for the Certificate of Environmental Compatibility Application
- Public and agency input was considered throughout the planning process



Alternatives Review

- Reviewed 550 miles of transmission line alternatives
- Northern, Southern, and Muggins\Dome Valley\Gila Mountain alternatives
- Laguna and Muggins Mountains alternatives
- After review of alternatives was complete, the BLM recommended the Proposed Route for detailed study in the EA



Proposed Route

- The Proposed Route was carried forward for detailed evaluation for the following reasons:
  - Parallels the existing 500kV transmission line
  - Within a BLM-designated utility corridor on BLM lands, which comprise approximately 50% of the route
  - Crosses public land for over 80% of the route

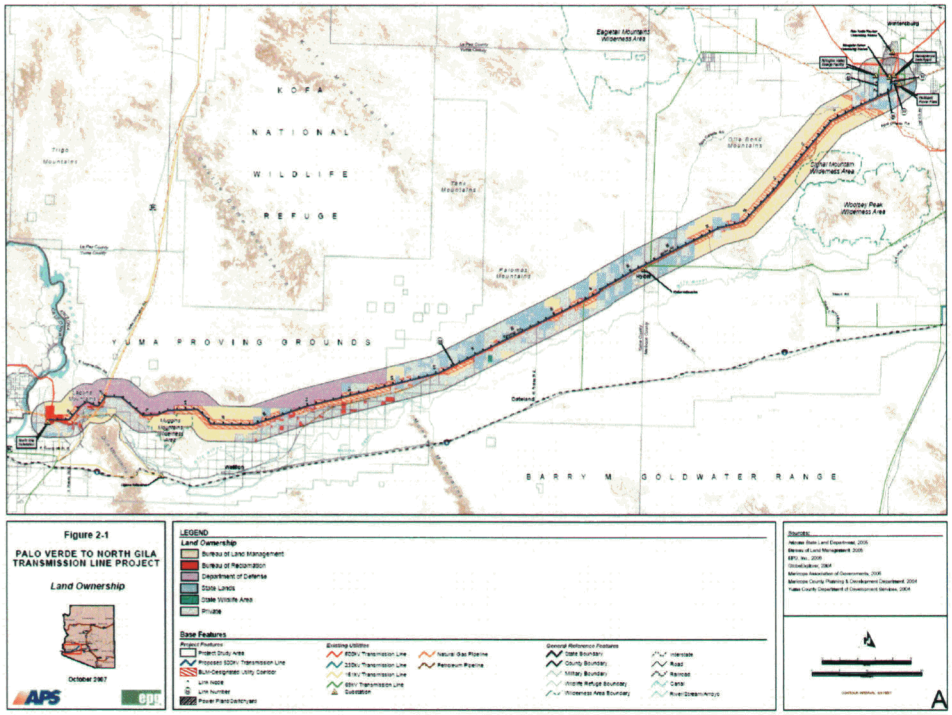
	BLM (distance in miles)	Reclamation (distance in miles)	YPG (distance in miles)	Arizona State Trust (distance in miles)	Private (distance in miles)	Total Length (distance in miles)
Proposed Route (Arlington Valley Energy Facility Interconnection)	54.6	1.5	8.7	21.6	24.2	110.6
Proposed Route (Hassayampa Switchyard Interconnection)	54.6	1.5	8.7	23.1	23.7	111.6
Proposed Route (Redhawk Power Plant Interconnection)	54.6	1.5	8.7	23.2	23.3	111.3

AA

APS

NEPA Process

- National Environmental Policy Act (NEPA) compliance required prior to granting of federal rights-of-way
- BLM, Lower Sonoran Field Office – lead federal agency
- Cooperating federal agencies
  - BLM, Yuma Field Office
  - Yuma Proving Grounds
  - Bureau of Reclamation
- FONSI issued November 2007



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APS

FINDING OF NO SIGNIFICANT IMPACT

Name of Environmental Assessment: Palo Verde Hub to North Gila Substation
Environmental Assessment No.: AZ-220-2006-008
Case File No: AZA-33305
Bureau of Land Management Office: Phoenix District, Lower Sonoran Field Office

Finding of No Significant Impact: Upon review of the Environmental Assessment (EA) prepared for the above-named project and incorporated herein by reference, no significant long-term impacts on the human (socioeconomic) or natural environment would result. Short-term, temporary impacts on soils, water resources, biological resources, cultural resources, air quality, noise, and land use associated with construction activities of the proposed transmission line were identified which could be reduced by mitigation, and therefore are not considered significant. Long-term impacts on scenic quality were considered low to moderate, while the potential for long-term residual collision hazard for birds was considered low.

Recommendation: Grant a right-of-way to Arizona Public Service Company (APS) for construction, operation, and maintenance of a 500 kilovolt (kV) transmission line. The transmission line would originate from the Palo Verde Hub (PV Hub) at either an open transmission interconnection position in the Arlington Energy Facility, the Hassayampa Switchyard, or the Redhawk Power Plant. The transmission line would be constructed primarily with lattice tower structures paralleling the existing Southwest Power Link 500 kV Transmission line (SWPL) and connect into the North Gila Substation in Yuma, Arizona. The proposed right-of-way would be 200 feet wide, approximately 110 to 130 miles in length, of which approximately 55 miles would be located on Bureau of Land Management (BLM) administered lands. APS would implement the recommended Standard Operating Procedures and Mitigation Measures listed in Attachment A. The transmission line would be owned by APS and operated by APS and other project proponents.

Stipulations: APS is to implement the recommended Standard Operating Procedures and Mitigation Measures listed in Attachment A. Compliance with stipulations and mitigation measures will be monitored during project implementation. BLM issuance of the right-of-way grant is conditional upon APS obtaining all other federal, state, and local permits required to construct and operate the transmission line. APS is required to obtain the required Certificate of Environmental Compatibility from the Arizona Corporation Commission. The BLM has fulfilled requirements in accordance with the Section 106 process regarding cultural resource issues and requirements regarding biological resource issues.

Rationale: The EA for the Proposed Action has been prepared in accordance with National Environmental Policy Act (NEPA) requirements, including the public involvement procedures prescribed by 40 CFR §1506.6. The project design and mitigation measures proposed in the EA are integral to the Proposed Action and would reduce short-term and long-term environmental impacts to a level of insignificance. Issuance of right-of-way grant AZA-33305 to APS for the construction, operation, and maintenance of an electric transmission line is consistent with the Lower Gila South Resource Management Plan (BLM, 1988) which defines land uses along the San Diego Gas and Electric utility corridor and the Yuma District Resource Management Plan (BLM, 1986 and 1987) which defines uses along the interconnection utility corridor.

Recommendation of Finding: Project Manager — Date 11/6/07

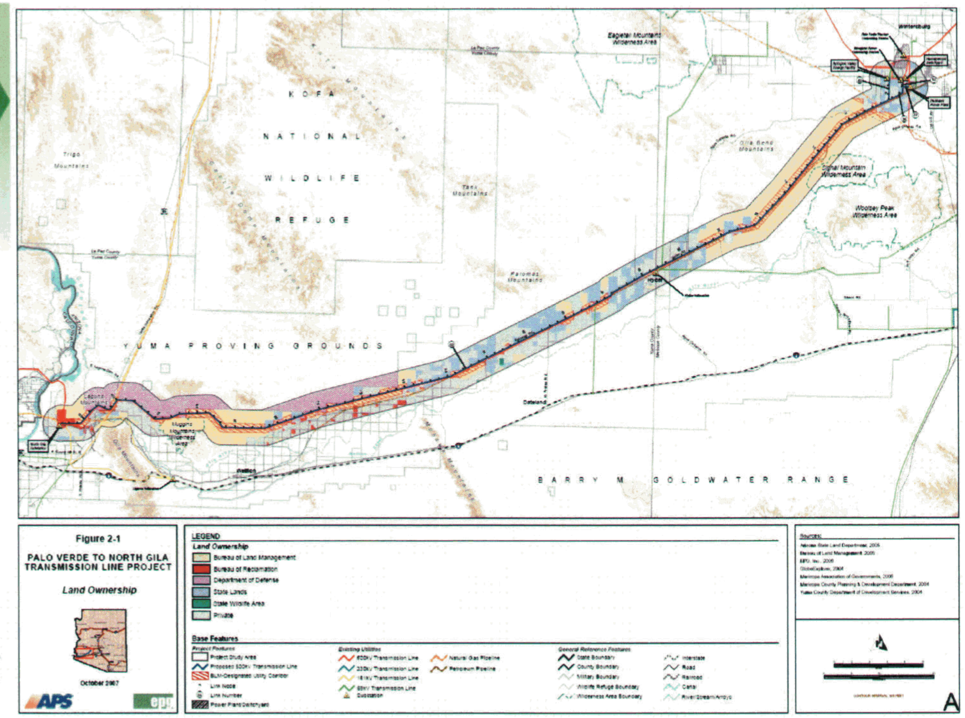
I concur:

Approval of Finding: Field Manager — Date 11/06/07 **E**

Environmental Studies

- Land use and recreation
- Biological resources
- Cultural resources
- Visual resources

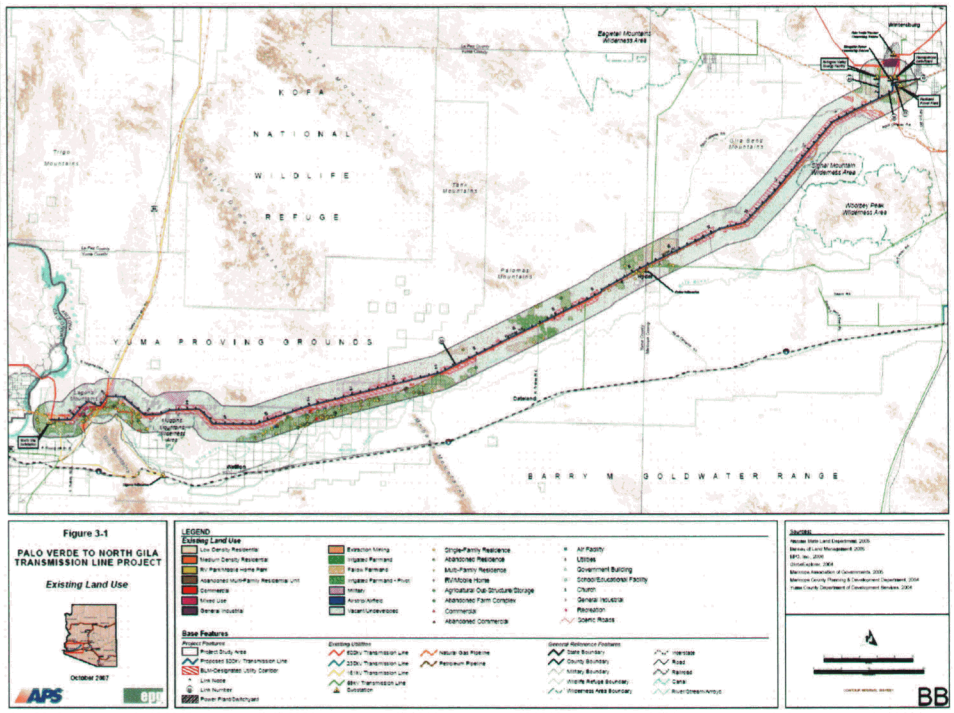
44



Land Use Summary

Existing Land Use

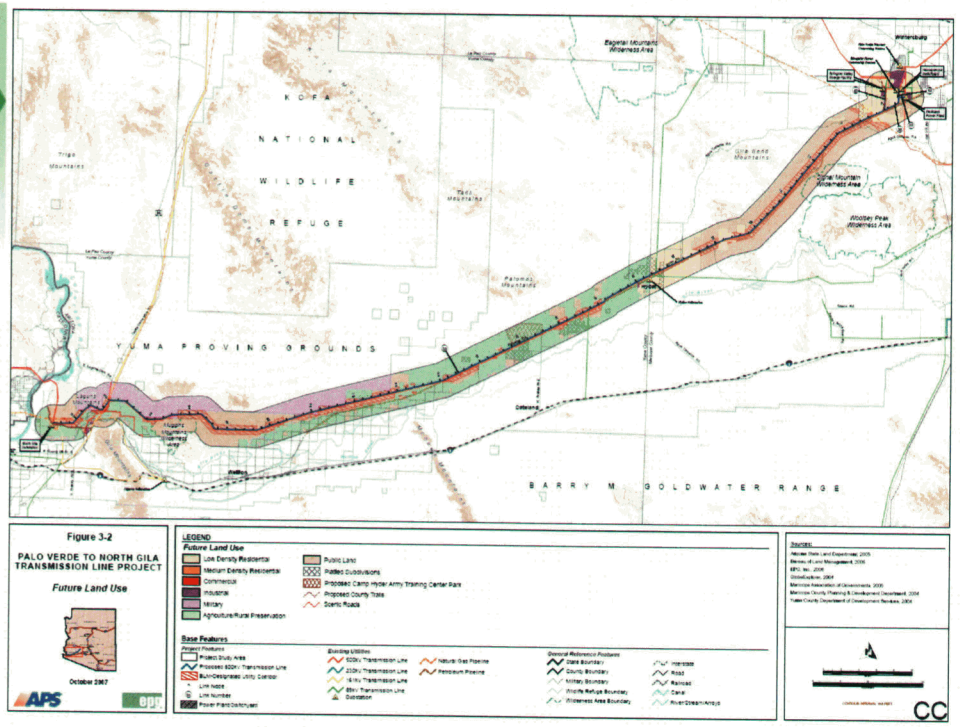
- Conforms with BLM resource management plans
- Primarily located on public land
- Parallels existing linear features for entire length, on north side
- Sparsely populated, primarily undeveloped study area
- Minimal land-use impact
  - 10 residences within ¼ mile, all on south side of existing 500kV transmission line
  - Crosses no more than 2 miles of in-production farmland
  - No impacts to military operations



Land Use Summary

Planned Land Use

- No current master planned developments in the study area
- Minimal impact on planned land uses based on coordination with local land-owners and jurisdictions within the study area



Biological Resources Summary

- Conducted field review and contacted BLM, Arizona Game and Fish Department (AZGFD), and the United States Fish and Wildlife Service (USFWS)
- No adverse effects to Threatened and Endangered species or unique habitats

Biological Resources Summary

- Mitigation
  - Project will comply with current BLM tortoise policy
  - Project will have biological monitors for Desert Tortoise, Gila Monsters, and Burrowing Owls
  - Native plant survey, restoration and reseeding
- Minimal impacts on biological resources

APS

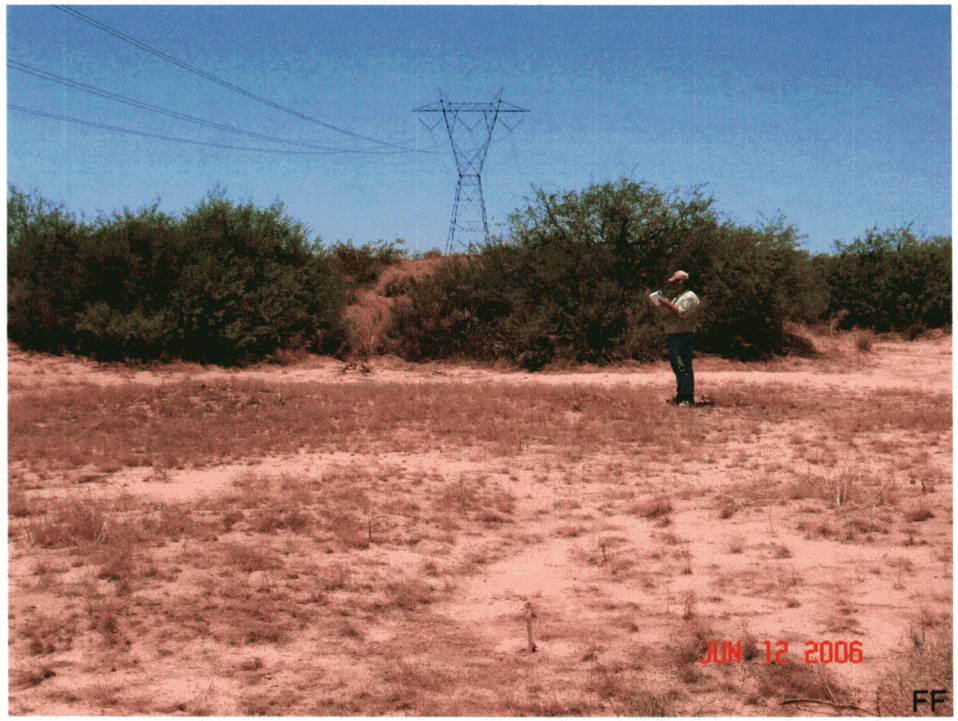
48

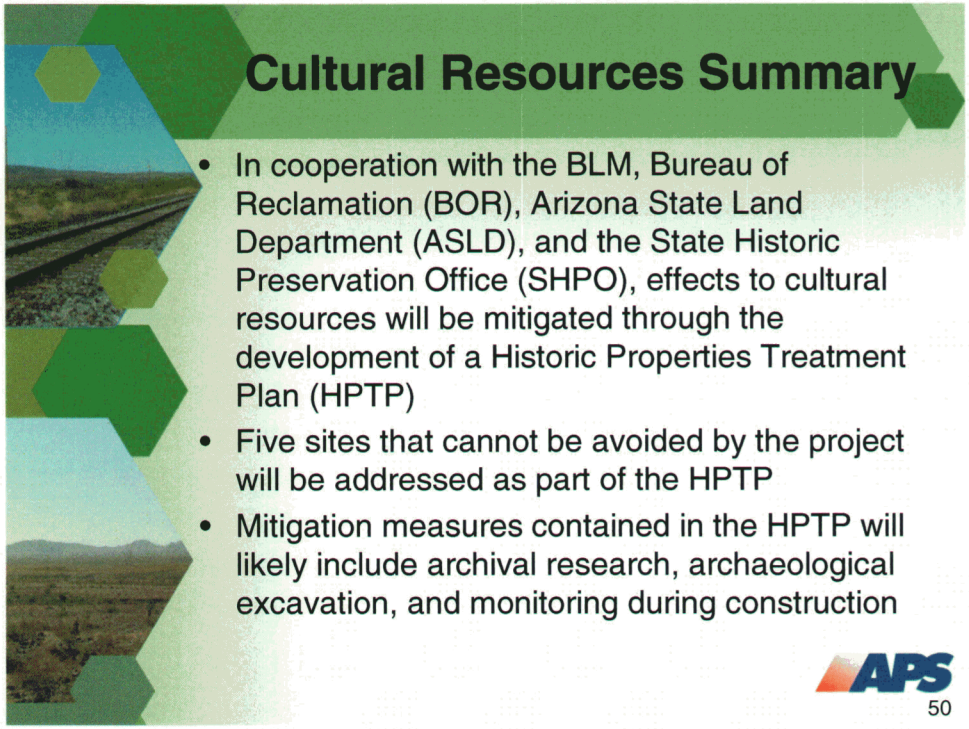
AZGFD letter will be provided when available

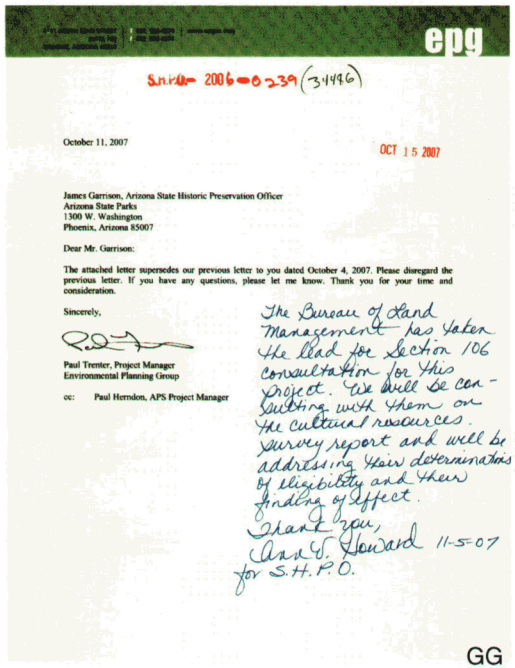
EE

Cultural Resources Summary

- A detailed cultural resource study for the project identified 21 archaeological sites that are located within the Area of Potential Effect (APE). Of these, 15 are eligible for listing on the National Register of Historic Places
- Most sites can be avoided through careful positioning of tower locations







epg

S.H.P.O. 2006-0239 (31496)

October 11, 2007

OCT 15 2007

James Garrison, Arizona State Historic Preservation Officer
Arizona State Parks
1300 W. Washington
Phoenix, Arizona 85007

Dear Mr. Garrison:

The attached letter supersedes our previous letter to you dated October 4, 2007. Please disregard the previous letter. If you have any questions, please let me know. Thank you for your time and consideration.

Sincerely,

Paul Trenter, Project Manager
Environmental Planning Group

cc: Paul Herndon, APS Project Manager

The Bureau of Land Management has taken the lead for Section 106 consultation for this project. We will be consulting with them on the cultural resources survey report and will be addressing their determinations of eligibility and their finding of effect.
Thank you,
Ann V. Howard 11-5-07
for S.H.P.O.

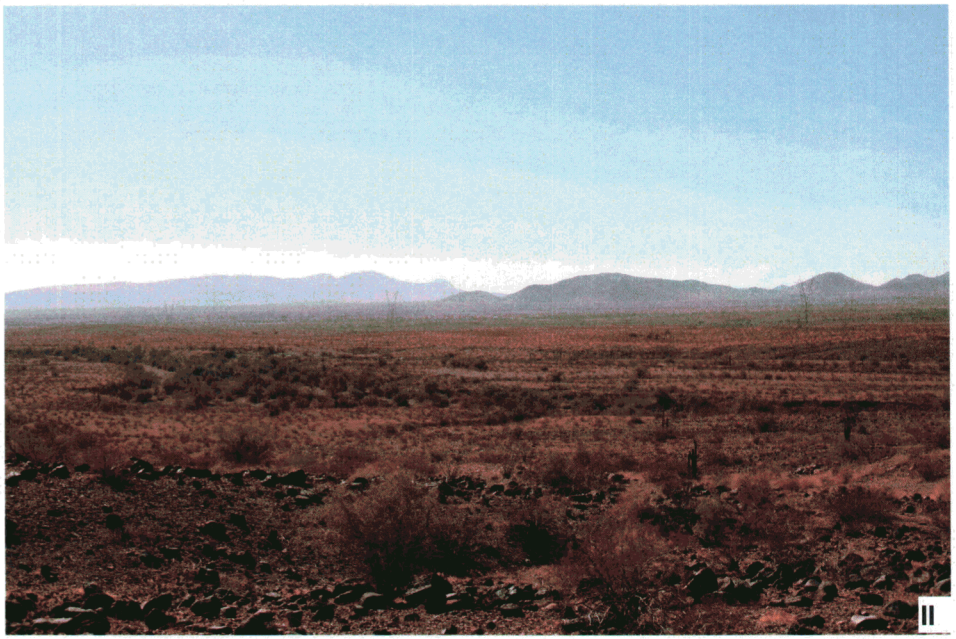
GG

Visual Resources Summary

- BLM Visual Resource Management System used as basis for analysis
- Proposed Route located within BLM-designated utility corridor
- Parallels existing 500kV transmission line
- Proposed Route primarily crosses areas of average to low scenic quality
- Key Observation Points include:
  - Dispersed Residences
  - Travel Routes (Agua Caliente Road, Dome Valley Road, U.S. 95)
  - Recreation

Visual Resources Summary

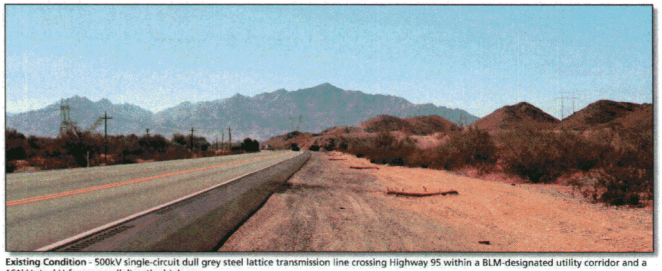
- Use of mitigation
  - Match existing structure spans
  - Match existing structure types
  - Dulled steel structures and non-specular conductors
  - Use existing access roads
- Virtual Route Tour including photo simulations depict the Proposed Route
- Minimal impacts on visual resources



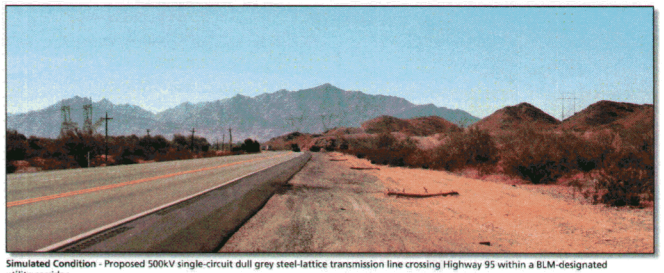
Visual Simulation Process

- Identify key observation points and obtain photography
- Measure elements in the existing landscape for scaling reference (e.g., transmission structures, terrain, and buildings)
- Create 3-dimensional computer generated models based upon engineering/design drawings (e.g., transmission line, substations, and terrain)
- Integrate computer generated models with photography
- Render models (e.g., add textures and colors) and prepare final simulation

APS



Existing Condition - 500kV single-circuit dull grey steel lattice transmission line crossing Highway 95 within a BLM-designated utility corridor and a 161kV steel H-frame paralleling the highway.



Simulated Condition - Proposed 500kV single-circuit dull grey steel-lattice transmission line crossing Highway 95 within a BLM-designated utility corridor.

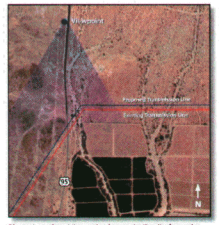
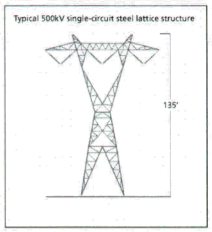


Photo Location: Viewpoint located 1/2 mile from the crossing of U.S. 95, adjacent to the southbound lane of the highway looking south.

Photographic Details:
Date: March 15, 2007
Time: 10:38am
Focal Length: 50mm
Atmospheric Conditions: Clear

Typical 500kV single-circuit steel lattice structure



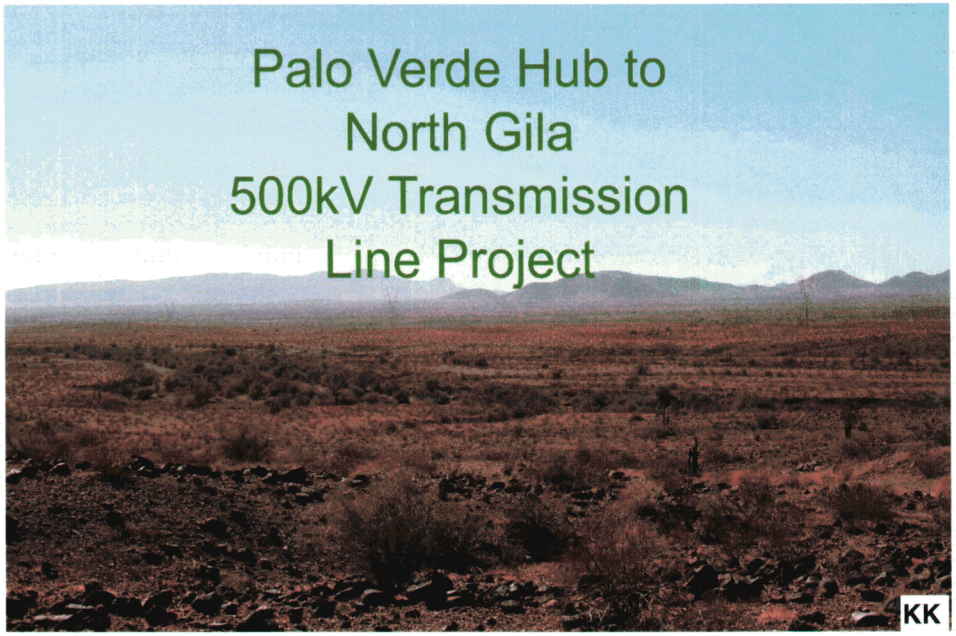
APS EPE Exhibit G-13

JJ

Virtual Route Tour Process

- Acquire and process aerial imagery and integrate into Google Earth
- Integrate GIS project data into Google Earth
- Verify location of project facilities and points of interest
- Add reference data (e.g., ownership and existing utilities) and formal reference data (e.g., symbols, line weights, colors, and text)
- Render video clips (e.g., flyover, static photos, and visual simulations)
- Produce final Virtual Route tour

APS



Proposed Route is Environmentally Compatible

- Factor 1: Existing plans of the state, local government and private entities for other developments at or in the vicinity of the proposed site.
  - *The Proposed Project does not conflict with relevant federal, state, and local government plans that fall within the study area, and no current developments are planned within the study area*

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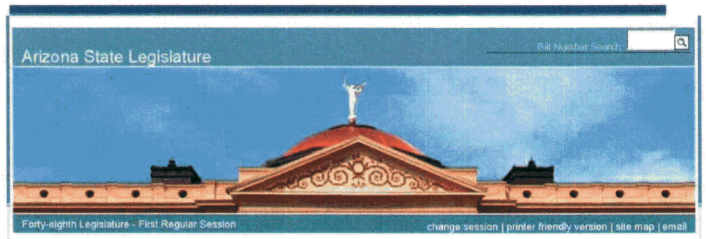

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40-360.06. Factors to be considered in issuing a certificate of environmental compatibility

A. The committee may approve or deny an application and may impose reasonable conditions upon the issuance of a certificate of environmental compatibility and in so doing shall consider the following factors as a basis for its action with respect to the suitability of either plant or transmission line siting plans:

1. Existing plans of the state, local government and private entities for other developments at or in the vicinity of the proposed site.
2. Fish, wildlife and plant life and associated forms of life upon which they are dependent.
3. Noise emission levels and interference with communication signals.
4. The proposed availability of the site to the public for recreational purposes, consistent with safety considerations and regulations.
5. Existing scenic areas, historic sites and structures or archaeological sites at or in the vicinity of the proposed site.
6. The total environment of the area.
7. The technical practicability of achieving a proposed objective and the previous experience with equipment and methods available for achieving a proposed objective.
8. The estimated cost of the facilities and site as proposed by the applicant and the estimated cost of the facilities and site as recommended by the committee, recognizing that any significant increase in costs represents a potential increase in the cost of electric energy to the customers or the applicant.
9. Any additional factors which require consideration under applicable federal and state laws pertaining to any such site.

B. The committee shall give special consideration to the protection of areas unique because of biological wealth or because they are habitats for rare and endangered species.

C. Notwithstanding any other provision of this article, the committee shall require in all certificates for facilities that the applicant comply with all applicable nuclear radiation standards and air and water pollution control standards and regulations, but shall not require compliance with performance standards other than those established by the agency having primary jurisdiction over a particular pollution source.

LL

Proposed Route is Environmentally Compatible

- Factor 2: Fish, wildlife and plant life and associated forms of life upon which they are dependent. Note: The committee shall give special consideration to the protection of areas unique because of biological wealth or because they are habitats for rare and endangered species.
  - *The Proposed Project does not cross Threatened and Endangered species habitat. Minimal impacts to vegetation and special status species are anticipated because the Proposed Project will use existing access for the majority of the route*

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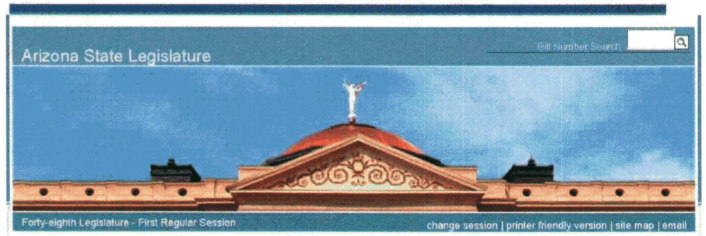

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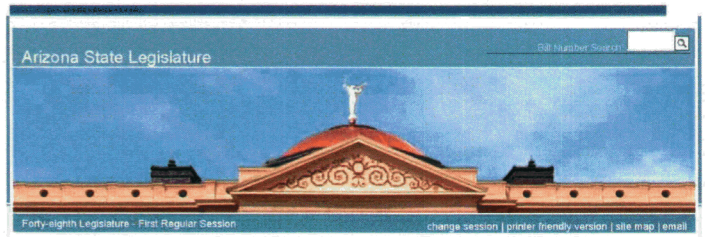
LL

Proposed Route is Environmentally Compatible

- Factor 4: The proposed availability of the site to the public for recreational purposes, consistent with safety considerations and regulations.
  - *The Proposed Project will not limit use of available recreation opportunities in the study area. The Maricopa County Regional Trail system often incorporates transmission line corridors as opportunities for new trails*



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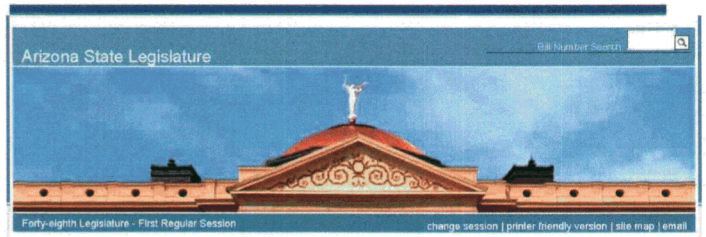
LL

Proposed Route is Environmentally Compatible

- Factor 5: Existing scenic areas, historic sites and structures or archaeological sites at or in the vicinity of the proposed site.
  - *The Proposed Project primarily crosses areas of average to low scenic quality. Isolated residences within ½ mile of the Proposed Project are located south of the existing 500kV transmission line, minimizing impacts to viewers. Effects to cultural sites crossed by the Proposed Project will be mitigated according to the HPTP*

APS



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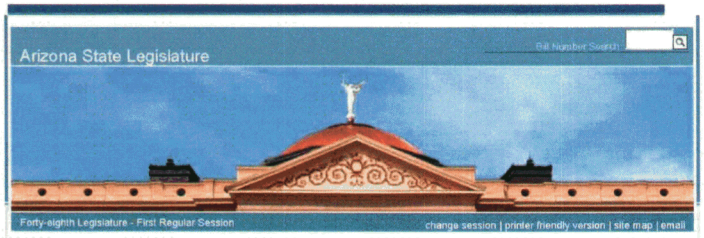
LL

Proposed Route is Environmentally Compatible

- Factor 6: The total environment of the area.
  - *The Proposed Project is located on public land for over 80% of the route, including 50% that is located within a BLM-designated utility corridor on BLM land. The Proposed Project parallels an existing 500kV transmission line and associated access road throughout the entire route, minimizing impacts to environmental resources*

APS



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9. Any additional factors which require consideration under applicable federal and state laws pertaining to any such site.

B. The committee shall give special consideration to the protection of areas unique because of biological wealth or because they are habitats for rare and endangered species.

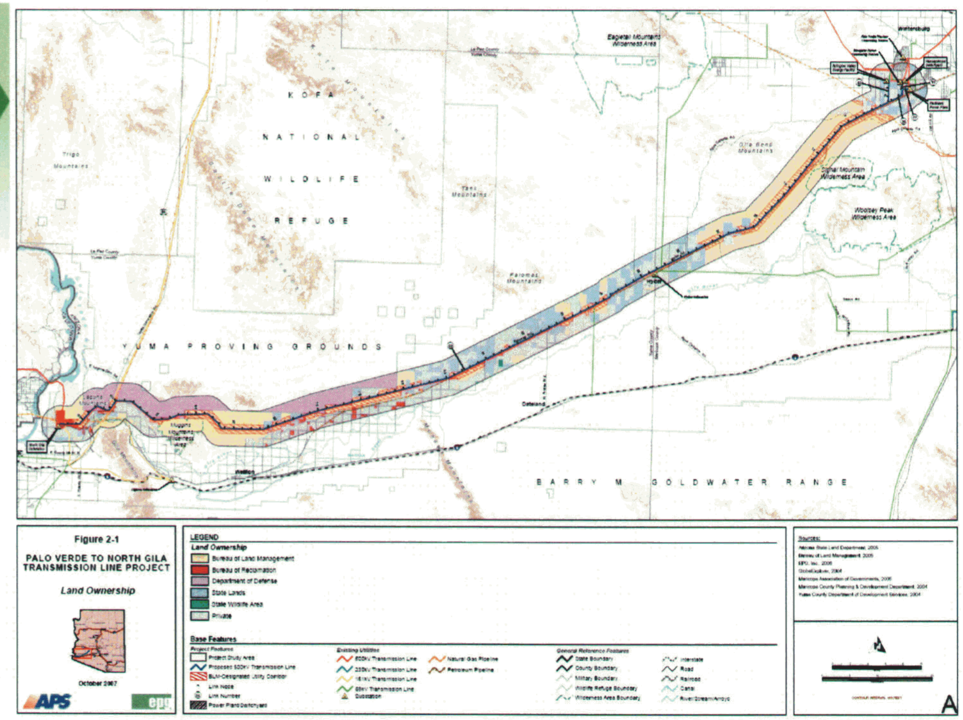
C. Notwithstanding any other provision of this article, the committee shall require in all certificates for facilities that the applicant comply with all applicable nuclear radiation standards and air and water pollution control standards and regulations, but shall not require compliance with performance standards other than those established by the agency having primary jurisdiction over a particular pollution source.

LL

Paul Trenter

Environmental Planning Group (EPG)

Project Manager



BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY, IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES § 40-360, *et seq.*, FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING THE PALO VERDE HUB TO NORTH GILA 500kV TRANSMISSION LINE PROJECT, WHICH INCLUDES A 500kV TRANSMISSION LINE AND ASSOCIATED FACILITIES AND INTER-CONNECTIONS ORIGINATING FROM EITHER THE ARLINGTON VALLEY ENERGY FACILITY, SECTION 17, TOWNSHIP 1 SOUTH, RANGE 6 WEST, G&SRB&M, THE HASSAYAMPA SWITCHYARD, SECTION 15, TOWNSHIP 1 SOUTH, RANGE 6 WEST, G&SRB&M, OR THE REDHAWK POWER PLANT, SECTION 23, TOWNSHIP 1 SOUTH, RANGE 6 WEST, G&SRB&M, EACH LOCATED SOUTH OF INTERSTATE 10 NEAR WINTERSBURG ROAD IN AN UNINCORPORATED AREA OF MARICOPA COUNTY, ARIZONA, TO THE NORTH GILA SUBSTATION, FIVE MILES NORTHEAST OF THE CITY OF YUMA, YUMA COUNTY, ARIZONA, AT SECTION 11, TOWNSHIP 8 SOUTH, RANGE 22 WEST, G&SRB&M	Docket No. L-00000D-07-0566-0135 Case No. 135

CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

Pursuant to notice given as provided by law, the Arizona Power Plant and Transmission Line Siting Committee (the "Committee") held public hearings on November 19 and 20, 2007, all in conformance with the requirements of Arizona Revised Statutes ("A.R.S.") § 40-360, *et seq.*, for the purpose of receiving evidence and

deliberating on the Application of Arizona Public Service Company ("Applicant") for a Certificate of Environmental Compatibility ("Certificate") in the above-captioned case (the "Project").

The following members and designees of members of the Committee were present at one or more of the hearings for the evidentiary presentations and/or for the deliberations:

Laurie Woodall	Chairman, Designee for Arizona Attorney General, Terry Goddard
David L. Eberhart, P.E.	Designee for Chairman, Arizona Corporation Commission
Jack Haenichen	Designee for Director, Energy Department, Arizona Department of Commerce
Paul Rasmussen	Designee for Director, Arizona Department of Environmental Quality
Gregg Houtz	Designee for Director, Arizona Department of Water Resources
Jeff McGuire	Appointed Member
Michael Palmer	Appointed Member
Joy Rich	Appointed Member
A. Wayne Smith	Appointed Member
Michael Whalen	Appointed Member
Barry Wong	Appointed Member

The Applicant was represented by Thomas H. Campbell and Albert H. Acken of Lewis and Roca LLP. The following parties were granted intervention pursuant to A.R.S. § 40-360.05: Commission Staff, represented by Keith Layton and Charles Hains; _____ (add interveners), represented by _____.

At the conclusion of the hearings, the Committee, having received the Application, the appearances of the parties, the evidence, testimony and exhibits presented at the hearings, and being advised of the legal requirements of A.R.S. §§ 40-360 to 40-360.13 upon motion duly made and seconded, voted to grant the Applicant this Certificate of Environmental Compatibility (Case No. 135) for the Project.

The Project consists of approximately 110 miles of 500kV transmission line and required switchyard facilities and modifications. The Project Route (depicted on **Exhibit A** attached hereto) originates at one of the following: the Arlington Valley Energy Facility (Line Siting Case No. 98) located in Section 17, Township 1 South, Range 6 West, the Hassayampa Switchyard (Line Siting Case No. 110) located in Section 15, Township 1 South, Range 6 West, or the Redhawk Power Plant (Line Siting Case No. 95) located in Section 23, Township 1 South, Range 6 West.

If the Project originates at the Arlington Valley Energy Facility, the Project will have a 2,000-foot corridor (shown as Link 40 on **Exhibit A**) 1,000 feet on either side of a centerline, which proceeds east from the Arlington Valley Energy Facility along the southern edge of the north half of the northeast quarter of Section 17, and turns south along the eastern edge of Sections 17, 20, and 29, Township 1 South, Range 6 West G&SRB&M until reaching a common point for all route options, located at the eastern edge of Section 29, Township 1 South, Range 6 West G&SRB&M, 130 feet north of the Southwest Power Link ("SWPL") 500kV transmission line (Line Siting Case No. 52).

If the Project originates at the Hassayampa Switchyard, the Project will have a 2,000-foot corridor (Links 10 and 30) 1,000 feet on either side of the SWPL 500kV transmission line, centerline through Sections 15, 22, 27, and 28, Township 1 South, Range 6 West G&SRB&M, proceeding south to the common point described above.

If the Project originates at the Redhawk Power Plant, the Project will have a 2,000-foot corridor (Link 20) 1,000 feet on either side of the centerline, which proceeds west

from the Redhawk Power Plant along the northern section line of Sections 23 and 22, Township 1 South, Range 6 West G&SRB&M, to the beginning of Link 30, located at the midsection line of Section 22, Township 1 South, Range 6 West G&SRB&M, proceeding south to the common point described above.

All three interconnection options proceed to the beginning of Link 50, described as the common point above. For Link 50, the Project has a 2,000-foot corridor, which begins at the centerline of the existing SWPL 500kV transmission line and extends 2,000 feet north. From this location, the route proceeds generally southwest parallel to the SWPL 500kV transmission line. Link 50 terminates at the existing North Gila Substation located 5 miles northeast of the City of Yuma, in Section 11, Township 8 South, Range 22 West G&SRB&M. Conceptual models of tower types are depicted in Exhibts G-1 through G-8 of the application, attached hereto as **Exhibit B**.

This Certificate is granted upon the following conditions:

1. The Applicant shall obtain all required approvals and permits necessary to construct the Project.
2. The Applicant shall comply with all existing applicable ordinances, master plans and regulations of the State of Arizona, the County of Maricopa, the County of Yuma, the United States, and any other governmental entities having jurisdiction.
3. This authorization to commence construction of the Project shall expire ten years from the date the Certificate is approved by the Arizona Corporation Commission (the "Commission"); provided, however, that prior to such expiration the Applicatant or its assignees may request that the Commission extend this time limitation.
4. The Applicant shall make every reasonable effort to identify and correct, on a case-specific basis, all complaints of interference with radio or television

signals from operation of the transmission line and related facilities addressed in this Certificate. The Applicant shall maintain written records for a period of five years of all complaints of radio or television interference attributable to operation, together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action of for which there was no resolution shall be noted and explained.

5. The Project shall comply with the following recommendations of the State Historic Preservation Office ("SHPO"):

    (a) [insert from SHPO letter once received]

6. Pursuant to A.R.S. § 41-844, if any archaeological, paleontological or historical site or object that is at least fifty years old is discovered on state, county or municipal land during plan-related activities, the person in charge shall promptly report the discovery to the Director of the Arizona State Museum, and in consultation with the Director, shall immediately take all reasonable steps to secure and maintain the preservation of the discovery. If human remains and/or furnerary objects are encountered on private land during the course of any ground-disturbing activities relating to the development of the subject property, Applicatant shall cease work on the affected area of the Project and notify the Director of the Arizona State Museum pursuant to A.R.S. § 41-865.

7. The Applicant shall design the transmission lines so as to mitigate impacts to raptors.

8. The Applicant shall use non-specular conductor and dulled surfaces for transmission line structures.

9. Within 120 days of the Commission decision granting this Certificate, Applicant will post signs in public rights-of-way giving notice of the Project corridor to the extent authorized by law. Within 45 days of securing easement or right-of-way for the Project, the applicant shall erect and maintain signs providing public notice that the property is the site of a future transmission line. Such signage shall be no smaller than a normal roadway sign. The Applicant shall place signs in prominent locations at reasonable intervals such that the public is notified along the full length of the transmission line until the transmission structures are constructed. The signs shall advise:

   (a) That the site has been approved for the construction of Project facilities;

   (b) The expected date of completion of the Project facilities; and

   (c) A phone number for public information regarding the Project.

   (d) The name of the Project;

   (e) The name of the Applicant; and

   (f) The Applicant's website.

   Sign placement will be reported annually in accordance with Condition 19.

10. In the event that the Project requires an extension of the term of this Certificate prior to completion of construction, Applicant shall use reasonable means to directly notify all landowners and residents within a one-half mile of the Project corridor for which the extension is sought. Such landowners and residents shall be notified of the time and place of the proceeding in which the Commission shall consider such request for extension.

11. Before construction on this Project may commence, the Applicant must file a Plan of Development approved by the Bureau of Land Management ("BLM") with Docket Control with copies to the affected areas of jurisdiction. Applicant will comply with the BLM's Standard Construction and Operating Procedures and Mitigation Measures, attached hereto as **Exhibit C**.

12. Applicant shall retain a qualified biologist to monitor all ground clearing/disturbing construction activities that may affect sensitive species or habitat. The biological monitor will be responsible for ensuring proper actions are taken if a special status species is encountered. If Sonoran desert tortoises are encountered during construction, the Applicant shall follow the Arizona Game & Fish Department's ("AGFD") Guidelines for Handling Sonoran Desert Tortoises.

13. With respect to the Project, Applicant shall participate in good faith in state and regional transmission study forums to coordinate transmission expansion plans related to the Project and to resolve transmission constraints in a timely manner.

14. The Applicant shall provide copies of this Certificate to the Yuma County Planning and Zoning Commission, the Maricopa County Planning and Development Department, the Arizona State Land Department, SHPO, and AGFD.

15. Prior to the date this transmission line is put into commercial service, the Applicant shall provide homebuilders and developers within one mile of the center line of the certificate route the identity, location, and a pictorial depiction of the type of power line being constructed, accompanied by a written description, and encourage the developers and homebuilders to

include this information in the developers' and homebuilders' homeowners' disclosure statements.

16. The Applicant shall submit a self-certification letter annually, identifying progess made with respect to each condition contained in the Certificate, including which conditions have been met. Each letter shall be submitted to the Utilities Division Director on December 1 beginning in 2008. Attached to each certification letter shall be documentation explaining how compliance with each condition was achieved. Copies of each letter along with the corresponding documentation shall be submitted to the Arizona Attorney General and Department of Commerce Energy Office. The requirement for the self-certification shall expire on the date the Project is placed into operation.

THE ARIZONA POWER PLANT AND
TRANSMISSION LINE SITING COMMITTEE

_____

Laurie A. Woodall, Chairman

APS
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PALO VERDE HUB to NORTH GILA 500kV TRANSMISSION LINE PROJECT

The public is invited to participate at a public hearing before the Arizona Power Plant and Transmission Line Siting Committee

Monday, November 19, 2007, and Tuesday, November 20, 2007

Starting at 9:00 a.m.

Hampton Inn and Suites
1600 East 16th Street
Yuma, Arizona 85365

PALO VERDE HUB to NORTH GILA 500kV TRANSMISSION LINE PROJECT

November 2007 • Issue 2

Project Update

This newsletter provides you with updates on the progress of the Palo Verde Hub to North Gila 500 kilovolt (kV) Transmission Line Project. In a prior newsletter (Issue 1, dated February 2006), APS provided information on a proposed transmission line route and facilities to meet future power demands in the greater Yuma area. The newsletter also discussed the federal and state requirements to obtain approval for the project. A copy of the February 2006 newsletter can be found on the project Web site (siting.aps.com), under Current Siting Projects, Palo Verde Hub to North Gila.

Project Description

The proposed transmission line will begin at the Palo Verde Hub at either the Arlington Valley Energy Facility, the Hassayampa Switchyard or the Redhawk Power Plant and will proceed southwest for approximately 110 miles on the north side of the existing Southwest Powerlink (SWPL) 500kV transmission line. The proposed route will terminate at the North Gila Substation, five miles northeast of Yuma, Ariz.

Federal Process

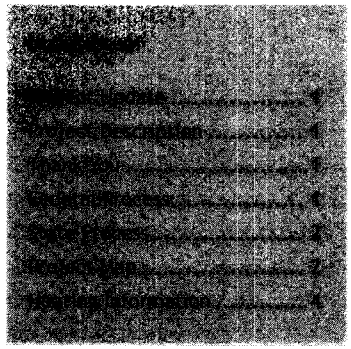
Under the direction of the Bureau of Land Management (BLM) Lower Sonoran Field Office, an Environmental Assessment (EA) for the project has been prepared. An EA report describes the project and potential impacts the project may have on the environment. The analysis was required because the majority of the proposed transmission line will be located on federal lands within a designated utility corridor. APS retained an environmental consulting firm, the Environmental Planning Group (EPG), based in Phoenix, to conduct the required environmental analysis of the project.

In preparing the EA, EPG reviewed alternatives studied during previous siting studies in this area, including the Environmental Impact Statement (EIS) prepared for the SWPL 500kV transmission

The APS Siting Team would like to thank members of the public for their participation in this project. We appreciate the time taken by those who attended the open houses held at the Dateland School and Arizona Western College on March 1 and 2, 2006. We value the input we received at the open houses, by phone, project Web site, e-mail and mail. All comments have been documented, reviewed and considered during the development of this project.

We look forward to the completion of this project to ensure our continued ability to provide affordable, safe and reliable electric service.

-Paul Herndon, APS Project Manager



APS

For more information, please visit the project Web site at siting.aps.com

line. Approximately 550 miles of alternative corridors were considered. Based on secondary data collected as well as a recommendation from the BLM, the proposed route was selected. A detailed inventory, including site visits, was conducted for the study area, which was defined as a four-mile-wide corridor (two miles on each side of the proposed route). The inventory included land-use, cultural, biological, earth and water and visual resources. Based on the results of the inventory, impacts from the proposed project were assessed and appropriate mitigation was planned. Impacts from the proposed project are minimized because the proposed route is parallel to the existing SWPL 500kV transmission line and railroad. This route is also within a BLM-designated utility corridor on BLM land where APS will be able to use existing access roads for construction along nearly the entire route.

The proposed route crosses public land for 88 miles, or 80 percent, of the 110-mile route.

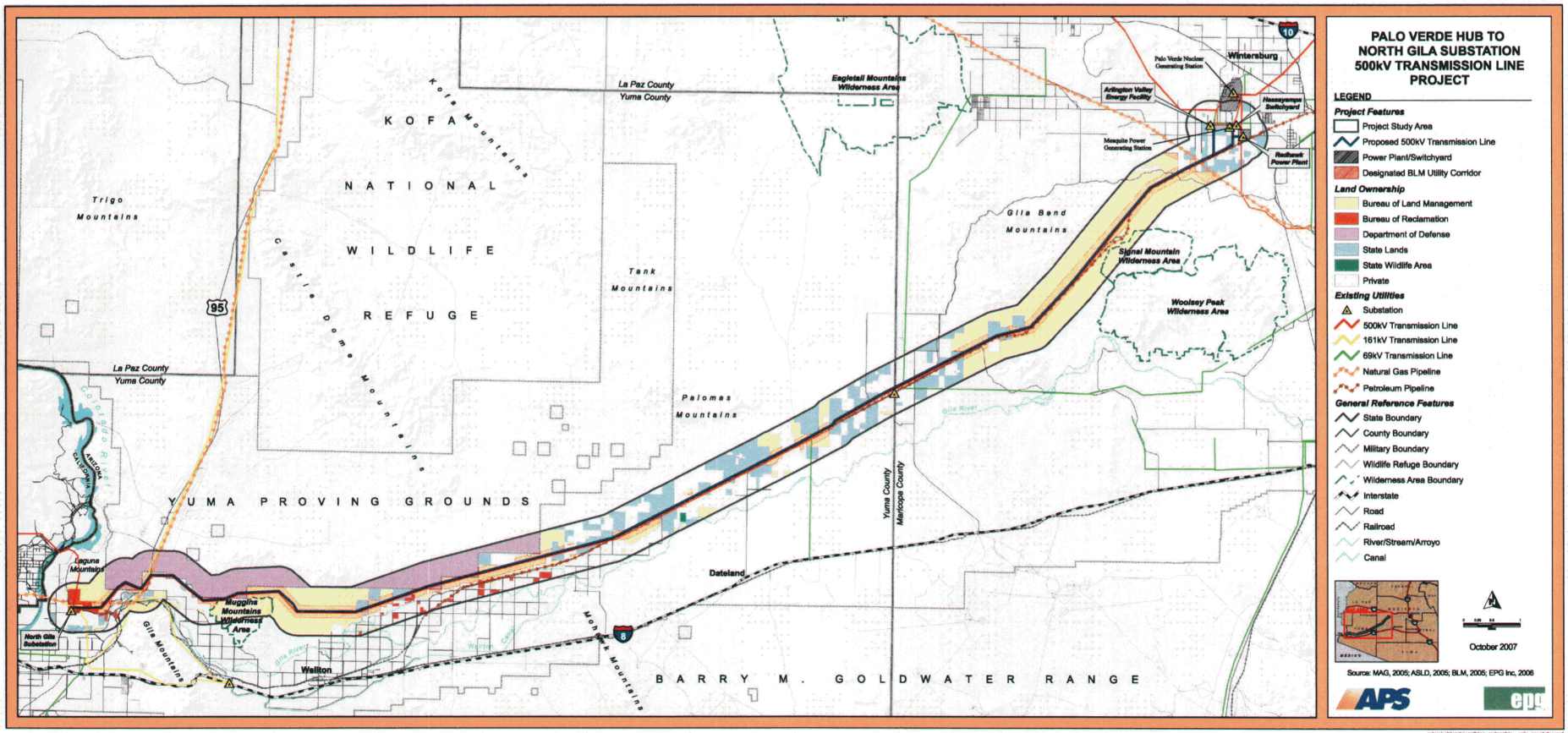
Using the information identified by the impact assessment, the EA was prepared and reviewed by the BLM, along with a separate detailed cultural resources report. The BLM will prepare a Decision Record to announce their approval of the project as proposed with the stated mitigation. The BLM must issue a Decision Record for the project to proceed.

State Process

In addition to the federal process, the State of Arizona also must approve the project before it can be constructed. To meet state permitting requirements, APS filed an application for a Certificate of Environmental Compatibility (CEC) for the project on October 3rd. The CEC is a document prepared to demonstrate that the project is environmentally compatible. It also contains information on the project need and cost and summarizes the public involvement activity for the project. APS has identified three different interconnection locations, as listed in the Project Description, in the CEC application in order to provide the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) with additional options for the interconnection of the proposed transmission line route. The three interconnection options all come together and follow a common route to the North Gila Substation. All interconnection options have been evaluated as part of the federal process.

The Siting Committee will hold public hearings on the project. The Siting Committee will vote to approve or deny the CEC and will forward its decision as a recommendation to the Arizona Corporation Commission (ACC). The Siting Committee will hold public hearings on November 19th and 20th, starting at 9a.m. at the Hampton Inn and Suites in Yuma, to consider the CEC application. The date and location of the public hearings have been posted in local newspapers, on signs along the route and on the project web site.

For general information on line siting in Arizona, view the Siting Committee's Web site at: http://www.cc.state.az.us/utility/electric/linesiting-faqs.htm.



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PROYECTO DE TRANSMISIÓN DE 500 KILOVOLTIOS (KV) DE LA ESTACIÓN PALO VERDE A NORTH GILA

Se invita a toda la comunidad a participar en la audiencia pública ante el Comité de Localización de Líneas de Transmisión y la Planta de Energía de Arizona

19 y 20 de Noviembre, 2007

Comienza en 9 mañanas

Hampton Inn and Suites

1600 East 16th Street

Yuma, Arizona 85365

Si no está en condiciones de asistir a una de nuestras audiencias públicas, por favor visite nuestro sitio electrónico, siting.aps.com o llame al (888) 206-6166 para más información.

PROYECTO DE TRANSMISIÓN DE 500 KILOVOLTIOS (KV) DE LA ESTACIÓN PALO VERDE A NORTH GILA

Noviembre 2007 • Edición 2

Lo más nuevo sobre el proyecto

Este boletín informativo tiene la intención de ponerlo al tanto sobre el progreso del Proyecto de Transmisión de 500 kilovoltios (kV) de la Estación Palo Verde a North Gila. En un boletín informativo anterior (Edición 1, con fecha de febrero de 2006), APS dio a conocer información sobre la ruta de la línea y las instalaciones propuestas para cumplir con la futura demanda de electricidad en el área metropolitana de Yuma. En el boletín informativo también se habló de los requisitos estatales y federales necesarios para obtener la autorización del proyecto. Puede encontrar una copia del boletín informativo de febrero de 2006 en el sitio electrónico del proyecto (siting.aps.com), bajo Proyectos actuales, Estación Palo Verde a North Gila.

Descripción del proyecto

La línea de transmisión propuesta se iniciará en la Estación Palo Verde, ya sea en la instalación de energía de Arlington Valley, en el patio de distribución Hassayampa o en la planta de energía Redhawk; de ahí correrá hacia el suroeste aproximadamente 110 millas, al norte de la línea de transmisión existente Southwest Powerlink (SWPL) de 500kV. La ruta propuesta terminará en la Subestación North Gila, a cinco millas al noreste de Yuma, Arizona.

Proceso federal

Bajo la dirección de las oficinas: Bureau of Land Management (BLM) y Lower Sonoran Field Office, se ha preparado una Valoración Ambiental (EA). El reporte ambiental describe el proyecto y sus posibles impactos en el medio ambiente. El análisis fue necesario debido a que la mayor parte de la línea de transmisión propuesta atravesará terrenos federales, localizados dentro de un corredor de servicios designado. APS contrató a una firma de consultoría en medio ambiente, Environmental Planning Group (EPG), con base en Phoenix, para conducir el requerido análisis ambiental del proyecto.

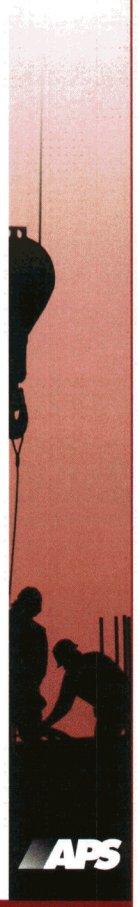
APS desea agradecer a los miembros del público su participación en este proyecto. Apreciamos el tiempo que han dedicado para asistir a las reuniones comunitarias realizadas en la escuela Dateland y en el Colegio Arizona Western, los días 1 y 2 de marzo de 2006. Valoramos las opiniones recibidas en las reuniones comunitarias, por teléfono, en la página de Internet del proyecto, por correo electrónico y por correo. Todos los comentarios se documentan, revisan y consideran durante el desarrollo de este proyecto.

Esperamos la conclusión de este proyecto para garantizar nuestra continua capacidad de ofrecer un servicio eléctrico accesible, seguro y confiable.

-Paul Herndon,
Gerente del Proyecto de APS

En este número:

Lo más nuevo 1
Descripción del proyecto 1
Gracias..... 1
Proceso federal..... 1
Proceso estatal 2
Mapa del proyecto 2
Información sobre audiencias 4



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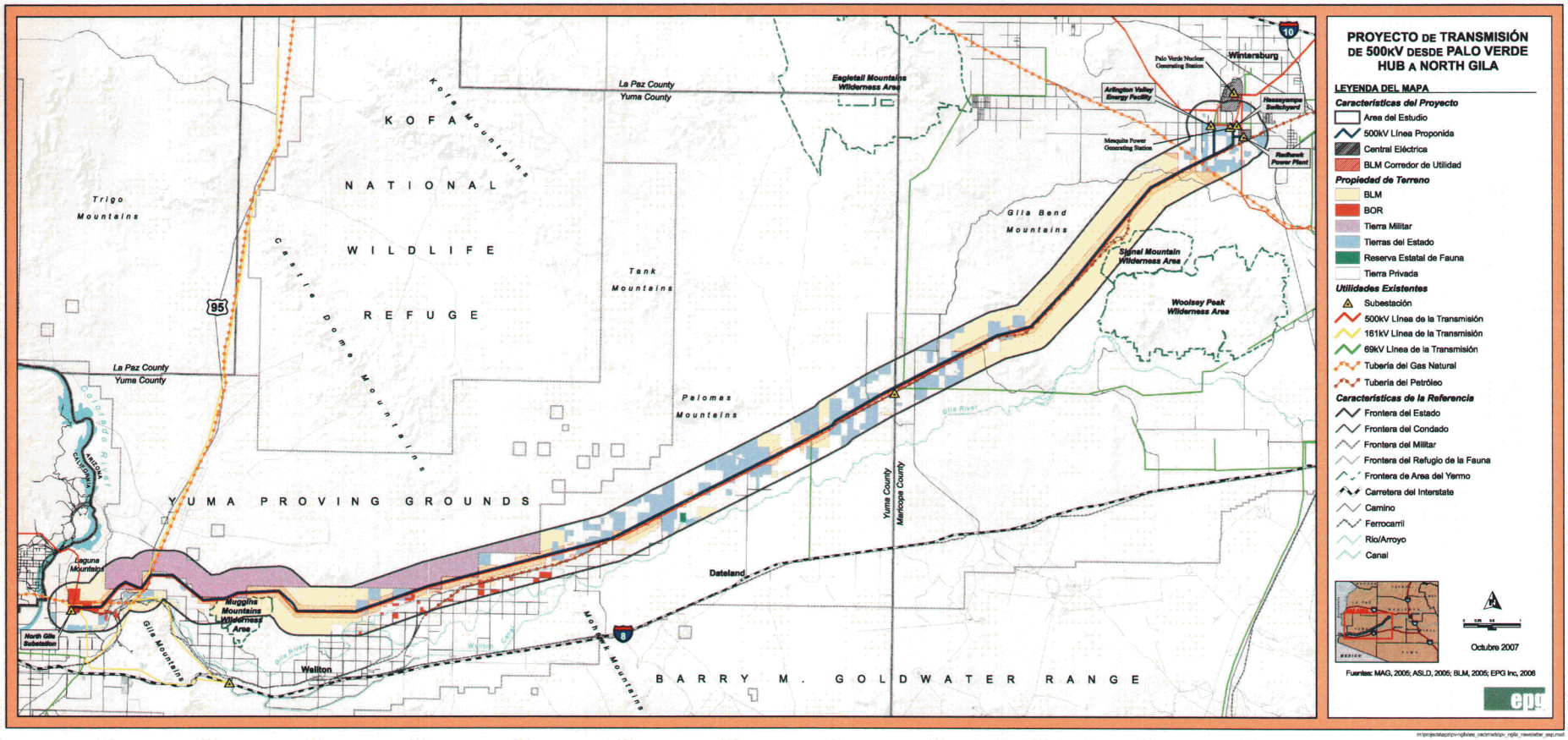
En preparación para la Valoración Ambiental (EA), la firma EPG revisó alternativas estudiadas durante estudios de localización previos en esta área, incluyendo la Declaración de Impacto Ambiental (EIS), preparada para la línea de transmisión SWPL de 500kV. Se tomaron en consideración aproximadamente 550 millas de corredores alternativos. Con base en la información secundaria recopilada, lo mismo que la recomendación de la oficina BLM, la ruta propuesta fue seleccionada como una alternativa final. Para el área de estudio se condujo un inventario en detalle, que incluyó visitas al sitio. Esta área se definió como un corredor de cuatro millas de ancho (dos millas de cada lado de la ruta propuesta). El inventario incluyó usos de la tierra, recursos culturales, biológicos, visuales, de la tierra y del agua. Segun los resultados del inventario, se valoró el impacto del proyecto propuesto y se planificaron métodos apropiados de mitigación. El impacto del proyecto propuesto se ha minimizado debido a que la ruta propuesta es paralela a la existente ruta de ferrocarril y línea de transmisión SWPL de 500kV. Esta ruta también se encuentra dentro del corredor de servicios designado por la oficina BLM en terrenos de BLM en donde APS estará en condiciones de utilizar los caminos de acceso existentes para construcción a lo largo de casi toda la ruta. La ruta propuesta cruza 88 millas de terrenos públicos, es decir, 80 por ciento de la ruta de 110 millas propuesta.

Utilizando la información identificada por la valoración de impacto ambiental, la oficina BLM preparó y revisó la EA, junto con un reporte de recursos culturales en detalle por separado. La BLM preparará un Registro sobre la Decisión para anunciar la aprobación del proyecto, tal y como se propuso en la declaración de mitigación. La oficina BLM debe emitir un Registro sobre la Decisión para que el proyecto pueda seguir adelante.

Proceso estatal

Además del proceso federal, el estado de Arizona también debe aprobar el proyecto antes de que se construya. Para cumplir con los permisos estatales requeridos, APS preparó una solicitud para obtener un Certificado de Compatibilidad Ambiental (CEC) para el proyecto del octubre el 3. El CEC es un documento que se prepara para demostrar que el proyecto es compatible con el medio ambiente. También incluye información sobre el propósito y necesidad del proyecto propuesto, descripción y costos y un resumen las actividades de participación pública relacionadas con este proyecto. APS ha identificado tres diferentes ubicaciones de interconexión, tal y como se mencionan en la descripción del proyecto, en la solicitud del CEC, para poder dar al Comité de Localización de líneas de Transmisión y Plantas de Energía de Arizona, opciones adicionales de interconexión de la ruta de la línea de transmisión propuesta. Las tres opciones de interconexión vienen juntas y siguen una ruta común a la Subestación North Gila. Como parte del proceso federal, se han evaluado todas las opciones de interconexión.

El Comité de Localización sostendrá audiencias públicas sobre el proyecto. Los miembros del comité votarán para aprobar o negar el CEC y enviarán su decisión, a manera de recomendación, a la Comisión de Corporaciones de Arizona (ACC). El Comité de Localización llevará a cabo audiencias públicas a partir de noviembre el 19 y 20, comenzando en 9 mañanas en las Hampton Inn and Suites en Yuma para considerar la solicitud del CEC. Las fechas y lugares de las audiencias públicas han sido anunciadas en periódicos locales, letreros a lo largo de la ruta y en el sitio electrónico del proyecto.



In September 2007, letters were sent to the individuals listed in Table S-1 to provide project information and to request additional information on planned developments as necessary. A sample letter is included in this section as well as all project correspondence received from Table S-1 letter recipients throughout the duration of the project.

TABLE S-1
LETTER RECIPIENTS

Contact Name and Title	Jurisdiction/Agency
Kevin Harper Field Office Manager	Bureau of Land Management, Lower Sonoran Field Office
Becky Heick Field Manager	Bureau of Land Management, Yuma Field Office
Ron Moulton Restructuring and Transmission Planning Manager	Western Area Power Administration
Jim Adams Rights-of-Way Director	Arizona State Lands Department
Charlene FitzGerald Planning Manager	Arizona Department of Transportation
Matt Holm Principle Planner	Maricopa County Planning Department
Eric Anderson	Maricopa Association of Governments
Michael W. Sabatini Planning Division Manager	Maricopa County Department of Transportation
William C. Scalzo Director	Maricopa County Parks and Recreation
Timothy Phillips General Manager	Maricopa County Flood Control District
Monty Stansbury Planning Director	Yuma County Planning Department
F.M. "Mack" Luckie Executive Director	Yuma Metropolitan Planning Organization
William Beck Public Works Director	Yuma County Public Works
Don Pope Manager	Yuma County Waters Users Association
James Rhodes District Manager	Yuma Mesa Irrigation District
Charles Slocum General Manager	Wellton-Mohawk Irrigation and Drainage District
Wade Noble Attorney	North Gila Valley Irrigation and Drainage District
Lorne Froats President	Hyder Valley Irrigation and Water Delivery District
Rex Green General Manager	Yuma Irrigation District

TABLE S-1 LETTER RECIPIENTS	
Gary L. Rinehart Town Manager	Town of Wellton
Chris Peterson Director, Government Affairs	Union Pacific Railroad
Whitewing Ranch	Whitewing Ranch
Jack Mccaffery	Kinder Morgan

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F 602 956-4374
www.epgaz.com

September 13, 2007

Kevin Harper, Field Office Manager
BLM - Phoenix District
Lower Sonoran Field Office
21605 N. 7th Avenue
Phoenix, Arizona 85027-2099

Dear Mr. Harper:

Arizona Public Service Company (APS) plans to file an Application for a Certificate of Environmental Compatibility (CEC) for the Palo Verde Hub to North Gila 500kV (kilovolt) Transmission Project with the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) in October 2007. The proposed project is needed to support the increased development and growth, occurring and anticipated, in the Yuma Region. The project will strengthen the entire Yuma area transmission system by providing an additional electrical transmission source to the region. This project primarily involves a single-circuit 500kV electric transmission line and upgrades to two existing switchyards (see attached map). The project is designed to interconnect at one of three sites at the Palo Verde Hub and proceed southwest where the project will interconnect with APS' existing North Gila Substation, northeast of Yuma, Arizona. The proposed route parallels an existing 500kV transmission line for the entire length of the project and will be located on the north side of the existing line, within a Bureau of Land Management (BLM) designated utility corridor on BLM land (see attached map). APS will request Siting Committee approval for a CEC for the route as it has been determined as being environmentally compatible and would adequately address the project need.

Arizona Administrative Code Rule R14-2-219 directs an applicant to include in its Application an Exhibit H addressing the following:

"To the extent the applicant is able to determine, state the existing plans of the State, local government and private entities for other developments at or in the vicinity of the proposed site or routes."

This letter is a request for any information or comments that your organization wishes to provide regarding development plans for inclusion in the Application. Specifically, please advise me of any existing or future plans that may have changed since the completion of our data collection efforts in November 2006.

To allow your information to be included in the Application, please forward it to me no later than Friday, September 28th, at the address above.

Thank you for your cooperation.

Sincerely,

Paul J. Trenter, Project Manager
Environmental Planning Group

cc: Paul Herndon, APS Project Manager

September 28, 2007
2471-36

DATE RECEIVED 10/9/07

Mr. Paul J. Trenter, Project Manager
Environmental Planning Group
EPG
4141 North 32nd Street, Suite 102
Phoeniz AZ 85018

RE: The Palo Verde Hub to North Gila 500kv Transmission Project

Dear Mr. Trentor:

Union Pacific Railroad Company (Railroad Company) is in receipt of your September 13, 2007 letter notifying it of Arizona Public Service Company's intent to file an application for a Certificate of Environmental Compatibility for the Palo Verde Hub to North Gila 500kv Transmission Project. Information contained in your letter is insufficient to determine the proximity of this project to Railroad Company operations or if Railroad Company property is involved. It is critical that the Railroad Company understand what the proximity is, as the size and distance of this proposed line could have very serious and far reaching affects on Railroad Company operations and the safety of any persons on its right-of-way. For that reason, the Railroad Company must express its immediate concern and advise that professional studies may be necessary to determine the compatibility of the proposed facilities with Railroad operations.

If the line is expected to cross Railroad Company right-of-way, please be advised that any crossing with utility lines must be done in conformance with Railroad Company engineering and safety requirements in accordance with Railroad Company procedures and fees. The information and application forms concerning these, and in particular forms and specifications for wire line crossings, can be found on line at Web pages beginning with http://www.uprr.com/reus/pipeline/install.shtml. Crossings meeting Railroad Company requirements are routinely approved by the Railroad Company.

If for some reason parallel occupancy of Railroad Company right-of-way is contemplated however, a much different level of scrutiny must be undertaken by the Railroad Company due to the potential the line has for creating serious safety hazards, signal interference and capacity conflicts for Railroad Company projects. If this type of use of Railroad Company rights-of-way is contemplated, it **must** be critically evaluated by the Railroad Company in accordance with the formal application procedures found beginning on Web page http://www.uprr.com/reus/encroach/procedur.shtml. Please note that Railroad approval for this type of use of its rights-of-way in the area for this project **is not likely.**

Real Estate

UNION PACIFIC RAILROAD
1400 Douglas Street, Stop 1690
Omaha, Nebraska 68179-1690
fx. (402) 501-0340

Please add me to your mailing list and call me at (402) 544-8572 if you have any questions.

Sincerely,

Greg L. Pinker
Director – Contracts

CC via e-mail: Ms. Christine Smith – Union Pacific Railroad Company, Omaha, NE
Mr. Tom Ogee - Union Pacific Railroad Company, Omaha, NE
Mr. John Hovanec– Union Pacific Railroad Company, Omaha, NE
Mr. Mike Heald – Union Pacific Railroad Company, Omaha, NE
Mr. Gerard Sullivan – Union Pacific Railroad Company, Omaha, NE
Mr. Tim Beringer – Union Pacific Railroad Company, Omaha, NE
Mrs. Eilis Miller - Union Pacific Railroad Company, Omaha, NE

YUMA MESA IRRIGATION AND DRAINAGE DISTRICT

COUNTY 14½ AND 4TH AVENUE • 14329 SO. 4TH AVENUE EXT.
YUMA, ARIZONA 85365
(928) 726-4353 • FAX (928) 726-9618

BOARD OF DIRECTORS
ELDON PAULSEN, PRESIDENT
JAMES WEDDLE
BRUCE EASTERDAY

DATE RECEIVED
9/18/07

N.W. "BILL" PLUMMER
MANAGER-SECRETARY
A. JAMES CLARK
ATTORNEY
(928) 783-6233

September 14, 2007

Mr. Paul Trenter
Environmental Planning Group
epg
4141 North 32nd St. Ste 102
Phoenix, AZ 85018

Dear Mr. Trenter:

In response to your letter of September 13, 2007, the Yuma Mesa Irrigation and Drainage District has no comments on the APS proposed 500 kV transmission line from Palo Verde Hub to North Gila Substation.

Please note the change in District managers below.

Sincerely,

N. W. Plummer
Manager

APS

Paul E. Herndon
Facility Siting
Project Manager

Tel. 623-932-6729
Fax 623-932-6624
e-mail Paul.Herndon@APS.com

Mail Station 4609
PO Box 53933
Phoenix, Arizona 85072-3933

Tuesday, October 9, 2007

Colonel John R. Bullington
US Army
Commander, Yuma Proving Grounds
310 C. Street
Building 2105
Yuma, AZ 85365-9498

Colonel Bullington,

It was a pleasure to again meet with you and your staff on September 27, 2007. Thank you for taking the time to allow us to update you and your staff on our proposed Palo Verde Hub to North Gila Substation 500kV Transmission Line Project.

As discussed in the meeting, APS plans to construct the line no further north than 500 feet from the existing transmission line on YPG land, with a single exception west of Highway 95 where the conductor portion of the line will be approximately 570 feet from the existing line. No new structures are planned to be outside the 500 foot boundary. As discussed, terrain and engineering issues have created the need for this exception, and we appreciate your flexibility and understanding in this circumstance. Per the discussion at the meeting, APS understands that YPG does not have any operational conflicts with the project including the 570 foot exception.

APS appreciates the working relationship we have with the YPG, and your cooperation and support. If you or your staff has any questions or comments regarding this matter or this correspondence, please contact me at 623-932-6729 or by electronic e-mail at paul.herndon@aps.com. Thanks again for your consideration and help.

Respectively submitted,

Paul Herndon

Paul Herndon
Project Manager
Transmission and Facility Siting

Cc: Jim Marler

4141 NORTH 32ND STREET
SUITE 102
PHOENIX, ARIZONA 85018
T 602 956-4370
F 602 956-4374
www.epgaz.com

October 11, 2007

Ginger Ritter, Project Evaluation Specialist
Arizona Game and Fish Department
2221 W. Greenway Road
Phoenix, Arizona 85023

Dear Ms. Ritter:

EPG is submitting to you one copy of the APS Palo Verde Hub to North Gila Substation 500kV Transmission Line Project application for a Certificate of Environmental Compatibility (CEC) for your review. The Arizona Corporation Commission State Power Plant and Line Siting Committee ("Committee") will hold hearings on the application beginning November 19 and 20, 2007, in Yuma, Arizona. During those hearings, APS would like to provide the Committee with any written comments you might have concerning Exhibits C and D of the CEC application.

The project involves the construction of a 500 kilovolt transmission line from the Palo Verde Hub near Wintersburg to the North Gila Substation, northeast of Yuma, Arizona. The project crosses Bureau of Land Management (BLM), Yuma Proving Grounds, Bureau of Reclamation, Arizona State Trust, and private land.

The project included the preparation of an environmental assessment (EA), which is included in the CEC application as Exhibit B-1. The EA was prepared on behalf of the BLM, Lower Sonoran Field Office. As part of the EA, biological resources within the study area were inventoried and evaluated, and impacts and appropriate mitigation measures were outlined. Arizona Game and Fish was consulted on the project.

Thank you for you assistance in this matter.

Sincerely,

Paul Trenter, Project Manager
Environmental Planning Group

cc: Paul Herndon, APS Project Manager

Enclosure

4141 NORTH 32ND STREET
SUITE 102
PHOENIX, ARIZONA 85018
T 602 956-4370
F 602 956-4374
www.epgaz.com

epg

October 11, 2007

James Garrison, Arizona State Historic Preservation Officer
Arizona State Parks
1300 W. Washington
Phoenix, AZ 85007

Dear Mr. Garrison:

EPG is submitting to you one copy of the APS Palo Verde Hub to North Gila Substation 500kV Transmission Line Project application for a Certificate of Environmental Compatibility (CEC) for your review. The Arizona Corporation Commission State Power Plant and Line Siting Committee ("Committee") will hold hearings on the application beginning November 19 and 20, 2007, in Yuma, Arizona. During those hearings, APS would like to provide the Committee with any written comments you might have concerning Exhibit E of the CEC application.

The project involves the construction of a 500 kilovolt transmission line from the Palo Verde Hub near Wintersburg to the North Gila Substation, northeast of Yuma, Arizona. The project crosses Bureau of Land Management (BLM), Yuma Proving Grounds, Bureau of Reclamation, Arizona State Trust, and private land.

The project included the preparation of an environmental assessment (EA), which is included in the CEC application as Exhibit B-1. The EA was prepared on behalf of the BLM, Lower Sonoran Field Office. As part of the EA, a cultural resource report was prepared, and was reviewed by Cheryl Blanchard of the BLM, and has been recently submitted to your office for review.

Thank you for you assistance in this matter.

Sincerely,

Paul Trenter, Project Manager
Environmental Planning Group

cc: Paul Herndon, APS Project Manager

Enclosure

4141 NORTH 32ND STREET T 602 956-4370 www.epgaz.com
SUITE 103 F 602 956-4374
PHOENIX, ARIZONA 85018

epg

S.H.P.O.- 2006-0239 (34486)

October 11, 2007

OCT 15 2007

James Garrison, Arizona State Historic Preservation Officer
Arizona State Parks
1300 W. Washington
Phoenix, Arizona 85007

Dear Mr. Garrison:

The attached letter supersedes our previous letter to you dated October 4, 2007. Please disregard the previous letter. If you have any questions, please let me know. Thank you for your time and consideration.

Sincerely,

Paul Trenter, Project Manager
Environmental Planning Group

cc: Paul Herndon, APS Project Manager

The Bureau of Land Management has taken the lead for Section 106 consultation for this project. We will be consulting with them on the cultural resources survey report and will be addressing their determination of eligibility and their finding of effect.
Thank you,
Ann G. Howard 11-5-07
for S.H.P.O.

FINDING OF NO SIGNIFICANT IMPACT

Name of Environmental Assessment: Palo Verde Hub to North Gila Substation
Environmental Assessment No.: AZ-220-2006-008
Case File No: AZA-33305
Bureau of Land Management Office: Phoenix District, Lower Sonoran Field Office

Finding of No Significant Impact: Upon review of the Environmental Assessment (EA) prepared for the above-named project and incorporated herein by reference, no significant long-term impacts on the human (socioeconomic) or natural environment would result. Short-term, temporary impacts on soils, water resources, biological resources, cultural resources, air quality, noise, and land use associated with construction activities of the proposed transmission line were identified which could be reduced by mitigation, and therefore are not considered significant. Long-term impacts on scenic quality were considered low to moderate, while the potential for long-term residual collision hazard for birds was considered low.

Recommendation: Grant a right-of-way to Arizona Public Service Company (APS) for construction, operation, and maintenance of a 500 kilovolt (kV) transmission line. The transmission line would originate from the Palo Verde Hub (PV Hub) at either an open transmission interconnection position in the Arlington Energy Facility, the Hassayampa Switchyard, or the Redhawk Power Plant. The transmission line would be constructed primarily with lattice tower structures paralleling the existing Southwest Power Link 500 kV Transmission line (SWPL) and connect into the North Gila Substation in Yuma, Arizona. The proposed right-of-way would be 200 feet wide, approximately 110 to 130 miles in length, of which approximately 55 miles would be located on Bureau of Land Management (BLM) administered lands. APS would implement the recommended Standard Operating Procedures and Mitigation Measures listed in Attachment A. The transmission line would be owned by APS and operated by APS and other project proponents.

Stipulations: APS is to implement the recommended Standard Operating Procedures and Mitigation Measures listed in Attachment A. Compliance with stipulations and mitigation measures will be monitored during project implementation. BLM issuance of the right-of-way grant is conditional upon APS obtaining all other federal, state, and local permits required to construct and operate the transmission line. APS is required to obtain the required Certificate of Environmental Compatibility from the Arizona Corporation Commission. The BLM has fulfilled requirements in accordance with the Section 106 process regarding cultural resource issues and requirements regarding biological resource issues.

Rationale: The EA for the Proposed Action has been prepared in accordance with National Environmental Policy Act (NEPA) requirements, including the public involvement procedures prescribed by 40 CFR §1506.6. The project design and mitigation measures proposed in the EA are integral to the Proposed Action and would reduce short-term and long-term environmental impacts to a level of insignificance. Issuance of right-of-way grant AZA-33305 to APS for the construction, operation, and maintenance of an electric transmission line is consistent with the Lower Gila South Resource Management Plan (BLM, 1988) which defines land uses along the San Diego Gas and Electric utility corridor and the Yuma District Resource Management Plan (BLM, 1986 and 1987) which defines uses along the Interconnection utility corridor.

Recommendation of Finding: _____ Project Manager 11/6/07 Date

I concur:

Approval of Finding: _____ Field Manager 11/06/07 Date

DECISION RECORD

Serial No.: AZA-33305
EA No.: AZ-220-2006-008

Decision:

It is decided that Arizona Public Service Company (APS) be granted a right-of-way by the Bureau of Land Management (BLM) 200 feet wide, approximately 110 to 130 miles in length, approximately 1600 acres (across lands managed by the BLM, Bureau of Reclamation and the Yuma Proving Ground), including the rights to design, construct, operate, maintain and own a 500 kilovolt (kV) electric transmission line.

The transmission line would originate from the Palo Verde Hub (PV Hub) at either an open transmission interconnection position in the Arlington Energy Facility, the Hassayampa Switchyard or the Redhawk Power Plant. The transmission line would be constructed primarily with lattice tower structures paralleling the existing Southwest Power Link 500 kV Transmission line (SWPL) and connect into the North Gila Substation in Yuma, Arizona.

Rationale for Decision:

The Proposed Action is consistent with the current Lower Gila South Resource Management Plan (BLM, 1988) which defines land uses along the San Diego Gas and Electric utility corridor and the Yuma District Resource Management Plan (BLM, 1986 and 1987) which defines uses along the Interconnection utility corridor.

The Proposed Action will provide needed electrical power to the continuing development and growth occurring and anticipated in the Yuma region. The project would strengthen the entire Yuma area transmission system by providing an additional extra-high voltage (EHV) electrical transmission source to the region.

Upon implementation of the attached standard operating procedures and mitigation measures, short-term and long-term environmental and human (socioeconomic) impacts identified in the Environmental Assessment would not be significant. Compliance monitoring would be conducted to ensure that these mitigation measures are properly implemented and that sensitive resources are protected.

Standard Operating Procedures and Mitigation Measures:

See Attachment A.

Field Manager

11/06/07
Date

APPENDIX A
STANDARD CONSTRUCTION AND OPERATING PROCEDURES AND MITIGATION MEASURES

1.	All construction vehicle movement outside of the right-of-way will be restricted to predesignated access, contractor acquired access, or public roads.
2.	The limits of construction activities will typically be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. The right-of-way boundary will be flagged in environmentally sensitive areas described in the specific plan of development to alert construction personnel that those areas should be avoided.
3.	In construction areas where recontouring is not required, vegetation will be left in place wherever possible to avoid excessive root damage and allow for resprouting.
4.	In construction areas (e.g., marshalling yards, structure sites, spur roads from existing access roads) where ground disturbance is significant or where recontouring is required, surface restoration will occur as required by the landowner or land-management agency. The method of restoration will typically consist of returning disturbed areas to their natural contour (to the extent practical), reseeding or revegetating with native plants (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches. Seed must be tested and certified to contain no noxious weeds in the mix by the State of Arizona Agricultural Department. Seed viability must also be tested at a certified laboratory approved by the authorized officer.
5.	Watering facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced to their predisturbed conditions as required by the landowner or land-management agency if they are damaged or destroyed by construction activities.
6.	Prior to construction, all construction personnel will be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract will address (a) federal and state laws regarding antiquities, fossils, and plants and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.
7.	Impact avoidance and mitigation measures for cultural resources developed in consultation with the SHPO, BLM, BOR, YPG, ASLD, and the tribes will be implemented.
8.	The project sponsors will respond to complaints of line-generated radio or television interference by investigating the complaints and implementing appropriate mitigation measures. The transmission line will be patrolled on a regular basis so that damaged insulators or other line materials that could cause interference are repaired or replaced.
9.	The project sponsors will apply necessary mitigation to minimize problems of induced currents and voltages onto conductive objects sharing a right-of-way, to the mutual satisfaction of the parties involved.
10.	All construction and maintenance activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent and perennial streambanks. In addition, all existing roads will be left in a condition equal to or better than their condition prior to the construction of the transmission line.
11.	All requirements of those entities having jurisdiction over air quality matters will be adhered to and any necessary permits for construction activities will be obtained. Open burning of construction debris (cleared trees, etc.) will not be allowed on BLM administered lands.
12.	Fences and gates, if damaged or destroyed by construction activities, will be repaired or replaced to their original predisturbed condition as required by the landowner or the land-management agency. Temporary gates will be installed only with the permission of the landowner or the land-management agency, and will be restored to their original predisturbed condition following construction.
13.	The proposed hardware and conductor will limit the audible noise, radio interference (RI), and television interference (TVI) due to corona. Tension will be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution will be exercised during construction to avoid scratching or nicking the conductor

	surface, which may provide points for corona to occur.
14.	During operation of the transmission line, the right-of-way will be maintained free of construction related non-biodegradable debris.
15.	Totally enclosed containment will be provided for all debris. All construction waste including debris, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials. A Spill Contingency Plan and Spill Prevention Control and Countermeasure (SPCC) Plan will be prepared. The SPCC Plan will address prevention and remediation of oil, hydraulic fluid, and petroleum fuel spills including spills that could enter navigable waters of the United States. Oils or chemicals will be hauled to an approved site for disposal. If a spill occurs on BLM land the respective BLM field office will be notified, and a copy of the manifest for disposal of the affected materials will be provided to the BLM.
16.	Structures will be constructed to conform to "Suggested Practices for Avian Protection on Power Lines" (Avian Power Line Interaction Committee 2006).
17.	Species protected by the Arizona Native Plant Law will be made available for salvage. A salvage plan approved by the BLM will be included in the specific plan of development.
18.	The alignment of any new access roads or overland routes will follow the designated area's landform contours where possible, providing that such alignment does not additionally impact resource values. This would minimize ground disturbance and reduce scarring.
19.	All new access roads not required for maintenance will be permanently closed using the most effective and least environmentally damaging methods appropriate to that area with concurrence of the landowner or land manager (e.g., stock piling and replacing topsoil, or rock replacement). This would limit access into the area. Fencing, signing, and other closure methods will be determined by the BLM and paid for by the contractor or APS.
20.	In designated areas, structures will be placed or rerouted so as to avoid sensitive features such as, but not limited to, riparian areas, watercourses, and cultural sites, or to allow conductors to clearly span the features, within limits of standard tower design.
21.	Transmission line structures will comply with Federal Aviation Administration Guidelines to minimize aircraft hazards (Federal Aviation 77).
22.	Special status species or other species of particular concern will continue to be considered during the construction phase of the Project, in accordance with management policies set forth by the BLM and other appropriate land management agencies. This will entail monitoring for plant and wildlife species of concern along the proposed transmission line and associated facilities (i.e., access roads and staging areas). In cases where such species are identified, appropriate action will be taken to avoid adverse impacts on the species and its habitat.
23.	The contractor or APS will submit to BLM a proposed road development plan for inclusion in the POD for the area in and around the Muggins Mountains. The goal of the plan is to limit new road construction to a minimum, restrict unauthorized use of maintenance roads, and discourage a travel route in the Muggins Mountains.
24.	As-built drawings, including locations of access roads, will be provided to the BLM as required by the right-of-way grant. The drawings will be provided in a format specified by the BLM.
25.	Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or federal land shall be immediately reported to the BLM authorized officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values.

Other Mitigating Measures

1. All applicable regulations in accordance with 43 CFR 2800.

2. The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the Plan of Development (POD) and made part of the grant. Any relocation, additional construction, or use that is not in accord with the approved POD, shall not be initiated without the prior written approval of the authorized officer. A copy of the complete right-of-way grant, including all stipulations and approved POD, shall be made available on the right-of-way area during construction, operation, and termination to the authorized officer. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment.

3. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder or any person working on the holders behalf, on public or federal land shall be immediately reported to the authorized officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made the authorized officer to determine the appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of the evaluation and any decision as to the proper mitigation measures will be made by the authorized officer after consulting with the holder.

4. Construction holes left open over night shall be covered. Covers shall be secured in place and shall be strong enough to prevent livestock or wildlife from falling through and into a hole.

5. Within 30 days of completion, the holder will submit to the authorized officer, as-built drawings and a certification of construction verifying that the facility has been constructed (and tested) in accordance with the design, plans, specifications, and applicable laws and regulations.

6. During construction, the holder shall apply water for the purpose of dust control.

7. The holder shall trim trees in preference to cutting trees and shall cut trees in preference to bulldozing them as directed by the authorized officer.

8. Holder shall remove only the minimum amount of vegetation necessary for the construction of structures and facilities. Topsoil will be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation.

9. The holder shall maintain the right-of-way in a safe usable condition, as directed by the authorized officer.

10. The holder will be responsible for the total reclamation of the right-of way shall it ever be relinquished or terminated. This reclamation will include the scarification of the road surface and the reseeding of the entire disturbed area with a native seed mixture that will be approved by the Authorized Officer prior to the reclamation work.

11. The holder of this right-of-way grant or the holder's successor in interest shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and the regulations of the Secretary of the Interior issued pursuant thereto.

12. All design, material, and construction, operation, maintenance, and termination practices shall be in accordance with safe and proven engineering practices.

13. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

14. The holder(s) shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder(s) shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. 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 toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

15. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901 et seq.) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

16. Prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a pre-termination conference. This conference will be held to review the termination provisions of the grant.

17. Archeological sites that are eligible for National Register shall be spanned and avoided during construction and maintenance activities. If an eligible site cannot be spanned, impact avoidance and mitigation measures developed in consultation with the State Historic Preservation Office and other interested parties shall be implemented during post-Environmental Assessment phases of project implementation.

18. Prior to construction, a training program shall be instituted that would stress the importance of avoiding unintentional and intentional damage to cultural, paleontological, and ecological resources.

Desert Tortoise Mitigation Measures

19. A desert tortoise protection education program shall be presented to all employees, inspectors, supervisors, contractors, and subcontractors who carry out proposed activities at the project site. The education program shall include discussions of the following:
    - legal and sensitive status of the tortoise
    - brief discussion of tortoise life history and ecology
    - mitigation measures designed to reduce adverse effects to tortoises
    - protocols to follow if a tortoise is encountered, including appropriate contact points

20. A desert tortoise monitor (qualified desert tortoise biologist) will be required when constructing within Category 1 tortoise habitat. The biologist shall watch for tortoises wandering into construction areas, check under vehicles, check at least three times per day any excavations that might trap tortoises, and conduct other activities necessary to ensure that death and injury of tortoises are minimized.

21. Protocols for dealing with any tortoises found in project areas shall be in accordance with Arizona Game and Fish Department's Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects, revised August 7, 1996.

22. Vehicle use shall be limited to existing or designated routes to the extent possible. Areas of new construction shall be flagged or marked on the ground prior to construction. All construction workers shall strictly limit their activities and vehicles to areas that have been marked. Construction personnel shall be trained to recognize markers and understand the equipment movement restrictions involved.

23. Construction sites shall be maintained in a sanitary condition at all times. The project proponent shall be responsible for controlling and limiting litter, trash, and garbage by placing refuse in predator-proof, sealable receptacles. Trash and debris shall be removed when construction is complete

24. All features that can entrap tortoise (i.e., trenches, pits, and other features) in the project area shall be checked twice daily (morning and afternoon) for trapped desert tortoise.

25. During and after completion of the project, trenches, pits, and other features in which tortoises could be entrapped or entangled, shall be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoise.

26. All dogs in the project area shall be on a leash.

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department
Revised January 17, 1997

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

Desert tortoises of the Sonoran population are those occurring south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position at all times and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 105 degrees Fahrenheit unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to two miles, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 105 degrees Fahrenheit, the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. Mangers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises. Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.
- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.
- Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

RAC:NLO:rc

TABLE 2-2 TYPICAL TRANSMISSION LINE CONSTRUCTION		
Estimated Personnel and Equipment Required		
Activity	**Personnel**	**Equipment**
Conductoring	25	equipment: 1 helicopter and fly ropes 3 drum pullers (1 light, 1 medium, 1 heavy) 2 splicing trucks 2 double-wheeled tensioners (1 light, 1 heavy) 6 wire reel trailers 2 diesel tractors 1 crane (20-ton) 1 drag 1 sagging equipment 4 trucks (5-ton) 6 pickup trucks 5 two-man lifts 1 water truck
Clean-up	4	equipment: 2 pickup trucks
Rehabilitation	4	equipment: 1 bulldozer (D-8) 1 pickup truck 1 motor grader
Biological Monitors	2	equipment: 2 pickup trucks
Total Personnel Required	76*	
*Additional personnel and equipment may be utilized in order to meet schedule.		

Right-of-Way Acquisition

New land rights, obtained in the name of APS, would be required for the proposed transmission line, switchyard(s), substations, and access roads. A grant for rights-of-way with a width of 200 feet, for the portions of the transmission line that would cross **federal** lands administered by the BLM, are being reviewed as part of the NEPA process. Authorization for the portions of the transmission line that cross the YPG, administered by the DOD, and Reclamation, also will be included in the NEPA process. Non-federal land, necessary for the transmission line right-of-way and switchyards/substations, would be obtained as easements or fee purchases. The appropriate federal agency receives right-of-way rental payments for those portions of the transmission line located on their land.

Pre-Construction Activities

During the preconstruction phase, a specific Plan of Development (POD) would be prepared. The POD would include detailed descriptions of standard construction and operating procedures and mitigation measures (Appendix A), Sonoran desert tortoise mitigation measures, a native plant survey plan, and a noxious weed plan for the project. These elements would be

TABLE 3-1 LAND OWNERSHIP CROSSED BY THE PROPOSED PROJECT	
Ownership	**Proposed Route (miles)**
BLM	54.6
Reclamation	1.5
DOD	8.7
Arizona State Land Department	21.6
Private	24.2
Total	**110.6**

Three irrigation districts are located within the study area. The WMIDD manages irrigation in the Mohawk Valley, between the Gila Mountains and Texas Hill. The Hyder Irrigation District manages irrigation in the Hyder Valley, near Hyder. **The North Gila Irrigation District manages irrigation in the vicinity of the North Gila Substation.**

The study area includes two county jurisdictions, Maricopa County and Yuma County, as shown on Figure 2-1 in Chapter 2.

Existing Land Use

Existing land uses include mostly vacant and undeveloped areas; utility and other infrastructure (the PVNGS and other power generation facilities, high-voltage transmission lines, and several natural gas pipelines); agriculture; mining; residential; dispersed commercial; grazing and livestock facilities; park, preservation, and recreation areas, and transportation routes. Through the use of BLM-designated utility corridors, the proposed project crosses a minimal amount of developed land. Existing land uses are shown on Figure 3-1.

Residential

Residential land uses include single-family residences and low-density residential areas. These residential land uses are mainly associated with agricultural service centers or communities in the Lower Gila River region. Agricultural operations with seasonal working quarters or labor camps were identified in several areas throughout the study area. Unincorporated communities within the study area include Hyder, Dome, and Roll. In addition, small settlements along major transportation routes identified within the study corridors may contain residential uses. Ten residences are located within ¼ mile of the proposed transmission line, all of which are on the south side of the existing transmission line.

The Wellton-Mohawk and Mohawk canals, are more than 1 mile away from the Proposed Route. The Gila Gravity Main Canal, located north of the North Gila Substation, is administered by the Gila Gravity Main Canal Administrative Board.

Major Utility Corridors (Designated, Proposed, or Recommended)

The BLM Lower Sonoran and Yuma Field Offices have identified the SDG&E Interconnect (SWPL 500kV transmission line) as a designated utility corridor from the PV Hub to the Colorado River. The BLM has designated this major utility corridor to cover a width of 1 mile.

Roads and Highways

U.S. or State Highway

U.S. 95 travels south and west from Quartzsite through the Laguna Mountains to Yuma and Somerton, Arizona. The Proposed Route crosses perpendicular to U.S. 95 at Link 50 Milepost 101.

County and Other Major Roads

County and paved roads are present in Maricopa and Yuma counties. Major county roads include Wintersburg Road, Elliot Road, Agua Caliente Road, Hyder Road, and Palomas Road. Other paved arterials connect settlements in the Wellton-Mohawk farming region and provide access to I-8 and other transportation routes.

Scenic Roads

Two scenic roads were identified in the study area. U.S. 95 and Dome Valley Road are designated by Yuma County as scenic roads.

Planned Land Use

General Plans

Zoning maps and general or comprehensive planning documents were utilized within the study area to delineate planned land uses. Table 3-2 lists these documents by county, with their adoption status.

Reclamation's, and DOD's compliance with the National Historic Preservation Act; and the Arizona State Land Department's (ASLD) compliance with the Arizona State Historic Preservation Act.

The area of potential effect (APE) for the proposed project is a 200-foot-wide corridor beginning at the Palo Verde Hub and terminating at the North Gila Substation, for a distance of approximately 110-112 miles. The exact beginning point at the PV Hub (Arlington, Redhawk, or Hassayampa), has not been determined at this time but may be any one of the three interconnections, all of which have been intensively surveyed for cultural resources. The interconnections average two to three miles in length. The cultural resource survey encompassed the 200-foot-wide APE for the proposed project, as well as a buffer that varied between 100 to 800 feet in various portions of the project area. The total acreage surveyed between May and June 2006, and September 2007, was 5,363.9 acres, 1,500.32 acres of which were on lands under the jurisdiction of the BLM Yuma Field Office (YFO), 1,496.96 acres on lands under the jurisdiction of the BLM Phoenix District Office (PDO), 72.72 acres on lands managed by Reclamation, 539 acres of land under the jurisdiction of the DOD, 990.90 acres of lands under the jurisdiction of the ASLD, and 764 acres of privately owned land.

3.4.1 Affected Environment

The cultural resource study for the proposed project identified 33 isolated occurrences (IOs), 16 previously recorded sites, and five newly recorded sites. A list of the previously and newly recorded sites located within the APE are presented in Table 3-3 below.

TABLE 3-3
SUMMARY OF SITES LOCATED WITHIN THE APE OF THE PROPOSED ALIGNMENT

Site Number	Recording Status	Jurisdiction	Description	Eligibility and Criterion
AZ L:12:15 (ASM)	Previously recorded	BLM YFO and DOD	69kV power line	Recommended Not Eligible
AZ S:15:7 (ASM)	Previously recorded	BLM YFO, ASLD, and private	69/12kV power line	**Recommended Eligible**
AZ S:15:10 (ASM)	Previously recorded	Private	Camp Hyder - World War II (1942-1944) military training base	Recommended Eligible – A, B
AZ S:16:37 (ASM)	Previously recorded	BLM PDO	Prehistoric artifact scatter	Recommended Eligible – D
AZ S:16:38 (ASM)	Previously recorded	BLM PDO	Historic Saddle Railroad Station	Recommended Eligible – A
AZ S:16:39 (ASM)	Previously recorded	BLM PDO	Papago Maneuvering Area	Recommended Eligible – A, B
AZ S:16:80 (ASM)	Newly recorded	BLM PDO	Historic trash scatter associated with historic Southern Pacific Railroad	Recommended Eligible – A, D

500kV transmission line, as well as the UPRR. The AZ S:16:37 (ASM) site **has been determined** eligible for listing on the NRHP under Criterion D for its potential to provide significant information on the organization of resource exploitation, technology, and social interaction during prehistory within the Dendora Valley. The proposed project extends across the central portion of the site. Anticipated disturbances across this approximately 3-mile site consist of the placement of approximately 12 lattice structures.

Site AZ X:7:10 (ASM) is a large lithic scatter located on lands managed by Reclamation. The site consists of 17 loci that that consist of flaked stone concentrations. The site also contains a light scatter of ceramics and two trail features. Disturbances to the site include the existing SWPL 500kV transmission line. The AZ X:7:10 (ASM) site has been previously determined to be eligible for listing on the NRHP under Criterion D for its potential to provide information on the subsistence and settlement strategies of the inhabitants of the North Gila Valley during the prehistoric period. The proposed project extends across the southern portion of the site. Anticipated disturbances across this approximately 1-mile-wide site consist of the placement of approximately 4 lattice structures.

Construction of the proposed project would directly affect the five sites outlined above. Specific effects to the archaeological sites would not be known fully until the detailed engineering and design for the transmission line have been completed. While most impacts can be avoided through spanning, there are five very large sites that are likely to be affected. Any adverse effects to these five sites would be mitigated by the development and implementation of a Historic Properties Treatment Plan (HPTP). The HPTP would be developed with the various land managing agencies and submitted to the Arizona State Historic Preservation Office (SHPO) for approval and the plan would be implemented prior to and during construction of the proposed project. Possible mitigation measures that would be identified in the HPTP include archival research, data recovery, and construction monitoring.

The project corridor maintains a distance from Anza National Historic Trail of between 1 and 5 miles and the trail is not crossed by the proposed project. The proposed transmission line will have no effect, physically or visually, upon the Anza National Historic Trail.

No-Action Alternative

Under the No-Action alternative, the proposed project would not be constructed, no cultural resources would be affected, and no environmental consequences would occur; however, the purpose and need for the project would not be met.

3.4.3 Native American Concerns

A total of thirteen Native American Tribes were contacted in February of 2006 by the BLM PDO concerning the proposed project. These included the Ak-Chin Indian Community, Chemehuevi

Indian Tribe, Cocopah Tribe, Colorado River Indian Tribes, Fort McDowell Yavapai Nation, Fort Mojave Indian Tribe, Fort Yuma Quechan Tribe, Gila River Indian Community, Hopi Tribe, Salt River Pima-Maricopa Indian Community, Tohono O'odham Tribal Nation, Yavapai-Apache Nation, and the Yavapai-**Prescott** Indian Tribe.

To date, the Fort Yuma Quechan, **Yavapai-Prescott, Fort Mohave Indian Tribe, and the BIA have** responded. In their letter dated February 27, 2006, **the Fort Yuma Quechan Tribe** acknowledged that transmission line construction, maintenance, and operation can affect cultural resources and indicated the need for an intensive cultural resource inventory.

The cultural resource study that was conducted (Rowe 2007) will be provided to the various Native American Tribes for comment and the BLM will continue to consult with them as the project moves forward. **There will be additional opportunities for the tribes to comment on documents as well as continued consultation with the tribes throughout the project.**

3.5 BIOLOGICAL RESOURCES

This section of the EA addresses biological resources, including vegetation, wildlife, and special status species related to the construction of the proposed project. Section 3.5.1, Affected Environment, provides a description of the affected biological resources for the proposed project. Section 3.5.2, Environmental Consequences, provides a description of the potential impacts to biological resources.

Secondary data were collected in order to characterize the biological resources in the study area. The information included the results of a literature search, secondary data from the BLM, a review of previous studies conducted in the area of the Proposed Action, and field visits to selected sites conducted between September 2005 and October 2006. Field visits were performed for reconnaissance purposes only and did not include any species-specific surveys.

A list of sensitive species anticipated in the area was compiled utilizing the U.S. Fish and Wildlife Service (USFWS) endangered species Internet site, personal contact with the BLM Field Office for the Sonoran Desert National Monument, and the AZGFD Heritage Data Management System (HDMS) Internet site (AZGFD 2006). This list is included in Appendix B of this document.

3.5.1 Affected Environment

The Palo Verde to North Gila transmission line corridor is located within the Lower Colorado River Valley Subdivision of Sonoran Desertscrub (Turner 1994). This vegetation community is dominated by creosote bush (*Larrea tridentata*). Other common species include ocotillo (*Fouquieria splendens*), foothill paloverde (*Parkinsonia microphylla*), ironwood (*Olneya tesota*), saguaro (*Carnegiea gigantea*), barrel cactus (*Ferocactus wislizenii*), and various species of

TABLE 4-1 PROJECTS LIST - CUMULATIVE EFFECTS		
Activities	**Location/Description**	**Status**
Proposed Wellton Mohawk 230kV Line Project	**The 230kV line would connect to the proposed Palo Verde Hub to North Gila 500kV Transmission Line Project at a new substation, and terminate at the Ligurta Substation. The proposed line is needed to serve load growth in WMIID service area and to provide WMIDD access to new generation resources**	**Future**
Proposed West Valley North 230kV Transmission Line Project	The 230kV transmission line and substation would be located on the east and north side of the White Tank Mountains and terminate at the TS-5 Substation	Future
Proposed Hassayampa–Pinal West 500kV Transmission Line	The Hassayampa–Pinal West 500kV transmission line is proposed to connect at the Hassayampa Switchyard south of PVNGS and terminate at a proposed substation near Mobile, Arizona	Future
Proposed PVNGS–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
Planned Northwest Buckeye Electrical Infrastructure	Additional 500kV, 230kV, and 69kV transmission lines identified in the APS 10-year plan. Lines would originate at the TS-5 Substation and provide electrical service to future development in the northeasterly portion of the Town of Buckeye, Arizona	Future
Planned Hassayampa–Jojoba 500kV Transmission Line	The 500kV transmission line would connect the Hassayampa Switchyard near PVNGS to the Jojoba Switchyard south of Buckeye, Arizona	Future
Proposed North Gila—TS-8 230kV Transmission Line	The 230kV transmission line would connect the North Gila Substation, 5 miles NE of Yuma, Arizona, to the planned TS-8 Substation, location to be determined, to serve the increasing need for electric energy in the city of Yuma	Future
Proposed Ethanol Plant	An ethanol plant to be built on a 20 acre site near Tacna, AZ	Future
U.S. 95 Widening	U.S. 95 is proposed to be widened from 2 lanes to 4 between 9E and Aberdeen Road within the YPG	Future
U.S. 195 Construction	**U.S. 195 is proposed to connect U.S. 95 to I-8 in order to complement the local and regional road network**	**Future**
Planned CANAMEX Commercial Transportation Corridor	An inter-continental commercial transportation corridor between Canada and Mexico. Located adjacent to Wickenburg Road in the project area	Future
Geothermal Resource Development in the Imperial Valley of California	**Development of geothermal resources in the Imperial Valley will continue to develop to serve growing need in California and Arizona**	**Future**
Existing Utilities/Public Services/Infrastructure		
Southwest Powerlink 500kV Line Clearance Maintenance Project	Conductor ground clearance project from PVNGS to North Gila Substation	Past, Present
PVNGS	Power plant located in unincorporated Arlington Valley, Arizona. Numerous 500kV lines interconnect at the PVNGS Switchyard	Past, Present
PVNGS Switchyard	Located near PVNGS, with numerous 500kV lines interconnecting at this switchyard	Past, Present, Future

5.4 LIST OF PREPARERS

5.4.1 Bureau of Land Management

Kevin Harper	Field Office Manager, **LSFO**
Camille Champion	Project Manager, **LSFO**
Jim Andersen	Realty Specialist, **LSFO**
Stephen Fusilier	**Team Leader, Lands and Minerals, YFO**
Cheryl Blanchard	Archaeologist, **LSFO**
Sandra Arnold	**Archaeologist, YFO**
Lori Young	Wildlife Biologist, **LSFO**
Winfred Wong	**Biologist, YFO**
Rich Hanson	Recreation Planner / Visual Resource Specialist, **LSFO**
Jack Ragsdale	Recreation Planner / Visual Resource Specialist, **LSFO**
Aaron Curtis	**Outdoor Recreation Planner, YFO**
Byron Lambeth	Range Management Specialist, **LSFO**
Roger Oyler	**Range Management Specialist, YFO**
Karen Reichhardt	**Team Lead Resources, YFO**
Jennifer Green	**Natural Resource Specialist, YFO**
Stephen Allen	**Geologist, YFO**
Dave Daniels	**NEPA Coordinator, YFO**

5.4.2 Arizona Public Service

Paul Herndon	Project Manager
Bob Smith	Transmission Planning
Jason Spitzkoff	Transmission Planning
Peter Krzykos	Transmission Planning
Jim Looney	Lands
Barbara Heimer	Lands
Paul Richards	Transmission Engineering/Construction
Phil Hobday	Transmission Engineering/Construction
Robin Fries	Transmission Engineering/Construction
Mark Fallon	Communications
Betty Dayyo	Communications
Linda Henrickson	Interconnections/Agreements

5.4.3 Environmental Planning Group

Garlyn Bergdale	Principal-in-Charge
Paul Trenter	Project Manager
Kevin C. Duncan	Project Coordinator, Earth and Water Resources, Health and Safety Resources, Land Use Resources, Socioeconomics
Marc Schwartz	Visual Resources Manager

CHAPTER 6 - REFERENCES

6.1 LAND USE

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APPENDIX A
STANDARD CONSTRUCTION AND OPERATING PROCEDURES AND MITIGATION MEASURES

1.	All construction vehicle movement outside of the right-of-way will be restricted to predesignated access, contractor acquired access, or public roads.
2.	The limits of construction activities will typically be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. The right-of-way boundary will be flagged in environmentally sensitive areas described in the specific plan of development to alert construction personnel that those areas should be avoided.
3.	In construction areas where recontouring is not required, vegetation will be left in place wherever possible to avoid excessive root damage and allow for resprouting.
4.	In construction areas (e.g., marshalling yards, structure sites, spur roads from existing access roads) where ground disturbance is significant or where recontouring is required, surface restoration will occur as required by the landowner or land-management agency. The method of restoration will typically consist of returning disturbed areas to their natural contour (to the extent practical), reseeding or revegetating with native plants (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches. Seed must be tested and certified to contain no noxious weeds in the mix by the State of Arizona Agricultural Department. Seed viability must also be tested at a certified laboratory approved by the authorized officer.
5.	Watering facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced to their predisturbed conditions as required by the landowner or land-management agency if they are damaged or destroyed by construction activities.
6.	Prior to construction, all construction personnel will be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract will address (a) federal and state laws regarding antiquities, fossils, and plants and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.
7.	Impact avoidance and mitigation measures for cultural resources developed in consultation with **the SHPO,** BLM, **BOR, YPG, ASLD, and the tribes** will be implemented.
8.	The project sponsors will respond to complaints of line-generated radio or television interference by investigating the complaints and implementing appropriate mitigation measures. The transmission line will be patrolled on a regular basis so that damaged insulators or other line materials that could cause interference are repaired or replaced.
9.	The project sponsors will apply necessary mitigation to minimize problems of induced currents and voltages onto conductive objects sharing a right-of-way, to the mutual satisfaction of the parties involved.
10.	All construction and maintenance activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent and perennial streambanks. In addition, all existing roads will be left in a condition equal to or better than their condition prior to the construction of the transmission line.
11.	All requirements of those entities having jurisdiction over air quality matters will be adhered to and any necessary permits for construction activities will be obtained. Open burning of construction debris (cleared trees, etc.) will not be allowed on BLM administered lands.

12.	Fences and gates, if damaged or destroyed by construction activities, will be repaired or replaced to their original predisturbed condition as required by the landowner or the land-management agency. Temporary gates will be installed only with the permission of the landowner or the land-management agency, and will be restored to their original predisturbed condition following construction.
13.	The proposed hardware and conductor will limit the audible noise, radio interference (RI), and television interference (TVI) due to corona. Tension will be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution will be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.
14.	During operation of the transmission line, the right-of-way will be maintained free of construction related non-biodegradable debris.
15.	Totally enclosed containment will be provided for all debris. All construction waste including debris, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials. A Spill Contingency Plan and Spill Prevention Control and Countermeasure (SPCC) Plan will be prepared. The SPCC Plan will address prevention and remediation of oil**, hydraulic fluid, and petroleum fuel** spills including spills that could enter navigable waters of the United States. Oils or chemicals will be hauled to an approved site for disposal. **If a spill occurs on BLM land the respective BLM field office will be notified, and a copy of the manifest for disposal of the affected materials will be provided to the BLM.**
16.	Structures will be constructed to conform to "Suggested Practices for Avian Protection on Power Lines" (Avian Power Line Interaction Committee 2006).
17.	Species protected by the Arizona Native Plant Law will be made available for salvage. A salvage plan approved by the BLM will be included in the specific plan of development.
18.	The alignment of any new access roads or overland routes will follow the designated area's landform contours where possible, providing that such alignment does not additionally impact resource values. This would minimize ground disturbance and reduce scarring.
19.	All new access roads not required for maintenance will be permanently closed using the most effective and least environmentally damaging methods appropriate to that area with concurrence of the landowner or land manager (e.g., stock piling and replacing topsoil, or rock replacement). This would limit access into the area. Fencing, signing, and other closure methods will be determined by the BLM and paid for by the contractor or APS.
20.	In designated areas, structures will be placed or rerouted so as to avoid sensitive features such as, but not limited to, riparian areas, watercourses, and cultural sites, or to allow conductors to clearly span the features, within limits of standard tower design.
21.	Transmission line structures will comply with Federal Aviation Administration Guidelines to minimize aircraft hazards (Federal Aviation 77).
22.	Special status species or other species of particular concern will continue to be considered during the construction phase of the Project, in accordance with management policies set forth by the BLM and other appropriate land management agencies. This will entail monitoring for plant and wildlife species of concern along the proposed transmission line and associated facilities (i.e., access roads and staging areas). In cases where such species are identified, appropriate action will be taken to avoid adverse impacts on the species and its habitat.
23.	The contractor or APS will submit to BLM a proposed road development plan for inclusion in the POD for the area in and around the Muggins Mountains. The goal of the plan is to limit new road construction to a minimum, restrict unauthorized use of maintenance roads, and discourage a travel route in the Muggins Mountains.

24.	As-built drawings, including locations of access roads, will be provided to the BLM as required by the right-of-way grant. The drawings will be provided in a format specified by the BLM.
25.	**Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or federal land shall be immediately reported to the BLM authorized officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values.**

Palo Verde Hub to North Gila Substation
500kV Transmission Project

APS

epg

EXHIBIT
APS-3
Admitted

Janet Napolitano

Mark Winkleman

November 14, 2007

Arizona Public Service
Attention: Barbara J Heimer
Mail Station 3016
PO Box 53933
Phoenix, Arizona

Re: Proposed Palo Verde to North Gila 500KV project

Dear Ms Heimer:

Thank you for your letter dated November 14, 2007 referencing the Palo Verde to North Gila 500 KV project. Both Ruben Ojeda and I reviewed Linda Beals and Nancy Garcia's earlier recommendation on the project. We agree with the earlier findings co locating the facility within the existing BLM utility corridor. Sharing and or expanding the existing corridor will minimize impacts to existing Agriculture leases and reduce the need for additional corridors bisecting Trust land. Approval from the Arizona Corporation (ACC) Commission will allow Arizona Public Service (APS) the right to locate within the two mile corridor without additional approvals from the ACC. While the preferred alignment is within and adjacent to the BLM utility corridor the Arizona State Land Department (the Department) is willing to work with APS to identify an alternate alignment(s) within the corridor necessary for this 500 KV facility.

The Department has no objections to the proposed transmission corridor provided that APS will work with our lessees to minimize disturbances to their existing operations and continue working with the Department to finalize the alignment for this facility. Thank you for your cooperation if you have any additional concern or questions please contact me at (602) 542-2647 or Ruben Ojeda at (602) 542-2648.

Respectfully

Gordon Taylor
Planning Manager

C: Ruben Ojeda
Nancy Garcia

APS-4

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
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ROBERT R. WOODHOUSE, ROLL
DIRECTOR
DUANE L. SHROUFE
DEPUTY DIRECTOR
STEVE K. FERRELL

EXHIBIT
APS-4
Admitted

November 15, 2007

Mr. Paul Trenter
4141 N. 32nd St.
Suite 102
Phoenix, AZ 85018

Re: **Request for Comments on CEC Application; Palo Verde Hub to North Gila Substation 500kV Transmission Project.**

Dear Mr. Trenter:

The Arizona Game and Fish Department (Department) has reviewed your request, dated October 4, 2007, regarding the above mentioned CEC application. The Department understands the proposed project would involve installation of about 111 miles of new transmission line from Palo Verde Hub to North Gila Substation. The project should have minimal impact since new powerlines are being constructed immediately adjacent to the existing lines, within designated utility corridors. However, the Department has the following general comments:

- Where possible, leave large vegetation intact to reduce habitat impact and promote regeneration.
- Coordinate plant salvage efforts with the Arizona Department of Agriculture, in accordance with the Arizona Native Plant Law. In addition, the applicable land management agencies should be consulted regarding guidelines for revegetation efforts.
- When wildlife is encountered, have the Biological monitor collect data on the species (i.e. UTM's, activity, sex, etc.) and given to the Department's Heritage Data Management System.

If you have any questions regarding this letter, please contact me at (623) 236-7606. General status information and county distribution lists for special status species are also available on our web site at http://www.azgfd.gov/hdms, as well as species abstracts for some special status species.

Sincerely,

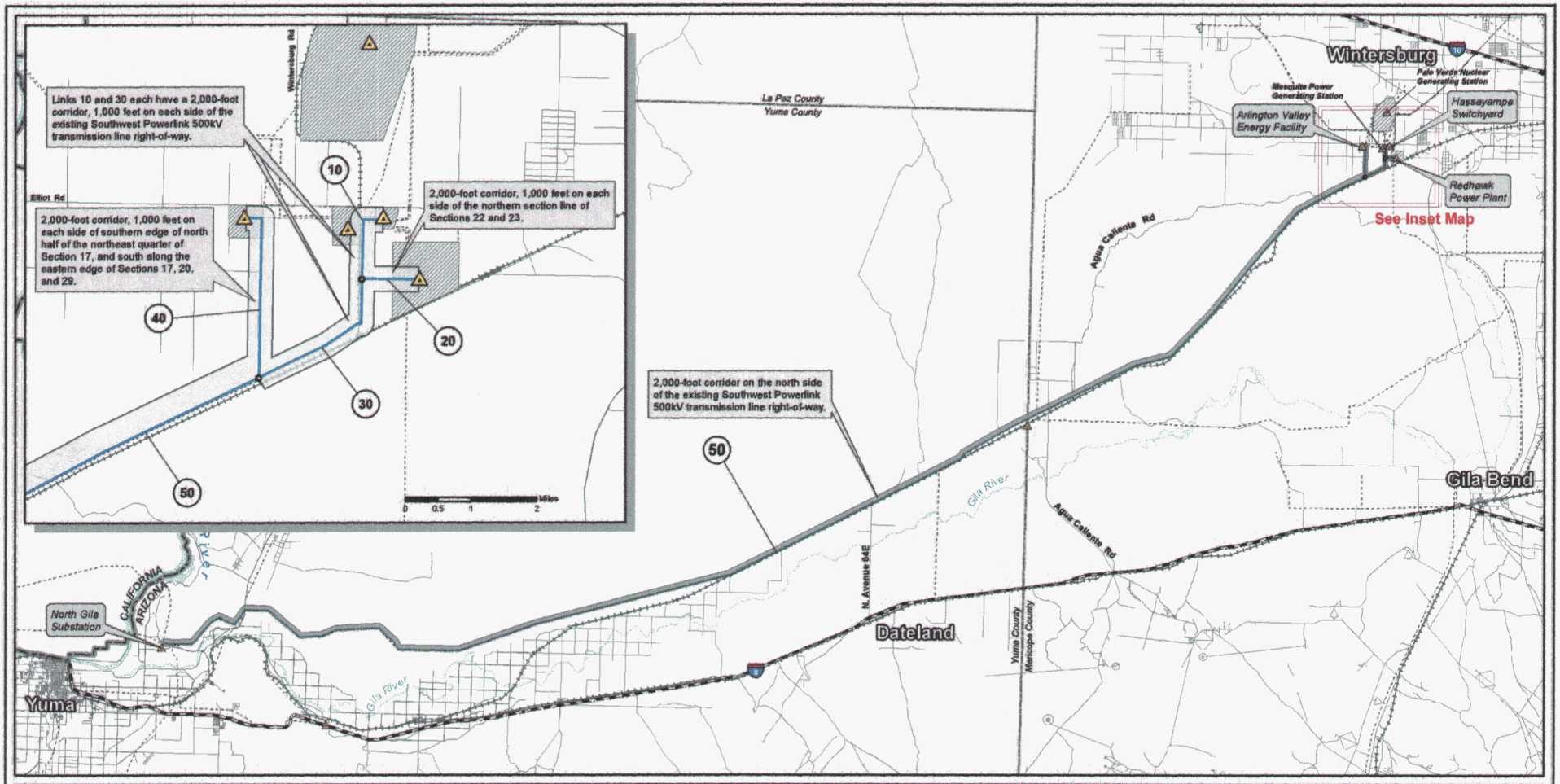
Ginger Ritter

Ginger L. Ritter
Project Evaluation Specialist

cc: Project Evaluation Program Supervisor
Russ Engel, Habitat Program Manager, Region IV

AGFD # M07-10211211

EXHIBIT
APS-5
Admitted



PALO VERDE TO NORTH GILA TRANSMISSION LINE PROJECT

October 2007

CEC Corridor Map

Sources: BLM, 2005; EPG, 2006

APS

epg

m:\projects\aps\pv-ngila\ea_cec\mxds\pv_ngila2_corr.mxd

APS-6

ORIGINAL

RECEIVED

SALT RIVER PROJECT
P. O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-6262
Fax (602) 236-3458
kjbarr@srpnet.com

KELLY J. BARR, ESQ.
Manager, Regulatory Affairs & Contracts

2007 NOV 15 A 10: 4

AZ CORP COMMISSION
DOCUMENT CONTROL

EXHIBIT
APS-6
Admitted

November 8, 2007

Ms. Laurie Woodall, Chairman
Arizona Power Plant and
Transmission Line Siting Committee
PAD-EES
Arizona Attorney General's Office
1275 West Washington
Phoenix, AZ 85007-2997

Re: SRP Interest in Palo Verde – North Gila #2 500kV Transmission Line Project
Docket No. L-00000D-07-0568-0135

Dear Chairman Woodall:

SRP supports the Palo Verde-North Gila #2 500kV Transmission Line Project (Project). The Project will enhance SRP's ability to access a variety of resources, including renewable generation.

SRP's load has grown significantly over the past several years and is expected to continue to increase. SRP is actively working to secure additional resources to meet our customers' needs. In addition, SRP is committed to expanding its portfolio of "Sustainable Resources." Sustainable Resources are designed to reduce the use of fossil fuels for power generation and include renewable generation, conservation and energy efficiency. Presently, SRP has a goal of meeting at least 5% of its retail sales requirements from Sustainable Resources. Beginning in 2015, this goal begins increasing 1% each year, reaching 15% by the year 2025. SRP currently obtains renewable energy from resources located in several western states including Arizona, New Mexico, and California.

We are considering an ownership interest in the Project to provide SRP with access to renewable energy resources and other generation located in Southern California and we fully support this application.

Please do not hesitate to contact me if have any questions or need further information.

Sincerely,

Kelly J. Barr

Kelly J. Barr

/seb

Arizona Corporation Commission
DOCKETED
NOV 16 2007
DOCKETED BY

EXHIBIT
APS-7
Admitted

BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY, IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES § 40-360, *et seq.*, FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING THE PALO VERDE HUB TO NORTH GILA 500kV TRANSMISSION LINE PROJECT, WHICH INCLUDES A 500kV TRANSMISSION LINE AND ASSOCIATED FACILITIES AND INTER-CONNECTIONS ORIGINATING FROM EITHER THE ARLINGTON VALLEY ENERGY FACILITY, SECTION 17, TOWNSHIP 1 SOUTH, RANGE 6 WEST, G&SRB&M, THE HASSAYAMPA SWITCHYARD, SECTION 15, TOWNSHIP 1 SOUTH, RANGE 6 WEST, G&SRB&M, OR THE REDHAWK POWER PLANT, SECTION 23, TOWNSHIP 1 SOUTH, RANGE 6 WEST, G&SRB&M, EACH LOCATED SOUTH OF INTERSTATE 10 NEAR WINTERSBURG ROAD IN AN UNINCORPORATED AREA OF MARICOPA COUNTY, ARIZONA, TO THE NORTH GILA SUBSTATION, FIVE MILES NORTHEAST OF THE CITY OF YUMA, YUMA COUNTY, ARIZONA, AT SECTION 11, TOWNSHIP 8 SOUTH, RANGE 22 WEST, G&SRB&M	Docket No. L-00000D-07-0566-0135 Case No. 135

CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

Pursuant to notice given as provided by law, the Arizona Power Plant and Transmission Line Siting Committee (the "Committee") held public hearings on November 19 and 20, 2007, all in conformance with the requirements of Arizona Revised Statutes ("A.R.S.") § 40-360, *et seq.*, for the purpose of receiving evidence and

deliberating on the Application of Arizona Public Service Company ("Applicant") for a Certificate of Environmental Compatibility ("Certificate") in the above-captioned case (the "Project").

The following members and designees of members of the Committee were present at one or more of the hearings for the evidentiary presentations and/or for the deliberations:

Laurie Woodall	Chairman, Designee for Arizona Attorney General, Terry Goddard
David L. Eberhart, P.E.	Designee for Chairman, Arizona Corporation Commission
Jack Haenichen	Designee for Director, Energy Department, Arizona Department of Commerce
Paul Rasmussen	Designee for Director, Arizona Department of Environmental Quality
Gregg Houtz	Designee for Director, Arizona Department of Water Resources
Jeff McGuire	Appointed Member
Michael Palmer	Appointed Member
Joy Rich	Appointed Member
A. Wayne Smith	Appointed Member
Michael Whalen	Appointed Member
Barry Wong	Appointed Member

The Applicant was represented by Thomas H. Campbell and Albert H. Acken of Lewis and Roca LLP. The following parties were granted intervention pursuant to A.R.S. § 40-360.05: Commission Staff, represented by Keith Layton and Charles Hains.

Deleted: ; _____ (add interveners), represented by _____

At the conclusion of the hearings, the Committee, having received the Application, the appearances of the parties, the evidence, testimony and exhibits presented at the

hearings, and being advised of the legal requirements of A.R.S. §§ 40-360 to 40-360.13 upon motion duly made and seconded, voted to grant the Applicant this Certificate of Environmental Compatibility (Case No. 135) for the Project.

The Project consists of approximately 110 miles of 500kV transmission line and required switchyard facilities and modifications. The Project Route (depicted on **Exhibit A** attached hereto) originates at one of the following: the Arlington Valley Energy Facility (Line Siting Case No. 98) located in Section 17, Township 1 South, Range 6 West, the Hassayampa Switchyard (Line Siting Case No. 110) located in Section 15, Township 1 South, Range 6 West, or the Redhawk Power Plant (Line Siting Case No. 95) located in Section 23, Township 1 South, Range 6 West.

If the Project originates at the Arlington Valley Energy Facility, the Project will have a 2,000-foot corridor (shown as Link 40 on **Exhibit A**) 1,000 feet on either side of a centerline, which proceeds east from the Arlington Valley Energy Facility along the southern edge of the north half of the northeast quarter of Section 17, and turns south along the eastern edge of Sections 17, 20, and 29, Township 1 South, Range 6 West G&SRB&M until reaching a common point for all route options, located at the eastern edge of Section 29, Township 1 South, Range 6 West G&SRB&M, 130 feet north of the Southwest Power Link ("SWPL") 500kV transmission line (Line Siting Case No. 52).

If the Project originates at the Hassayampa Switchyard, the Project will have a 2,000-foot corridor (Links 10 and 30) 1,000 feet on either side of the SWPL 500kV transmission line, centerline through Sections 15, 22, 27, and 28, Township 1 South, Range 6 West G&SRB&M, proceeding south to the common point described above.

If the Project originates at the Redhawk Power Plant, the Project will have a 2,000-foot corridor (Link 20) 1,000 feet on either side of the centerline, which proceeds west from the Redhawk Power Plant along the northern section line of Sections 23 and 22, Township 1 South, Range 6 West G&SRB&M, to the beginning of Link 30, located at the

midsection line of Section 22, Township 1 South, Range 6 West G&SRB&M, proceeding south to the common point described above.

All three interconnection options proceed to the beginning of Link 50, described as the common point above. For Link 50, the Project has a 2,000-foot corridor, which begins at the centerline of the existing SWPL 500kV transmission line and extends 2,000 feet north. From this location, the route proceeds generally southwest parallel to the SWPL 500kV transmission line. Link 50 terminates at the existing North Gila Substation located 5 miles northeast of the City of Yuma, in Section 11, Township 8 South, Range 22 West G&SRB&M. Conceptual models of tower types are depicted in Exhibts G-1 through G-8 of the application, attached hereto as **Exhibit B**.

This Certificate is granted upon the following conditions:

1. The Applicant shall obtain all required approvals and permits necessary to construct the Project.
2. The Applicant shall comply with all existing applicable ordinances, master plans and regulations of the State of Arizona, the County of Maricopa, the County of Yuma, the United States, and any other governmental entities having jurisdiction.
3. This authorization to commence construction of the Project shall expire seven years from the date the Certificate is approved by the Arizona Corporation Commission (the "Commission"); provided, however, that prior to such expiration the Applicatant or its assignees may request that the Commission extend this time limitation.
4. The Applicant shall make every reasonable effort to identify and correct, on a case-specific basis, all complaints of interference with radio or television signals from operation of the transmission line and related facilities addressed in this Certificate. The Applicant shall maintain written records

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for a period of five years of all complaints of radio or television interference attributable to operation, together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action of for which there was no resolution shall be noted and explained.

5. The Project shall comply with the following recommendations of the Arizona Game and Fish Department ("AGFD")

   (a) Wildlife data collected by the biological monitor will be given to the Arizona Game and Fish Department's Heritage Data Management System.

   (b) Where possible, leave large vegetation intact to reduce habitat impact and promote regeneration.

   (c) Coordinate plant salvage efforts with the Arizona Department of Agriculture, in accordance with the Arizona Native Plant Law. In addition, the applicable land management agencies should be consulted regarding guidelines for revegetation efforts.

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6. Pursuant to A.R.S. § 41-844, if any archaeological, paleontological or historical site or object that is at least fifty years old is discovered on state, county or municipal land during plan-related activities, the person in charge shall promptly report the discovery to the Director of the Arizona State Museum, and in consultation with the Director, shall immediately take all reasonable steps to secure and maintain the preservation of the discovery. If human remains and/or furnerary objects are encountered on private land during the course of any ground-disturbing activities relating to the development of the subject property, Applicatant shall cease work on the

affected area of the Project and notify the Director of the Arizona State Museum pursuant to A.R.S. § 41-865.

7. The Applicant shall design the transmission lines so as to mitigate impacts to raptors.

8. The Applicant shall use non-specular conductor and dulled surfaces for transmission line structures.

9. Within 120 days of the Commission decision granting this Certificate, Applicant will post signs in public rights-of-way giving notice of the Project corridor to the extent authorized by law. Within 45 days of securing easement or right-of-way for the Project, the applicant shall erect and maintain signs providing public notice that the property is the site of a future transmission line. Such signage shall be no smaller than a normal roadway sign. The Applicant shall place signs in prominent locations at reasonable intervals such that the public is notified along the full length of the transmission line until the transmission structures are constructed. The signs shall advise:

   (a) That the site has been approved for the construction of Project facilities;

   (b) The expected date of completion of the Project facilities; and

   (c) A phone number for public information regarding the Project.

   (d) The name of the Project;

   (e) The name of the Applicant; and

   (f) The Applicant's website.

   Sign placement will be reported annually in accordance with Condition 16.

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10. In the event that the Project requires an extension of the term of this Certificate prior to completion of construction, Applicant shall use

reasonable means to directly notify all landowners and residents within a one-half mile of the Project corridor for which the extension is sought. Such landowners and residents shall be notified of the time and place of the proceeding in which the Commission shall consider such request for extension.

11. Before construction on this Project may commence, the Applicant must file a Plan of Development approved by the Bureau of Land Management ("BLM") with Docket Control with copies to the affected areas of jurisdiction. Applicant will comply with the BLM's Standard Construction and Operating Procedures and Mitigation Measures and Other Mitigation Measures as outlined in the Finding of No Significant Impact (FONSI), attached hereto as **Exhibit C**.

12. Applicant shall retain a qualified biologist to monitor all ground clearing/disturbing construction activities that may affect sensitive species or habitat. The biological monitor will be responsible for ensuring proper actions are taken if a special status species is encountered. If Sonoran desert tortoises are encountered during construction, the Applicant shall follow the Arizona Game & Fish Department's ("AGFD") Guidelines for Handling Sonoran Desert Tortoises.

13. With respect to the Project, Applicant shall participate in good faith in state and regional transmission study forums to coordinate transmission expansion plans related to the Project and to resolve transmission constraints in a timely manner.

14. The Applicant shall provide copies of this Certificate to the Yuma County Planning and Zoning Commission, the Maricopa County Planning and

Development Department, the Arizona State Land Department, SHPO, and AGFD.

15. Prior to the date this transmission line is put into commercial service, the Applicant shall provide homebuilders and developers within one mile of the center line of the certificate route the identity, location, and a pictorial depiction of the type of power line being constructed, accompanied by a written description, and encourage the developers and homebuilders to include this information in the developers' and homebuilders' homeowners' disclosure statements.

16. The Applicant shall submit a self-certification letter annually, identifying progess made with respect to each condition contained in the Certificate, including which conditions have been met. Each letter shall be submitted to the Utilities Division Director on December 1 beginning in 2008. Attached to each certification letter shall be documentation explaining how compliance with each condition was achieved. Copies of each letter along with the corresponding documentation shall be submitted to the Arizona Attorney General and Department of Commerce Energy Office. The requirement for the self-certification shall expire on the date the Project is placed into operation.

17. Applicant shall work in good faith with the Yuma Proving Ground commanding officer regarding the final right-of-way on that portion of the route within the Yuma Proving Ground.

18. Within the Project area, construction activities will avoid to the extent practicable designated wildlife water sources to allow free access by Bighorn Sheep.

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19. Applicant shall conform to WECC/NERC N-1 and N-1-1 contingency planning criteria. N-1 contingency shall not result in any load dropping or generation tripping.

20. Except when entering switchyards and substations, spacing between the center lines of the two 500 kV systems should be the greater of: 1) 130 feet; or 2) the height of the tallest tower involved in that particular span.

21. Before commencing construction of Project facilities located within 100 feet of any existing natural gas or hazardous liquid pipeline, the Applicant shall:

(a) perform the appropriate grounding and cathodic protection studies to show that the Project's location within 100 feet of such pipeline results in no material adverse impacts to the natural gas or hazardous liquid pipeline or to public safety when both are in operation. As a compliance matter, a report of studies shall be provided to the Commission Staff. If material adverse impacts are noted in the studies, Applicant shall take appropriate steps to ensure that such material adverse impacts are eliminated. Applicant shall provide to the Commission Staff written documentation of the actions that will be taken and documentation showing no material adverse impact will occur; and

(b) perform a technical study simulating an outage of the facility that may be caused by the collocation of the Project within 100 feet of the existing natural gas or hazardous liquid pipeline. This study should either: i) show that such outage does not result in customer outages; or ii) include operating plans to minimize any resulting customer outages. Applicant shall provide a copy of this study to Commission Staff.

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22. Applicant shall pursue good faith efforts to reach a commercially reasonable agreement for interconnection at a new Arlington Valley 500kV switchyard. Applicant shall file with the ACC Utilities Division no later than December 31, 2010, a report summarizing its efforts, the option(s) ultimately selected, and the reasons other option(s) were not selected.

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THE ARIZONA POWER PLANT AND
TRANSMISSION LINE SITING COMMITTEE

_____
Laurie A. Woodall, Chairman

Imperial Irrigation District

PV –Yuma 500 kV Transmission Line Project

IMPERIAL IRRIGATION DISTRICT

Headquartered in Imperial, CA. Additional locations in El Centro and La Quinta, CA.

EXHIBIT
Committee-1
Admitted

November 19-20, 2007

IID Energy

- IID is a Balancing Authority which has transmission, generation and distribution facilities to serves native load.

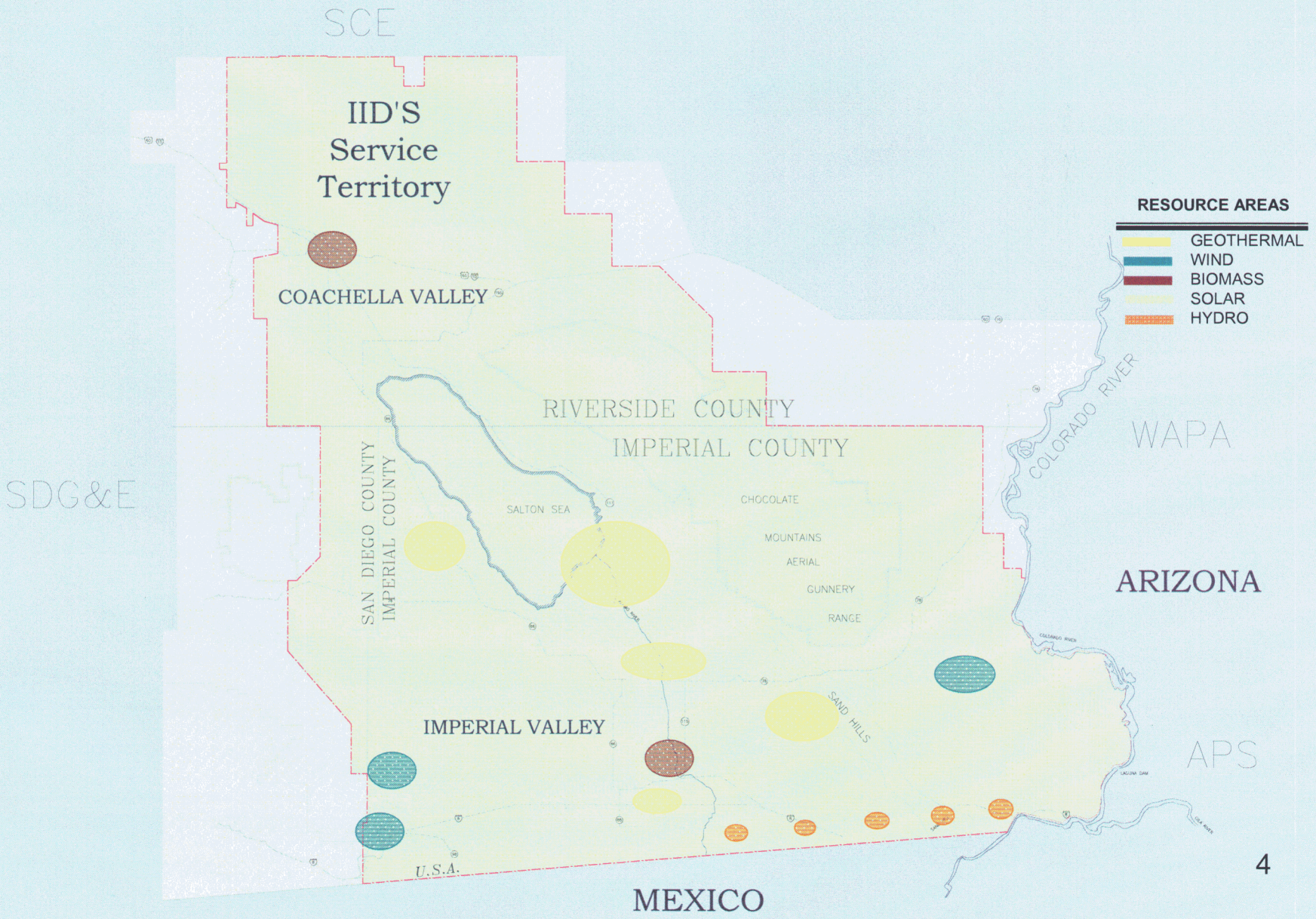
- IID has strong energy and transmission bi-lateral contracts with SRP, APS, Western Area Power Administration and New Mexico Public Service.

- IID believes that joint transmission projects such as the Southwest Powerlink brings economies of scale that lower transmission costs of participants in those projects.

"We are sitting in the middle of this vast renewable energy resource"

-IID Board President Stella Mendoza-

IID's Service Territory and Renewable Resource Areas



Vast Renewable Resources in the Imperial Valley

- 555 Megawatts (MW) currently being exported; 2,000 MW geothermal additional energy potential
- 35,000 MW solar generation potential
- Developing wind generation potential
- Developing other Ag-based generation potential

Proposed Generation Projects in IID Service Area

IID's Generator Interconnection queue currently has 20 proposed projects for a total of 1824 MW;

- 350 MW Geothermal
- 850 MW Solar
- 100 MW Wind
- 31 MW Biomass
- 493 MW Fossil Fuel

IID's Renewable Energy Highlights

- IID ***is*** strategically located in one of the richest geothermal resource areas of the United States.

- IID ***is*** committed to furthering the development, use, and export of renewable resources that reside within the IID service territory.

- The IID Board of Directors amended its open access transmission tariff to incorporate the large generator interconnection (LGIA) provisions that provide renewable energy companies with a standard protocol in planning, processing, and scheduling new generator interconnections onto the IID grid and ultimately the Western Grid.

- IID Board of Directors has recently passed a resolution on October 9, 2007 as evidence of its commitment to regional cooperation.

The Board's Resolution of October 9, 2007

The initiatives approved by the Board are meant to increase the District's ability to export energy through its transmission system during the next 10 years.

The District would build a new 230 kV transmission line in the Salton Sea area that would provide access to the District's transmission network in an area where geothermal energy production is expected to be at its greatest. This transmission line will directly benefit a local renewable energy company looking to export renewable resources into Arizona and the Western Grid.

The initiatives call for the District to build new power lines and perform upgrades at key interconnection facilities to accommodate growth as well as provide for reliable export of renewable energy.

What IID Has Done in Support of the Western Grid

The resolution unanimously passed by the IID Board confirming commitment to renewable energy resources and the transfer of energy from those resources to neighbors to the East, West, and North.

Historically IID has been very proactive in its support of "West-wide" solving measures:

- *WestConnect, a collaboration of Southwestern Utilities working to assess stakeholder and market needs and develop cost-effective enhancements to the western wholesale electricity market*

Participation and support of region-wide planning and problem-solving:

- *Southwest Area Transmission ("SWAT")*

IID's Involvement in the PV-Yuma Project

•Provides a new transmission path to export renewable energy from the Imperial Valley into Arizona.

•Enhance System Reliability: Currently, IID is dependent on the Southwest Powerlink to import some of its energy needs (i.e. – San Juan Unit joint ownership). The PV-Yuma Project will provide an additional transmission line into the IID service territory to serve native load.

CONCLUSION

IID has been and remains a Public Power entity committed to serve the needs of the people while recognizing the value of its natural resources to the Western Grid. IID is supportive of the national and states' renewable energy goals and IID believes that development of the Imperial Valley renewable resources will have significant benefit for our customers and customers within the Western Grid.

IID believes that regional energy issues should best be resolved through cooperative efforts with regional planning groups which promote joint transmission projects as encouraged by FERC Order 890.

EXHIBIT
S-1
Admitted

Arizona Corporation Commission

Docket No. L-00000D-07-0566-00135

Palo Verde Hub to North Gila 500 kV Transmission Line Project

Presentation of Staff Witness Prem Bahl

November 19 & 20, 2007

ACC Staff Witness

Name: Prem Bahl

Title: Electric Utilities Engineer

Employer: Arizona Corporation Commission

Address: Utilities Division
1200 W. Washington
Phoenix, AZ 85007

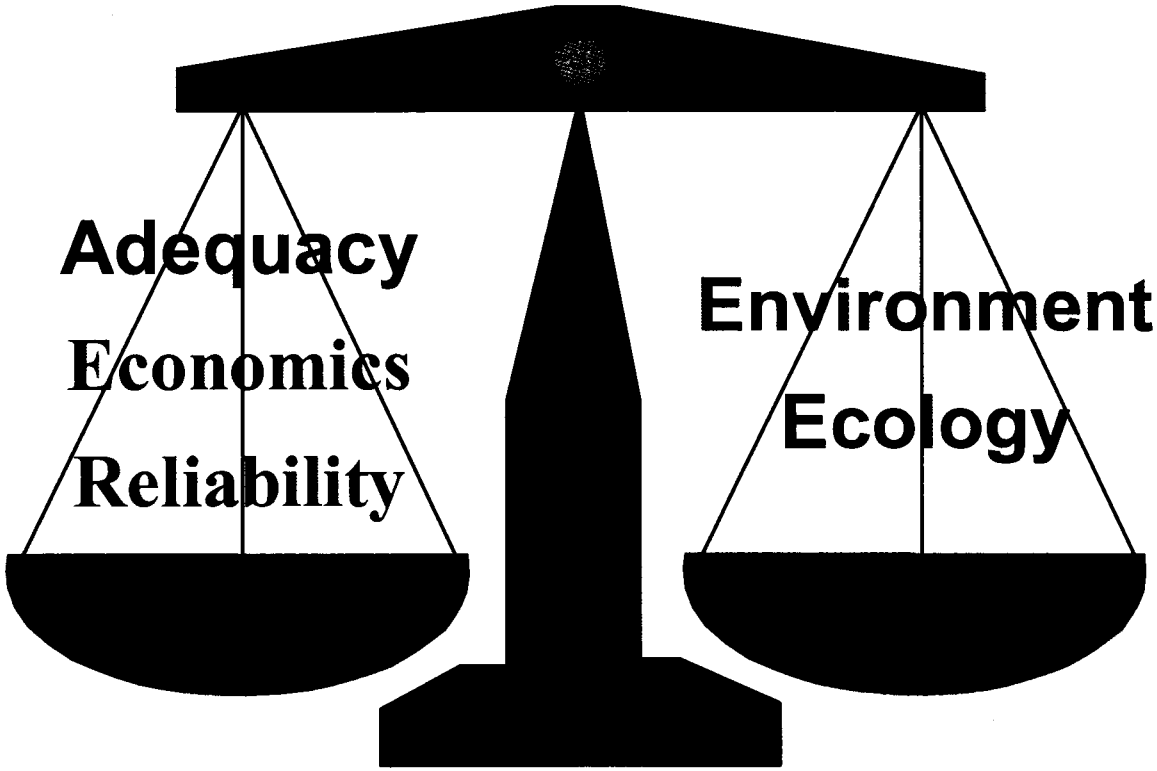
Professional Background

- M.S.E.E. – South Dakota State University (1972)
- Registered P.E. (Arizona) – Electrical (1978)
- 15 Years as Staff Engineer with the Arizona Corporation Commission; two years as Chief Engineer with RUCO; twenty years with Electric Utilities in U.S. and India; and five years with Consulting Engineering firms ~ Commonwealth Associates in Michigan; R.W. Beck Associates in Phoenix, Arizona; and Ralph M. Parsons in Pasadena, California

Purpose of Testimony

- **Establish Hearing Record for the factors listed in ARS § 40-360.06 and ARS § 40-360.07(B)**
- **Staff's Technical Assessment of Project**
  - Justification of Need
  - Project Benefits
  - Staff's Assessment

A.R.S. §40-360-07.B
ACC Balance Test



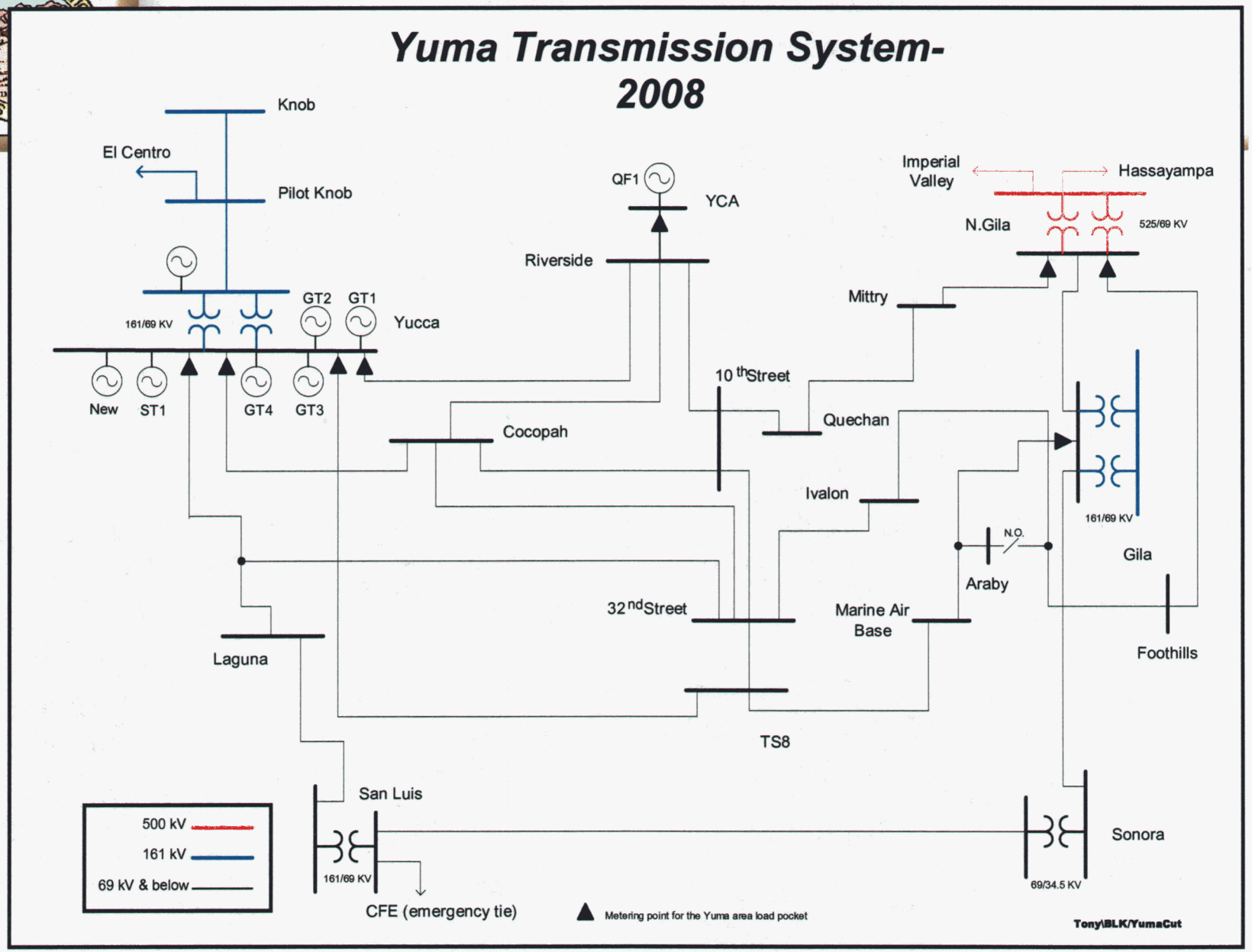
Public Interest

Adequacy and Reliability

Reliability is comprised of two components:

Adequacy - The ability of the electric systems to supply the aggregate electrical demand and energy requirements of their customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements.

Security - The ability of the electric systems to withstand sudden disturbances such as electric short circuits or unanticipated loss of system elements.


Yuma Transmission System-
2008
Knob
El Centro
Pilot Knob
161/69 KV
GT2
GT1
Yucca
New
ST1
GT4
GT3
QF1
YCA
Riverside
Imperial
Valley
Hassayampa
N.Gila
525/69 KV
Mittry
10 thStreet
Quechan
Cocopah
Ivalon
161/69 KV
N.O.
Gila
Araby
32 ndStreet
Marine Air
Base
Foothills
Laguna
TS8
San Luis
Sonora
161/69 KV
69/34.5 KV
CFE (emergency tie)
500 kV
161 kV
69 kV & below
Metering point for the Yuma area load pocket
Tony\BLK/YumaCut

Project Description

- **On October 8, 2007, Arizona Public Service Company "APS" or "Applicant") filed an Application with the Arizona Corporation Commission ("Commission") for a Certificate of Environmental Compatibility ("CEC") for the proposed construction of a second 500 kV line from Palo Verde Hub to North Gila Substation ("Project" or "Line")**

- **Potential participants with their respective share in the Project :**
  - APS 40%
  - Salt River Project 20%
  - Imperial Irrigation District 20%
  - Welton Mohawk Irrigation and Drainage District 20%

History of the Project

- **The Project has been included in:**
  - APS' 10-year Plan filings (per A.R.S. § 40-360-02) since 2005.
  - Biennial Transmission Assessment ("BTA") 2006.
  - Southwest California Transmission Expansion Plan ("STEP") studies
  - Southwest Area Transmission Planning ("SWAT") studies
  - East of the River ("EOR") upgrade studies

Project Need

- Yuma's peak demand forecasted to grow from 400 MW in 2006 to 563 MW in 2015 (Re: BTA 2006)
- Reliability Must-Run ("RMR") conditions exist in the Yuma area in 2008 and 2015
- Additional load serving capability needed to meet the rapidly growing customer load in the Yuma area
- Proposed Palo Verde – North Gila 500 kV Line #2 and proposed 96 MW Generation Plant in 2008 will be needed to meet future load requirements in Yuma

Project Benefits

- In conjunction with the new 96 MW Combustion Turbine Plant under construction in Yuma, the Project effectively manages RMR conditions in the Yuma area in 2008 & 2015 by providing a significant increase in transmission import capability

- Improves reliability of the regional transmission grid, and increases interstate power transfers

- Provides an additional path to import renewable resources such as solar from the southwestern Arizona area, and geothermal from the Imperial Irrigation District area

Project Benefits (contd.)

- Provides a path for Welton Mohawk Irrigation & Drainage District to import additional resources to meet its load. These resources could be available from the Palo Verde Hub and from adjoining states, at a minimum of 250 MW, which is Welton Mohawk's entitlement in the Project

- Enhances the scheduling capability or to the Yuma area by about 1250 MW

- Reduces environmental impacts by the Line running parallel to the north side of the existing Palo Verde to North Gila 500 kV Line #1 in the same corridor, in terms of not passing through any pristine areas, affecting endangered species, etc. The Proposed Route would be primarily located within a BLM-designated utility corridor, crossing a minimal amount of developed land. There would be little need for building new access roads for construction and maintenance

Staff's Assessment

- Staff believes Palo Verde to North Gila 500 kV Project is needed
- Applicant has performed the Palo Verde Hub Risk Assessment study prior to filing its Application for the grant of Certificate of Environment Compatibility ("CEC"), as required by the Biennial Transmission Assessment 2006 approved in Decision No. 69389.
- The study results show that the Project has no adverse impact on the interconnected transmission grid. There is no need for Remedial Action Scheme to drop load or trip generation for an N-1 contingency.

Staff's Assessment

- Staff believes that the Palo Verde to North Gila Project is a good example of regional planning and collaboration by all stakeholders. Staff also believes that multiple participant projects minimize the need for unnecessary redundant projects.
- Applicant is a member of the WECC and has started the WECC Regional Planning Project Review Process
- Applicant is a member of the WECC Transmission Expansion Planning Policy Committee ("TEPPC")
- Applicant is a member of the Southwest Reserve Sharing Group ("SRSG")

Recommendations

- **Staff recommends that the Applicant meet the following conditions if a CEC is granted in this proceeding:**
  - Construction of the Project shall expire five years from the date the Certificate is approved by the Commission; provided, however, that prior to such expiration the Applicant or its assignees may request that the Commission extend this time limitation.
  - Applicant shall conform to WECC/NERC N-1 and N-1-1 contingency planning criteria. N-1 contingency shall not result in any load dropping or generation tripping.
  - Spacing between the center lines of the two 500 kV systems should be a minimum of the greater: 1) 130 feet; or 2) the height of the tallest tower in a given span.

Recommendations

- Before commencing construction of Project facilities located within 100 feet of any existing natural gas or hazardous liquid pipeline, the Applicant shall:

  (a) perform the appropriate grounding and cathodic protection studies to show that the Project's location within 100 feet of such pipeline results in no material adverse impacts to the natural gas or hazardous liquid pipeline or to public safety when both are in operation. As a compliance matter, a report of studies shall be provided to the Commission Staff. If material adverse impacts are noted in the studies, Applicant shall take appropriate steps to ensure that such material adverse impacts are eliminated. Applicant shall provide to the Commission Staff written documentation of the actions that will be taken and documentation showing no material adverse impact will occur; and

Recommendations

(b) perform a technical study simulating an outage of the facility that may be caused by the collocation of the Project within 100 feet of the existing natural gas or hazardous liquid pipeline. This study should either: i) show that such outage does not result in customer outages; or ii) include operating plans to minimize any resulting customer outages. Applicant shall provide a copy of this study to Commission Staff.

Recommendations

- Applicant shall pursue good faith efforts to reach a commercially reasonable agreement for interconnection at a new Arlington Valley 500kV switchyard or a new Red Hawk 500kV switchyard. Interconnection at the Hassayampa switchyard should be Applicant's last resort.
- Applicant shall file with the ACC Utilities Division no later than December 31, 2010, a report summarizing its efforts, the option(s) ultimately selected, and the reasons other option(s) were not selected.
- Applicant will not sign an Interconnection Agreement to interconnect at the Hassayampa Switchyard until completion of the above requirements.

Questions ?

Arizona Corporation Commission

Docket No. L-00000D-07-0566-00135

Palo Verde Hub to North Gila 500 kV Transmission Line Project

Presentation of Staff Witness Prem Bahl

November 19 & 20, 2007

ACC Staff Witness

Name: Prem Bahl

Title: Electric Utilities Engineer

Employer: Arizona Corporation Commission

Address: Utilities Division
1200 W. Washington
Phoenix, AZ 85007

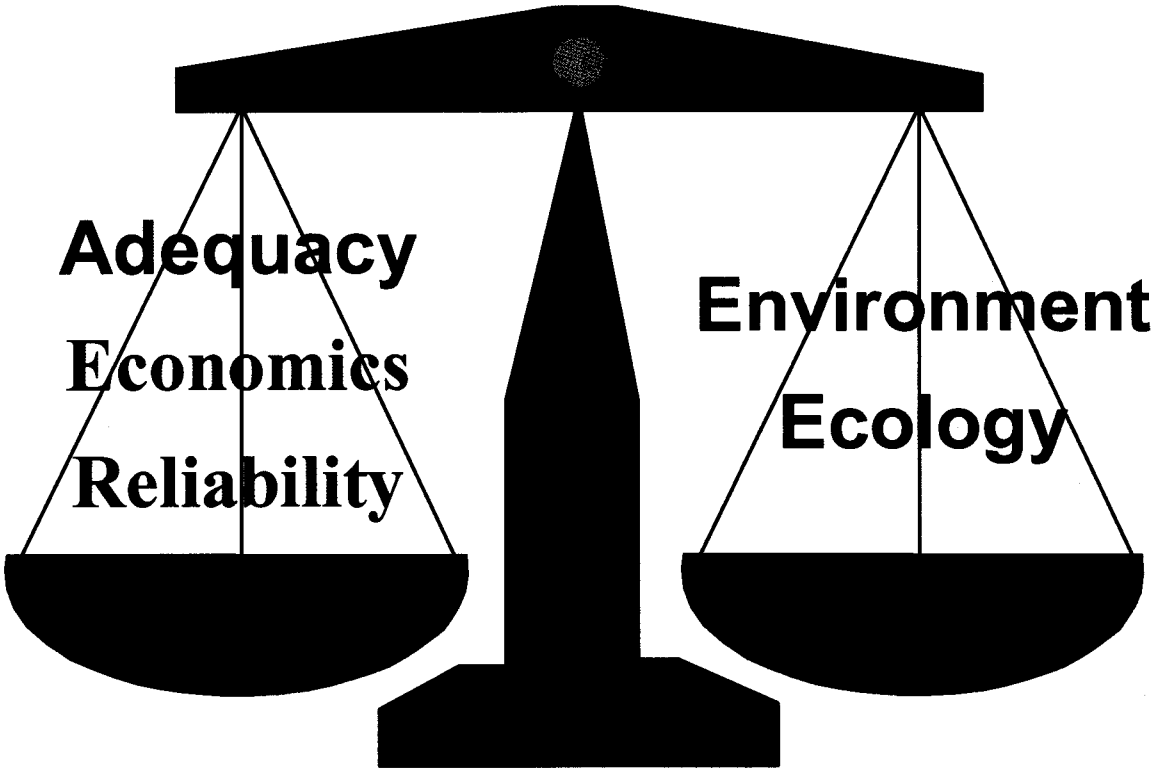
Professional Background

- M.S.E.E. – South Dakota State University (1972)
- Registered P.E. (Arizona) – Electrical (1978)
- 15 Years as Staff Engineer with the Arizona Corporation Commission; two years as Chief Engineer with RUCO; twenty years with Electric Utilities in U.S. and India; and five years with Consulting Engineering firms ~ Commonwealth Associates in Michigan; R.W. Beck Associates in Phoenix, Arizona; and Ralph M. Parsons in Pasadena, California

Purpose of Testimony

- **Establish Hearing Record for the factors listed in ARS § 40-360.06 and ARS § 40-360.07(B)**
- **Staff's Technical Assessment of Project**
  - Justification of Need
  - Project Benefits
  - Staff's Assessment

A.R.S. §40-360-07.B
ACC Balance Test



Public Interest

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Economic Impacts of the Palo Verde – North Gila Transmission Line

Bob Gray, ACC Staff

November 2007

Docket Number: L-00000D-07-0566-00135

Economic Impact Analysis

- APS did not conduct an analysis or modeling of the economic or ratemaking impacts of the proposed transmission line
- Staff will provide some general perspectives on possible economic and ratemaking impacts of the proposed transmission line
- Given the primary purpose of the proposed transmission line is reliability, economic impacts may be of lesser relative importance

Interests and Impacts Vary for Four Project Participants

- APS will use the project to meet growing electricity demand in the Yuma area, improve reliability, and increase export capability at the Palo Verde hub
- Salt River Project will use the project to access geothermal resources in the Yuma area
- Wellton-Mohawk Irrigation and Drainage District will use the project to reinforce its transmission capabilities
- The Imperial Irrigation District is another project participant

Impacts on the Yuma Area

- APS would have a significantly greater choice of supply options for meeting its growing electric loads in the Yuma area, due to the proposed transmission line, APS' additional Yuma generation capacity being developed, and the proposed San Luis Rio Colorado plant nearby
- APS would have greater flexibility in managing its natural gas supplies in the area

Other Electric Generation Impacts of Proposed Transmission Line

- APS may be able to use more efficient gas-fired generation in the Palo Verde area, rather than older, less efficient units in the Yuma area, thus reducing costs (2006 ACC BTA estimates a savings of $1.3 million)
- Some amount of additional off-system electricity sales may be available for electric generators, depending upon the availability of transmission capacity into California and other areas
- Some level of additional natural gas-fired generation activity in the Palo Verde area could occur

Impacts on Wholesale Electricity Prices and Ratepayers

- Absent modeling of the transmission system, it is difficult to estimate possible price and rate impacts
- Impacts are likely to change over time due to changing conditions such as additional infrastructure
- Staff believes that any wholesale price and ratepayer impacts are likely to be relatively small

Summary

- As previously noted, this project is driven by reliability issues, rather than economic issues
- There is no indication that there are any economic issues in this case that would cause Staff to oppose this project

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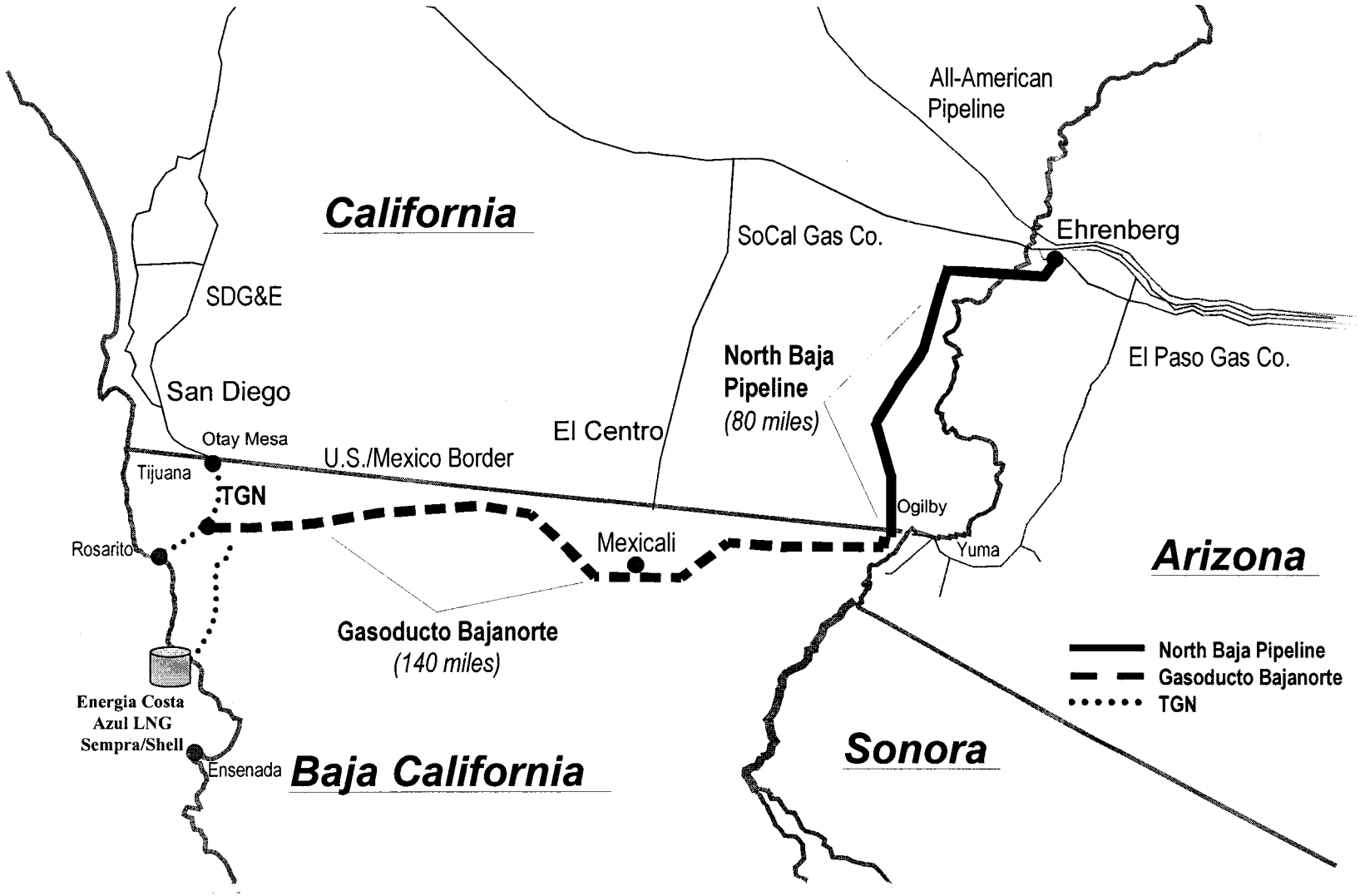
Admitted

Summary of Natural Gas Issues

Bob Gray, ACC Staff

November 2007

Docket Number: L-00000D-07-0566-00135



Source: TransCanada presentation to ACC on 10-30-07

Energy Constraints in the Yuma Area

- Not only is the Yuma area constrained from an electric transmission capacity perspective, the Yuma area is also capacity constrained from a natural gas perspective
- Currently the only natural gas service to the Yuma area is via a 90-mile El Paso Natural Gas Company lateral that is fed from El Paso's southern pipeline system
- APS currently holds pipeline capacity on the Yuma lateral to service its existing generation facilities. Southwest Gas also holds pipeline capacity on the Yuma lateral to serve its local loads.
- In 2006 when El Paso began offering premium services on its pipeline system, it was unable to offer these services on the Yuma lateral due to capacity constraints

Recent Natural Gas Developments

- On October 10, 2007, FERC held a technical conference regarding El Paso's daily balancing penalty proposal
- The ACC held its winter preparedness workshop on October 30, 2007
- At the winter preparedness workshop, APS stated that it expects to enter into a precedent agreement with El Paso in 30-60 days regarding participation in a natural gas storage facility in Arizona, likely El Paso's potential facility near Eloy, Arizona
- Transwestern Pipeline anticipates final FERC approval for its Phoenix Expansion Project in November 2007

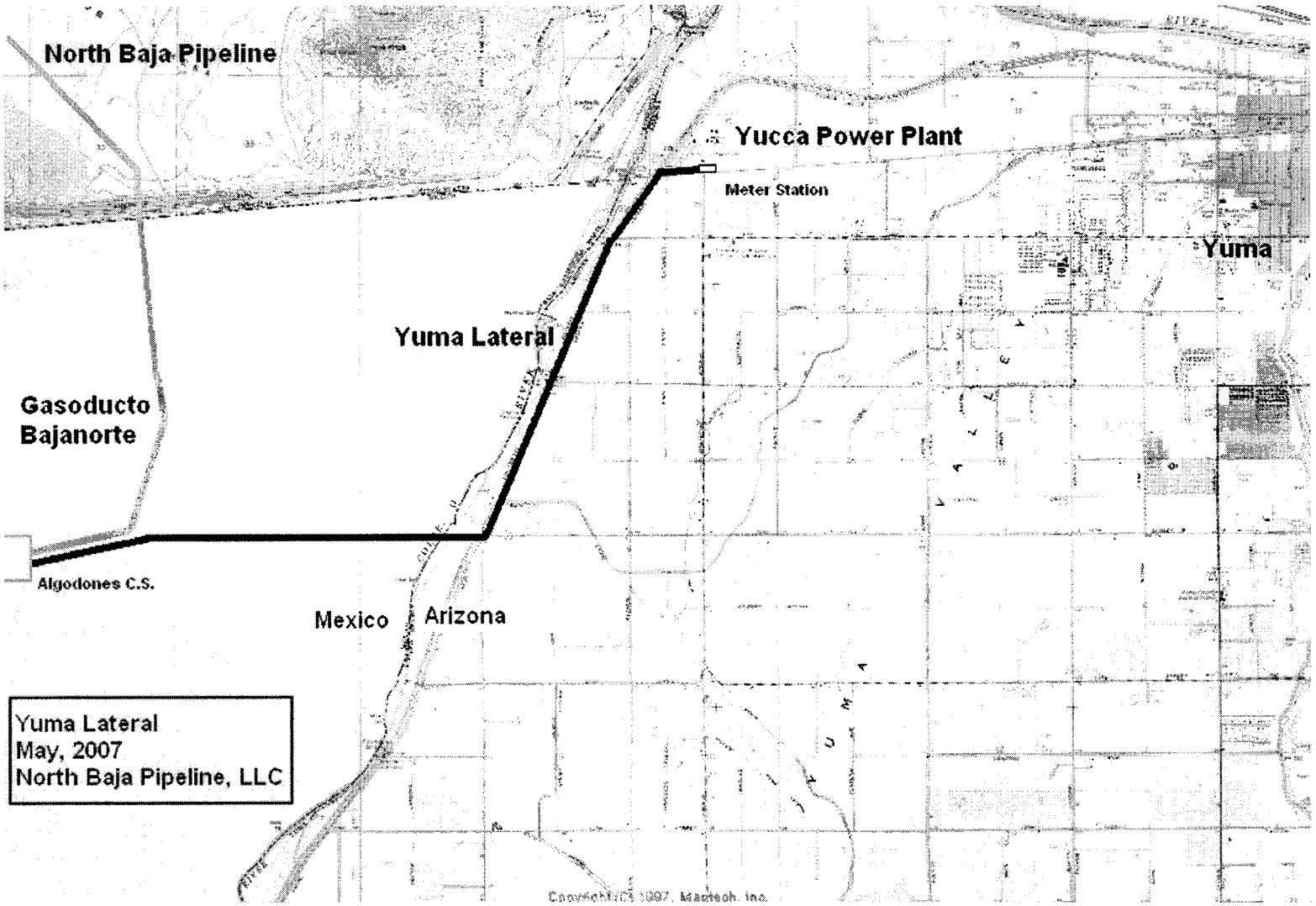
Growing Demand for Natural Gas

- Yuma is a growing area, leading to general demand growth for residential and commercial natural gas consumption
- APS is currently installing 96 MW of additional gas-fired generation capacity at the existing Yucca generation site, with an expected in-service date of mid 2008
- There is a proposal to build a 550 MW gas-fired plant just across the Mexican border at San Luis Rio Colorado in Sonora

Natural Gas Supplies

- The North Baja Pipeline is in the pre-filing process at FERC to construct a 7 mile, 12-inch lateral from its pipeline in California to the APS Yucca site near Yuma
- The San Luis Rio Colorado plant would likely be served off of the Gasoducto Bajanorte pipeline in Mexico

Yuma Lateral - Map



Source: TransCanada presentation to ACC on 10-30-07

Impact of the Palo Verde – North Gila Transmission Line on Natural Gas Consumption

- The proposed transmission line could relieve natural gas demand on local gas-fired generation in the Yuma area, possibly helping ease natural gas constraints around Yuma
- The proposed transmission line could lead to some increment of additional natural gas consumption by Palo Verde area plants

APS' Role in Natural Gas Infrastructure Development in Arizona

- APS is an anchor shipper on the pending Transwestern Phoenix Expansion pipeline
- APS' anticipated participation in the pending El Paso project may help bring the first natural gas storage facility to Arizona
- Given the fast-growing demand for natural gas in Arizona, particularly for electric generation, APS will continue to be an important player in developing natural gas infrastructure to meet Arizona's future needs