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COVER SHEET

LEAD FEDERAL AGENCY: U.S. Department of Energy

COOPERATING AGENCIES: U.S. Department of the Navy, U.S. Bureau of Reclamation, U.S. Bureau of Land Management, City of Yuma

TITLE: Draft Environmental Impact Statement for the San Luis Rio Colorado Project, DOE/EIS-0395

LOCATION: Yuma County, Arizona

CONTACT:	For additional information on this Draft Environmental Impact Statement, contact:	For general information on the U.S. Department of Energy National Environmental Policy Act process, write or call:
	Mr. Mark J. Wieringa Western Area Power Administration P.O. Box 281213 Lakewood, CO 80228 Telephone: (800) 336-7288 Fax: (720) 962-7263 E-mail: wieringa@wapa.gov	Ms. Carol M. Borgstrom, Director Office of NEPA Policy and Compliance Health, Safety and Security (GC-20) U.S. Department of Energy Washington, DC 20585 Telephone: (202) 586-4600 or (800) 472-2756

ABSTRACT: The U.S. Department of Energy (DOE) has received applications and requests of approval from North Branch Resources, LLC (NBR) and Generadora del Desierto, S.A. de C.V. (GDD), for the proposed San Luis Rio Colorado Project (Proposed Project). GDD and NBR (collectively termed the Applicants) are each wholly owned subsidiaries of North Branch Holding, LLC. GDD applied to the Office of Electricity Delivery and Energy Reliability (OE), an organizational unit within DOE, for a Presidential permit to construct, operate, maintain, and connect a double-circuited 500,000-volt (500-kilovolt [kV]) electric transmission line across the United States-Mexico international border. NBR submitted a request to Western Area Power Administration (Western), another organizational unit within DOE, for interconnection of the proposed transmission line to Western's Gila Substation. The proposed transmission line would originate at the proposed San Luis Rio Colorado (SLRC) Power Center in Sonora, Mexico, interconnect with Western's existing Gila Substation, and continue to Arizona Public Service Company's (APS) North Gila Substation. The Proposed Project would require expanding Gila Substation and additional equipment at North Gila Substation; all of the proposed transmission components would be located in Yuma County, Arizona. Depending on the route ultimately selected, the total length of the transmission system within the United States would be approximately 26 miles; 21 miles from the international border to Gila Substation and 5 miles from Gila Substation to North Gila Substation. Portions of the proposed transmission line would cross lands owned and/or managed by U.S. Bureau of Reclamation (Reclamation); the U.S. Department of the Navy (Navy), a branch within the U.S. Department of Defense; State of Arizona lands; and private lands. In Mexico, GDD plans to construct and operate the SLRC Power Center, a new 550-Megawatt (MW) nominal (605-MW peaking) natural gas-fired, combined-cycle power plant located approximately 3 miles east of San Luis Rio Colorado, Sonora, Mexico, and about 1 mile south of the international border. While this facility is not subject to the United States' regulatory requirements, DOE evaluated impacts within the United States from its operation as part of its impact analysis. Western must consider approving the interconnection request. OE must consider approving the Presidential permit. Reclamation and Navy must consider granting rights-of-way or easements across the lands they manage.

Comments on this Draft Environmental Impact Statement should be sent only to Western Area Power Administration at the address below. Comments must be postmarked not later than December 26, 2006.

Mr. John Holt, Environmental Manager
Western Area Power Administration, Desert Southwest Region
P.O. Box 6457
Phoenix, AZ 85005-6457

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Please note: Missing pages contain figures which can be found in the “Figures” folder on the San Luis Rio Colorado Project Draft Environmental Impact Statement compact disc (CD). Some of the figures were removed from this file to decrease file size for ease of downloading and/or viewing.

S SUMMARY

The U.S. Department of Energy (DOE) received applications from North Branch Resources, LLC (NBR) and Generadora del Desierto S.A. de C.V. (GDD) for the proposed San Luis Rio Colorado Project (Proposed Project). GDD and NBR (collectively termed the Applicants) are each wholly owned subsidiaries of North Branch Holding, LLC. GDD applied to the Office of Electricity Delivery and Energy Reliability (OE), an organizational unit within DOE, for a Presidential permit to construct, connect, operate, and maintain a double-circuited 500,000-volt (500-kilovolt [kV]) electric transmission line across the United States-Mexico international border. NBR submitted a request to Western Area Power Administration (Western), another organizational unit within DOE, to interconnect the proposed transmission line to Western's Gila Substation. The proposed transmission line would originate at the San Luis Rio Colorado (SLRC) Power Center, interconnect with Western's existing Gila Substation, and continue to Arizona Public Service Company's (APS') North Gila Substation. The Proposed Project would require an expansion of Gila Substation and additional equipment at North Gila Substation; all of the proposed transmission components would be located in Yuma County, Arizona. Depending on the route ultimately selected, the total length of the 500-kV transmission system within the United States would be approximately 25.7 miles—21 miles from the United States-Mexico border to Gila Substation and 4.7 miles from Gila Substation to North Gila Substation. Portions of the proposed transmission line would cross lands owned and/or managed by U.S. Bureau of Reclamation (Reclamation); U.S. Department of the Navy (Navy), a branch within the U.S. Department of Defense; State of Arizona lands; and privately-owned land. Inside Mexico, GDD plans to construct and operate the SLRC Power Center, a new 550-Megawatt (MW) nominal (605-MW peaking) natural gas-fired, combined-cycle power plant located approximately 3 miles east of San Luis Rio Colorado, State of Sonora, Mexico, and about 1 mile south of the international border. While this facility is not subject to the United States' regulatory requirements, Western evaluated impacts within the United States from its operation as part of the impact analysis. The Proposed Project would require a short (approximately 1-mile-long) double-circuit 500-kV transmission line to interconnect the SLRC Power Center to the proposed transmission components at the United States-Mexico border.

The Applicants propose that within the United States, Western would construct, own, operate, and maintain the double-circuit 500-kV transmission components at the Applicants' expense. These components would consist of a double-circuit 500-kV transmission line between the Point of Change of Ownership near the international border and Western's existing Gila Substation; a 500/69-kV addition adjacent to the Gila Substation; and a double-circuit 500-kV transmission line between Gila Substation and APS' North Gila Substation. Western is favorably considering the proposal to construct, own, operate, and maintain the transmission components; the acceptance of this proposal is contingent under a separate agreement, related to the interconnection request, between Western and the Applicants.

S.1 Purpose and Need for Agency Action

The National Environmental Policy Act (NEPA) and associated regulations are designed to address discretionary decisions that are made by a Federal agency. The purpose and need for the decisions of the Federal agencies regarding the Proposed Project are discussed below.

Western Area Power Administration

Western's decision is to grant or deny an interconnection request at its Gila Substation under the provisions of its Open Access Transmission Services Tariff, which complies with the intent of Federal Energy Regulatory Commission (FERC) Orders for providing nondiscriminatory transmission access.

Office of Energy Delivery and Electricity Reliability

OE's decision, under Executive Order 10485, as amended by Executive Order 12038, is to grant or deny a Presidential permit for the construction, operation, maintenance, and connection of the proposed 500-kV transmission line that would cross the United States-Mexico border. In addition, under Section 202(e) of the Federal Power Act, DOE must determine whether to grant or deny authorization to export electricity from the United States to Mexico.

U.S. Bureau of Reclamation

Although formal right-of-way (ROW) applications have not yet been filed, Reclamation's purpose and need for agency action is to respond to the ROW requests for portions of the proposed transmission line route crossing Reclamation managed lands.

U.S. Bureau of Land Management

The Proposed Project does not require a Federal action involving BLM; however, BLM is participating as a cooperating agency with special expertise under NEPA in the EIS process for the Proposed Project. The Proposed Project would cross the flat-tailed horned lizard Yuma Desert Management Area. As a constituent of the Flat-tailed Horned Lizard Interagency Coordinating Committee, BLM has jurisdiction by special expertise with respect to environmental impacts in the flat-tailed horned lizard management area.

U.S. Department of the Navy

The Navy's purpose and need for agency action is to respond to an easement request for a portion of the proposed transmission line route crossing the northwestern boundary of the Barry M. Goldwater Range (BMGR). Although much of the day-to-day responsibility for managing the BMGR West, the portion of the BMGR located west of the Gila Mountains, has been delegated to the Commanding Officer of the Marine Corps Air Station (MCAS) Yuma, ultimately the Secretary of the Navy is responsible to the public and Congress for managing the resources and administering real estate licenses on the BMGR West.

S.2 Applicants' Purpose and Goals

Analyses that have been performed regarding power requirements show that additional power sources will soon be required in the southwestern United States and Mexico. These studies indicate that additional peak power will be needed by 2009, although recent events indicate that the power is likely to be needed sooner.

The Yuma Transmission Import Constraint Area was identified as a load pocket (area consuming electricity) within Arizona in the *Second Biennial Transmission Assessment 2002-2011* (ACC 2002), approved by the Arizona Corporation Commission (ACC) in December 2002. In addition, the ACC identified the Yuma area as having insufficient local generation and a constrained transmission system. The Yuma load pocket represents a need for additional local generation and a need to relieve reliance on the existing small, older, less efficient, and higher polluting "reliably must run" (RMR) generation facilities in the Yuma area. Currently, a number of generating units in Arizona are designated as RMR because they are required to run during certain conditions for the load-serving utility to provide reliable service to its retail customers in that load pocket. One of the ACC's goals is to mitigate or eliminate RMR conditions within Arizona to ensure reliability of power supplies. Similarly, the region in Mexico near the proposed power plant (Sonora and Baja) has a significant deficit of power (3,000-MW deficit that is growing 7 percent annually), and the Proposed Project could also supply power to Mexico.

The Applicants' purpose and need is to develop and construct a power generation and transmission project that would serve these identified regional power needs. To remain economically viable, the Applicants are basing their Proposed Project on the power plant site already owned by GDD and reasonable transmission alternatives connecting this site to the existing Gila and North Gila substations. These are the closest substations in the U.S. transmission system that would be capable of handling the generation from the proposed SLRC Power Center. The Applicants' power plant site is near enough to the border to allow for private ownership and control of the transmission line section in Mexico.

The Applicants have a number of objectives that they intend to achieve with their Proposed Project. These include:

- Generation of electrical power on the site in Mexico owned by GDD that will go through the permitting process by the Mexican government.
- Construction of a modern natural gas-fired power plant using best available technology and operated to U.S standards, including air emissions.
- Transmission of power across the international border into the United States.
- Interconnection with the Mexican Comision Federal de Electricidad (CFE) national power system for sale of generated power in Mexico.
- Interconnection with Western's Gila Substation and APS' North Gila Substation to allow transmission and sale of the Applicants' generated power in the United States.
- Construction and operation of a transmission link that meets N-1 reliability criteria (N-1 reliability criteria ensures that the loss of any single piece of equipment would not result in the loss of electrical load).

- Minimization of costs through a reasonably direct transmission path to Gila and North Gila substations, close proximity to an existing CFE substation, proximity to a suitable natural gas supply, and contracts for the use of effluent from the San Luis Rio Colorado wastewater treatment plant to be used for cooling water at the SLRC Power Center.
- A proposed power plant that has the support of the Mexican government, approval for export of power out of Mexico on transmission lines controlled by the Applicants, and acceptable tax treatment.
- Construction and operation of a technically feasible and economically viable project.

S.3 Public Involvement

The Applicants’ Proposed Action (figures S-1 through S-4, described in section S.4) was presented at stakeholder and scoping meetings to provide a basis for discussion of issues and to assist with identifying potential alternatives to be evaluated in the EIS. The alternatives presented in this document were either identified in response to public issues and concerns or were directly recommended by the public or stakeholders.

Stakeholder Meetings

Western held stakeholder meetings in February 2006 prior to scoping meetings to create an early and ongoing outreach effort with potentially interested parties within the Proposed Project area. Table S-1 lists the dates, locations, and attendees of stakeholder meetings.

Table S-1. Stakeholder Meetings

Date	Location	Attendees
February 6, 2006	Reclamation – Yuma Area Office	Reclamation, Western, NBR
	Booth Machinery	Yuma Irrigation District, North Gila Irrigation District, Landowners, Western, NBR
	APS – Yuma Office	APS, Western, NBR
	Border Patrol – Yuma Sector Headquarters	Border Patrol, Western, NBR
	Yuma Mesa Irrigation and Drainage District	Yuma Mesa Drainage and Irrigation District, Western, NBR
February 7, 2006	Yuma County Water Users’ Association	Yuma County Water Users’ Association, Wellton-Mohawk Irrigation and Drainage District, Western, NBR
	International Boundary and Water Commission – Yuma Office	International Boundary and Water Commission, Western, NBR
	Yuma County – Department of Development Services	Yuma County Planning Department, City of San Luis Planning Department, Western, NBR
February 8, 2006	MCAS Yuma	MCAS Yuma, Western, NBR
	Yuma County Chamber of Commerce	Chamber of Commerce, Western, NBR
	City of Yuma – City Hall	City of Yuma, Western
	BLM – Yuma Field Office	BLM, Western

The purpose of the meetings was to create awareness and inform stakeholders of the Proposed Project, solicit comments, and assist in identifying issues. The meetings assisted with identifying

additional key stakeholders, preferences for public involvement opportunities, key community issues, and recommendations for alternatives. Stakeholder comments are included in Table S-2, Scoping Comment Summary; recommendations for alternatives were combined with other recommendations for alternatives that were received during scoping and are depicted in figure S-5. Coordination with stakeholders continued throughout the scoping period.

Notice of Intent

The “Notice of Intent to prepare an Environmental Impact Statement and to conduct public scoping meetings; notice of floodplains and wetland involvement” was published in the *Federal Register* (71 FR 7033) on February 10, 2006. The Notice of Intent (NOI) included information on the Proposed Project, time and location of the February 28 and March 1, 2006, scoping meetings, and contact information for questions pertaining to the Proposed Project.

Public Scoping Meetings

Four public scoping meetings were hosted by Western during the public scoping process. The February 28 and March 1, 2006, meetings were announced in the *Federal Register*, local NOI newsletter, and advertisements in the *Yuma Sun* and *Bajo El Sol*, the regional Spanish-language news publication. Additional meetings, March 9 and March 10, 2006, were announced in a second notice mailing and advertisements in the *Yuma Sun* and *Bajo El Sol*. A local NOI newsletter mailing was provided in both English and Spanish to a distribution list that included local government officials, agencies, tribes, potentially affected landowners, and individuals. Scoping meetings were held using an open house format to allow for an informal one-on-one exchange of information. The same information was available at each meeting.

Comments

Comments received during scoping on the Proposed Project are summarized in table S-2. Comments were used to identify issues and potential transmission line routing segment options (figure S-5) to be evaluated in this draft environmental impact statement (DEIS). A scoping update, including comment summary and frequently asked questions for the Proposed Project in both English and Spanish, was mailed to a distribution list that included local government officials, agencies, tribes, potentially affected landowners, and individuals in June 2006.

Table S-2. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
Agriculture	<ul style="list-style-type: none"> ● Pest control compromises because of the structure height, resulting in reduced crop yields ● Food safety because the line will attract larger bird populations ● Increases to ground preparation and cultivation costs due to structures 	<p>Western evaluated the opportunity to consolidate some of the existing transmission lines with the proposed transmission lines. In this instance, the number of wires would not increase and the distance between poles may increase, creating fewer obstructions. These issues are evaluated in the Land Use sections (3.6 and 4.6).</p>
Air Quality	<ul style="list-style-type: none"> ● Air quality impacts on the city and county of Yuma ● Impacts to human health from particulate matter smaller than 10 microns 	<p>These issues are evaluated in the Air Quality sections (3.3 and 4.3) of the EIS.</p>
Aviation Safety	<ul style="list-style-type: none"> ● Impact of the Proposed Project on future development of the existing Rolle Airstrip ● Impacts to military aviation operations on the BMGR ● Impacts to flight safety at the Marine Corps Air Station/ Yuma International Airport 	<p>These issues are evaluated in the Land Use (3.6 and 4.6) and Transportation (3.7 and 4.7) sections. Western coordinated with MCAS Yuma to identify potential alternatives and mitigation measures to minimize potential impacts to aviation.</p>
Cost	<ul style="list-style-type: none"> ● Interest in commercial costs and rates for the power and energy from the Proposed Project 	<p>The SLRC Power Center would be an independent power producer and would sell on the wholesale power market compared with a regulated utility providing electrical service at retail commercial and residential rates (section 2.1.2).</p>
Cumulative Impacts	<ul style="list-style-type: none"> ● Impacts to Wellton-Mohawk Title Transfer lands near North Gila Substation ● Relationship of this Proposed Project to APS’ proposal for the Palo Verde to North Gila Transmission project; any cumulative impacts, growth-inducing impacts or need to expand the North Gila Substation ● Cumulative impacts related to the Area Service Highway proposal and the Arizona Clean Fuels pipeline and refinery proposal ● Cumulative impacts related to the flat-tailed horned lizard 	<p>Depending on the approach needed to go into the proper bay at North Gila Substation, a small portion of Wellton-Mohawk Title Transfer lands could be crossed by the proposed transmission line. Cumulative impacts are discussed in chapter 5.</p>
Environmental Process	<ul style="list-style-type: none"> ● Concern that the National Environmental Policy Act compliance process does not apply to activities that occur in Mexico ● Interest in understanding how the analysis is being conducted 	<p>Action on Mexican land is outside U.S. jurisdiction and is not addressed in the EIS. Emissions data was reviewed and used to determine impacts within the United States.</p> <p>The EIS was developed according to the Council on Environmental Quality’s Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500-1508) and the DOE NEPA Implementing Procedures (10 CFR part 1021).</p>

Table S-2. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
		The EIS documents the analyses conducted with respect to the Proposed Project.
Health & Safety	<ul style="list-style-type: none"> ● Impacts of the Proposed Project on radio, television, cell phones, and satellite dishes ● Impacts to human health from electric and magnetic fields ● Potential for cancer caused by high-voltage transmission lines ● Electromagnetic interference with existing Marine Corps operations, particularly at Cannon Air Defense Complex 	<p>Transmission lines normally do not affect the operation of radios, TVs, cell phones or satellite signal reception unless there is a hardware problem on the transmission line such as a loose connection or damaged insulator. Once identified, these problems are nearly always easily corrected (sections 3.12.3).</p> <p>Impacts to human health from electric and magnetic fields and the potential for cancer is addressed in the Health and Safety sections (3.12 and 4.12).</p> <p>After reviewing Proposed Project information, MCAS Yuma determined that the Proposed Project does not appear to present interference problems for MCAS operations (Section 4.6 Land Use).</p>
Land Use	<ul style="list-style-type: none"> ● Compatibility of the Proposed Project in a 1-mile buffer zone along the BMGR ● Impacts to populations along the transmission line alignment, including residential development between the BMGR and Gila Substation ● Impacts to use at the BMGR ● Impacts to existing live-fire small arms and demolition ranges on the BMGR ● Impacts to a proposed road in the vicinity of the A Canal ● Impacts to future development and land use plans as outlined in Yuma’s General Plan, the city and county Joint Land Use Plan, and the County 2010 Comprehensive Plan 	<p>These issues are addressed in the Land Use sections (3.6 and 4.6).</p>
Paleontology	<ul style="list-style-type: none"> ● Impacts to paleontological resources 	<p>Impacts to paleontological resources are evaluated in the Geology, Soils, Paleontology, and Seismicity sections (3.1 and 4.1).</p>
Power Marketing	<ul style="list-style-type: none"> ● Western’s role, if any, in marketing the power from Mexico to the Yuma area residents ● If not Western, who will market the resources from Mexico? 	<p>Western will not have a role in marketing power from the SLRC Power Center. The Applicants will independently market these generation resources. This topic is not discussed further in this EIS.</p>

Table S-2. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
Power Supply	<ul style="list-style-type: none"> ● Source of natural gas ● Interest in full discussion and assessment of electric power needs and supply within purpose and need section 	<p>The source of the natural gas is discussed in the Activities Outside the United States section (2.1.2).</p> <p>Power need and supply is discussed in chapter 1.</p>
Project Description	<ul style="list-style-type: none"> ● Replacement of both lines between the Gila and North Gila substations ● Need for the Gila to North Gila line ● Scope of the Proposed Project – transmission lines or generating facility? ● Potential for transmission of electricity into Mexico 	<p>These issues are discussed in chapters 1 (Purpose and Need) and 2 (Alternatives).</p>
Safety	<ul style="list-style-type: none"> ● Concern about the potential for increased risk of electric shock ● Need for the transmission line crossing roads to have orange ball markers 	<p>Risk of electric shock is evaluated in the Health and Safety sections (3.12 and 4.12).</p>
Threatened, Endangered, and Special Status Species	<ul style="list-style-type: none"> ● Impacts to the flat-tailed horned lizard management area ● Concern that the flat-tailed horned lizard should be treated as a listed species ● Concern that alternatives should avoid the flat-tailed horned lizard management area ● Concern that route alternatives avoid big-horn sheep habitat in the Gila Mountains ● Propose evaluating impacts to the Sonoran population of the desert tortoise from the Proposed Project ● Impacts to rare plants within 5 miles of the Proposed Project including the sand food, Schott’s wire lettuce, and Pierson’s milkvetch ● Recommend obtaining species list from Arizona Game and Fish Department, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management 	<p>These issues are discussed in the Biological Resources sections (3.4 and 4.4).</p>
Transmission Line Route and Configuration	<ul style="list-style-type: none"> ● Yuma Proving Grounds accepts the proposed transmission line route ● City of Yuma opposes the proposed route ● Recommend the use of 3E as a north-south corridor because 4E is too sandy for equipment; soil is more compacted on 3E ● Recommend the line from Gila Substation move east to the Gila 	<p>These comments were taken into consideration to help identify potential alternatives and are discussed in chapter 2 (Alternatives).</p>

Table S-2. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
	<p>Mountains</p> <ul style="list-style-type: none"> • Propose evaluating alternate routes that cross the international border immediately north of the proposed generation facility, then turn northeast to the BMGR boundary, proceed north paralleling County 4E to the intersection of East County 14½ then turning northeast parallel to A Canal where the line would resume its currently proposed route • Request that a 230-kV alternative be considered • Recommend routing the transmission line through barren, unusable land and avoiding developed areas • Concerns about a utility corridor adjacent to the proposed Area Service Highway; an overpass is required at County 19th • Consider a Fortuna Wash alignment • Recommend avoiding high-value land north of the BMGR; state lands are not a favorable location for power lines; do not disproportionately place lines on state land • Route transmission lines along the gas pipelines for the generating facility • Avoid the A Canal; use the Area Service Highway alignment and move east along the MCAS boundary • Consider an alternative around development at the North Gila Substation • Consider a 230-kV alternative that would tie into the existing Sonora Substation • Recommend the ASH to south side of the A Canal alignment because it would have the least impact to the Ocotillo Master Plan 	
Visual	<ul style="list-style-type: none"> • Impacts on views of the BMGR and Gila Mountains from private property • Propose evaluating impact of using single steel pole structures instead of steel lattice structures to reduce physical footprint and visual impact 	<p>These issues are discussed in the Visual Resources sections (3.8 and 4.8).</p>
Water	<ul style="list-style-type: none"> • Request a letter from Comision Nacional del Agua and the Mexican International Boundary and Water Commission verifying the approved legal use of water for the generating facility 	<p>Comment noted. Water use within a 5-Mile Zone on either side of the border is under regulation by the International Boundary and Water Commission (IBWC). Water use within Mexico in the 5-Mile Zone of the border is under regulation by the</p>

Table S-2. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
		Comisión Internacional de Limites y Aguas (CILA). Permits obtained in Mexico for the Proposed Project are summarized in an appendix to the EIS.
Out of Scope Issues	<ul style="list-style-type: none"> • How can the Federal government ensure compliance with the “promised” air quality standard? 	An overview of the generating facility’s permitting requirements and the associated environmental impact analysis performed by the Mexican government is included as an appendix to the EIS. Emissions data was modeled and used to determine impacts within the United States.
	<ul style="list-style-type: none"> • Impacts to cultural resources in Mexico 	Action on Mexican land is outside U.S. jurisdiction and is not addressed in the EIS. However, the Applicants’ have committed to voluntarily conduct cultural resources surveys in Mexico prior to construction activities on the power plant site and transmission line ROW. The reports from these surveys would be available to interested tribes.
	<ul style="list-style-type: none"> • What is the potential for Mexico cutting off power to the United States? 	DOE performed an electric reliability study to ensure that the existing U.S. power supply system would remain operational upon a sudden loss of power regardless of the outage cause.
	<ul style="list-style-type: none"> • Concern about a generation facility in Mexico 	Action on Mexican land is outside U.S. jurisdiction and is not addressed in the EIS.
	<ul style="list-style-type: none"> • Consider a solar component, photovoltaic, as part of the portfolio 	The Federal action to be evaluated in the EIS is not what kind of power plant to build, but rather for Western to determine whether to grant a transmission interconnection request and for DOE to determine whether to grant a Presidential permit.
	<ul style="list-style-type: none"> • A Mexican plant site does not provide benefits to Yuma 	The Federal action to be evaluated in the EIS is not what kind of power plant to build, but rather for Western to determine whether to grant an interconnection request and for DOE to determine whether to grant a Presidential permit. APS could contract to purchase power from the Proposed Project for local use. The Applicants could construct the San Luis Rio Colorado Power Center and supply power only within Mexico.

S.4 Alternatives

The Applicants' Proposed Action was presented at stakeholder and scoping meetings to provide a basis for discussing issues and to assist with identifying potential alternatives to be evaluated in the EIS. The alternatives presented in this document were either identified in response to public issues and concerns or were directly recommended by the public or stakeholders.

Applicants' Proposed Action

The total length of the Applicants' Proposed Action within the United States would be approximately 25.7 miles, 21 miles from the international border to Gila Substation and 4.7 miles from Gila Substation to North Gila Substation (figure S-1). The proposed transmission line would use steel monopole support structures. As part of the system impact study, Western will evaluate opportunities to consolidate existing transmission between the Gila and North Gila substations with the proposed transmission line. If existing transmission is consolidated, a single-circuit 69-kV transmission line may need to be underbuilt on the proposed transmission support structures; this would increase the height of the structures by 30 feet and require additional transmission support structures.

Modifications to Gila Substation would be necessary to interconnect the proposed 500-kV transmission lines into the substation. These modifications would be located on a federally-owned, 20-acre parcel north of the existing substation boundary and would include a 500/69-kV transformer and associated equipment.

Modifications to North Gila Substation would be necessary to interconnect the 500-kV transmission line. These modifications would be made through an agreement with APS and would occur within the existing substation boundary.

The SLRC Power Center description provided in this DEIS presents a complete picture of the project proposal. This DEIS assesses potential impacts that could occur in the United States from SLRC Power Center construction and operation. This DEIS does not address alternatives to the SLRC Power Center or its location, as that part of the Proposed Project would be located in Mexico and is not subject to NEPA.

The proposed SLRC Power Center would be a new 550-MW nominal (605-MW peak) natural gas-fired, combined-cycle power plant located approximately 3 miles east of San Luis Rio Colorado, State of Sonora, Mexico, and about 1 mile south of the international border. GDD would construct the SLRC Power Center to comply with applicable United States environmental standards in addition to those of Mexico's Instituto Nacional de Ecología. The planned power plant would be equipped with advanced air emissions control technology, including Dry Low Nitrogen Oxides (DLN) Combustion System technology, a Selective Catalytic Reduction (SCR) system for oxides of nitrogen, and catalytic oxidizers for carbon monoxide (CO) emissions control. The proposed power plant would use a wet-dry cooling system to reduce the consumptive use of water as compared with an all wet cooling system. The Applicants would construct an approximately 1-mile-long transmission line between the SLRC Power Center and the Point of Change of Ownership near the United States-Mexico international border.

Route Alternative

The proposed transmission line route alternative (figure S-6) was identified in response to public and stakeholders' comments and potential issues associated with the Applicants' Proposed Action. The Route Alternative is a combination of the Applicants' Proposed Action route and potential transmission line routing segment options.

The total length of the Route Alternative within the United States would be approximately 26.1 miles, 21.2 miles from the international border to Gila Substation and 4.9 miles from Gila Substation to North Gila Substation. The proposed transmission line would use steel monopole support structures. As part of the system impact study, Western will evaluate opportunities to consolidate existing transmission between the Gila and North Gila substations with the proposed transmission line. If existing transmission is consolidated, a single-circuit 69-kV transmission line may need to be underbuilt on the proposed transmission support structures; this would increase the height of the structures by 30 feet and require additional transmission support structures.

Modifications to the Gila Substation would be necessary to interconnect the proposed 500-kV transmission lines into the substation. These modifications would be located on a federally-owned, 20-acre parcel north of the existing substation boundary and would include a 500/69-kV transformer and associated equipment.

Modifications to the North Gila Substation would be necessary to interconnect the 500-kV transmission line. These modifications would be made through an agreement with APS and would occur within the existing substation boundary.

230-kV Alternative

A double-circuit 230-kV transmission line was identified as an alternative that would meet the Proposed Project objectives for transporting electric power and creating additional transmission into the Yuma area and would provide additional benefits. Although the conductor span length between structures would be similar, the 230-kV Alternative would require less ROW and shorter structures than the proposed 500-kV transmission line, resulting in reduced environmental impacts and construction costs. Figure S-7 shows a comparison of a typical 230-kV structure and a 500-kV structure. In addition, the 230-kV Alternative would be consistent with APS' Ten-Year Plan (APS 2003), prepared for the Arizona Corporation Commission.

The 230-kV Alternative would use either the Applicants' Proposed Action route or the Route Alternative and respective access to structures. The 230-kV Alternative would require a 150-foot-wide ROW, which is 25 percent less ROW area than that needed for a project constructed to 500 kV, and would require substation modifications to 230-kV standards instead of 500 kV.

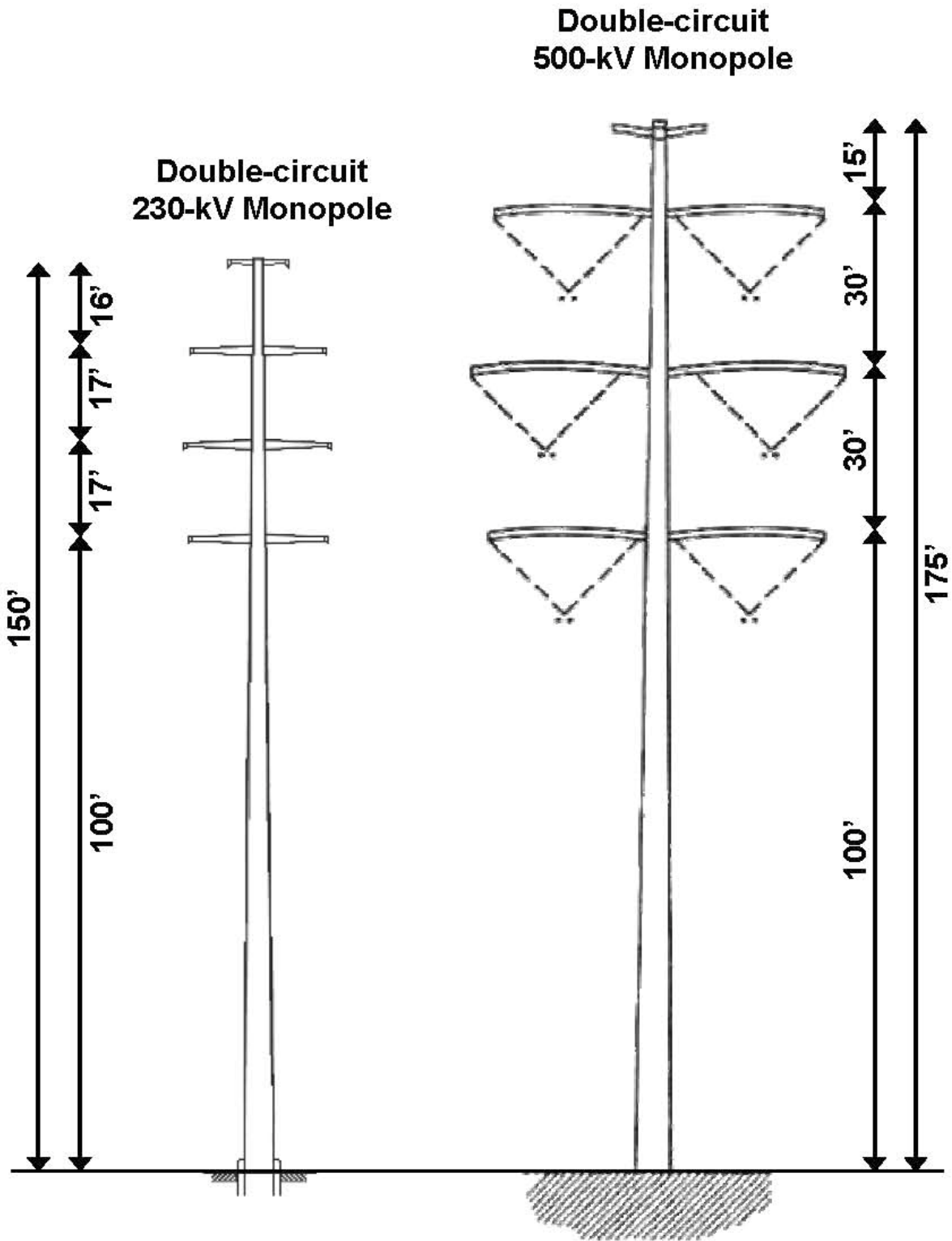


Figure S-7. Comparison of 500-kV and 230-kV Steel Monopole Structures

No Action Alternative

Under the No Action alternative, Western would not approve an interconnection agreement and/or DOE would not issue a Presidential permit; therefore, the proposed transmission lines and access roads within the United States would not be constructed, and the environmental impacts associated with their construction and operation would not occur.

However, the construction and operation of interconnection transmission lines to a CFE substation within Mexico would allow the SLRC Power Center to be constructed, maintained, and operated to deliver power to areas within Mexico. In this scenario, impacts from the operation of the SLRC Power Center similar to those described in this DEIS would occur in the United States. This scenario is not subject to United States regulation because all of the project-related activities would occur within Mexico.

S.5 Impacts

Table S-3 presents a summary of the finding of impacts for each of the alternatives discussed in the DEIS. The table addresses impacts that would result from each of the alternatives after mitigation measures included as part of the Proposed Project design are put into place.

The resources/environmental components evaluated for potential impacts are:

- Geology, soils, paleontology, and seismicity
- Water resources
- Air quality
- Biological resources
- Cultural resources
- Land use and recreation
- Transportation
- Visual resources
- Noise
- Socioeconomics
- Environmental justice
- Health and safety

After reviewing the impacts for each of the alternatives, DOE identified the Route Alternative and 230-kV Alternative as the environmentally preferred alternatives. With this approach, the Proposed Project would use the route from the Route Alternative and construct the Proposed Project to 230-kV standards. The combination of these two alternatives also constitutes DOE's agency preferred alternative.

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
Geology, paleontology, and seismicity	There are no unique or important geologic features within the Proposed Project area. The use of sand and gravel for the Proposed Project would be minimal compared to the known abundance of federally- and privately-owned sand and gravel resources available in Yuma County. The Proposed Project would have a less than significant impact on geological resources, including availability of minerals. Impacts to paleontology would be less than significant because the Proposed Project area is not likely to contain scientifically important fossil resources and fossil resources are not expected to be encountered. The Proposed Project area is within a seismic Zone 4 and the proposed facilities would be constructed and maintained to Federal Uniform Building Code standards for Zone 4 areas; therefore, impacts associated with seismicity would be less than significant.			Current environmental conditions and trends would continue.
Soils¹	<p><u>Temporary disturbance:</u> 134.1 acres for proposed transmission line structures and 5 acres for cable-pulling sites</p> <p><u>Permanent disturbance:</u> 20 acres for Gila Substation modifications and 0.76 acres for proposed transmission line structures, a portion of which would be offset by removal of existing 69-kV H-frame structures between Gila and North Gila substations</p> <p>The Proposed Project would not result in appreciable soil erosion. Impacts would be less than significant.</p>	<p><u>Temporary disturbance:</u> 135.9 acres for proposed transmission line structures and 7 acres for cable-pulling sites</p> <p><u>Permanent disturbance:</u> 20 acres for Gila Substation modifications and 0.77 acres for proposed transmission line structures, a portion of which would be offset by removal of existing 69-kV H-frame structures between Gila and North Gila substations</p> <p>The Proposed Project would not result in appreciable soil erosion. Impacts would be less than significant.</p>	<p><u>Temporary disturbance:</u> Similar for either the Applicants' Proposed Action route or the Route Alternative when combined with the 230-kV Alternative</p> <p><u>Permanent disturbance:</u> 20 acres for Gila Substation modifications and 0.34 acres for proposed transmission line structures, a portion of which would be offset by removal of existing 69-kV H-frame structures between Gila and North Gila substations</p> <p>The Proposed Project would not result in appreciable soil erosion. Impacts would be less than significant.</p>	Current environmental conditions and trends would continue.
Water resources	Groundwater within the 5-Mile Zone of Mexico would be obtained by converting an existing groundwater use (estimated at 300 gallons per minute) to use for potable water at the proposed power plant; therefore, the consumptive use of groundwater would not change and not result in any impact. Cooling water (estimated at 6,336 gallons per minute) for the proposed power plant would come from the San Luis Rio Colorado municipal wastewater treatment plant. All alternatives would span the Gila River and would not place structures within the 100-year floodplain. Temporary dewatering may be necessary during construction in the Gila Valley due to high groundwater levels. Surveys for Water of the United States would be conducted prior to constructing any Proposed Project components, impacts are expected to be less than significant. Impacts to all water resources would be less than significant.			Current environmental conditions and trends would continue.
Air quality	Activities within the United States Fugitive dust from construction and vehicle emissions would be generated during construction and maintenance of the proposed transmission line. With proposed dust control mitigation, these impacts would be temporary and minor; these activities would not affect long-term air quality. Impacts within the Yuma PM ₁₀ non-attainment area would be			Current environmental conditions and trends would continue.

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>below 100 tons per year, thus there would be no conformity issues; therefore, impacts would be less than significant</p> <p>SLRC Power Center The proposed SLRC Power Center located in Mexico would not be a major source of air pollution per the Prevention of Significant Deterioration (PSD) criteria. Anticipated SLRC Power Center emissions combined with the existing background levels would be well below most ambient air quality guidelines. Anticipated SLRC Power Center PM₁₀ emissions combined with the existing background levels would be 75 percent of the guideline due to high existing background levels from both U.S and Mexican sources; however, this amount would still be below the limit. Impacts on air quality within the United States from operation of the SLRC Power Center would be less than significant.</p>			
<p>Biological resources</p> <p>Vegetation and wildlife</p>	<p>Creosotebush – White Bursage (community type/habitat) <u>Permanent disturbance:</u> 0.47 acres (92 instances of 0.0051 acres each) for proposed transmission line, and 20 acres for Gila Substation modifications</p> <p>The Proposed Project would span the Gila River; therefore no new structures would be placed within riparian areas.</p> <p>Impacts would be less than significant.</p>	<p>Creosotebush – White Bursage (community type/habitat) <u>Permanent disturbance:</u> 0.46 acres (91 instances of 0.0051 acres each) for proposed transmission line, and 20 acres for Gila Substation modifications</p> <p>The Proposed Project would span the Gila River. The Route Alternative would cross 0.3 mile of an area containing saltcedar that was mapped as riparian vegetation near Yuma Lakes (Redondo Pond). This habitat has been highly disturbed by recreational use and does not support wildlife species typically found within southwestern riparian zones. Disturbance in this area caused by the Applicant's Route Alternative would not result in a loss of riparian habitat.</p> <p>Impacts would be less than significant.</p>	<p>Creosotebush – White Bursage (community type/habitat) <u>Permanent disturbance:</u> 0.21 acres (91 or 92 instances of 0.0023 acres each) for either proposed transmission line route, and 20 acres for Gila Substation modifications</p> <p>Impacts within riparian areas would be the same as those described for either of the route alternatives.</p> <p>Impacts would be less than significant.</p>	<p>Current environmental conditions and trends would continue.</p>
<p>Special Status Species</p>	<p>Flat-tailed Horned Lizard Management Area (FTHL MA) <u>Permanent disturbance:</u> 0.15 acres permanent disturbance for steel</p>	<p>Flat-tailed Horned Lizard Management Area (FTHL MA) <u>Permanent disturbance:</u> 0.15 acres permanent disturbance for steel</p>	<p>Flat-tailed Horned Lizard Management Area (FTHL MA) <u>Permanent disturbance:</u> 0.07 acres permanent disturbance for steel</p>	

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>monopoles <u>New access: 4.4 miles during construction</u> <u>Adjacency to FTHL MA boundary: 7.9 miles</u></p> <p>The Proposed Project would avoid construction at the Gila River crossing during Yuma clapper rail and southwestern willow flycatcher nesting season and would incorporate mitigation identified in the FTHL Rangewide Management Strategy, impacts to special status species would be less than significant.</p> <p>No adverse effects to other special status species or their habitats are expected.</p>	<p>monopoles <u>New access: 2.8 miles during construction</u> <u>Adjacency to FTHL MA boundary: 5.2 miles</u></p> <p>The Proposed Project would avoid construction at the Gila River crossing during Yuma clapper rail and southwestern willow flycatcher nesting season and would incorporate mitigation identified in the FTHL Rangewide Management Strategy, impacts to special status species would be less than significant.</p> <p>No adverse effects to other special status species or their habitats are expected.</p>	<p>monopoles <u>New access: Similar to the route alternative that would be used</u> <u>Adjacency to FTHL MA boundary: Similar to the route alternative that would be used</u></p> <p>The Proposed Project would avoid construction at the Gila River crossing during Yuma clapper rail and southwestern willow flycatcher nesting season and would incorporate mitigation identified in the FTHL Rangewide Management Strategy, impacts to special status species would be less than significant.</p> <p>No adverse effects to other special status species or their habitats are expected.</p>	
Cultural resources	<p>Impacts to cultural resources, such as prehistoric properties, historic properties, and cultural landscapes, cannot be determined until a 100-percent Class III survey is completed. Western's preferred mitigation is to avoid any identified sites. Currently, a Programmatic Agreement is being developed among Western, the State Historic Preservation Office, affected Federal agencies, Applicants, and all interested Native American Tribes. Compliance with the Programmatic Agreement provisions would ensure that section 106 requirements are met.</p>			<p>Current environmental conditions and trends would continue.</p>
Land use and recreation	<p>The only recreational area within the Proposed Project area is the Yuma Lakes (Redondo Pond); impacts would be less than significant.</p> <p>The proposed transmission line would conflict with a City of Yuma resolution opposing a 500-kV transmission line adjacent to the south side of the A Canal and between the proposed ASH and Interstate 8. This would result in a significant impact. No measures are</p>	<p>The only recreational area within the Proposed Project area is the Yuma Lakes (Redondo Pond). The Route Alternative would not traverse the RV and trailer park area; therefore impacts would be less than the Applicants' Proposed Action and less than significant.</p> <p>The proposed transmission line would conflict with a City of Yuma resolution opposing a 500-kV transmission line adjacent to the</p>	<p>Impacts would be similar in context to the route that would be used. However, the intensity would be less because the 230-kV Alternative would require 25 percent less ROW than a 500-kV transmission line.</p>	<p>Current environmental conditions and trends would continue.</p>

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>recommended to mitigate this impact for the following reasons.</p> <ul style="list-style-type: none"> • The developer of the master-planned community (Ocotillo) identified the south side of the A Canal as the location that would pose the fewest impacts to the planned community because that area was not included in development plans. • A route adjacent to the A Canal provides the greatest potential for joint use of ROW with other linear facilities including the A Canal and Gila-Sonora Transmission Line. • The East Yuma Freeway, a four-lane travel route, is proposed in the City of Yuma Major Roadways Plan 2005 to be located on the south side of the A Canal from the proposed ASH, cross Interstate 8, and terminate at a point east of Avenue 9E. The portion of the East Yuma Freeway between the proposed ASH and Interstate 8 has been removed from future land use planning efforts by City Council actions. <p>Additional impacts:</p> <ul style="list-style-type: none"> • Area of engineering constraint at the intersection of County 19th and Avenue 4E. Engineering constraint at the intersection of County 19th and Avenue 4E 	<p>south side of the A Canal and between the proposed ASH and Interstate 8. This would result in a significant impact. No measures are recommended to mitigate this impact for the following reasons.</p> <ul style="list-style-type: none"> • The developer of the master-planned community (Ocotillo) identified the east side of the proposed ASH for a north-south route between County 13th and the A Canal through the planned community because that location that would pose the fewest impacts to the planned community based on development plans. • The developer of the master-planned community identified the south side of the A Canal between Avenue 6½E and Old Highway 80 as the location that would pose the fewest impacts to the community because that area was not included in development plans. • A route adjacent to the A Canal provides the greatest potential for joint use of ROW with other linear facilities including the A Canal, Gila-Sonora Transmission Line, and proposed ASH. • The East Yuma Freeway, a four-lane travel route, is proposed in the City of Yuma Major Roadways Plan 2005 to be 		

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>would require building the transmission support structures higher to comply with safety clearances for the proposed overpass. This would conflict with military aviation operations within this area; shorter structures to comply with military aviation operations would conflict with the proposed overpass. A sand and gravel operation is located on the southwest corner of the intersection. The BMGR small arms firing ranges and safety zone are located on the northeast corner of the intersection.</p> <ul style="list-style-type: none"> • Condemnation of existing residences between Avenue 6E and Avenue 6½E adjacent to both sides of the A Canal. • Encroachment of development along the existing transmission line approach to the North Gila Substation within the Yuma Lakes. 	<p>located on the south side of the A Canal from the proposed ASH, cross Interstate 8, and terminate at a point east of Avenue 9E. The portion of the East Yuma Freeway between the proposed ASH and Interstate 8 has been removed from future land use planning efforts by City Council actions.</p> <p>The Route Alternative would avoid the additional impacts that would result from the Applicants' Proposed Action, as detailed in the adjacent column.</p>		
Transportation	<p>Use of local highways during construction would result in a less than 1 percent increase in annual average daily traffic; impacts would be less than significant. The Proposed Project would not result in an impact to rail services.</p> <p>The proposed route would place structures in a civilian-use aviation corridor created by open space between the areas of restricted airspace associated with the MCAS Yuma/Yuma International Airport and the BMGR. However, the Proposed Project would not result in the re-routing of air traffic because the height of the structures would be</p>	<p>The Route Alternative would avoid the potential impacts that would result from the Applicants' Proposed Action.</p>	<p>Impacts would be similar in context to the route that would be used; however, the intensity would be less because structures would be 25 feet shorter than the 500-kV structures.</p>	<p>Current environmental conditions and trends would continue.</p>

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>less than the minimum altitude for civilian flight; therefore, impacts would be less than significant.</p> <p>Engineering constraint at the intersection of County 19th and Avenue 4E would require building the transmission support structures higher to comply with safety clearances for the proposed overpass. This would conflict with military aviation operations within this area; shorter structures to comply with military aviation operations would conflict with the proposed overpass. Either of these conflicts would result in a significant impact.</p>			
Visual resources	<p>For a majority of the proposed route, changes would remain subordinate within the existing visual landscape; therefore, impacts to visual resources would be less than significant.</p> <p>An area of increased viewer sensitivity was identified near the northwest corner of the BMGR. Steel monopoles would be used because they are less massive and draw less attention. The Applicants' Proposed Action would be closer to the area of increased sensitivity and would appear larger than the Route Alternative.</p>	<p>For a majority of the proposed route, changes would remain subordinate within the existing visual landscape; therefore, impacts to visual resources would be less than significant.</p> <p>An area of increased viewer sensitivity was identified near the northwest corner of the BMGR. Steel monopoles would be used because they are less massive and draw less attention. The Route Alternative would be farther from the area of increased sensitivity and appear smaller and less noticeable than the Applicants' Proposed Action.</p>	<p>Impacts would be similar in context to the route that would be used; however, intensity would be less because structures would be 25 feet shorter and less massive than 500-kV structures.</p>	<p>Current environmental conditions and trends would continue.</p>
Noise	<p>Transmission line Distance to nearest existing residence: 420 feet Estimated construction noise level at</p>	<p>Transmission line Distance to nearest existing residence: 145 feet Estimated construction noise level at</p>	<p>Impacts would be similar in context and intensity to the route that would be utilized.</p>	<p>Current environmental conditions and trends would continue.</p>

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>nearest existing residence: 65.6 dBA</p> <p>Substation modifications Distance to nearest existing residence: 642 feet Estimated construction noise level: 61.9 dBA</p> <p>Construction noise levels would be temporary and are within EPA recommendations, there would be no perceivable permanent impact from noise; therefore, impacts from noise would be less than significant.</p>	<p>nearest existing residence: 74.8 dBA</p> <p>Substation modifications Impacts would be the same as the Applicants' Proposed Action.</p> <p>If construction activities occurred adjacent to the nearest existing residence, estimated construction noise levels at 145 feet would be greater than EPA recommendations. However, construction noise levels at existing residences would remain below 70 dBA by ensuring that construction activities would occur a minimum of 260 feet away. This can be accomplished by designing the transmission line such that a structure would not be constructed adjacent to the residence.</p> <p>By ensuring that construction activities would occur a minimum of 260 feet from an existing residence, there would be no perceivable permanent impact from noise; therefore, impacts from noise would be less than significant.</p>		
Socioeconomics	<p>Due to the small construction workforce (30 to 40 workers) and availability of existing resources, Proposed Project-related impacts to population, housing, employment and pay rates, governmental services, and infrastructure services would be less than significant.</p> <p>An increase to the local economy of an estimated \$4.7 million, combining \$3.2 million for payroll and \$1.5 million for materials for the year of construction.</p>			<p>Current socioeconomic conditions and trends would continue.</p>
Environmental Justice	<p>Minority and low-income groups within the census tracts crossed by Proposed Project facilities do not meet the Council on Environmental Quality's (CEQ's) definition/criteria for minority or low-income populations. No minority or low-income populations were identified based on CEQ criteria; therefore there would be no disproportionately high or adverse impacts to minority or low-income populations.</p>			<p>No impact.</p>

Table S-3. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
<p>Health and Safety</p>	<p>EMF No Federal regulations have been established specifying environmental limits on the strengths of electric and magnetic fields (EMFs) from electric transmission lines. During normal operation, magnetic fields at the edge of the ROW would be well below the recommended guidelines of the International Commission on Non-Ionizing Radiation (833 milligauss [mG]) and the American Conference of Governmental Industrial Hygienist (1,000 mG); however, the levels would be approximately 1 mG higher than the recommended National Academy of Sciences guidelines (0.1 to 3.0 mG). During periodic maintenance activities, the magnetic field at the edge of the ROW would be slightly higher; however, this would be less than 1 percent of the time, and the resulting EMF would still be comparable with other existing transmission lines of similar voltage. While extensive research has been conducted to determine if exposure to electric or magnetic fields may cause or promote adverse health effects, the National Institute of Environmental Health Sciences (NIEHS) concluded that “the scientific evidence suggesting that extremely low frequency (ELF)-EMF exposures pose any health risk is weak” and that “the probability that EMF exposure is truly a health hazard is currently small” (NIEHS 1999). Based on this assessment, human health and safety impacts from EMF are expected to be less than significant.</p> <p>Worker Worker health and safety impacts from the construction, operation, and maintenance of the Proposed Project would be related to typical work-related injuries and fugitive dust. Risk associated with construction, operation, and maintenance activities would be minimized through facility design, safe work practices, and continuous maintenance in compliance with Occupational Health and Safety Administration’s (OSHA’s) and State of Arizona regulations. Impacts to worker health and safety would be less than significant.</p> <p>Public Temporary fences would be placed wherever feasible to control public access to construction areas. In addition, construction equipment would be secured at night. Therefore, the potential for injury due to trespassing in construction areas would be minimal. Impacts to public health and safety would be less than significant.</p>			<p>Current EMF levels and health and safety considerations from existing transmission lines in the area would continue.</p>
<p>1 Information presented assumes that transmission between Gila and North Gila would be consolidated and a 69-kV circuit would be underbuilt on the proposed transmission line. This approach is conservative and identifies the greatest amount of disturbance.</p>				

ACRONYMS AND ABBREVIATIONS

The following includes a list of acronyms used in this draft environmental impact statement (DEIS). For the reader's convenience, they are re-defined in each chapter the first time they are used. This section also includes a list of metric prefixes and a measurement conversion chart.

ACRONYMS and ABBREVIATIONS

AAAQS	Arizona Ambient Air Quality Standards
ACC	Arizona Corporation Commission
ACF	Arizona Clean Fuels
ACHP	Advisory Council on Historic Preservation
ADEQ	Arizona Department of Environmental Quality
ADOSH	Arizona Department of Occupational Safety and Health
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AGNIR	Advisory Group on Non-ionising Radiation
AICUZ	Air Installation Compatible Use Zone
AM	amplitude modulation
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
APS	Arizona Public Service Company
APZ I and II	Accident Potential Zone I and II
AQRV	Air Quality Related Value
ASH	Area Service Highway
BLM	Bureau of Land Management
BMGR	Barry M. Goldwater Range
CAA	Clean Air Act
C-AMA	California-Arizona Maneuver Area
CEQ	Council on Environmental Quality
CFE	Comisión Federal de Electricidad
CFR	Code of Federal Regulations
CILA	Comisión Internacional de Limites y Aguas
CNA	Comisión Nacional del Agua
CO	carbon monoxide
CTG	combustion turbine generator
CWA	Clean Water Act
dB	decibel

ACRONYMS and ABBREVIATIONS (continued)

dBA	A-weighted decibel
DEIS	Draft Environmental Impact Statement
DLN	Dry Low Nitrogen Oxide
DoD	Department of Defense
DOE	Department of Energy
DPS	Distinct Population Segment
DTC	Desert Training Center
EIS	Environmental Impact Statement
ELF	Extremely Low Frequency
EMF	Electromagnetic Field(s)
EO	Executive Order
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ESA	Endangered Species Act
F	Fahrenheit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FM	frequency modulation
FTHL MA	Flat-Tailed Horned Lizard Management Area
G	Gauss
GDD	Generadora del Desierto, S.A de C.V.
H ₂	hydrogen
HAP	Hazardous Air Pollutant
HDMS	Heritage Data Management System
HRSG	heat recovery system generator
HUSWO	Hourly United States Weather Observation
Hz	Hertz
IBWC	International Boundary and Water Commission
ICAPCD	Imperial County Air Pollution Control District
JLUP	Joint Land Use Plan
km	kilometers
KOP	Key Observation Point
kV	kilovolt

ACRONYMS and ABBREVIATIONS (continued)

LGI	Large Generator Interconnect
MCAS	Marine Corps Air Station
MCL	Maximum Contaminant Level
mG	milligauss
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
Navy	Department of the Navy
NBR	North Branch Resources, LLC
NEAP	Natural Events Action Plan
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act
NIEHS	National Institute of Environmental Health Sciences
NO ₂	nitrogen dioxide
NOI	Notice of Intent
NO _x	nitrogen oxide
NPDES	National Pollution Discharge Elimination System
NRC	National Research Council
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRPB	National Radiation Protection Board
OE	Office of Electricity Delivery and Energy Reliability
OOMAPA	Organismo Operador de Municipal de Agua Potable Alcantarillado y Saneamiento de San Luis Rio Colorado
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PCS	Parallel Condensing System
PILT	Payment in Lieu of Taxes
PM ₁₀ and 2.5	particulate matter less than 10 or 2.5 microns in diameter
PRPU	Protective and Regulatory Pumping Unit
PSD	Prevention of Significant Deterioration
RAOB	Radiosonde Observation
RAPID	Research and Public Information Dissemination Program
RMP	Resource Management Plan
RMR	reliably must run

ACRONYMS and ABBREVIATIONS (continued)

ROD	Record of Decision
ROI	Region of Influence
ROW	Right(s)-of-way
RV	recreational vehicle
SCR	Selective Catalytic Reduction
SHPO	State Historic Preservation Office
SIP	State Implementation Program
SLRC	San Luis Rio Colorado
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SPCC	Spill Prevention Control and Countermeasure
STG	Steam Turbine Generator
SWPPP	Storm Water Pollution and Prevention Plan
T	Tesla
TCP	Traditional Cultural Property
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USMC	U.S. Marine Corps
USFWS	U.S. Fish and Wildlife Service
V/m	volts per meter
VOC	volatile organic compound
VRM	Visual Resource Management
WUS	Waters of the United States
YGB	Yuma Groundwater Basin
YIP	Yuma Irrigation Project
YMIDD	Yuma Mesa Irrigation and Drainage District
YMPO	Yuma Metropolitan Planning Organization
• g/m ³	micrograms per cubic meter
• T	microtesla

METRIC PREFIXES

Prefix	Symbol	Multiplication Factor
exa-	E	1 000 000 000 000 000 000 = 10^{18}
peta-	P	1 000 000 000 000 000 = 10^{15}
tera-	T	1 000 000 000 000 = 10^{12}
giga-	G	1 000 000 000 = 10^9
mega-	M	1 000 000 = 10^6
kilo-	k	1 000 = 10^3
hecto-	h	100 = 10^2
deka-	da	10 = 10^1
deci-	d	0.1 = 10^{-1}
centi-	c	0.01 = 10^{-2}
milli-	m	0.001 = 10^{-3}
micro-	•	0.000 001 = 10^{-6}
nano-	n	0.000 000 001 = 10^{-9}
pico-	p	0.000 000 000 001 = 10^{-12}
femto-	f	0.000 000 000 000 001 = 10^{-15}
atto-	a	0.000 000 000 000 000 001 = 10^{-18}

CONVERSION CHART

If You Know	To Convert into Metric, Multiply By	To Get	If You Know	To Convert into English, Multiply By	To Get
Length					
inch	2.54	centimeter	centimeter	0.3937	inch
feet	30.48	centimeter	centimeter	0.0328	feet
feet	0.3048	meter	meter	3.281	feet
yard	0.9144	meter	meter	1.0936	yard
mile	1.60934	kilometer	kilometer	0.62414	mile
Area					
square inch	6.4516	square centimeter	square centimeter	0.155	square inch
square feet	0.092903	square meter	square meter	10.7639	square feet
square yard	0.8361	square meter	square meter	1.196	square yard
acre	0.40469	hectare	hectare	2.471	acre
square mile	2.58999	square kilometer	square kilometer	0.3861	square mile
acre-foot	1233.48	cubic meter	cubic meter	0.00081	acre-foot
Volume					
fluid ounce	29.574	milliliter	milliliter	0.0338	fluid ounce
gallon	3.7854	liter	liter	0.26417	gallon
gallon	0.0039	cubic meter	cubic meter	256.14	gallon
cubic feet	0.028317	cubic meter	cubic meter	35.315	cubic feet
cubic yard	0.76455	cubic meter	cubic meter	1.308	cubic yard
Weight					
ounce	28.3495	gram	gram	0.03527	ounce
pound	0.45360	kilogram	kilogram	2.2046	pound
short ton	0.90718	metric ton	metric ton	1.1023	short ton
Force					
dyne	0.00001	Newton	Newton	100,000	dyne
Temperature					
Fahrenheit	subtract 32, then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit

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1 PURPOSE AND NEED

This chapter briefly describes the proposed San Luis Rio Colorado Project (Proposed Project), describes the purpose and need for Federal agency action, and describes the Applicants' purpose and objectives. This draft environmental impact statement (DEIS) informs decision-makers and the public of the potential environmental impacts that could result from the Proposed Project and reasonable alternatives that would avoid or minimize adverse impacts. The DEIS will be used by Federal officials in conjunction with other relevant material to plan actions and make decisions concerning the Proposed Project. Preparation of this DEIS involves the cooperation of the U.S. Department of Energy's (DOE's) Western Area Power Administration (Western) and Office of Electricity Delivery and Energy Reliability (OE), U.S. Bureau of Reclamation (Reclamation), U.S. Department of the Navy (Navy), U.S. Bureau of Land Management (BLM), and the City of Yuma. DOE is the lead Federal agency for the preparation of this DEIS. When completed, the final EIS will be intended to satisfy the requirements of the National Environmental Policy Act (NEPA) for each Federal agency's decision related to the siting, construction, connection, operation, and maintenance of the Proposed Project facilities within the United States.

1.1 Project Description

DOE received applications from North Branch Resources, LLC (NBR) and Generadora del Desierto, S.A. de C.V. (GDD) for the Proposed Project. GDD and NBR (collectively termed the Applicants) are each wholly owned subsidiaries of North Branch Holding, LLC, a Delaware limited liability company. GDD applied to OE, an organizational unit within DOE, for a Presidential permit to construct, connect, operate, and maintain a double-circuited 500,000-volt (500-kilovolt [kV]) electric transmission line across the United States-Mexico international border. NBR submitted a request to Western, another organizational unit within DOE, to interconnect the proposed transmission line to Western's Gila Substation.

The portion of the Proposed Project occurring within the United States would be located entirely within the southwestern portion of Yuma County, Arizona (figure 1.1-1). Within the United States, components of the Proposed Project would include a new transmission line and substation modifications. The proposed transmission line would originate at a new, natural gas-fired, combined-cycle power plant to be constructed near San Luis Rio Colorado, Sonora, Mexico; connect to Western's Gila Substation, east of the City of Yuma; and terminate at Arizona Public Service Company's (APS') North Gila Substation, which is located northeast of the City of Yuma. The proposed transmission line would cross lands owned and/or managed by the Navy, Reclamation, the State of Arizona, and private landowners. New ROW would be required on Reclamation, State of Arizona, and private lands; an easement or permit from the Navy would be required to cross the BMGR. GDD would construct, own, operate, and maintain the power plant to be constructed in Mexico and the 500-kV transmission component from the power plant to a Point of Change of Ownership near the international border.

The Applicants propose that within the United States, Western would construct, own, operate, and maintain the double-circuit 500-kV transmission components at the Applicants' expense. The transmission components would consist of a double-circuit 500-kV transmission line

between the Point of Change of Ownership near the international border and Western’s existing Gila Substation; a 500/69-kV addition adjacent to the Gila Substation; and a double-circuit 500-kV transmission line between Gila Substation and APS’ North Gila Substation. Western is favorably considering the proposal to construct, own, operate, and maintain the transmission components; the acceptance of this proposal would require a separate agreement, associated with the interconnection request, between Western and the Applicants. Section 2.1 provides a detailed description of the Applicants’ Proposed Action.

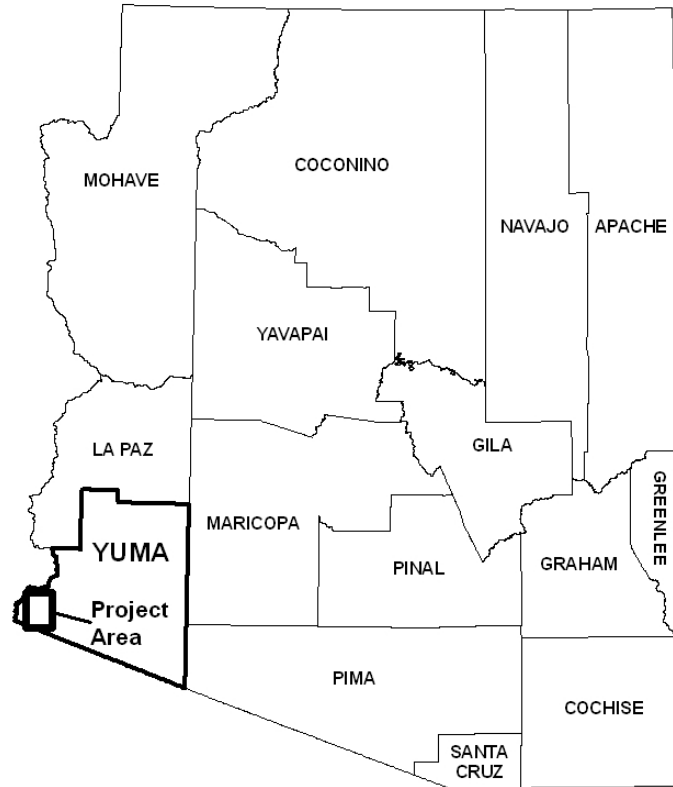


Figure 1.1-1. Project Area, Yuma County, Arizona

The total length of the 500-kV transmission system within the United States would be approximately 25.7 miles—21 miles from the international border to Gila Substation and 4.7 miles from Gila Substation to North Gila Substation. The length of the proposed route will depend ultimately on the route selected.

The proposed 500-kV transmission line would originate in Mexico, at the proposed San Luis Rio Colorado Power Center (SLRC Power Center) and would proceed northeast for approximately 1 mile to the United States-Mexico border. GDD plans to construct and operate the SLRC Power Center, a new 550-megawatt (MW) nominal (605-MW peak) natural gas-fired, combined-cycle power plant located approximately 3 miles east of San Luis Rio Colorado, Sonora, Mexico, and about 1 mile south of the international border. While this facility is not subject to U.S. regulatory requirements, the potential environmental impacts within the United States that would result from constructing and operating the SLRC Power Center are evaluated as part of the impacts analysis. GDD would construct the SLRC Power Center to comply with applicable U.S. environmental standards in addition to those of Mexico’s Instituto Nacional de Ecología. The

planned power plant would be equipped with advanced air emissions control technology including low-oxides of nitrogen (NO_x) combustion technology, a selective catalytic reduction (SCR) system for oxides of nitrogen, and catalytic oxidizers for carbon monoxide (CO) emissions control. The proposed power plant would use a wet-dry cooling system to reduce the consumptive use of water as compared with an all wet cooling system. On-peak generation (i.e., power generated during high-demand periods of the day, typically mornings and evenings) would be sold on the U.S. market. The Applicants plan to sell off-peak power (i.e., power generated during low-demand periods of the day, typically evenings) inside Mexico to the Comision Federal de Electricidad (CFE), Mexico's national electric utility. The CFE has the responsibility for the transmission, distribution, and sale of electricity in Mexico. Western would not be involved in any way with the marketing of power from the San Luis Rio Colorado Power Center.

1.2 Purpose and Need

This section describes the purpose of and need for Federal agency action as well as the Applicants' purpose and goals. To construct and operate the Proposed Project within the United States, the Applicants need approvals from Western to grant the transmission interconnection request to Gila Substation and from OE to allow construction, connection, operation, and maintenance of the transmission line at the United States-Mexico border. In addition, the portions of the Proposed Project that would cross Federal lands would require rights-of-way (ROWs) easements or permits from the Navy, a branch of the U.S. Department of Defense (DoD), or Reclamation, depending on location. Objectives are presented within each discussion that identify the goals of the agencies and Applicants.

1.2.1 Western Interconnection Project

Western's decision is to grant or deny an interconnection request at its Gila Substation under the provisions of its Open Access Transmission Services Tariff, which complies with the intent of Federal Energy Regulatory Commission (FERC) Orders for providing nondiscriminatory transmission access. Western is a power marketing agency of DOE that markets Federal power resources predominately to publicly-owned utilities, municipalities, and Native American tribes. When granting or denying the application for interconnection, Western also needs to meet its obligations under applicable laws and regulations, including complying with the provisions of NEPA and other environmental requirements.

FERC Orders No. 888, 888-A, 888-B, and 888-C require all public utilities owning or controlling interstate transmission facilities to offer non-discriminatory open access transmission services. Through these Orders, FERC addressed the need to encourage lower electricity rates by facilitating the development of competitive wholesale electric power markets by preventing unduly discriminatory practices in providing transmission services.

Western published its Notice of Final Open Access Transmission Service Tariff (Tariff) in the *Federal Register* on January 6, 1998 (Volume 63, page 483 [63 FR 483]), and filed an amendment to the Tariff with FERC on January 25, 2005 (a Web page containing information on the Tariff is located at <http://www.wapa.gov/transmission/oatt.htm>). With this amendment,

Western adopted the intent of the Large Generator Interconnection (LGI) rules published in FERC Orders 2003, 2003-A, and 2003-B. The amended Tariff requires Western to respond to an application as presented by an applicant. Section 211 of the Federal Power Act requires that transmission services be provided upon application if transmission capacity is available. The Energy Policy Act of 2005 requires Western to provide transmission services at rates comparable to those it charges itself, and under terms and conditions comparable to those it imposes on its own transmission activities.

Under its Tariff, Western must use due diligence to accommodate new transmission capacity constructed by an applicant. NBR requested an interconnection to the Federal transmission system under Western's Tariff. Western must determine whether to grant or deny the interconnection while considering effects of the Proposed Project on existing customers, the environment, system reliability, and identifying any system modifications needed to accommodate the interconnection. If the interconnection request is granted and a separate agreement is reached with the Applicants, Western would construct, own, operate, and maintain the proposed 500-kV transmission line in the United States at the expense of NBR. Western would also make any required modifications to its transmission system to accommodate the Proposed Project, again at the expense of NBR. The scope of this draft environmental impact statement (DEIS) encompasses all of these actions.

Western's purposes in meeting the need for agency action are to:

- Meet the requirements of Western's Open Access Transmission Service Tariff, to comply with the intent of FERC Orders for providing nondiscriminatory transmission access.
- Provide transmission service and capacity for the Proposed Project without degrading service to existing customers.
- Ensure that transmission system reliability is maintained.
- Ensure that any system additions or upgrades necessary to accommodate the Proposed Action are identified and included in the environmental review and project scope.
- Ensure that all environmental effects of the Proposed Action and reasonable alternatives are adequately analyzed and fully disclosed.
- Minimize adverse environmental effects.
- Consider the purposes, need, and objectives of the Applicant in addition to those of the agencies.

Because the Proposed Project would integrate a major new source of generation into Western's transmission system, Western determined that an EIS is required under DOE's NEPA Implementing Procedures, 10 Code of Federal Regulations (CFR) Part 1021, Subpart D, Appendix D, class of action D6.

1.2.2 OE Presidential Permit

OE's decision, under Executive Order 10485, as amended by Executive Order 12038, is to grant or deny a Presidential permit for the construction, connection, operation, and maintenance of the proposed 500-kV transmission line that would cross the United States-Mexico border.

The Executive Order provides that a Presidential permit may be issued after a finding that the Proposed Project is consistent with the public interest, and after concurrence by the U.S. Departments of State and Defense. The implementing regulations are published at 10 CFR 205.320-205.329.

When determining whether a proposed action is consistent with the public interest, OE considers the impact of the proposed action on the environment and on the reliability of the U.S. electric power supply system. If OE determines that granting a Presidential permit is in the public interest, the information contained in the EIS will provide a basis upon which OE decides which alternative(s) and mitigation measures, if any, are appropriate for the applicant to implement. In a process that is separate from NEPA, OE will determine whether a proposed action will adversely impact the reliability of the U.S. electric power supply system, including whether the proposed project would adversely affect the operation of the power system under normal and contingency conditions. OE may also consider any other factors believed to be relevant to the public interest.

OE will use this DEIS to help determine whether it is in the public interest to grant a Presidential permit to GDD for the construction, operation, maintenance, and connection of the proposed 500-kV transmission lines that would cross the United States-Mexico border. In this case, OE and Western are jointly preparing this DEIS to satisfy the NEPA and related environmental requirements of both organizations. Issuance of a Presidential permit by DOE indicates that there is not Federal objection to the project, but does not mandate that the project be completed.

The proposed transmission lines could be used to export small amounts of electricity from the United States to the SLRC Power Center for the purpose of initial startup and restarting the facility in the event of a plant shutdown (this is known as “black start”). To export power from the United States, the Applicant would first need to obtain an electricity export authorization from DOE under Section 202(e) of the Federal Power Act. Before authorizing exports from the United States to Mexico over the proposed transmission line, DOE must ensure that the export would not impair the sufficiency of the electrical power supply within the United States and that it would not impede, or tend to impede, the coordinated use of the regional transmission system. DOE also must comply with NEPA prior to authorizing electricity exports. Therefore, this EIS also serves to satisfy DOE's NEPA responsibilities in determining whether to authorize exports over the proposed international transmission line.

1.2.3 U.S. Bureau of Reclamation

Reclamation, an agency within the U.S. Department of the Interior, manages, develops, and protects water and related resources in an environmentally and economically sound manner in the interest of the American public. Portions of the Proposed Project cross BLM withdrawn lands managed by Reclamation; therefore, Reclamation is acting as a cooperating agency in this EIS process. Although formal ROW applications have not yet been filed, Reclamation’s purpose and need for agency action will be to respond to the ROW request for a portion of the proposed transmission line route. Reclamation must consider granting a new ROW for a portion of the proposed transmission line between the United States-Mexico border and Gila Substation, a

portion of ROW near the Gila Substation, and, depending on the route ultimately selected, a small portion of ROW near the North Gila Substation.

1.2.4 U.S. Bureau of Land Management

The Proposed Project does not require a Federal action involving BLM; however, BLM is participating as a cooperating agency with special expertise under NEPA in the EIS process for the Proposed Project. The BLM, an agency within the U.S. Department of the Interior, administers 262 million surface acres of America’s public lands, located primarily in 12 western States. BLM sustains the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

The BLM Yuma Field Office manages land and resources encompassing 1.6 million acres of southwestern Arizona and southeastern California. In addition, the BLM Yuma Field Office is a constituent of the Flat-tailed Horned Lizard Interagency Coordinating Committee; the committee’s goal is to “maintain self-sustaining populations of flat-tailed horned lizards into perpetuity” (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003). The Proposed Project would cross the flat-tailed horned lizard Yuma Desert Management Area. As a constituent of the Flat-tailed Horned Lizard Interagency Coordinating Committee, BLM has jurisdiction by special expertise with respect to environmental impacts in the flat-tailed horned lizard management area.

1.2.5 Department of the Navy

The Barry M. Goldwater Range (BMGR) West, the portion of the BMGR located west of the Gila Mountains, is operated by the U.S. Marine Corps for use by all services as an aviation training range. Congress reserved the BMGR West for military purposes, vesting full administrative authority for environmental stewardship, real estate management, and operational control with the Navy – a service within the DoD – for a period of 25 years ending 2024 under the Military Lands Withdrawal Act of 1999 (P.L. 106-65). Although much of the day-to-day responsibility for managing the BMGR West has been delegated to the Commanding Officer of the Marine Corps Air Station (MCAS) Yuma, ultimately the Secretary of the Navy is responsible to the public and Congress for managing the resources and administering real estate licenses on the BMGR West. The Navy is participating as a cooperating agency under NEPA in the EIS process for the Proposed Project. Navy’s purpose and need for agency action will be to respond to Western’s request for a permit to construct a portion of the proposed transmission line across the BMGR.

1.2.6 Applicants’ Project Objectives

The Applicants started analyzing the Proposed Project in 2000 with the understanding that Mexico would approve independent power production within its borders, and the belief that the United States would need power resources from Mexico. This position is supported by the fact that President Bush requested power from Mexico for California in 2001, and the Energy Policy Act of 2005 stated that the United States and Mexico should work on joint energy projects to meet the needs of both countries. The Applicants further understood that Mexico would approve

private ownership of short transmission lines from power plants located near the international border allowing the export of power produced by an independent power producer. The power transmission system in Mexico is owned and operated by CFE, an agency of the Mexican federal government.

Analyses that have been performed regarding power requirements show that additional power sources will soon be required in the southwestern United States and Mexico. These studies indicate that additional peak power will be needed by 2009, although recent events indicate that the power is likely to be needed sooner.

The Yuma Transmission Import Constraint Area was identified as a load pocket (area consuming electricity) within Arizona in the *Second Biennial Transmission Assessment 2002-2011* (ACC 2002), approved by the Arizona Corporation Commission (ACC) in December 2002. In addition, the ACC identified the Yuma area as having insufficient local generation and a constrained transmission system. The Yuma load pocket represents a need for additional local generation and a need to relieve reliance on the existing small, older, less efficient, and higher polluting “reliably must run” (RMR) generation facilities in the Yuma area. Currently, a number of generating units in Arizona are designated as RMR because they are required to run during certain conditions in order for the load-serving utility to provide reliable service to its retail customers in that load pocket. One of the ACC’s goals is to mitigate or eliminate RMR conditions within Arizona to ensure reliability of power supplies. An expansion of the Yuma transmission infrastructure as well as peaking production is being considered. Similarly, the region in Mexico near the proposed power plant (Sonora and Baja) has a significant deficit of power (3,000- MW deficit that is growing 7 percent annually), and the Proposed Project could also supply power to Mexico.

The Applicants’ purpose and need is to develop and construct a power generation and transmission project that would serve these identified regional power needs. To remain economically viable, the Applicants are basing their Proposed Project on the power plant site already owned by GDD and reasonable transmission alternatives connecting this site to the existing Gila and North Gila substations. These are the closest substations in the U.S. transmission system that would be capable of handling the generation from the proposed SLRC Power Center. The Applicants’ power plant site is near enough to the border to allow for private ownership and control of the transmission line section in Mexico.

The Applicants have a number of objectives that they intend to achieve with their Proposed Project. These include:

- Generation of electrical power on the site in Mexico owned by GDD that will go through the permitting process by the Mexican government.
- Construction of a modern natural gas-fired power plant using best available technology and operated to U.S standards, including air emissions.
- Transmission of power across the international border into the United States.
- Interconnection with the Mexican CFE national power system for sale of generated power in Mexico.

- Interconnection with Western’s Gila Substation and APS’ North Gila Substation to allow transmission and sale of the Applicants’ generated power in the United States.
- Construction and operation of a transmission link that meets N-1 reliability criteria (N-1 reliability criteria ensure that the loss of any single piece of equipment would not result in the loss of electrical load).
- Minimization of costs through a reasonably direct transmission path to Gila and North Gila substations, close proximity to an existing CFE substation, proximity to a suitable natural gas supply, and contracts for the use of effluent from the San Luis Rio Colorado wastewater treatment plant to be used for cooling water at the SLRC Power Center.
- A proposed power plant that has the support of the Mexican government, approval for export of power out of Mexico on transmission lines controlled by the Applicants, and acceptable tax treatment.
- Construction and operation of a technically feasible and economically viable project.

1.3 Public Involvement

The Applicants’ Proposed Action was presented at stakeholder and scoping meetings to provide a basis for discussion of issues and to assist with identifying potential alternatives to be evaluated in the EIS. The alternatives presented in this document were either identified in response to public issues and concerns or were directly recommended by the public or stakeholders.

1.3.1 Stakeholder Meetings

Western held stakeholder meetings in February 2006 prior to the public scoping meetings to create an early and ongoing outreach effort with potentially interested parties within the Proposed Project area. Table 1.3-1 lists the dates, locations, and attendees of stakeholder meetings. The purpose of the meetings was to create awareness and inform stakeholders of the Proposed Project, solicit comments, and assist in identifying issues. The meetings assisted with identifying additional key stakeholders, preferences for public involvement opportunities, key community issues, and recommendations for alternatives. Stakeholder comments are included in Table 1.3-3, Scoping Comment Summary; recommendations for transmission line routing segment options were combined with other recommendations for segment options that were received during scoping and are depicted in Figure 2.3-1. Coordination with stakeholders continued throughout the scoping period.

1.3.2 Notice of Intent

The “Notice of Intent to prepare an Environmental Impact Statement and to conduct public scoping meetings; notice of floodplains and wetland involvement” was published in the *Federal Register* (71 FR 7033) on February 10, 2006. The Notice of Intent (NOI) included information on the Proposed Project, time and location of the February 28 and March 1, 2006, scoping meetings, and contact information for questions pertaining to the Proposed Project.

Table 1.3-1. Stakeholder Meetings

Date	Location	Attendees
February 6, 2006	Reclamation – Yuma Area Office	Reclamation, Western, NBR
	Booth Machinery	Yuma Irrigation District, North Gila Irrigation District, Landowners, Western, NBR
	APS – Yuma Office	APS, Western, NBR
	Border Patrol – Yuma Sector Headquarters	Border Patrol, Western, NBR
	Yuma Mesa Irrigation and Drainage District	Yuma Mesa Drainage and Irrigation District, Western, NBR
February 7, 2006	Yuma County Water Users’ Association	Yuma County Water Users’ Association, Wellton-Mohawk Irrigation and Drainage District, Western, NBR
	International Boundary and Water Commission – Yuma Office	International Boundary and Water Commission, Western, NBR
	Yuma County – Department of Development Services	Yuma County Planning Department, City of San Luis Planning Department, Western, NBR
February 8, 2006	MCAS Yuma	MCAS Yuma, Western, NBR
	Yuma County Chamber of Commerce	Chamber of Commerce, Western, NBR
	City of Yuma – City Hall	City of Yuma, Western
	BLM – Yuma Field Office	BLM, Western

1.3.3 Public Scoping Meetings

Four public scoping meetings were hosted by Western during the public scoping process. The February 28 and March 1, 2006, meetings were announced in the *Federal Register*, local NOI newsletter, and advertisements in the *Yuma Sun* and *Bajo El Sol*, the regional Spanish-language news publication. Additional meetings, March 9 and March 10, were announced in a second notice mailing and advertisements in the *Yuma Sun* and *Bajo El Sol*. A local NOI newsletter mailing was provided in both English and Spanish to a distribution list that included local government officials, agencies, tribes, organizations, and individuals. Scoping meetings were held using an open house format to allow for an informal one-on-one exchange of information. Table 1.3-2 lists the scoping meeting locations, dates, times, and attendance.

Table 1.3-2. Public Scoping Meetings

Location	Date	Time	Attendance
Yuma Civic and Convention Center 1440 West Desert Hills Drive Yuma, Arizona	February 28, 2006	9 a.m. – 4 p.m., 6 – 9 p.m.	26
San Luis High School 1250 North 8th Avenue San Luis, Arizona	March 1, 2006	9 a.m. – 4 p.m., 6 – 9 p.m.	2
Yuma Civic and Convention Center 1440 West Desert Hills Drive Yuma, Arizona	March 9, 2006	1 – 4 p.m., 5 – 8 p.m.	8
Fernando Padilla Community Center 800 East Juan Sanchez Boulevard San Luis, Arizona	March 10, 2006	1 – 4 p.m., 5 – 8 p.m.	1
Total			37

Scoping meeting handouts included a copy of the *Federal Register* NOI, local NOI newsletter, second notice, project information sheet, comment form, and a DOE NEPA process brochure. Posters illustrating the Applicants' proposed transmission line corridor and alternative recommendations from the stakeholder meetings were presented to help facilitate identification of issues and alternatives. Upon request, the poster maps were available as 11-by-17-inch handouts. Additional posters included the EIS process and steps, a graphic depicting the SLRC Power Center, and sample pictures of transmission structures. The same information was available at each meeting (included in Appendix C).

1.3.4 Scoping Comments

Scoping raised a number of concerns and potential issues. Comments received during the scoping meetings were recorded on a flip chart that was available at each of the scoping meetings. Written and oral comments were also obtained at the scoping meetings. Additional comments were received by mail and e-mail. Table 1.3-3 summarizes comments received and how they are treated in this DEIS. Preliminary consideration of these comments also helped to identify several additional transmission line routing segment options (figure 2.3-1). A scoping update (included in appendix C), including comment summary and frequently asked questions for the Proposed Project in both English and Spanish, was mailed to a distribution list that included local government officials, agencies, tribes, organizations, potentially affected landowners, and individuals in June 2006.

Chapter 2 provides a description of the Applicants' Proposed Action and alternatives that were identified as part of the stakeholder and public involvement process and were considered reasonable alternatives that are evaluated comparatively in this DEIS. Further, chapter 2 presents those alternatives that were eliminated from detailed study in this DEIS and includes the reasoning behind their elimination from detailed study.

Table 1.3-3. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
Agriculture	<ul style="list-style-type: none"> ● Pest control compromises because of the structure height, resulting in reduced crop yields ● Food safety because the line will attract larger bird populations ● Increases to ground preparation and cultivation costs due to structures 	<p>Western evaluated the opportunity to consolidate some of the existing transmission lines with the proposed transmission lines. In this instance, the number of wires would not increase and the distance between poles may increase, creating fewer obstructions. These issues are evaluated in the Land Use sections (3.6 and 4.6).</p>
Air Quality	<ul style="list-style-type: none"> ● Air quality impacts on the city and county of Yuma ● Impacts to human health from particulate matter smaller than 10 microns 	<p>These issues are evaluated in the Air Quality sections (3.3 and 4.3) of the EIS.</p>
Aviation Safety	<ul style="list-style-type: none"> ● Impact of the Proposed Project on future development of the existing Rolle Airstrip ● Impacts to military aviation operations on the BMGR ● Impacts to flight safety at the Marine Corps Air Station/ Yuma International Airport 	<p>These issues are evaluated in the Land Use (3.6 and 4.6) and Transportation (3.7 and 4.7) sections. Western coordinated with MCAS Yuma to identify potential alternatives and mitigation measures to minimize potential impacts to aviation.</p>
Cost	<ul style="list-style-type: none"> ● Interest in commercial costs and rates for the power and energy from the Proposed Project 	<p>The SLRC Power Center would be an independent power producer and would sell on the wholesale power market compared with a regulated utility providing electrical service at retail commercial and residential rates (section 2.1.2).</p>
Cumulative Impacts	<ul style="list-style-type: none"> ● Impacts to Wellton-Mohawk Title Transfer lands near North Gila Substation ● Relationship of this Proposed Project to APS' proposal for the Palo Verde to North Gila Transmission project; any cumulative impacts, growth-inducing impacts or need to expand the North Gila Substation ● Cumulative impacts related to the Area Service Highway proposal and the Arizona Clean Fuels pipeline and refinery proposal ● Cumulative impacts related to the flat-tailed horned lizard 	<p>Depending on the approach needed to go into the proper bay at North Gila Substation, a small portion of Wellton-Mohawk Title Transfer lands could be crossed by the proposed transmission line. Cumulative impacts are discussed in chapter 5.</p>
Environmental Process	<ul style="list-style-type: none"> ● Concern that the National Environmental Policy Act compliance process does not apply to activities that occur in Mexico ● Interest in understanding how the analysis is being conducted 	<p>Action on Mexican land is outside U.S. jurisdiction and is not addressed in the EIS. Emissions data was reviewed and used to determine impacts within the United States.</p> <p>The EIS was developed according to the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500-1508) and the DOE NEPA Implementing Procedures (10 CFR part 1021).</p>

Table 1.3-3. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
		The EIS documents the analyses conducted with respect to the Proposed Project.
Health & Safety	<ul style="list-style-type: none"> ● Impacts of the Proposed Project on radio, television, cell phones, and satellite dishes ● Impacts to human health from electric and magnetic fields ● Potential for cancer caused by high-voltage transmission lines ● Electromagnetic interference with existing Marine Corps operations, particularly at Cannon Air Defense Complex 	<p>Transmission lines normally do not affect the operation of radios, TVs, cell phones or satellite signal reception unless there is a hardware problem on the transmission line such as a loose connection or damaged insulator. Once identified, these problems are nearly always easily corrected (sections 3.12.3).</p> <p>Impacts to human health from electric and magnetic fields and the potential for cancer is addressed in the Health and Safety sections (3.12 and 4.12).</p> <p>After reviewing Proposed Project information, MCAS Yuma determined that the Proposed Project does not appear to present interference problems for MCAS operations (section 4.6 Land Use).</p>
Land Use	<ul style="list-style-type: none"> ● Compatibility of the Proposed Project in a 1-mile buffer zone along the BMGR ● Impacts to populations along the transmission line alignment, including residential development between the BMGR and Gila Substation ● Impacts to use at the BMGR ● Impacts to existing live-fire small arms and demolition ranges on the BMGR ● Impacts to a proposed road in the vicinity of the A Canal ● Impacts to future development and land use plans as outlined in Yuma’s General Plan, the city and county Joint Land Use Plan, and the County 2010 Comprehensive Plan 	<p>These issues are addressed in the Land Use sections (3.6 and 4.6).</p>
Paleontology	<ul style="list-style-type: none"> ● Impacts to paleontological resources 	<p>Impacts to paleontological resources are evaluated in the Geology, Soils, Paleontology, and Seismicity sections (3.1 and 4.1).</p>
Power Marketing	<ul style="list-style-type: none"> ● Western’s role, if any, in marketing the power from Mexico to the Yuma area residents ● If not Western, who will market the resources from Mexico? 	<p>Western will not have a role in marketing power from the SLRC Power Center. The Applicants will independently market these generation resources. This topic is not discussed further in this EIS.</p>

Table 1.3-3. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
Power Supply	<ul style="list-style-type: none"> ● Source of natural gas ● Interest in full discussion and assessment of electric power needs and supply within purpose and need section 	<p>The source of the natural gas is discussed in the Activities Outside the United States section (2.1.2).</p> <p>Power need and supply is discussed in chapter 1.</p>
Project Description	<ul style="list-style-type: none"> ● Replacement of both lines between the Gila and North Gila substations ● Need for the Gila to North Gila line ● Scope of the Proposed Project – transmission lines or generating facility? ● Potential for transmission of electricity into Mexico 	<p>These issues are discussed in chapters 1 (Purpose and Need) and 2 (Alternatives).</p>
Safety	<ul style="list-style-type: none"> ● Concern about the potential for increased risk of electric shock ● Need for the transmission line crossing roads to have orange ball markers 	<p>Risk of electric shock is evaluated in the Health and Safety sections (3.12 and 4.12).</p>
Threatened, Endangered, and Special Status Species	<ul style="list-style-type: none"> ● Impacts to the flat-tailed horned lizard management area ● Concern that the flat-tailed horned lizard should be treated as a listed species ● Concern that alternatives should avoid the flat-tailed horned lizard management area ● Concern that route alternatives avoid big-horn sheep habitat in the Gila Mountains ● Propose evaluating impacts to the Sonoran population of the desert tortoise from the Proposed Project ● Impacts to rare plants within 5 miles of the Proposed Project including the sand food, Schott’s wire lettuce, and Pierson’s milkvetch ● Recommend obtaining species list from Arizona Game and Fish Department, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management 	<p>These issues are discussed in the Biological Resources sections (3.4 and 4.4).</p>
Transmission Line Route and Configuration	<ul style="list-style-type: none"> ● Yuma Proving Grounds accepts the proposed transmission line route ● City of Yuma opposes the proposed route ● Recommend the use of 3E as a north-south corridor because 4E is too sandy for equipment; soil is more compacted on 3E ● Recommend the line from Gila Substation move east to the Gila 	<p>These comments were taken into consideration to help identify potential alternatives and are discussed in chapter 2 (Alternatives).</p>

Table 1.3-3. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
	<p>Mountains</p> <ul style="list-style-type: none"> • Propose evaluating alternate routes that cross the international border immediately north of the proposed generation facility, then turn northeast to the BMGR boundary, proceed north paralleling County 4E to the intersection of East County 14½ then turning northeast parallel to A Canal where the line would resume its currently proposed route • Request that a 230-kV alternative be considered • Recommend routing the transmission line through barren, unusable land and avoiding developed areas • Concerns about a utility corridor adjacent to the proposed Area Service Highway; an overpass is required at County 19th • Consider a Fortuna Wash alignment • Recommend avoiding high-value land north of the BMGR; state lands are not a favorable location for power lines; do not disproportionately place lines on state land • Route transmission lines along the gas pipelines for the generating facility • Avoid the A Canal; use the Area Service Highway alignment and move east along the MCAS boundary • Consider an alternative around development at the North Gila Substation • Consider a 230-kV alternative that would tie into the existing Sonora Substation • Recommend the ASH to south side of the A Canal alignment because it would have the least impact to the Ocotillo Master Plan 	
Visual	<ul style="list-style-type: none"> • Impacts on views of the BMGR and Gila Mountains from private property • Propose evaluating impact of using single steel pole structures instead of steel lattice structures to reduce physical footprint and visual impact 	<p>These issues are discussed in the Visual Resources sections (3.8 and 4.8).</p>
Water	<ul style="list-style-type: none"> • Request a letter from Comision Nacional del Agua and the Mexican International Boundary and Water Commission verifying the approved legal use of water for the generating facility 	<p>Comment noted. Water use within a 5-Mile Zone on either side of the border is under regulation by the International Boundary and Water Commission (IBWC). Water use within Mexico in the 5-Mile Zone of the border is under regulation by the</p>

Table 1.3-3. Scoping Comment Summary

Topic	Comment/Concern/Issue	Treatment in the EIS
		Comisión Internacional de Limites y Aguas (CILA). Permits obtained in Mexico for the Proposed Project is summarized in an appendix to the EIS.
Out of Scope Issues	<ul style="list-style-type: none"> How can the Federal government ensure compliance with the “promised” air quality standard? 	An overview of the power plant’s permitting requirements and the associated environmental impact analysis performed by the Mexican government is included as an appendix to the EIS. Emissions data was reviewed modeled [modeled?]and used to determine impacts within the United States.
	<ul style="list-style-type: none"> Impacts to cultural resources in Mexico 	Action on Mexican land is outside U.S. jurisdiction and is not addressed in the EIS. However, the Applicants’ have committed to voluntarily conduct cultural resources surveys in Mexico prior to construction activities on the power plant site and transmission line ROW. The reports from these surveys would be available to interested tribes.
	<ul style="list-style-type: none"> What is the potential for Mexico cutting off power to the United States? 	DOE performed an electric reliability study to ensure that the existing U.S. power supply system would remain operational upon a sudden loss of power regardless of the outage cause.
	<ul style="list-style-type: none"> Concern about a generation facility in Mexico 	Action on Mexican land is outside U.S. jurisdiction and is not addressed in the EIS.
	<ul style="list-style-type: none"> Consider a solar component, photovoltaic, as part of the portfolio 	The Federal action to be evaluated in the EIS is not what kind of power plant to build, but rather for Western to determine whether to grant a transmission interconnection request and for DOE to determine whether to grant a Presidential permit.
	<ul style="list-style-type: none"> A Mexican plant site does not provide benefits to Yuma 	The Federal action to be evaluated in the EIS is not what kind of power plant to build, but rather for Western to determine whether to grant an interconnection request and for DOE to determine whether to grant a Presidential permit. APS could contract to purchase power from the Proposed Project for local use. The Applicants could construct the San Luis Rio Colorado Power Center and supply power only within Mexico.

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Please note: Missing pages contain figures which can be found in the “Figures” folder on the San Luis Rio Colorado Project Draft Environmental Impact Statement compact disc (CD). Some of the figures were removed from this file to decrease file size for ease of downloading and/or viewing.

2 ALTERNATIVES

This chapter describes the details of the Applicants' Proposed Action, the alternatives evaluated in detail, the No Action Alternative, and alternatives that were considered but eliminated from detailed study as part of this draft environmental impact statement (DEIS).

This DEIS does not address alternatives to the San Luis Rio Colorado Power Center (SLRC Power Center) or its location, as it is an independent non-Federal action located in Mexico and, therefore, is not subject to the National Environmental Policy Act (NEPA). However, a description of the SLRC Power Center is provided to present a complete picture of the Proposed Project and to assess potential impacts that could occur in the United States from its construction and operation.

Within the area of the Proposed Project in Yuma County, north-south oriented section lines are identified successively as Avenue 2E, Avenue 3E, Avenue 4E, etc. from west to east. Avenue 1E is located 3 miles west of the Barry M. Goldwater Range (BMGR) western boundary. East-west oriented section lines are identified successively as County 23rd, County 22nd, County 21st, etc. from south to north. County 1st is located 7 miles north of North Gila Substation. In both cases, adding ¼ to the designation identifies the quarter-section line and adding ½ to the designation identifies the mid-section line, and so forth. For general reference, the western boundary of the BMGR is Avenue 4E and the northern boundary is County 14th. These section lines are used to reference locations of Proposed Project features in subsequent sections of this DEIS, and are identified on the maps in this DEIS.

2.1 Applicants' Proposed Action

This section describes the Applicants' Proposed Action in detail including the proposed transmission system additions in the United States and project-related power plant (SLRC Power Center) in Mexico. The SLRC Power Center description is provided to present a complete picture of the proposal and to assess potential impacts that could occur in the United States from its construction and operation. This DEIS does not address alternatives to the SLRC Power Center or its location, as that part of the Proposed Project would be an independent non-Federal action located in Mexico and is not subject to NEPA.

The Applicants propose that within the United States, Western would construct, own, operate, and maintain the double-circuit 500-kV transmission components at the Applicants' expense. The transmission components would consist of a double-circuit 500-kV transmission line between the Point of Change of Ownership near the international border and Western's existing Gila Substation; a 500/69-kV addition adjacent to the Gila Substation; and a double-circuit 500-kV transmission line between Gila Substation and APS' North Gila Substation. Western is favorably considering the proposal to construct, own, operate, and maintain the transmission components; the acceptance of this proposal is contingent on a separate agreement, associated with the interconnection request, between Western and the Applicants. In addition, modifications would be made to APS' North Gila Substation based on an agreement between Western and APS and would remain under operational control of APS.

2.1.1 Proposed Transmission System Additions

The Applicants proposed a general transmission line corridor (figure 2.1-1) between the SLRC Power Center and Gila Substation, located east of the City of Yuma, then continuing to North Gila Substation, located northeast of the City of Yuma, as part of their Proposed Project. The total length of the 500-kV transmission system within the United States would be approximately 25.7 miles: 21 miles from the international border to Gila Substation and 4.7 miles from Gila Substation to North Gila Substation. The Applicants' proposed transmission line corridor was based largely on the alignment of Western's existing Gila-Sonora Transmission Line, which is a single-circuit 69-kV electric transmission line that runs 18.9 miles from Sonora Substation, south of the City of Yuma, northeast to Gila Substation. Figures 2.1-2, 2.1-3, and 2.1-4 depict respectively the following segments of the Applicants' Proposed transmission line corridor 1) between the United States-Mexico international border and the northern boundary of the BMGR; 2) between the northern boundary of the BMGR and Gila Substation; and 3) between Gila Substation and North Gila Substation.

Under the Applicants' Proposed Action, the transmission line corridor would cross the border immediately north of the proposed SLRC Power Center near the intersection of Avenue 1E and County 27th, the corridor would then turn northeast to the intersection of Avenue 4E and County 24th (figure 2.1-2). This portion of the Applicants' Proposed Action would cross the U.S. Bureau of Reclamation (Reclamation) 5-Mile Zone Protective and Regulatory Pumping Unit (PRPU) and the Flat-tailed Horned Lizard Management Area (FTHL MA). From the intersection of Avenue 4E and County 24th, the proposed corridor would then proceed north parallel to Avenue 4E, the western boundary of the BMGR, Western's existing Gila-Sonora Transmission Line, and a portion of the proposed Area Service Highway (ASH). The portion of the BMGR west of the Gila Mountains is administered by the U.S. Marine Corps on behalf of the U.S. Department of the Navy (Navy).

Several engineering constraints have been identified at the intersection of Avenue 4E and County 19th. The proposed ASH would be parallel to Avenue 4E and the Gila-Sonora Transmission Line in the area of County 19th. The proposed ASH project would include an overpass at County 19th to allow military access to the restricted BMGR via County 19th. The ASH design does not include an interchange at County 19th. To maintain safety clearances below the proposed transmission lines, the transmission support structures would need to be built higher to accommodate the additional height of the overpass. This is the same area in which the Marine Corps Air Station (MCAS) has requested that structure heights be reduced for the safety of pilots using the BMGR Auxiliary Field #2 landing pattern. Within this area, the proposed transmission line could be constructed as two single-circuit transmission lines to reduce the height of structures near the landing pattern; however, the two single-circuit transmission lines would still have to maintain safety clearances over the proposed overpass that would be higher than what is acceptable for aviation activities. Building the transmission support structures higher would conflict with military aviation operations within this area; shorter structures would not be possible because of the proposed overpass. In addition to the proposed overpass at County 19th, there is an engineering pinch-point created by a gravel pit located on the southwest corner of the intersection of County 19th and Avenue 4E, and the BMGR small arms firing range and associated safety zone located on the northeast corner of the intersection. The proposed ASH

would parallel Avenue 4E for approximately 0.25 mile to the north of County 19th, then curve to the northeast parallel to the western edge of the small arms firing range safety zone. The proposed ASH corridor also creates the western boundary of the FTHL MA. The proposed transmission line would be located on the west side of the proposed ASH under the Applicants' Proposed Action. The Route Alternative (section 2.3.1) would avoid this area of engineering constraint.

North of County 19th, the proposed transmission line corridor would proceed northeast roughly parallel to the proposed ASH corridor across the northwestern portion of the BMGR. At Avenue 5½E, the proposed transmission line corridor would head north to the Yuma Mesa Irrigation and Drainage District's (YMIDD's) A Canal, then turn generally northeastward, parallel to the A Canal and Western's 69-kV transmission line, cross Interstate 8, and enter the west side of Gila Substation expansion area located north of the existing Gila Substation (figure 2.1-3). The portion of this route between Avenue 6E and Avenue 6½E (west of the proposed ASH) would cross a high-density residential development area adjacent to the south side of the A Canal that is currently under construction. Residential development in this area is immediately adjacent to the existing transmission line ROW and does not allow sufficient space for the proposed transmission line ROW; therefore, this portion of the route could require the condemnation of several homes. The Route Alternative, described in section 2.3.1, would avoid this area of residential development and, therefore, would avoid the possibility of condemning these homes. The Applicants' Proposed Action would cross Interstate 8 adjacent to the north side of the A Canal and would share a portion of the existing Gila-Sonora Transmission Line ROW. The City of Yuma communication tower near the intersection of Avenue 9E and the canal, at the water treatment facility, would need to be relocated. This portion of the route would be located on the north side of the A Canal to avoid the south side of the canal, which the City of Yuma has proposed for the location of the East Yuma Freeway.

Modifications to the Gila Substation would be necessary to interconnect the proposed 500-kV transmission lines into the substation. These modifications would be located on a federally-owned, 20-acre parcel immediately north of the existing substation boundary and would include a 500/69-kV transformer and associated equipment.

Leaving the north side of Gila Substation, the proposed corridor would parallel the two existing transmission lines to the north, cross the Gila River, then turn northwest and into Arizona Public Service Company's (APS') North Gila Substation, still parallel to the existing transmission lines (figure 2.1-4). The proposed transmission line would be designed to span the entire width of the Gila River, eliminating the need for structures to be placed within the river channel. Existing and proposed development near Redondo Pond, in the Yuma Lakes area, is encroaching upon the existing transmission line approaches to North Gila Substation. Development in this area includes residences and recreational vehicle (RV) parks that abut the existing transmission line ROW located north of Buckshot Road and between Avenue 8½E and Avenue 9E. Additional development within this area is occurring south of North Gila Substation near the historic stage stop.

The existing transmission lines between Gila Substation and North Gila Substation include Western's single-circuit 161-kV transmission line and a double-circuit 69-kV transmission line owned by Western and APS. The 161-kV transmission line interconnects at Gila Substation, but goes around North Gila Substation and continues west to Knob Substation in California. The 161-kV transmission line is supported by wooden H-frame structures, and is on the west side of the double-circuit 69-kV line. One of the 69-kV circuits is a tie between Gila and North Gila substations; the other bypasses Gila Substation and interconnects at North Gila Substation. The double-circuit 69-kV transmission line is also supported by wooden H-frame structures. The existing transmission lines are placed parallel to each other between Gila and North Gila substations. The existing ROW for the double-circuit 69-kV transmission line ranges between 35 and 50 feet wide. As part of the system impact study, Western will evaluate opportunities to consolidate the existing 69-kV transmission lines and amend the existing ROW to accommodate the proposed transmission line. If the transmission lines are consolidated, the 69-kV transmission line that currently bypasses Gila Substation would be connected to a breaker in Gila Substation. The proposed 500-kV transmission line would, therefore, be located on the east side of the two existing lines, using the 69-kV lines' existing ROW for part of its 200-foot-wide ROW requirements.

Modifications to North Gila Substation would be necessary to interconnect the 500-kV transmission line. These modifications would include a 500/69-kV transformer and associated equipment and would be made through an agreement with APS and would occur within the existing substation boundary.

Each of the transmission system changes is described in the following sections, as well as transmission line design characteristics, construction, ROW needs, and operation. The following discussion assumes that an agreement would be reached between Western and NBR in which Western would own, construct, operate, and maintain the proposed transmission line within the United States, as discussed earlier in this chapter and in section .2.1.

2.1.1.1 Proposed Transmission Line

The total length of the Applicants' Proposed Action within the United States would be approximately 25.7 miles, 21 miles from the international border to Gila Substation and 4.7 miles from Gila Substation to North Gila Substation.

The proposed 500-kV transmission line would require a 200-foot-wide ROW. Portions of the ROW could be shared with the existing 100-foot-wide Sonora-Gila Transmission Line ROW, proposed ASH, and existing transmission lines between Gila and North Gila substations. New ROW would be required on Reclamation, State of Arizona, and private lands; a permit would be required to cross the BMGR.

Construction materials would be hauled to the material storage yard from the local highway or rail network, then to staging areas, and finally to structure sites using trucks and trailers. The material storage yard would be located in a portion of the existing Gila Substation warehouse yard and would initially contain all of the construction materials for the Proposed Project. As construction materials would be needed along the Proposed Project route, the construction materials would be moved to staging areas (much smaller material storage yards) used for parking and storing the portion of construction materials needed for those locations. Approximately four staging areas would be used for the Applicants' Proposed Action, one of which would be located at Gila Substation and one of which would be located at North Gila Substation. One staging area would be located within the FTHL MA. This site would temporarily disturb an area of 200 feet by 400 feet; it would be surrounded by a protective fence to prevent flat-tailed horned lizards from entering the staging area. A pedestrian survey of the staging area and relocation of any found flat-tailed horned lizards by a qualified biologist during installation of the fence would ensure that no flat-tailed horned lizards would be contained within the site. Cable-pulling and wire splicing sites would be located near turning structures; therefore, approximately 10 cable-pulling and wire splicing sites would be used for the Applicants' Proposed Action.

Border-Gila Transmission Line

As part of the Applicants' Proposed Action and pending an agreement between the Applicants and Western, Western would construct and own the new 21-mile 500-kV double-circuit transmission line between the border and Gila Substation. The proposed transmission line would traverse a combination of Reclamation, State of Arizona, Navy, and private lands. The proposed transmission line would require installing new single-pole transmission structures, new conductors, and two overhead ground wires, one of which would contain a fiber-optic communication cable to serve as a communication system for the Proposed Project. The proposed 500-kV transmission line would require a 200-foot-wide ROW.

Approximately 111 structures would be required for the portion of the proposed transmission line between the border and Gila Substation. The transmission support structures would be steel monopoles (single poles) with an average height of 175 feet (figure 2.3-5). For each structure site, it is assumed that approximately 0.9 acre (200 feet by 200 feet) would be temporarily disturbed by construction equipment. Hence, a total of 99.9 acres of temporary disturbance would result from construction of the structures for this portion of the proposed transmission line. The total permanent disturbance from monopoles would be 0.57 acre (0.0051 acre per monopole). Chapters 3 and 4 provide information on the kinds of conditions that prevail in the footprint areas. This estimate is conservative because the footing of the monopole was calculated as a 15-foot by 15-foot square; the actual structure would be circular and would have a 15-foot diameter, which would be a slightly smaller area of disturbance than a square.

The conductors to be used would be specular (shiny), but would dull over time from weathering, as would the galvanized steel support structures. The transmission line would be constructed to and operated at 500-kV standards.

The initial 4.4 miles of the Applicants' Proposed Action would require new access to structures within the FTHL MA; this access would be located along the centerline of the ROW. Access within the FTHL MA would not be bladed or improved; rather it would be watered during construction to provide enough support for movement of cranes and heavy haul equipment and to minimize dust. Watering of access in the FTHL MA during construction is further discussed in section 4.4.3.3. Overland travel would be used for maintenance activities. In addition, approximately 5 miles of new access roads to structures could be required across the northwest boundary of the BMGR; this represents a worst case scenario and assumes that new access would be required along the full length of an easement on the northwest boundary of the BMGR. Actual new access would be evaluated during detailed project design and would consist of short spurs of overland travel to the extent practicable. The remaining portions of the proposed transmission line would use existing access roads. Access to the new transmission line would be primarily on section line roads and roads that currently provide access to the existing transmission lines. Short spur roads of 100 to 150 feet to each structure would be needed where the proposed transmission line would parallel an existing road.

Gila-North Gila Transmission Line

Assuming an agreement is reached between the Applicants and Western, Western would also construct a new 4.7-mile transmission line between Gila Substation and APS' North Gila Substation, north of Yuma. This route would traverse Reclamation, State of Arizona, and private lands. The proposed Gila-North Gila Transmission Line would require installing new transmission structures, new conductors, and two overhead ground wires, one of which would contain a fiber-optic communication cable.

The proposed Gila-North Gila Transmission Line would require a 200-foot-wide ROW and would parallel the existing transmission lines between Gila and North Gila substations. The proposed transmission line would be located east of the existing transmission lines. As part of the system impact study, Western will evaluate opportunities to consolidate existing transmission lines with the proposed new line. The ROW for the existing double-circuit 69-kV transmission

line is 35 to 50 feet wide. If the double-circuit 69-kV transmission line is consolidated with the proposed line, the existing ROW would need to be widened by 150 to 165 feet for an overall width of 200 feet. If transmission is consolidated, one of the 69-kV circuits may need to be underbuilt on the proposed transmission line; this would increase the height of the transmission line structures by approximately 30 feet. In addition, if transmission is consolidated and one of the 69-kV circuits is underbuilt, this scenario would require that the structures be placed closer together or that a single-circuit 69-kV intermediate pole be placed to accommodate the increased sag associated with the smaller conductor size. Analysis of the underbuild option assumes that additional double-circuit 500-kV structures would be constructed. This approach is conservative because a single-circuit 69-kV transmission support structure is much smaller and lighter and would require less ground disturbance than a double-circuit 500-kV structure.

The proposed Gila-North Gila Transmission Line would be constructed with steel monopole structures. If existing transmission were not consolidated with the proposed transmission line, approximately 25 structures would be required for the proposed transmission line and result in 22.5 acres of temporary disturbance and 0.13 acres of permanent disturbance. If existing transmission would be consolidated with the proposed transmission line, approximately 38 structures would be required for the proposed transmission line, resulting in 34.2 acres of temporary disturbance and 0.19 acre of permanent disturbance, a portion of which would be offset by removing the existing 69-kV H-frame structures. Chapters 3 and 4 provide information on the kinds of conditions that prevail in the footprint areas.

This proposed transmission line would cross the Gila River parallel to the existing transmission lines. The width of the Gila River crossing would be approximately 1,400 feet. The proposed transmission line would be designed to span the entire width of the Gila River 100-year floodplain; therefore, a new structure would not be placed within the river's floodplain. There are four existing transmission line structures within the 100-year floodplain of the Gila River. If existing transmission lines were to be consolidated with the new line, Western would remove two of the structures currently located within the Gila River 100-year floodplain. Consolidation of existing transmission with the proposed transmission line would reduce potential impacts to riparian habitats compared with the current crossing. If transmission is consolidated and a 69-kV circuit is underbuilt, Western would use a larger conductor for the 69-kV circuit at the Gila River crossing to allow the conductor to span the river so that no new structures would be placed within the river channel or 100-year floodplain.

The ground wires that span the Gila River would have state-of-the-art marking devices (e.g., bird flight diverters such as "flappers" with reflective and phosphorescent tape) to reduce the potential for bird collisions with the transmission line. Construction at the river crossing would take approximately 6 weeks to complete (section 2.1.1.4 provides a complete description of construction activities). Initially, an auger truck would dig the holes for the pole placement. Cranes would then be used to erect the poles approximately 1 week later. Within 2 weeks, conductors would be strung over the Gila River crossing using a helicopter to string a sock line that would be hooked up to tensioning/pulley equipment.

Access to the new transmission line would be primarily on roads that currently provide access to the existing transmission lines. Short spur roads of 100 to 150 feet to each structure could be

needed where the proposed transmission line would parallel an existing road. Between Gila and North Gila substations, the access spur roads may need to be slightly longer depending on placement of the new structures within agriculture fields. While some existing access spur roads of 100 to 150 feet might need to be extended to reach new structure sites, some existing spur roads may be abandoned because of the need for fewer structures due to longer spans. Location of access spur roads would be coordinated with landowners.

2.1.1.2 Design Characteristics

Western designs, constructs, operates, and maintains transmission lines to meet or exceed the requirements of the *National Electrical Safety Code* (NESC), U.S. Department of Labor Occupational Safety and Health Standards, the Western Electricity Coordinating Council, and Western's own policies for maximum safety and protection of landowners, their property, and the public. All permanent improvements in the proximity of the transmission line, such as fences, metal gates, and metallic structures, would be grounded in accordance with existing codes.

The conductor – the wire cable strung between transmission line structures through which electric current flows – would be aluminum and steel reinforced. The aluminum carries most of the electrical current, and the steel core provides tensile strength to support the aluminum strands. Three davit arms would be located on opposite sides of each monopole structure (for a total of six arms); each arm would support one conductor (figure 2.3-5).

The height of the conductors above ground would be a minimum of 30 feet based on NESC and Western standards. The minimum conductor vertical clearance dictates the exact height of each structure based on topography and requirements for safety. The minimum conductor vertical clearances in some instances may be greater in response to logistical requirements or more specific NESC requirements.

Insulators, which are made of an extremely low-conducting material such as porcelain, glass, or polymer, would be used to suspend the conductors from each structure. Insulators inhibit the flow of electrical current from the conductor to the ground or from one conductor to another. A permanent assembly of insulators on each structure would be used to position and support each of the three conductors to the structure. These assemblies would be I-shaped and would be designed to maintain appropriate electrical clearances between the conductors, the structure, and the ground.

Two overhead ground wires 0.375 to 0.5 inch in diameter would be installed on top of the structures to protect conductors from lightning. The ground wires would be located above and parallel to conductors. Energy from lightning strikes would be transferred through the ground wires and structures into the ground. One ground wire would also contain a fiber-optic cable to serve as a communication system for the Proposed Project in addition to Western's existing microwave communication system. There would be no marketing of surplus fiber-optic capacity as part of the Proposed Action. The appearance of the proposed ground wire/fiber-optic cable would not be substantially different from a conventional ground wire without fiber-optic cables.

2.1.1.3 Right-of-Way Needs

A 200-foot-wide ROW would be needed for the double-circuit 500-kV transmission lines to meet the clearance requirements of electrical safety codes, to provide working space for maintenance activities, and to protect buildings or other structures near the ROW from electrical hazards. Easements would be acquired for the new transmission line ROW and for roads and trails required for off-ROW access to and from the line. All land rights needed by Western for transmission line purposes would be acquired in accordance with Western's policies and other applicable laws and regulations governing the Federal acquisition of property rights.

Acquisition of Rights-of-Way across Federal Land

Western would need to obtain a permit from Reclamation for a 200-foot-wide ROW across their public land and, if necessary, obtain additional easements needed for access roads located outside of the ROW. Easements for access roads would be 30 feet wide to allow for construction, with a width of 12 to 20 feet disturbed. In addition, temporary-use permits would be required for temporary-use areas such as material staging areas and construction areas outside of the proposed ROW. Depending on the location, temporary-use areas would have to be approved by Reclamation, and the temporary-use permits would be issued prior to construction.

Western would file a ROW application with Reclamation upon further development of the Proposed Project design details and precise structure siting. ROW grants across Federal land are non-exclusive. Reclamation may grant other use authorizations, including ROW across these lands after coordinating with the surface managing agency and the existing ROW holder(s) to avoid conflicts. In addition, Western would need to obtain a permit from the Navy to construct the proposed transmission line across the northwest portion of the BMGR.

Acquisition of Rights-of-Way across State of Arizona Land

Western would coordinate with the Arizona State Land Department and consult with agricultural lease holders of State land to acquire ROW across State land.

Acquisition of Rights-of-Way across Private Land

A list of all landowners with title to property lying within the proposed transmission line ROW would be obtained from county records. Permission to enter the property would be requested from the landowners for personnel to conduct surveys, real property appraisals, environmental studies, and geotechnical studies. Detailed legal descriptions would be prepared from survey data of the transmission line and access road ROW, and tract plats (survey drawings) of the land rights to be acquired would be drawn. Every ROW easement would be individually appraised by a qualified real estate appraiser. The appraised value would be tied directly to the value of the land and the impact of the proposed transmission lines on the land.

After the title evidence is obtained and the appraisal and legal descriptions are completed, realty specialists would present formal offers to acquire the necessary land rights. Land rights would be acquired in the form of an easement contract for the transmission line ROW. The realty

specialist would explain the Proposed Project and contract to the landowners. If agreeable to both the landowner and realty specialist, the contract would be signed. The executed contract would be recorded in the official records of the county, and the ROW would be insured with title insurance. The landowner would be paid the amount of the contract's consideration. In addition, all costs incidental to the contract's execution, such as recording fees, closing costs, and title insurance fees would be paid by Western. After completion of construction, realty specialists would work with the landowners to correct or reimburse any construction damages to their property.

If an agreement cannot be reached through negotiations, or if clear title cannot be acquired, only then would Western use its authority to acquire land rights by eminent domain proceedings. Condemnation actions are handled by the local United States Attorney's Office, and condemnation cases are tried by the Federal District Court. Immediately upon filing a Declaration of Taking in the court, title to the land rights on the ROW would be vested in the name of the United States. Western would deposit in the court registry the just compensation amount determined by the appraisal. The court would determine the issue of just compensation at a subsequent date. During the trial, both the landowner and the United States would have the opportunity to present to the court evidence regarding just compensation.

2.1.1.4 Construction

Construction of the proposed transmission lines would include the following roughly sequential major activities performed by small crews progressing along the length of the transmission line:

- Centerline surveying
- Access road clearing, grading, or upgrading (if necessary)
- Structure site clearing/grading
- Construction yard and materials handling site clearing
- Structure excavation
- Installation and concrete pouring
- Structure assembly/erection
- Ground wire and conductor stringing and tensioning
- ROW cleanup and restoration

Construction of the proposed transmission lines would take place 6 days per week, 10 hours per workday, over a period of approximately 12 months, and would commence in June 2007. The construction workforce would be 30 to 40 workers. It is anticipated that the entire workforce would be drawn from available workers within the Yuma area. Heavy equipment for the construction of the transmission line would include cranes, heavy haul equipment, and concrete mixer trucks. Construction of the proposed transmission line and fiber-optic cable would require the movement of up to 100 vehicle trips to each transmission line structure, approximately 20 of which would be heavy hauls.

The proposed transmission line would require 136 structures and result in 122.4 acres of temporary disturbance and 0.69 acres of permanent disturbance associated with placement of structures. If existing transmission would be consolidated with the proposed transmission line,

149 structures would be required and result in 134.1 acres of temporary disturbance and 0.76 acres of permanent disturbance, a portion of which would be offset by removing existing 69-kV wood-pole H-frame structures this land would likely return to agricultural use.

Surveying and Access

The first step in the construction process is a physical survey of the route. This survey would be conducted to determine the preliminary alignment of the proposed transmission line. Soil and foundation conditions would be observed at structure locations and, in some cases, core borings may be required; however, disturbance would be minimal.

Interstate 8 would provide freeway access to the Proposed Project area. Access road needs cannot be determined until survey work for transmission structures is completed. Structures and other improvements would be located to avoid identified cultural resource sites, plants of concern, floodplains, and other environmentally sensitive sites. Access along or to the ROW would be required for the construction, operation, and maintenance of the proposed transmission system. Access to the site of each proposed structure by heavy construction vehicles and equipment would be required, but not necessarily along the entire length of the ROW between structures. Existing dirt, gravel, and paved section line roads and other existing roads and trails would be used to the extent possible to reach the ROW and structure locations. Temporary spur roads or overland access of 100 to 150 feet would be used where appropriate to reach some structure locations along the ROW. Temporary spur roads would be staked and overland travel would be used to the extent possible. Water for compaction and dust control would be provided where needed; ample surface and groundwater resources would be available to provide water during construction activities.

Where no roads or trails exist and soil and terrain conditions allow, access and spurs would be by overland travel (i.e. travel over unaltered/unimproved terrain). Consequently, a trail would develop as a result of vehicle use. Some clearing of shrubs would be necessary, but overland travel would result in less disturbance than blading an access road – blading creates a lower, flatter road bed and removes all surface vegetation in the path. Access improvements (e.g., grading) would be necessary only where overland travel is not possible. In agricultural areas, Western would coordinate with farmers to minimize impacts to crop production.

Regardless of whether a road or overland travel is used, Western would survey the routes, obtain easements, and ensure biological and cultural resources survey completion before the routes were used. Access roads would be sited to avoid areas of environmentally sensitive resources. Western's objectives would be to maximize the use of existing roads, use short spurs from existing access roads where ever possible, and minimize clearing and grading activities.

Structure Site Clearing

At each new structure site, an area would be disturbed by the movement of vehicles, assembly of structure elements, and other operations. For each structure site, it is assumed that approximately 0.9 acres would be temporarily disturbed by construction equipment for a total of 122.4 acres for 136 structures or 134.1 acres for 149 structures.

The only trees to be cleared would be saltcedar (also called tamarisk, an exotic invasive species) which are present at the Gila River crossing; they cover less than 1 percent of the transmission line route. These trees would be removed for safety, line reliability, and to reduce fire hazards. Clearing of other vegetation types would be performed within the ROW where necessary to provide access for construction equipment near structure sites. In agricultural areas, topsoil would be removed, holes augered, poles placed, and the holes backfilled. After the poles are placed and backfilled, the excess spoil would be deposited along the access roads and the topsoil would be replaced so the landowner would again be able to use the area. Engineering plans would incorporate National Pollution Discharge Elimination System (NPDES) permitting requirements to prevent local increases in runoff from areas of construction.

Material Storage Yard and Staging Areas

The materials storage yard would be located within a portion of the existing Gila Substation and associated existing warehouse yard. This would serve as the reporting location for workers, parking space for vehicles and equipment, and materials storage.

Construction materials would be hauled to the material storage yard from the local highway or rail network along existing roadways, then to staging areas, and finally to structure sites using trucks and trailers on the access roads described previously.

Excavation and Installation

Vertical excavations for monopole structure footings would be made with power drilling equipment. A vehicle-mounted power auger or backhoe would be used where soils permit. In extremely sandy areas, water or a gelling agent would be used to stabilize the soil before excavation.

Monopoles would be set using direct burial techniques with concrete backfill; monopoles immediately north of the Gila River 100-year floodplain would be concrete reinforced to 3 feet above ground level. An average of 145 cubic yards of concrete would be used per 500-kV monopole, resulting in approximately 22,000 cubic yards of concrete for the Applicants' Proposed Action constructed with a 69-kV underbuild between Gila and North Gila substations. This estimate is conservative because the amount of concrete required for the intermediate 69-kV monopoles would be much less than what would be required for the 500-kV monopoles. Spoil material (excavated soil) would be spread at the structure site, except in agricultural areas as previously noted.

Monopole site excavation and installation would require access to the site by a power auger or drill, large crane, material truck, and ready-mix concrete trucks. In selected areas, the concrete would be flown in by helicopter.

Structure Assembly

Structure assembly crews would assemble the steel monopole structures and, using a large crane, position them in the augered excavations.

Conductor and Ground Wire Stringing

Reels of conductor and overhead shield wire would be delivered to pulling, tensioning, and splicing sites located near turning structures. Approximately 10 pulling, tensioning, and splicing sites would be needed. Each site would cover approximately 150 feet by 150 feet (0.5 acres), totaling approximately 5 acres of temporary disturbance. Level locations would be selected so that little or no earthmoving would be required. These sites may have to be cleared of shrub vegetation and would be disturbed by the movement of vehicles and other activities. The conductors and ground wires would then be pulled into place from these locations. Pulling and splicing sites would be surveyed for biological and cultural resources prior to use, and selected to avoid environmentally sensitive resources.

Right-of-Way Cleanup and Restoration

The volume of waste generated during construction would be small. Waste construction materials and rubbish from all construction areas would be collected, hauled away, and disposed of at approved sites. No hazardous wastes would be generated except for a small volume of rags contaminated with oil or grease. These rags will be collected in a separate container and transported off-site for disposal at an approved waste management facility.

All structure assembly and erection pads not needed for normal maintenance would be final graded to their original contours or to blend with adjacent landforms. The goal would be to restore all construction areas as near as feasible to their original condition, including revegetation and reclamation.

Safety Program

Western would require the contractor to prepare and conduct a Western-approved safety program in compliance with all applicable Federal, State, local, and Western safety standards and requirements. The safety program would include, but not be limited to, procedures for accident prevention, use of protective equipment, medical care of injured employees, safety education, fire protection, and general health and safety of employees and the public. Training would also be required for spill response and use of spill containment equipment. Western would also establish provisions for taking appropriate actions in the event that the contractor fails to comply with the approved safety program.

Environmental Awareness Training Program

All workers for the Proposed Project would be required to attend a Western-approved Environmental Awareness Training presentation for instruction on environmental requirements and restrictions specific to the components of the Proposed Project. The training presentation would be coordinated through the land management agencies associated with the Proposed Project. Training would include identification of listed species and cultural and paleontological resources, and the appropriate responses and notification procedures should any of these be discovered during construction. All construction personnel would be required to take the Environmental Awareness Training before being allowed to work on the project.

2.1.1.5 Operation and Maintenance

Use of the transmission line ROW by the landowner would be permitted for any purpose that does not create a safety hazard or interfere with Western's easement rights. The day-to-day operation of the lines would be directed by system dispatchers in a power-control center in Phoenix, Arizona. These dispatchers would use communication facilities to operate circuit breakers that control the transfer of power through the line. These circuit breakers would also operate automatically to ensure safety, such as in the event of a structure or conductor failure.

Western's preventative maintenance program for transmission lines would include routine aerial and ground patrols. Aerial patrols would be conducted quarterly. Ground patrols would be conducted annually where the transmission line is accessible, and whenever aerial patrols find evidence of a problem. Maintenance activities may include repairing damaged conductors, inspection and repair of structures, tightening of bolts and hardware, and replacing damaged and broken insulators. In addition to maintaining the structures, conductors, and hardware, Western would maintain any access roads to minimize erosion. Transmission lines are sometimes damaged by storms, floods, vandalism, or accidents and require immediate repair. Emergency repair would involve prompt movement of crews to repair damage and replace any equipment. If access roads were damaged as a result of the repair activities, Western would restore them as required.

Various practices may be used at structures and along the transmission line ROW to prevent undesirable vegetation; however, herbicides would not be used. Because of the arid, sparsely vegetated nature of the Proposed Project area, it is expected that very minor and infrequent measures would be necessary to control vegetation.

2.1.1.6 Communication Facilities

For safe and efficient operation, the proposed new transmission line would require reliable, secure communication circuits for protective and control relaying. Western's existing communication system would be modified to operate the new transmission line additions. Fiber-optic cable would be embedded in one of the overhead ground wires and would function, in part, as a communication system for the Proposed Project in addition to Western's existing microwave communication system. The fiber-optic overhead ground wire would substitute for one of the two stranded steel ground wires that are typically placed above transmission lines. The new fiber-optic system could be used for voice communication, protective relaying telemetering, supervisory control, data acquisition, and other purposes. Fiber-optic cable use within the upgraded transmission lines would be limited to Western use and would not be marketed for commercial purposes. The existing microwave facilities could require some modification (e.g., new equipment); however, these modifications would not be expected to require new ground-disturbing activity.

2.1.1.7 Substation Modifications

Modifications to Western's existing Gila Substation and APS' North Gila Substation would be needed to accommodate the new transmission lines. Modifications to Gila Substation would

occur within a federally-owned, 20-acre parcel located adjacent to and north of the existing facility. The 20-acre parcel is currently Reclamation withdrawn land available for electrical distribution requirements. Gila Substation would be modified under a construction contract managed by Western. Modifications to North Gila Substation would occur within the fenced boundary of the existing substation. North Gila Substation would be modified through an agreement with APS. Modifications to each of the substations would include installing new circuit breakers and controls. Adding the equipment would involve installing new concrete foundations, substation bus work, cable trenches, a buried cable grounding grid, and new surface grounding material.

The substation modifications would be designed and constructed to prevent accidental spills, keep them from affecting adjacent land, and prevent them from reaching water bodies in the vicinity of the substation. Oil spill contingency plans and/or Spill Prevention Countermeasure and Control (SPCC) plans would be updated for the modification of existing substations. These plans explain cleanup and emergency notification procedures specific to each substation. Also, the substation facilities are enclosed by chain-link fences with locking gates and adequate night lighting for security.

Construction of the substation modifications would occur during the 12-month period identified for construction of the proposed transmission lines and would use a portion of the 30- to 40-person construction workforce. The following sections identify modifications specific to each substation.

Gila Substation. A new 500/69-kV transformer, 5 breakers, and associated equipment would be added. Currently, the double-circuit 69-kV transmission line between Gila and North Gila substations is composed of one circuit that is a tie between Gila and North Gila and a second circuit bypassing Gila Substation and interconnecting at North Gila Substation. If Western consolidates existing transmission between the Gila and North Gila substations, the 69-kV circuit that bypasses Gila Substation would be connected to a breaker at Gila Substation. Construction of the substation modifications would require the following:

- Cut-and-fill grading to level the construction area to a smooth surface using existing soil;
- Placement and compaction of soil brought in from offsite, as needed, to serve as a foundation for equipment;
- Subsurface grounding grids (buried system of cables to provide safety for workers);
- Grading to maintain drainage patterns;
- Oil spill containment facilities;
- Erosion control such as placement of gravel within the fenced area; and
- Cleanup and restoration.

North Gila Substation. A new 500/69-kV transformer and associated equipment would be added. North Gila Substation would be modified, within the existing substation boundary, through an agreement with APS.

2.1.1.8 Western's Standard Mitigation Measures

Western has adopted standard construction practices that would be implemented for constructing the new transmission lines and substation portions of the Proposed Project. These standards are summarized in table 2.1-1. Western is engaged in section 7 consultation with the United States Fish and Wildlife Service (USFWS) for Endangered Species Act (ESA) compliance, will complete section 106 consultation under the National Historic Preservation Act (NHPA), and will implement mitigation measures specified by these consultations.

Table 2.1-1. Western's Standard Construction Practices

1.	All construction vehicle movement outside the ROW normally would be restricted to predesignated access, contractor acquired access, or public roads.
2.	The area limits of construction activities normally would be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity.
3.	In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for resprouting.
4.	In construction areas (e.g., staging yards, structure sites, spur roads from existing access roads) where ground disturbance is substantial or where recontouring is required, surface restoration would occur as required by the landowner or land management agency. The method of restoration normally would consist of returning disturbed areas back to their natural contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches.
5.	Watering facilities and other range improvements would be repaired or replaced if they are damaged or destroyed by construction activities to their condition prior to disturbance as agreed to by the parties involved.
6.	Structures and/or ground wires would be marked with highly visible devices where required by governmental agencies (e.g., Federal Aviation Administration).
7.	Prior to construction, all construction personnel would be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract would address (a) Federal, State, and tribal laws regarding cultural resources, fossils, plants and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.
8.	Cultural resources would continue to be considered during post-EIS phases of project implementation in accordance with the programmatic agreement that is being developed in conjunction with preparation of the EIS. This would involve intensive surveys to inventory and evaluate new discoveries (cultural resources not previously identified). In consultation with appropriate land managing agencies, tribal and State Historic Preservation Officer, specific mitigation measures would be developed and implemented to mitigate any identified adverse impacts. These may include project modifications to avoid adverse impacts, monitoring of construction activities, and data recovery studies. American Indian tribes would be involved in these consultations to determine whether there are effective or practical ways of addressing impacts on traditional cultural places.
9.	Western would respond to individual complaints of radio or television interference, generated by the transmission line, by investigating the complaints and implementing appropriate mitigation measures (e.g., adjusting or using filtering devices on antennae). The transmission line would be patrolled on a regular basis so that damaged insulators or other transmission line materials, which could cause interference, are repaired or replaced.
10.	Western would apply mitigation needed to eliminate problems of induced currents and voltages onto conductive objects sharing a ROW to the mutual satisfaction of the parties involved.
11.	Western would continue to monitor studies performed to determine the effects of audible noise and electrostatic and electric magnetic fields in order to ascertain whether these effects are significant.
12.	Roads would be built at right angles to washes to the extent practicable. Culverts would be installed where needed. All construction and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and intermittent or perennial streambanks. In addition, road

Table 2.1-1. Western's Standard Construction Practices

	construction would include dust-control measures during construction in sensitive areas. All existing roads would be left in a condition equal to or better than their condition prior to the construction of the transmission line.
13.	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any permits needed for construction activities would be obtained. Open burning of construction trash would not be allowed unless permitted by appropriate authorities.
14.	Fences and gates would be repaired or replaced to their original condition prior to project disturbance as required by the landowner or the land management agency if they are damaged or destroyed by construction activities. Temporary gates would be installed only with the permission of the landowner or the land managing agency.
15.	Transmission line materials would be designed and tested to minimize corona. Tension would be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution would be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.
16.	No nonbiodegradable debris would be deposited in the ROWs. Slash and other biodegradable debris would be left in place or disposed of in accordance with agency requirements.
17.	Hazardous materials would not be drained onto the ground or drainage areas. Totally enclosed containment would be provided for all trash. All construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials.
18.	Special status species or other species of particular concern would continue to be considered during post-EIS phases of project implementation in accordance with management policies set forth by the appropriate land managing agency. This may entail conducting surveys for plant and wildlife species of concern along the proposed transmission line route and associated facilities (e.g., access and spur roads, staging areas) as agreed upon by the land managing agency. In cases where such species are identified, appropriate action would be taken to avoid adverse impacts on the species and its habitat and may include altering the placement of roads or structures as practicable and monitoring construction activities.
19.	The alignment of any new access roads would 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 (visual contrast).
20.	Except for repairs necessary to make roads passable, no widening or upgrading of existing access roads would be undertaken in the area of construction and operation, where soils or vegetation are sensitive to disturbance.
21.	In designated areas, structures would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, water courses, and cultural sites, or to allow conductors to clearly span the features within limits of standard structure design. This would minimize the amount of disturbance to the sensitive feature or reduce visual contrast.
22.	With the exception of emergency repair situations, ROW construction, restoration, maintenance, and termination, activities in designated areas would be modified or discontinued during sensitive periods (e.g., nesting and breeding periods) for candidate, proposed threatened and endangered, or other sensitive animal species.

Source: DOE 2005c.

In addition to the above, Western would require that all ROW and temporary use areas be surveyed by qualified experts for flora/fauna species and cultural resources prior to ground-disturbing activities. Identified species and/or resources would be avoided or mitigated to reduce impacts to less than significant.

Within Flat-tailed Horned Lizard Management Areas (FTHL MA), mitigation methods outlined in the Flat-tailed Horned Lizard Rangewide Management Strategy (FTHL Interagency Coordinating Committee 2003) would be followed as appropriate. The proposed staging area in the FTHL MA would be surrounded by a protective fence to prevent flat-tailed horned lizards

from entering the staging area. A pedestrian survey of the staging area and relocation of any found flat-tailed horned lizards by a qualified biologist during installation of the fence would ensure that no flat-tailed horned lizards would be contained within the site. Mitigation measures from the Flat-tailed Horned Lizard Rangeland Management Strategy include the following:

- An individual with the authority to halt operations that violate appropriate protective procedures or pose unreasonable risk to FTHL would be designated as a field contact representative and would be in contact with the appropriate regulatory agencies.
- The boundary of work areas would be clearly flagged to reduce the areas of project related activities to the minimum extent necessary. Workers would be advised of these boundaries to prevent unintentional additional disturbance outside of the designated areas.
- Within FTHL habitat, disturbance related to site access and construction and material storage would be limited to the minimum extent necessary for the project. Where grading is necessary, surface soils would be stored and replaced following construction.
- Existing roads would be used for travel and equipment storage whenever possible.
- A biological monitor would be on-site during all construction and restoration operations. The responsibilities of the monitor would include the education of workers on the biology and status of the FTHL, protection measures designed to reduce potential impacts, the function of flagging of work sites, procedures to be used if FTHL are encountered, and appropriate measures to be exercised while commuting to and from the work site to reduce the risk of mortality on roads. In addition to education, the monitor would ensure that all activities follow mitigation procedures and would have the authority to stop activities that are in violation, monitor areas of active surface disturbance for the presence of FTHL, and transport any FTHLs encountered to areas outside of the work zone.
- The Applicant would develop a habitat restoration plan that would focus on returning disturbed areas to conditions suitable to promote levels of use similar to those prior to construction. The restoration plan would also remove any project-related hazards including holes and trenches that could trap FTHL.

Western, as the lead Federal agency, has circulated a draft Programmatic Agreement (PA) among the Federal and State agencies involved with the Proposed Project, the concerned Tribes, and the Applicant to ensure compliance with the NHPA section 106. The PA stipulates how consultation will be conducted. This includes how cultural resources will be identified and how eligibility and effects will be determined. It requires that Western develop a Historic Properties Treatment Plan as well as a Plan for Discovery of Cultural Resources should Proposed Project activities impact a cultural resource in an unanticipated manner. It also includes procedures that apply if human remains and cultural items, as defined by the Native American Graves Protection and Repatriation Act (NAGPRA), are found.

2.1.1.9 Additional Mitigation Measures

Table 2.1-2 lists a summary of rules from the Arizona Administrative Code pertaining to fugitive dust control that would be used for the Proposed Project. In addition to Western's standard

construction practices (table 2.1-1), these measures would be used to mitigate construction activity emissions.

Table 2.1-2. Arizona Fugitive Dust Control Regulation Summary

Rule	Summary
R18-2-604. Open Areas, Dry Washes, or Riverbeds	Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous water applications, detouring, barring access, or other acceptable means.
R18-2-605. Roadways and Streets	Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, water application, detouring, or other reasonable means. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets.
R18-2-606. Material Handling	Dust from crushing, screening, handling, transporting or conveying of materials shall be minimized using controls such as spray bars, wetting agents, dust suppressants, load covers, and hoods.
R18-2-607. Storage Piles	Fugitive dust from wind erosion of storage piles shall be minimized using chemical stabilization, water application, or covering. For stacking and reclaiming activities, the fall distance of material shall be minimized, or spray bars and wetting agents shall be used.
R18-2-614. Evaluation of Nonpoint Source Emissions	Opacity of an emission from any nonpoint source shall not be greater than 40 percent.

Source: Arizona Administrative Code 2005

2.1.1.10 Final Disposition of the Proposed Project within the United States

The proposed transmission structures would last a minimum of 40 to 50 years unless the system is upgraded and expanded during that time, which would further extend the life of the structures. When the transmission lines are no longer used in Western’s system, the old ground wires, conductors, insulators, and hardware would be dismantled and removed from the ROW. The structures embedded in the ground would be pulled out, and structures embedded in concrete foundations would be removed along with their foundations. Cranes, large trucks, and pickup trucks, as well as earthmoving equipment in a few of the steeper areas, would be required for efficient removal of the proposed transmission structures. Areas disturbed and stripped of vegetation during the dismantling process would be regraded and reseeded to minimize erosion. Applicable environmental requirements in place at the time of decommissioning would be reviewed and complied with.

2.1.2 Activities Outside the United States

The SLRC Power Center description is provided to present a complete picture of the Applicants’ proposal and to assess potential impacts in the United States from its construction and operation. The EIS does not address alternatives to the SLRC Power Center or its location, as that part of the Proposed Project is a non-Federal action, would be located in Mexico and, therefore, is not subject to NEPA. If the proposed transmission additions in the United States are not constructed, then the construction and operation of interconnection transmission lines to a CFE substation

within Mexico would allow the SLRC Power Center to be constructed, maintained, and operated to deliver power to areas within only Mexico. A list of permits and approvals obtained for the SLRC Power Center and a full description of SLRC Power Center components is provided in Appendix A.

The proposed 500-kV transmission line would originate inside Mexico, at the SLRC Power Center. GDD plans to construct and operate the SLRC Power Center, a new 550-MW nominal (605-MW peak) natural gas-fired, combined-cycle power plant located approximately 3 miles east of San Luis Rio Colorado, Sonora, Mexico, and about 1 mile south of the international border. While this facility is not subject to United States regulatory requirements, the potential environmental impacts within the United States that would result from the construction and operation of the SLRC Power Center are evaluated as part of the impacts analysis. GDD would construct the SLRC Power Center to comply with applicable United States environmental standards in addition to those of Mexico's Instituto Nacional de Ecología. The planned power plant would be equipped with advanced air emissions control technology, including Dry Low Nitrogen Oxides (NO_x) (DLN) Combustion System technology, SCR system for oxides of nitrogen, and catalytic oxidizers for carbon monoxide (CO) emissions control. The proposed power plant would use a wet-dry cooling system to reduce the consumptive use of water as compared with an all-wet cooling system. GDD would sell off-peak power inside Mexico to the association of maquiladoras (fabrication or assembly plants in the North American Free Trade Agreement zone) of San Luis Rio Colorado and to the CFE. As an independent power producer, the Applicants' would sell on-peak generation in the United States on the wholesale power market; whereas, a regulated utility would provide electrical service at retail commercial and residential rates. The Applicants' would construct an approximately 1-mile-long transmission line between the SLRC Power Center and the Point of Change of Ownership near the United States-Mexico international border. The Applicants' have committed to voluntarily conduct cultural resources surveys on the proposed SLRC Power Center site and transmission line ROW prior to construction activities; these surveys would be conducted separately from the EIS process.

The SLRC Power Center would be built with a two-on-one or a two-on-two design and use two advanced technology combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), one or two steam turbine generators (STGs), condenser(s), transformer(s), mechanical draft cooling towers, evaporative cooling of inlet air, duct burners, and all necessary ancillary equipment. The SLRC Power Center would also include tanks, sedimentation/evaporative ponds, an emergency fire pump, and associated buildings.

The SLRC Power Center is designed for base load operations nominally rated at 550 MW, with peaking capacity of approximately 605 MW via duct burner operation. Part load operations would be maintained above the minimum operation of the CTGs so that the facility would maintain compliance with all air permit requirements. The CTGs would be "F" Type (frame type designed for power generation, as opposed to modified aircraft turbines) or equivalent advanced technology CTGs with DLN Combustion Systems. The facility would incorporate SCR and a CO catalyst and use state-of-the-art combustion control technologies to minimize emissions.

The wet-dry cooling system would be a Parallel Condensing System (PCS). The PCS is a self-regulating system, and the distribution of heat rejection load (and ultimately the water lost to evaporation) between the wet and dry systems is controlled by changing the airflow to each sub-system. During operation, when best performance and plant efficiency is required, the wet sub-system would be operated with maximum fan and cooling capacity. Under this mode of operation, the dry sub-system would provide any additional necessary heat rejection capability and operate below its design capacity. The wet sub-system would be the primary method of cooling because during high ambient temperatures the dry sub-system would be less efficient, require a much larger unit, and be more expensive compared with the wet sub-system. By using the wet sub-system during higher ambient temperatures, the SLRC Power Center would generate electricity at a lower cost per kilowatt-hour. At times of the year when the ambient temperature is cooler, or the plant is operating at reduced load, heat rejection load would be shifted to the dry sub-system. When the system is shifted to the dry sub-system, fan capacity on the wet sub-system would be decreased, fan capacity on the dry sub-system increased, less evaporative cooling would result, and convective cooling would increase. In this way, consumptive water is decreased compared with an all-wet system. The PCS would be specified and designed so that the dry sub-system has sufficient condensing capacity that in the course of a year's anticipated operation, the water use would be reduced by a minimum of 15 percent or more when compared with an all-wet system.

Water for the SLRC Power Center's use, including the majority of the cooling water, would be provided by the wastewater treatment plant owned by the San Luis Rio Colorado municipality. Potable water (estimated at 300 gallons per minute) would be supplied from a well to be located on the site; this consumptive use would be converted from an existing use, so there would be no net increase in groundwater pumping or consumption as a result of the power plant. GDD has signed contracts with Organismo Operador Municipal de Agua Potable Alcantarillado y Saneamiento de San Luis Rio Colorado (OOMAPA, the company that operates the water supply and the wastewater treatment plant for San Luis Rio Colorado) to receive treated water from the wastewater treatment plant and to return effluent to the wastewater treatment plant. Comisión Nacional del Agua (CNA, the Mexican Secretary of Water) has granted 6,336 gallons per minute of water from the wastewater treatment plant to GDD for the next 30 years. The wastewater treatment plant would receive and treat all the effluent water from the SLRC Power Center. Pending further analysis, the SLRC Power Center may be equipped with the capability to pre-treat effluent returning to the wastewater treatment plant. The municipality of San Luis Rio Colorado would build and own a pipeline from the wastewater treatment plant to the SLRC Power Center, and a wastewater return line to the wastewater treatment plant, a distance of approximately 9 miles each way.

Fuel for the SLRC Power Center would be supplied through a high-pressure natural gas pipeline that would be located entirely within Mexico. The pipeline would be approximately 24 miles long and interconnect the SLRC Power Center to a Baja Norte pipeline located west of San Luis Rio Colorado, Sonora, Mexico. Ownership of the natural gas supply pipeline has not yet been determined. If the Applicants own the pipeline, they would voluntarily conduct cultural resources surveys on the ROW prior to construction.

2.2 Identification of Alternatives

This section describes the methods employed to identify and screen potential alternatives for consideration in the EIS. After being presented with the Applicants' Proposed Action, Western identified three regional corridors (West, Center, and East) that could be used for routing a transmission line. The corridors were defined by the obvious "no-go" areas of the City of Yuma high-density commercial and residential area and the adjacent Marine Corps Air Station Yuma (MCAS Yuma)/ Yuma International Airport, and a landing strip and approach zone on the BMGR used by the Marine Corps. These two areas, both of which are completely incompatible with a transmission line, constituted "islands" that, together with the international border to the south and west, formed the three corridors. After initial investigation, Western determined that two of the corridors, West and East, were not feasible; these corridors and an explanation of why they were determined to be not feasible are described in section 2.4. The Center Corridor contained the path of the Applicants' Proposed Action and was studied to determine additional routing opportunities.

The Applicants' Proposed Action was presented at stakeholder and scoping meetings to provide a basis for discussion of issues and to assist with identifying potential transmission line routing segment options (figure 2.3-1) to be evaluated in the EIS. The alternatives presented in this document were either identified in response to public issues and concerns or were direct recommendations from the public or stakeholders.

2.2.1 Feasibility Screening Criteria

Recommended or proposed alternatives were subjected to a screening process to determine whether they were viable for consideration in the EIS. This screening included their ability to meet the stated purposes, needs, and objectives for the project and whether they were technically feasible and economically viable (able to be implemented). Political and public issues and concerns were also considered. The feasibility screening assessment included:

- Purpose and Need – Does the alternative meet the defined purposes, needs, and objectives?
- Technical Feasibility – Is the alternative reasonable based on engineering and construction considerations?
- Environmental Feasibility – Does the alternative have the ability to meet regulatory standards and be permitted?
- Economic Feasibility – Can the alternative be implemented for a reasonable cost?

Section 2.3 identifies the proposed alternatives that passed the screening process, were considered reasonable alternatives to the Applicants' Proposed Action, and are evaluated comparatively in this DEIS. Section 2.4 identifies those alternatives eliminated from detailed study in this DEIS and includes the reasoning behind their exclusion from full analysis.

2.3 Reasonable Alternatives, Including No Action

This section identifies the proposed alternatives that passed the screening process, were considered reasonable alternatives to the Applicants' Proposed Action, and are evaluated comparatively in this DEIS.

2.3.1 Route Alternative

The proposed transmission line route alternative (Route Alternative, Figure 2.3-1) was identified in response to public and stakeholders' comments and potential issues associated with the Applicants' Proposed Action. The Route Alternative is a combination of the Applicants' Proposed Project route and transmission line routing segment options. Figures 2.3-2 through 2.3-4 show the differences between the Applicants' Proposed Action and Route Alternative.

Under the Route Alternative, the transmission line route would cross the border immediately north of the proposed SLRC Power Center near the intersection of Avenue 1E and County 27th; the route would then head northeast for approximately 1.5 miles to the existing Gila-Sonora Transmission Line, located near the intersection of Avenue 2½E and County 26½. The route would then proceed north adjacent to the east side of the existing improved well field access road and Western's Gila-Sonora 69-kV transmission line toward the existing Sonora Substation. From Sonora Substation the route would proceed northeast toward the intersection of Avenue 3E and County 23rd. This portion of the Applicants' Proposed Action would cross Reclamation's 5-Mile Zone PRPU and the FTHL MA. This portion of the Route Alternative was identified because it would lessen the impact of the Proposed Project on flat-tailed horned lizard habitat by paralleling an existing improved access road and transmission line, thereby creating less disturbance to previously undisturbed areas.

From the intersection of Avenue 3E and County 23rd, the Route Alternative would proceed north adjacent to Avenue 3E to the intersection with County 19¼. The Route Alternative would cross State of Arizona land containing center-pivot irrigation fields; however, it would be oriented parallel to Avenue 3E, which is an existing improved road that passes between the center pivots. Structure placement would be designed so that the structures would be placed between fields and would not interfere with the operation of center-pivot systems. The proposed route would be located adjacent to the east side of Avenue 3E to avoid a residence located on the southwest corner of the intersection of Avenue 3E and County 20th.

From the intersection of Avenue 3E and County 19¼, the route would proceed northeast toward the intersection of Avenue 4E and County 18¾. This portion of the Route Alternative was identified because it would avoid the area of engineering constraint associated with the Applicants' Proposed Action at the intersection of Avenue 4E and County 19th. Engineering constraints at this intersection include an active gravel pit located on the southwest corner, the BMGR small arms firing ranges located on the northeast corner, and the proposed County 19th overpass of the ASH. At the intersection of Avenue 4E and County 19th, MCAS Yuma identified a need to construct the transmission line as low as possible to reduce potential interference with the Auxiliary Field #2 flight path for safety reasons, due to proximity to the landing strip. The Route Alternative would shift the proposed transmission line 1 mile to the west of the BMGR boundary, flat-tailed horned lizard habitat, and the proposed ASH for approximately 5 miles. This shift would move the proposed transmission line 1 mile farther west from Auxiliary Field #2 to a location where USMC planes would be at a higher altitude in their approach path thus improving pilot safety. The Route Alternative would not require taller structures to accommodate the proposed overpass of the ASH at County 19th, would avoid the gravel pit located on the southwest corner of County 19th and Avenue 4E, and would approach the proposed ASH near the point where the ASH would curve to the northeast, allowing more flexibility for placement of transmission structures.

From the intersection of Avenue 4E and County 18¾, the route would proceed northeast parallel to the proposed ASH corridor to the intersection of Avenue 5¼E with County 16th. This portion of the Route Alternative would follow the Applicants' Proposed Action and would require a permit from the Navy to cross the northwest corner of the BMGR. The proposed transmission line alignment would be located west of the proposed ASH to avoid flat-tailed horned lizard

habitat. The proposed ASH would be between the proposed transmission line alignment and the USMC small arms firing range safety zone. The location of this segment would need to be closely coordinated with Arizona Department of Transportation (ADOT) to avoid impact to the proposed ASH. Within this area, the current design of the proposed ASH is 60 percent complete (ADOT 2004).

From the intersection of Avenue 5¼E with County 16th, the Route Alternative would proceed to parallel the proposed ASH corridor to the intersection with the A Canal. Near the intersection of the proposed ASH corridor with County 14th, the transmission line would cross to the east side of the proposed ASH. A commercial area is planned along the eastern side of the proposed ASH through the master-planned community (Ocotillo); as such, the developer has stated a preference for the proposed transmission line to be placed adjacent to the east side of the proposed ASH (where it is proposed to parallel the ASH) to avoid impacts to the residential portion of the development design. Heading east from the proposed ASH, the developer identified a preference for the proposed transmission line to be located adjacent to the south side of the A Canal, because the development plan included an undeveloped area in this location for future ROW. This portion of the Route Alternative was identified because it would avoid the high-density residential development area adjacent to the A Canal between Avenue 6E and Avenue 6½E (west of the proposed ASH) that is currently under construction; by avoiding this area, the Route Alternative would avoid the possibility of condemning the homes in this area. In addition, this portion of the Route Alternative would be located up to 1 mile east of the Applicants' Proposed Action; this would decrease the visibility of the transmission line for residents along the BMGR boundary between County 15th and County 14th.

From the intersection of the proposed ASH with the A Canal, the route would proceed northeast parallel to the A Canal and the Gila-Sonora Transmission Line, cross Interstate 8, and enter the Gila Substation from the west. The existing Gila-Sonora Transmission Line crosses Interstate 8 adjacent to the north side of the A Canal; on the east side of Interstate 8, the Gila-Sonora Transmission Line crosses to the south side of the A Canal. The Route Alternative would cross Interstate 8 adjacent to the north side of the A Canal and would share a portion of the existing Gila-Sonora Transmission Line ROW. The City of Yuma communication tower near the intersection of Avenue 9E and the canal, at the water treatment facility, would need to be relocated. This portion of the route would be located on the north side of the A Canal to avoid the south side of the canal, which the City of Yuma has proposed for the location of the East Yuma Freeway. The Route Alternative would require the same modifications to Gila Substation as the Applicants' Proposed Action.

Leaving the north side of Gila Substation, the proposed corridor would parallel the existing transmission lines to the north, cross the Gila River, and proceed to the point of intersection of the existing transmission lines and Avenue 9E. The proposed transmission line would be located on the east side of the existing transmission lines. From the intersection of the existing transmission lines and Avenue 9E, the route would proceed north adjacent to Avenue 9E for approximately 0.5 miles, and then proceed west into APS' North Gila Substation. This proposed alignment would avoid the Yuma Lakes RV and trailer parks and would span the northern edge of Redondo Pond. As part of the system impact study, Western will evaluate opportunities to consolidate one of the existing transmission lines with the proposed new line. Similar to the

Applicants' Proposed Action, the proposed transmission line would span the width of the Gila River; therefore, structures would not be placed within the river channel or 100-year floodplain. The Route Alternative would avoid engineering constraints associated with the existing and proposed development, including RV and trailer parks, encroaching upon the existing transmission line approaches to the North Gila Substation. The Route Alternative would require the same modifications to North Gila Substation as the Applicants' Proposed Action.

2.3.1.1 Proposed Transmission Line

The total length of the Route Alternative within the United States would be approximately 26.1 miles, 21.2 miles from the international border to Gila Substation and 4.9 miles from Gila Substation to North Gila Substation.

If constructed to 500-kV standards, the proposed transmission line would require a 200-foot-wide ROW. Portions of the ROW could be shared with the existing 100-foot-wide Sonora-Gila Transmission Line ROW, proposed ASH, and existing transmission lines between Gila and North Gila substations. New ROW would be required on Reclamation, State of Arizona, and private lands; a permit would be required to cross the BMGR.

The transmission line design characteristics, construction, ROW needs, operation and maintenance, communication facilities, substation modifications, Western's standard mitigation measures, additional mitigation measures, and final project disposition would be essentially the same as those described under the Applicants' Proposed Action (sections 2.1.1.2 through 2.1.1.10).

Construction materials would be hauled to the material storage yard from the local highway or rail network, then to staging areas, and finally to structure sites using trucks and trailers. The material storage yard would be located in a portion of the existing Gila Substation warehouse yard and would initially contain all of the construction materials for the Proposed Project. As construction materials would be needed along the Proposed Project route, the construction materials would be moved to staging areas (much smaller material storage yards) used for parking and storing the portion of construction materials needed for those locations. Approximately four staging areas would be used for the Route Alternative, one of which would be located at Gila Substation and one of which would be located at North Gila Substation. One staging area would be located within the FTHL MA. This site would temporarily disturb an area of 200 feet by 400 feet; it would be surrounded by a protective fence to prevent flat-tailed horned lizards from entering the staging area. A pedestrian survey of the staging area and relocation of any found flat-tailed horned lizards by a qualified biologist during installation of the fence would ensure that no flat-tailed horned lizards would be contained within the site. Cable-pulling and wire splicing sites would be located near turning structures; therefore, approximately 14 cable-pulling and wire splicing sites would be used for the Route Alternative. Cable-pulling and wire splicing sites would temporarily disturb 7 acres.

Border-Gila Transmission Line

The Route Alternative would be approximately 21.2 miles long between the border and Gila Substation. The proposed transmission line would traverse a combination of Reclamation, State of Arizona, Navy, and private lands. The proposed transmission line would require installing new transmission structures, new conductors, and two overhead ground wires, one of which would contain a fiber-optic communication cable.

Approximately 112 structures would be required for the portion of the proposed transmission line between the border and Gila Substation. The transmission support structures would be steel monopoles (single poles) with an average height of 175 feet (figure 2.3-5). The amount of disturbance would be similar to the Applicants' Proposed Action because the Route Alternative would only require one additional structure. The conductors to be used would be specular (shiny), but would dull over time from weathering, as would the steel support structures.

The Route Alternative would require 2.8 miles of new access to structures within the FTHL MA, compared with 4.4 miles needed for the Applicants' Proposed Action. The new access would be watered as needed during construction to reduce dust and provide the support needed for cranes and heavy haul vehicles; maintenance activities would use overland travel. The Route Alternative would require less new access and associated disturbance than the Applicants' Proposed Action because it would use a portion of the improved access road for the existing Reclamation well field. The Route Alternative would require 5.25 miles of new access to structures across the northwest boundary of the BMGR, compared with 5 miles needed for the Applicants' Proposed Action. The remaining portions of the proposed transmission line would use existing access roads. Access to the new transmission line would be primarily on section line roads and roads that currently provide access to the existing transmission lines. Short spur roads or overland access of 100 to 150 feet to each structure would be needed where the proposed transmission line would parallel an existing road.

Gila-North Gila Transmission Line

The Route Alternative would be 4.9 miles long between Gila Substation and APS's North Gila Substation. This route would traverse Reclamation, State of Arizona, and private lands. The proposed transmission line would require installing new transmission structures, new conductors, and two overhead ground wires, one of which would contain a fiber-optic communication cable.

The proposed Gila-North Gila Transmission Line would require a 200-foot-wide ROW and would parallel the existing transmission lines between Gila and North Gila substations. The proposed transmission line would be located on the east side of the existing transmission lines. The ROW for the existing double-circuit 69-kV transmission line is 35 to 50 feet wide. As part of the system impact study, Western will evaluate opportunities to consolidate existing transmission lines with the proposed new line. If the double-circuit 69-kV transmission line is consolidated with the proposed line, the existing ROW would need to be widened by 150 to 165 feet. If transmission is consolidated, one of the 69-kV circuits may need to be underbuilt on the proposed transmission line; this would increase the height of the transmission line structure by approximately 30 feet. In addition, underbuilding a 69-kV circuit would require that the

structures be placed closer together or that a single-circuit 69-kV intermediate pole be placed to accommodate the increased sag associated with the smaller conductor size. Analysis of the underbuild option will assume that additional double-circuit structures would be constructed. This approach is conservative because a single-circuit 69-kV transmission support structure is much smaller and lighter and would require less ground disturbance than a double-circuit structure.

The proposed Gila-North Gila Transmission Line would be constructed with steel monopole structures. If existing transmission were not consolidated with the proposed transmission line, approximately 26 structures would be required for the proposed transmission line. As described in section 2.1.1.1, if existing transmission would be consolidated with the proposed transmission line, approximately 39 structures would be required for the proposed transmission line. The amount of disturbance would be similar to the Applicants' Proposed Action (section 2.1.1.1) because the Route Alternative would only require one additional structure for either scenario.

The Gila River crossing would be the same as that described for the Applicants' Proposed Action because both of the proposed routes would cross the Gila River at the same location.

Access to the new transmission line would be primarily on roads that currently provide access to the existing transmission lines. Short spur roads or overland access of 100 to 150 feet to each structure could be needed where the proposed transmission line would parallel an existing road. Between Gila and North Gila substations, the access spur roads may need to be slightly longer depending on placement of the new structures within agriculture fields. While some access roads of 100 to 150 feet might need to be extended to reach new structure sites, some existing access roads may be abandoned because of the need for fewer structures due to longer spans. Location of access roads would be coordinated with landowners to reduce impacts on their operations.

2.3.2 230-kV Alternative

During the scoping process, a double-circuit 230-kV transmission line was identified as an alternative that would meet the Proposed Project objectives for transporting electric power and creating additional transmission into the Yuma area. The 230-kV Alternative would provide an acceptable method for exporting power to the United States and provide additional benefits. Although the conductor span length between structures would be similar, the 230-kV Alternative would require narrower ROW and shorter, less massive structures than the proposed 500-kV transmission line, resulting in reduced environmental impacts and construction costs. In addition, the 230-kV Alternative would be consistent with APS' Ten-Year Plan, prepared for the Arizona Corporation Commission (APS 2003). The 230-kV Alternative is compared with the Applicants' Proposed Action and the Route Alternative as part of this DEIS, and could be constructed using either route.

2.3.2.1 Proposed Transmission Line

Mitigation measures and final project disposition would be similar to those described under the Applicants' Proposed Action (sections 2.1.1.8 through 2.1.1.10).

Similar to the Applicants' Proposed Action, the 230-kV Alternative would require installing new transmission structures, new conductors, and two overhead ground wires, one of which would contain a fiber-optic communication cable. New ROW would be required on Reclamation, State of Arizona, and private lands; a permit would be required to cross the BMGR. However, the 230-kV Alternative would require a 150-foot-wide ROW compared with a 200-foot-wide ROW for the Applicants' Proposed Action; therefore, the 230-kV Alternative would require 25 percent less ROW area for its entire length.

Under the 230-kV Alternative, the transmission structures would be steel monopoles and would be shorter and lighter than those required for the Applicants' Proposed Action. Steel monopoles (figure 2.3-5) would have an average height of 150 feet. The conductors to be used would be specular (shiny), but would dull over time from weathering, as would the steel support structures. The transmission line would be constructed and operated at 230-kV standards.

The span length for the 230-kV Alternative would be similar to that for the Applicants' Proposed Action, and the number of structures, access to structures, and temporary disturbance would be similar to the route that is ultimately chosen.

The area of disturbance for 230-kV structures would be less than that needed for 500-kV structures. A 230-kV monopole structure would require 0.0023 acre of permanent disturbance compared with 0.0051 acre per 500-kV structure. This estimate is conservative because the footing of the monopole was calculated as a 10-foot by 10-foot square; the actual structure would be circular and would have a 10-foot diameter, which would be a slightly smaller area of disturbance than a square.

The 230-kV Alternative, combined with either of the proposed routes, would require 0.32 acres of permanent disturbance compared with up to 0.7 acres for construction of 500-kV structures. If existing transmission would be consolidated with the proposed transmission line, the 230-kV Alternative would result in 0.34 acres of permanent disturbance compared with up to 0.77 acres for construction of 500-kV structures.

Table 2.3-1 provides a comparison of design characteristics for Proposed Project alternatives. Figure 2.3-5 is a comparison of a typical double-circuit 500-kV structure and double-circuit 230-kV structure.

2.3.2.2 Design Characteristics

Design characteristics would be similar to those of the Applicants' Proposed Action (section 2.1.1.2) except that the NESC and Western's standards for aboveground clearance of conductors would be a minimum of 25 feet compared with 30 feet for a double-circuit 500-kV transmission line. These 5 feet, in addition to reduced clearances required between conductors, allows the 230-kV structures to be shorter than the 500-kV structures by a total of 25 feet.

Table 2.3-1. Comparison of Design Characteristics for Proposed Project Alternatives

	Applicants' Proposed Action (500-kV)	Route Alternative (Constructed to 500-kV)	230-kV Alternative
Line Length	25.7 miles	26.2 miles	Dependent on route
Structure Type	Steel monopole	Steel monopole	Steel monopole
Structure Height	175 feet	175 feet	150 feet
Structure Base Dimension	15 X 15 feet (approximate dimension)	15 X 15 feet (approximate dimension)	10 X 10 feet (approximate dimension)
Span Length	1,000 feet	1,000 feet	1,000 feet
Number of Structures Per Mile	Approximately 5	Approximately 5	Approximately 5
Total Number of Structures	149	151	Dependent on route
ROW Width	200 feet	200 feet	150 feet
Land Temporarily Disturbed			
Structure Bases	134.1 acres	135.9 acres	Dependent on route
Cable-pulling Sites	5 acres	7 acres	Dependent on route
Staging Areas	5.2 acres	5.2 acres	5.2 acres
Land Permanently Disturbed			
Per Structure Base	0.0051 acre	0.0051 acre	0.0023 acre
Proposed Project Total (structures only)	0.76 acre	0.77 acre	0.34 acre
Substation Expansion	20 acres	20 acres	20 acres

Note: Information presented in this table assumes that transmission between Gila and North Gila substations would be consolidated and require additional structures to support a 69-kV transmission line underbuild. Length of new access is not provided as that would be determined as part of the Proposed Project design; Western anticipates that new access would be primarily short spurs of 100 to 150 feet or overland travel between existing access and the proposed transmission line (additional new access may be required in the FTHL MA during construction). The cost for the 230-kV Alternative is expected to be less than that for a 500-kV transmission line because the 230-kV Alternative would require 25 percent less ROW and the structures would be smaller; however, these costs are dependent on the current market value.

2.3.2.3 Right-of-Way Needs

ROW acquisition would be similar to that for the Applicants' Proposed Action (section 2.1.1.3) except that the 230-kV Alternative would require 25 percent less ROW width – 150-foot-wide ROW compared to the 200-foot-wide ROW required for the Applicants' Proposed Action – thereby reducing the cost to acquire ROW.

2.3.2.4 Construction

Construction of the 230-kV Alternative would be essentially the same as that for the Applicants' Proposed Action (section 2.1.1.4) except that the 230-kV Alternative would require 25 percent less concrete for footings – approximately 17,000 cubic yards (an average of 115 cubic yards of concrete per 230-kV monopole) compared to the 22,000 cubic yards required for the Applicants' Proposed Action.

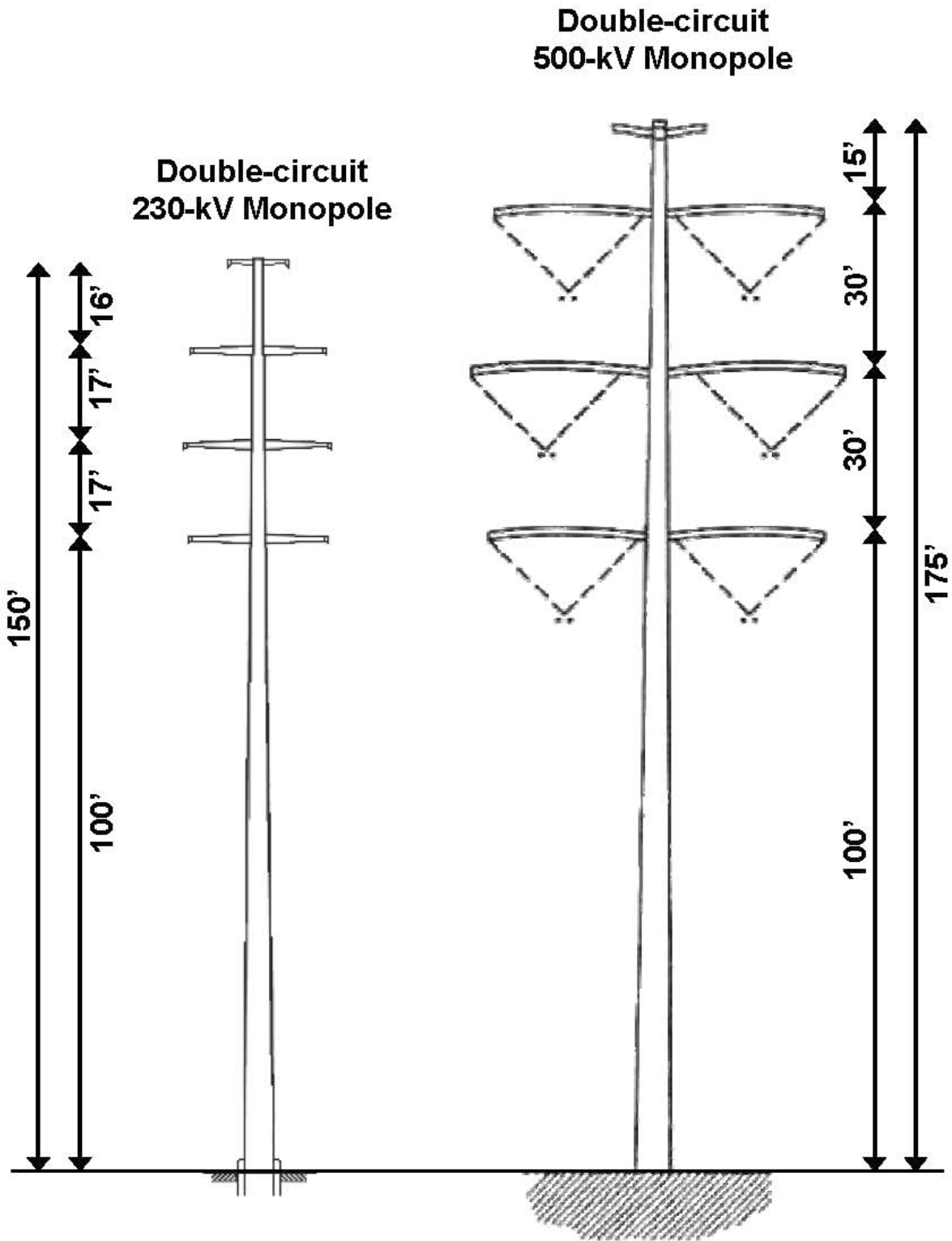


Figure 2.3-5. Comparison of 500-kV and 230-kV Steel Monopole Structures

2.3.2.5 Operation and Maintenance

Operation and maintenance of the 230-kV Alternative would be the same as that for the Applicants' Proposed Action (section 2.1.1.5).

2.3.2.6 Communication Facilities

Communication facilities associated with the 230-kV Alternative would be the same as those for the Applicants' Proposed Action (section 2.1.1.6).

2.3.2.7 Substation Modifications

Modifications to Western's existing Gila Substation and APS' North Gila Substation would be needed to accommodate the new transmission lines. Modifications to Gila Substation would occur within a federally-owned, 20-acre parcel adjacent to and immediately north of the existing substation. Gila Substation would be modified under a construction contract managed by Western. Modifications to North Gila Substation would occur within the fenced boundary of the existing substation. North Gila Substation would be modified through an agreement with APS. Modifications to each of the substations would include installing new circuit breakers and controls. Adding the equipment would involve installing new concrete foundations, substation bus work, cable trenches, buried cable grounding grid, and new surface grounding material.

The substation modifications would be designed and constructed to prevent accidental spills, keep them from affecting adjacent land, and prevent them from reaching water bodies in the vicinity of the substation. Oil spill contingency plans and/or Spill Prevention Countermeasure and Control (SPCC) plans would be updated for the modification of existing substations. These plans explain cleanup and emergency notification procedures specific to each substation. Also, the substation facilities are enclosed by chain-link fences with locking gates and adequate night lighting for security.

Construction of the substation modifications would occur during the 12-month period identified for construction of the proposed transmission lines and would use a portion of the 30- to 40-person construction workforce. The following sections identify modifications specific to each substation for the 230-kV Alternative.

Gila Substation. A new 230/69-kV transformer, 5 breakers, and associated equipment would be added. Currently, the double-circuit 69-kV transmission line between Gila and North Gila substations is composed of one circuit that is a tie between Gila and North Gila and a second circuit bypassing Gila Substation and interconnecting North Gila Substation. If Western consolidates existing transmission between the Gila and North Gila substations, the 69-kV circuit that bypasses Gila Substation would be connected to a breaker at Gila Substation. The 230-kV facility would be somewhat smaller than the proposed 500-kV facility, but the entire 20-acre parcel would still be developed. Construction of the substation modifications would require the following:

- Cut-and-fill grading to level the construction area to a smooth surface using existing soil;
- Placement and compaction of soil brought in from offsite, as needed, to serve as a foundation for equipment;
- Subsurface grounding grids (buried system of cables to provide safety for workers);
- Grading to maintain drainage patterns;
- Oil spill containment facilities;
- Erosion control such as placement of gravel within the fenced area; and
- Cleanup and restoration.

North Gila Substation. A new 230/69-kV transformer and associated equipment would be added. A 230-kV interconnection would likely be constructed in a different location within the North Gila Substation yard than a 500-kV interconnection. North Gila does not currently have any 230-kV equipment in it, but does have 500-kV equipment and bus work.

2.3.4 No Action Alternative

Under the No Action alternative, Western would not approve an interconnection agreement and/or DOE would not issue a Presidential permit; therefore, the proposed transmission lines and access roads and modifications to substations within the United States would not be constructed, and the environmental impacts associated with their construction and operation would not occur.

However, the construction and operation of interconnection transmission lines to a CFE substation within Mexico would allow the SLRC Power Center to be constructed, maintained, and operated to deliver power to areas within Mexico. In this scenario, impacts from the operation of the SLRC Power Center similar to those described in this DEIS would occur in the United States. This scenario is not subject to United States regulation because all of the project-related activities would occur within Mexico.

2.3.5 Agency Preferred Alternative

Table 2.3-2 summarizes the environmental impacts of the Proposed Project alternatives based on the analyses in chapter 4. After reviewing the impacts for each of the alternatives, DOE identified the Route Alternative and 230-kV Alternative as the environmentally preferred alternatives. With this approach, the Proposed Project would use the route from the Route Alternative and construct the Proposed Project to 230 kV-standards. The combination of these two alternatives also constitutes DOE's agency preferred alternative.

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
Geology, paleontology, and seismicity	There are no unique or important geologic features within the Proposed Project area. The use of sand and gravel for the Proposed Project would be minimal compared to the known abundance of federally- and privately-owned sand and gravel resources available in Yuma County. The Proposed Project would have a less than significant impact on geological resources, including availability of minerals. Impacts to paleontology would be less than significant because the Proposed Project area is not likely to contain scientifically important fossil resources and fossil resources are not expected to be encountered. The Proposed Project area is within a seismic Zone 4 and the proposed facilities would be constructed and maintained to Federal Uniform Building Code standards for Zone 4 areas; therefore, impacts associated with seismicity would be less than significant.			Current environmental conditions and trends would continue.
Soils¹	<p><u>Temporary disturbance:</u> 134.1 acres for proposed transmission line structures and 5 acres for cable-pulling sites</p> <p><u>Permanent disturbance:</u> 20 acres for Gila Substation modifications and 0.76 acres for proposed transmission line structures, a portion of which would be offset by removal of existing 69-kV H-frame structures between Gila and North Gila substations</p> <p>The Proposed Project would not result in appreciable soil erosion. Impacts would be less than significant.</p>	<p><u>Temporary disturbance:</u> 135.9 acres for proposed transmission line structures and 7 acres for cable-pulling sites</p> <p><u>Permanent disturbance:</u> 20 acres for Gila Substation modifications and 0.77 acres for proposed transmission line structures, a portion of which would be offset by removal of existing 69-kV H-frame structures between Gila and North Gila substations</p> <p>The Proposed Project would not result in appreciable soil erosion. Impacts would be less than significant.</p>	<p><u>Temporary disturbance:</u> Similar for either the Applicants' Proposed Action route or the Route Alternative when combined with the 230-kV Alternative</p> <p><u>Permanent disturbance:</u> 20 acres for Gila Substation modifications and 0.34 acres for proposed transmission line structures, a portion of which would be offset by removal of existing 69-kV H-frame structures between Gila and North Gila substations</p> <p>The Proposed Project would not result in appreciable soil erosion. Impacts would be less than significant.</p>	Current environmental conditions and trends would continue.
Water resources	Groundwater within the 5-Mile Zone of Mexico would be obtained by converting an existing groundwater use (estimated at 300 gallons per minute) to use for potable water at the proposed power plant; therefore, the consumptive use of groundwater would not change and not result in any impact. Cooling water (estimated at 6,336 gallons per minute) for the proposed power plant would come from the San Luis Rio Colorado municipal wastewater treatment plant. All alternatives would span the Gila River and would not place structures within the 100-year floodplain. Temporary dewatering may be necessary during construction in the Gila Valley due to high groundwater levels. Surveys for Water of the United States would be conducted prior to constructing any Proposed Project components, impacts are expected to be less than significant. Impacts to all water resources would be less than significant.			Current environmental conditions and trends would continue.
Air quality	Activities within the United States Fugitive dust from construction and vehicle emissions would be generated during construction and maintenance of the proposed transmission line. With proposed dust control mitigation, these impacts would be temporary and minor; these activities would not affect long-term air quality. Impacts within the Yuma PM ₁₀ non-attainment area would be			Current environmental conditions and trends would continue.

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>below 100 tons per year, thus there would be no conformity issues; therefore, impacts would be less than significant</p> <p>SLRC Power Center The proposed SLRC Power Center located in Mexico would not be a major source of air pollution per the Prevention of Significant Deterioration (PSD) criteria. Anticipated SLRC Power Center emissions combined with the existing background levels would be well below most ambient air quality guidelines. Anticipated SLRC Power Center PM₁₀ emissions combined with the existing background levels would be 75 percent of the guideline due to high existing background levels from both U.S and Mexican sources; however, this amount would still be below the limit. Impacts on air quality within the United States from operation of the SLRC Power Center would be less than significant.</p>			
<p>Biological resources</p> <p>Vegetation and wildlife</p>	<p>Creosotebush – White Bursage (community type/habitat) <u>Permanent disturbance:</u> 0.47 acres (92 instances of 0.0051 acres each) for proposed transmission line, and 20 acres for Gila Substation modifications</p> <p>The Proposed Project would span the Gila River; therefore no new structures would be placed within riparian areas.</p> <p>Impacts would be less than significant.</p>	<p>Creosotebush – White Bursage (community type/habitat) <u>Permanent disturbance:</u> 0.46 acres (91 instances of 0.0051 acres each) for proposed transmission line, and 20 acres for Gila Substation modifications</p> <p>The Proposed Project would span the Gila River. The Route Alternative would cross 0.3 mile of an area containing saltcedar that was mapped as riparian vegetation near Yuma Lakes (Redondo Pond). This habitat has been highly disturbed by recreational use and does not support wildlife species typically found within southwestern riparian zones. Disturbance in this area caused by the Applicant's Route Alternative would not result in a loss of riparian habitat.</p> <p>Impacts would be less than significant.</p>	<p>Creosotebush – White Bursage (community type/habitat) <u>Permanent disturbance:</u> 0.21 acres (91 or 92 instances of 0.0023 acres each) for either proposed transmission line route, and 20 acres for Gila Substation modifications</p> <p>Impacts within riparian areas would be the same as those described for either of the route alternatives.</p> <p>Impacts would be less than significant.</p>	<p>Current environmental conditions and trends would continue.</p>
<p>Special Status Species</p>	<p>Flat-tailed Horned Lizard Management Area (FTHL MA) <u>Permanent disturbance:</u> 0.15 acres permanent disturbance for steel</p>	<p>Flat-tailed Horned Lizard Management Area (FTHL MA) <u>Permanent disturbance:</u> 0.15 acres permanent disturbance for steel</p>	<p>Flat-tailed Horned Lizard Management Area (FTHL MA) <u>Permanent disturbance:</u> 0.07 acres permanent disturbance for steel</p>	

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>monopoles <u>New access: 4.4 miles during construction</u> <u>Adjacency to FTHL MA boundary: 7.9 miles</u></p> <p>The Proposed Project would avoid construction at the Gila River crossing during Yuma clapper rail and southwestern willow flycatcher nesting season and would incorporate mitigation identified in the FTHL Rangewide Management Strategy, impacts to special status species would be less than significant.</p> <p>No adverse effects to other special status species or their habitats is expected.</p>	<p>monopoles <u>New access: 2.8 miles during construction</u> <u>Adjacency to FTHL MA boundary: 5.2 miles</u></p> <p>The Proposed Project would avoid construction at the Gila River crossing during Yuma clapper rail and southwestern willow flycatcher nesting season and would incorporate mitigation identified in the FTHL Rangewide Management Strategy, impacts to special status species would be less than significant.</p> <p>No adverse effects to other special status species or their habitats is expected.</p>	<p>monopoles <u>New access: Similar to the route alternative that would be used</u> <u>Adjacency to FTHL MA boundary: Similar to the route alternative that would be used</u></p> <p>The Proposed Project would avoid construction at the Gila River crossing during Yuma clapper rail and southwestern willow flycatcher nesting season and would incorporate mitigation identified in the FTHL Rangewide Management Strategy, impacts to special status species would be less than significant.</p> <p>No adverse effects to other special status species or their habitats is expected.</p>	
Cultural resources	<p>Impacts to cultural resources, such as prehistoric properties, historic properties, and cultural landscapes, cannot be determined until a 100-percent Class III survey is completed. Western's preferred mitigation is to avoid any identified sites. Currently, a Programmatic Agreement is being developed among Western, the State Historic Preservation Office, affected Federal agencies, Applicants, and all interested Native American Tribes. Compliance with the Programmatic Agreement provisions would ensure that section 106 requirements are met.</p>			<p>Current environmental conditions and trends would continue.</p>
Land use and recreation	<p>The only recreational area within the Proposed Project area is the Yuma Lakes (Redondo Pond); impacts would be less than significant.</p> <p>The proposed transmission line would conflict with a City of Yuma resolution opposing a 500-kV transmission line adjacent to the south side of the A Canal and between the proposed ASH and Interstate 8. This would result in a significant impact. No measures are</p>	<p>The only recreational area within the Proposed Project area is the Yuma Lakes (Redondo Pond). The Route Alternative would not traverse the RV and trailer park area; therefore impacts would be less than the Applicants' Proposed Action and less than significant.</p> <p>The proposed transmission line would conflict with a City of Yuma resolution opposing a 500-kV transmission line adjacent to the</p>	<p>Impacts would be similar in context to the route that would be used. However, the intensity would be less because the 230-kV Alternative would require 25 percent less ROW than a 500-kV transmission line.</p>	<p>Current environmental conditions and trends would continue.</p>

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>recommended to mitigate this impact for the following reasons.</p> <ul style="list-style-type: none"> • The developer of the master-planned community (Ocotillo) identified the south side of the A Canal as the location that would pose the fewest impacts to the planned community because that area was not included in development plans. • A route adjacent to the A Canal provides the greatest potential for joint use of ROW with other linear facilities including the A Canal and Gila-Sonora Transmission Line. • The East Yuma Freeway, a four-lane travel route, is proposed in the City of Yuma Major Roadways Plan 2005 to be located on the south side of the A Canal from the proposed ASH, cross Interstate 8, and terminate at a point east of Avenue 9E. The portion of the East Yuma Freeway between the proposed ASH and Interstate 8 has been removed from future land use planning efforts by City Council actions. <p>Additional impacts:</p> <ul style="list-style-type: none"> • Area of engineering constraint at the intersection of County 19th and Avenue 4E. Engineering constraint at the intersection of County 19th and Avenue 4E 	<p>south side of the A Canal and between the proposed ASH and Interstate 8. This would result in a significant impact. No measures are recommended to mitigate this impact for the following reasons.</p> <ul style="list-style-type: none"> • The developer of the master-planned community (Ocotillo) identified the east side of the proposed ASH for a north-south route between County 13th and the A Canal through the planned community because that location that would pose the fewest impacts to the planned community based on development plans. • The developer of the master-planned community identified the south side of the A Canal between Avenue 6½E and Old Highway 80 as the location that would pose the fewest impacts to the community because that area was not included in development plans. • A route adjacent to the A Canal provides the greatest potential for joint use of ROW with other linear facilities including the A Canal, Gila-Sonora Transmission Line, and proposed ASH. • The East Yuma Freeway, a four-lane travel route, is proposed in the City of Yuma Major Roadways Plan 2005 to be 		

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>would require building the transmission support structures higher to comply with safety clearances for the proposed overpass. This would conflict with military aviation operations within this area; shorter structures to comply with military aviation operations would conflict with the proposed overpass. A sand and gravel operation is located on the southwest corner of the intersection. The BMGR small arms firing ranges and safety zone are located on the northeast corner of the intersection.</p> <ul style="list-style-type: none"> • Condemnation of existing residences between Avenue 6E and Avenue 6½E adjacent to both sides of the A Canal. • Encroachment of development along the existing transmission line approach to the North Gila Substation within the Yuma Lakes. 	<p>located on the south side of the A Canal from the proposed ASH, cross Interstate 8, and terminate at a point east of Avenue 9E. The portion of the East Yuma Freeway between the proposed ASH and Interstate 8 has been removed from future land use planning efforts by City Council actions.</p> <p>The Route Alternative would avoid the additional impacts that would result from the Applicants' Proposed Action, as detailed in the adjacent column.</p>		
Transportation	<p>Use of local highways during construction would result in a less than 1 percent increase in annual average daily traffic; impacts would be less than significant. The Proposed Project would not result in an impact to rail services.</p> <p>The proposed route would place structures in a civilian-use aviation corridor created by open space between the areas of restricted airspace associated with the MCAS Yuma/Yuma International Airport and the BMGR. However, the Proposed Project would not result in the re-routing of air traffic because the height of the structures would be</p>	<p>The Route Alternative would avoid the potential impacts that would result from the Applicants' Proposed Action.</p>	<p>Impacts would be similar in context to the route that would be used; however, the intensity would be less because structures would be 25 feet shorter than the 500-kV structures.</p>	<p>Current environmental conditions and trends would continue.</p>

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>less than the minimum altitude for civilian flight; therefore, impacts would be less than significant.</p> <p>Engineering constraint at the intersection of County 19th and Avenue 4E would require building the transmission support structures higher to comply with safety clearances for the proposed overpass. This would conflict with military aviation operations within this area; shorter structures to comply with military aviation operations would conflict with the proposed overpass. Either of these conflicts would result in a significant impact.</p>			
Visual resources	<p>For a majority of the proposed route, changes would remain subordinate within the existing visual landscape; therefore, impacts to visual resources would be less than significant.</p> <p>An area of increased viewer sensitivity was identified near the northwest corner of the BMGR. Steel monopoles would be used because they are less massive and draw less attention. The Applicants' Proposed Action would be closer to the area of increased sensitivity and would appear larger than the Route Alternative.</p>	<p>For a majority of the proposed route, changes would remain subordinate within the existing visual landscape; therefore, impacts to visual resources would be less than significant.</p> <p>An area of increased viewer sensitivity was identified near the northwest corner of the BMGR. Steel monopoles would be used because they are less massive and draw less attention. The Route Alternative would be farther from the area of increased sensitivity and appear smaller and less noticeable than the Applicants' Proposed Action.</p>	<p>Impacts would be similar in context to the route that would be used; however, intensity would be less because structures would be 25 feet shorter and less massive than 500-kV structures.</p>	<p>Current environmental conditions and trends would continue.</p>
Noise	<p>Transmission line Distance to nearest existing residence: 420 feet Estimated construction noise level at</p>	<p>Transmission line Distance to nearest existing residence: 145 feet Estimated construction noise level at</p>	<p>Impacts would be similar in context and intensity to the route that would be utilized.</p>	<p>Current environmental conditions and trends would continue.</p>

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
	<p>nearest existing residence: 65.6 dBA</p> <p>Substation modifications Distance to nearest existing residence: 642 feet Estimated construction noise level: 61.9 dBA</p> <p>Construction noise levels would be temporary and are within EPA recommendations, there would be no perceivable permanent impact from noise; therefore, impacts from noise would be less than significant.</p>	<p>nearest existing residence: 74.8 dBA</p> <p>Substation modifications Impacts would be the same as the Applicants' Proposed Action.</p> <p>If construction activities occurred adjacent to the nearest existing residence, estimated construction noise levels at 145 feet would be greater than EPA recommendations. However, construction noise levels at existing residences would remain below 70 dBA by ensuring that construction activities would occur a minimum of 260 feet away. This can be accomplished by designing the transmission line such that a structure would not be constructed adjacent to the residence.</p> <p>By ensuring that construction activities would occur a minimum of 260 feet from an existing residence, there would be no perceivable permanent impact from noise; therefore, impacts from noise would be less than significant.</p>		
Socioeconomics	<p>Due to the small construction workforce (30 to 40 workers) and availability of existing resources, Proposed Project-related impacts to population, housing, employment and pay rates, governmental services, and infrastructure services would be less than significant.</p> <p>An increase to the local economy of an estimated \$4.7 million, combining \$3.2 million for payroll and \$1.5 million for materials for the year of construction.</p>			<p>Current socioeconomic conditions and trends would continue.</p>
Environmental Justice	<p>Minority and low-income groups within the census tracts crossed by Proposed Project facilities do not meet the Council on Environmental Quality's (CEQ's) definition/criteria for minority or low-income populations. No minority or low-income populations were identified based on CEQ criteria; therefore there would be no disproportionately high or adverse impacts to minority or low-income populations.</p>			<p>No impact.</p>

Table 2.3-2. Summary Comparison of Environmental Impacts

Resource	Applicants' Proposed Action	Route Alternative	230-kV Alternative	No Action Alternative
<p>Health and Safety</p>	<p>EMF No Federal regulations have been established specifying environmental limits on the strengths of electric and magnetic fields (EMFs) from electric transmission lines. During normal operation, magnetic fields at the edge of the ROW would be well below the recommended guidelines of the International Commission on Non-Ionizing Radiation (833 milligauss [mG]) and the American Conference of Governmental Industrial Hygienist (1,000 mG); however, the levels would be approximately 1 mG higher than the recommended National Academy of Sciences guidelines (0.1 to 3.0 mG). During periodic maintenance activities, the magnetic field at the edge of the ROW would be slightly higher; however, this would be less than 1 percent of the time, and the resulting EMF would still be comparable with other existing transmission lines of similar voltage. While extensive research has been conducted to determine if exposure to electric or magnetic fields may cause or promote adverse health effects, the National Institute of Environmental Health Sciences (NIEHS) concluded that “the scientific evidence suggesting that extremely low frequency (ELF)-EMF exposures pose any health risk is weak” and that “the probability that EMF exposure is truly a health hazard is currently small” (NIEHS 1999). Based on this assessment, human health and safety impacts from EMF are expected to be less than significant.</p> <p>Worker Worker health and safety impacts from the construction, operation, and maintenance of the Proposed Project would be related to typical work-related injuries and fugitive dust. Risk associated with construction, operation, and maintenance activities would be minimized through facility design, safe work practices, and continuous maintenance in compliance with Occupational Health and Safety Administration’s (OSHA’s) and State of Arizona regulations. Impacts to worker health and safety would be less than significant.</p> <p>Public Temporary fences would be placed wherever feasible to control public access to construction areas. In addition, construction equipment would be secured at night. Therefore, the potential for injury due to trespassing in construction areas would be minimal. Impacts to public health and safety would be less than significant.</p>			<p>Current EMF levels and health and safety considerations from existing transmission lines in the area would continue.</p>
<p>1 Information presented assumes that transmission between Gila and North Gila would be consolidated and a 69-kV circuit would be underbuilt on the proposed transmission line. This approach is conservative and identifies the greatest amount of disturbance.</p>				

2.4 Alternatives Eliminated from Detailed Study

This section describes alternatives, including potential transmission line routing segment options identified during scoping, that were determined to be not feasible or reasonable and why they were eliminated from detailed study. Figure 2.4-1 depicts potential transmission line routing segment options that were eliminated from detailed study.

West Corridor

The West Corridor ranged from 1.5 to 4 miles wide and up to 45 miles long. From the proposed border crossing, the West Corridor headed west along the international border to a point east of San Luis, Arizona, at which point the corridor headed north, west of the City of Somerton, generally parallel to the Arizona border. North of the Yucca Power Plant, the corridor crossed the Colorado River and Interstate 8. North of Interstate 8, the corridor headed east parallel to an existing Western transmission line toward North Gila Substation across Fort Yuma Reservation land and required an additional Colorado River crossing. From North Gila Substation, the corridor would backtrack to the south, across the South Gila Valley, to Gila Substation. This corridor was located entirely within the United States

The West Corridor was eliminated from detailed study for the following reasons. The length of a route within the West Corridor would be nearly double that of the Center Corridor, resulting in a substantial increase in environmental impacts and cost to construct the transmission line with the additional cost rendering the project economically infeasible. The additional length of the corridor would require additional structures and result in a greater permanent disturbance to soils. Two crossings of the Colorado River and associated sensitive habitat would be required, compared with one crossing of the mostly dry Gila River channel. The West Corridor crossed approximately 18 miles of high-value agriculture fields, thereby disturbing more than three times the amount of row-irrigated farmland compared to the other corridors. These agriculture fields are dispersed with many residences, which would not allow the proposed transmission line to stay on a straight alignment. The portion of the West Corridor that would cross agricultural lands would not follow any existing transmission lines; therefore, the introduction of new transmission structures would also pose a new safety risk for aerial application practices. In addition, soils within the Yuma Valley are more susceptible to liquefaction during ground-shaking than soils within the Proposed Project area. Western could share a portion of the proposed ROW with their existing transmission line ROW across the Fort Yuma Reservation; however, for the ROW to be wide enough, Western would have to acquire additional ROW across 5.6 miles of tribal land, which would result in an increased potential for impacts to cultural resources. In addition, there are substantial engineering constraints near the Yucca Power Plant due to its associated transmission lines, and there is an APS proposal to construct additional generation units near the existing power plant to serve the Yuma load pocket. The West Corridor was eliminated from detailed study because of substantially higher environmental impacts, additional construction costs, and engineering constraints.

East Corridor

The East Corridor ranged from 4 to 8 miles wide and up to 41 miles long. From the proposed border crossing, the East Corridor headed east across the BMGR, south of Auxiliary Field #2 and County 23rd, towards the Gila Mountains. On the eastern side of the airfield within the BMGR, the corridor then headed north toward Gila Substation and continued to North Gila Substation. The corridor was located west of the Gila Mountains.

The East Corridor was eliminated from detailed study for the following reasons. The East Corridor was wholly incompatible with military operations on the BMGR and, as such, would not be permitted by the Navy. In addition, this corridor is much longer than the Center Corridor and would result in a substantial increase in environmental impacts and cost to construct the transmission line with the additional cost rendering the project economically infeasible. The additional length of the corridor would require additional structures and would result in a greater permanent disturbance to soils. The majority of the East Corridor would be located within flat-tailed horned lizard habitat and designated FTHL MA, resulting in a substantial increase in impacts compared to the other corridors. The East Corridor would require several miles of new access roads in undisturbed areas on the BMGR, creating permanent disturbance to soils. These roads would also create a route for illegal recreational entry to the BMGR and provide a more secluded route for illegal immigrants into the United States. Presence of a transmission line within the restricted area of the BMGR would pose safety risks to military personnel and activities. Maintenance of the transmission line would pose safety risks to both maintenance crews and military personnel. The East Corridor was eliminated from detailed study because of incompatibility with military operations and resultant inability to permit as well as substantially higher environmental impacts and construction costs.

Fortuna Wash Option

The Fortuna Wash Option was recommended for consideration as a routing option to avoid lands that were recently annexed by the City of Yuma adjacent to the south side of the A Canal. These lands were identified by the city as a potential location for a future highway. Under this option, the transmission line would parallel the proposed ASH from the intersection of Avenue 5½E and County 14th, then head east adjacent to County 14th and the northern boundary of the BMGR to the Fortuna Wash. The route would then proceed north along the Fortuna Wash to an existing 161-kV transmission line, at which point it would proceed west parallel to the existing transmission line to Gila Substation.

The Fortuna Wash Option was eliminated from detailed study for the following reasons. A route along the Fortuna Wash would result in significantly higher impacts to residential developments because there are several existing residential developments along the wash compared to the Applicants' Proposed Action and the Route Alternative. If construction had to occur within the wash to avoid nearby residences, the proposed transmission line structures within the wash could create a blockage of floodplains or present a risk that the structures would be washed out; this would result in reliability and safety issues. Flash flooding within desert areas can occur during rainfall events, these waters are concentrated in washes and increase the possibility of structures to be washed out. As a standard practice, Western avoids construction in floodplains because of

the reliability risks and risk of blocking flows, impacts to sensitive riparian vegetation, and impacts to species of concern that are often associated with riparian vegetation. This option would greatly increase the length and cost of the proposed transmission line because it proceeds east approximately 8 miles and ultimately backtracks west for 4 miles of that distance. The Fortuna Wash Option was eliminated from detailed study because of the higher level of environmental impacts, risk of flood damage to transmission line structures, and increased construction costs.

Gila Mountains

The lower slopes of the Gila Mountains were recommended for consideration as a routing option to avoid paralleling the existing transmission lines across the South Gila Valley between Gila Substation and North Gila Substation.

The Gila Mountains were eliminated from detailed study as a potential routing option for the following reasons. Any proposed route across the BMGR would not be permitted by the Navy. There are prominent impediments to using the Gila Mountains as a routing option including big-horn sheep habitat and the increased potential for encountering cultural resources and area of concern to the tribes. The Gila Mountains are classified by the BLM as a Class II Visual Resource Management area and are more sensitive to developmental change (BLM 1985). Class II landscape management requires that changes in the basic elements not be obvious or evident to the observer and should not measurably alter the landscape's original appearance. In addition, the public is more sensitive to impacts on the viewshed of the Gila Mountains. A transmission line in the Gila Mountains would be more difficult to maintain and would increase the erosion potential because of construction activities and access roads. The addition of access roads would also create access to restricted areas of the BMGR. Similar to the Fortuna Wash Option, a route in the Gila Mountains would greatly increase the length and cost of the proposed transmission line because it would require building to the east for approximately 10 miles, then ultimately backtracking west for the majority of that distance. Access road construction and construction of a transmission line in steep areas, along with possible need for blasting of foundations and helicopter construction techniques, would greatly increase the construction cost-per-mile. Construction costs for this route could make the option economically infeasible. The Gila Mountains were eliminated from detailed study because of substantially increased environmental impacts and construction costs, and inability to permit on the BMGR.

Border to Avenue 4E and County 22^{3/4} Option

The Border to Avenue 4E and County 22^{3/4} Option was identified because it could result in fewer impacts to the FTHL MA by paralleling the existing 69-kV transmission line and using the existing access roads used for that transmission line and the 242 Well Field. The 242 Well Field includes 21 existing water wells spaced 0.5 miles apart adjacent to the Southerly International Border; other major features include the 242 Lateral, other collector lines, a 34.5-kV transmission line, access roads, and attendant facilities.

The Border to Avenue 4E and County 22^{3/4} Option would cross the border immediately north of the proposed power plant and then head northeast for approximately 1.5 miles to the existing Gila-Sonora 69-kV Transmission Line. The route would then proceed north along the existing transmission line and graded gravel road toward the existing Sonora Substation. From near the existing Sonora Substation, the route would proceed northeast toward the intersection of Avenue 4E and County 22^{3/4}. The proposed route would then proceed along the Applicants' Proposed Action (Figure 2.2-1).

The Border to Avenue 4E and County 22^{3/4} Option would reduce surface disturbance in flat-tailed horned lizard habitat and minimize the need for new access roads to structures by maximizing the use of section line roads and the existing 69-kV transmission line access road.

This option would follow the Applicants' Proposed Action north of County 22^{3/4} and, therefore, would not avoid the area of engineering constraint at the intersection of County 19th and Avenue 4E. Engineering constraints at this intersection include a gravel pit located on the southwest corner, the BMGR small arms firing ranges located on the northeast corner, the proposed County 19th overpass of the ASH, and the request from MCAS to reduce the height of structures because of proximity to Auxiliary Field #2. In addition, this option would result in the proposed transmission line being placed immediately adjacent to the western boundary of the BMGR and FTHL MA as well as the proposed ASH for a greater distance than the Route Alternative, because this option would follow the route of the Applicants' Proposed Action north of County 22^{3/4}. This option was eliminated from detailed study because of the engineering constraints associated with the Applicants' Proposed Action at the intersection of County 19th and Avenue 4E; the benefits of this option would still be achieved by using the Route Alternative. The increased height of the structures and conductors needed to clear the overpass would not be acceptable to the MCAS Yuma because of military air operations safety considerations.

Avenue 3E to County 17th Option

The Avenue 3E to County 17th Option was identified in response to public comment regarding visual impacts to views of the Gila Mountains across the BMGR and due to potential engineering constraints associated with the proposed County 19th overpass of the ASH and the safety zone for the BMGR small arms firing range.

The Avenue 3E to County 17th Option would parallel the Route Alternative to the intersection of Avenue 3E and County 19^{1/4}, and then proceed north parallel to Avenue 3E. At the intersection of Avenue 3E and County 17th, the route would proceed east parallel to County 17th toward the

intersection with the existing 69-kV transmission line near Avenue 4½E. The proposed route would then proceed along the Applicants' Proposed Action and/or Route Alternative (Figure 2.2-1).

This option would address the public comment concerning views from residences located along the western boundary of the BMGR because the proposed transmission line would not be located within the view of the landscape along the western boundary of the BMGR. However, it would shift the proposed transmission line to the views of a greater number of residences located along the proposed option. Thirty-one residences are located within 0.5 miles of the Applicants' Proposed Action and Route Alternative; 25 residences and two RV parks (each containing more than 70 RV lots) are located within 0.5 miles of the Avenue 3E to County 17th Option. This option would also cross privately-owned agriculture fields and would require disturbance of additional farmland. In addition, a portion of the parcels adjacent to County 17th are changing from agricultural use to residential development. The right-angle turn associated with this proposed option would require two structures, one for each circuit, thereby requiring additional ROW and creating twice the amount of disturbance and visual impact at this location. This option would be farther from the small arms firing range safety zone. This option was eliminated from detailed study because it would shift the visual impacts of the proposed transmission line to a location with a greater number of existing residents and future residential development.

Avenue 3E to County 16th Option

The Avenue 3E to County 16th Option was an additional option identified in response to public comment regarding visual impacts to views of the Gila Mountains across the BMGR, potential engineering constraints associated with the proposed County 19th overpass of the ASH, and the safety zone for the BMGR small arms firing range.

The Avenue 3E to County 16th Option would parallel the Route Alternative to the intersection of Avenue 3E and County 19¼, and then proceed north parallel to Avenue 3E. At the intersection of Avenue 3E and County 16th, the route would proceed east parallel to County 16th toward the intersection with Avenue 5¼E. The proposed route would then proceed along the Applicants' Proposed Action and/or the Route Alternative (Figure 2.2-1).

This option would be similar to the Avenue 3E to County 17th Option, but would shift the proposed transmission line 1 mile to the west of the BMGR boundary in response to public comment regarding visual impacts. However, it would shift the visual impacts of the proposed transmission line to the views from residences located along the proposed route. Furthermore, the additional mile would result in disturbance to additional farmland. In addition, a portion of the parcels adjacent to County 16th are changing from agricultural use to residential development. Thirty-one residences are located within 0.5 miles of the Applicants' Proposed Action and Route Alternative; 28 residences and one RV park (containing more than 70 RV lots) are located within 0.5 miles of the Avenue 3E to County 16th Option. This option was eliminated from detailed study because it would shift the visual impacts of the proposed transmission line to a location with a greater number of existing residents and future residential development.

Avenue 3E to County 16th Modified Option

The Avenue 3E to County 16th Modified Option was identified due to potential engineering constraints associated with right-angle turning structures needed to construct the Avenue 3E to County 17th and Avenue 3E to County 16th options.

The Avenue 3E to County 16th Modified Option would parallel the Route Alternative to the intersection of Avenue 3E and County 19¹/₄, and then proceed north from the intersection of Avenue 3E and County 19¹/₄, parallel to Avenue 3E. At the intersection of Avenue 3E and County 17th, the route would proceed northeast toward the intersection of Avenue 4E and County 16th. From the intersection of Avenue 4E and County 16th, the route would proceed east adjacent to County 16th to the intersection with Avenue 5¹/₄E. The proposed route would then proceed along the Applicants' Proposed Action and/or the Route Alternative (Figure 2.2-1).

This option would be similar to the Avenue 3E to County 16th Option, but does not include a right-turn angle and would not require the additional turning structure or ROW needed for the right-turn angle. Thirty-one residences are located within 0.5 miles of the Applicants' Proposed Action and Route Alternative; 29 residences and one RV park (containing more than 70 RV lots) are located within 0.5 miles of the Avenue 3E to County 16th Modified Option. In addition, a portion of the parcels between County 16th and County 17th are changing from agricultural use to residential development. This option would result in less impacts than the Avenue 3E to County 16th Option, but was eliminated from detailed study because it would shift the visual impacts of the proposed transmission line to a location with a greater number of existing residents and future residential development.

Avenue 7E Option

The Avenue 7E Option was identified due to residential development abutting the north and south sides of the A Canal between Avenue 6E and Avenue 6¹/₂E (proposed ASH) along the Applicants' Proposed Action and because it could result in fewer impacts to a master plan community development in the area by following a section line road.

The Avenue 7E Option would parallel the Route Alternative to the intersection of Avenue 6¹/₂E and County 14th. From the intersection of Avenue 6¹/₂E and County 14th, the proposed route would proceed east adjacent to County 14th to the intersection with Avenue 7E. From the intersection of Avenue 7E and County 14th, the proposed route would head north adjacent to Avenue 7E to the intersection with the A Canal. From the intersection of Avenue 7E and the A Canal, the proposed route would then proceed along the Applicants' Proposed Action or the Route Alternative (Figure 2.2-1).

This option would avoid the constrained area along the A Canal between Avenue 6E and Avenue 6¹/₂E. However, the right-angle turn associated with this proposed option would require two structures, one for each circuit, thereby requiring additional ROW and creating twice the amount of disturbance at this location. In addition, the developer of the master-planned community (Ocotillo) designed the development around an existing ROW along the A Canal and a proposed ROW for the proposed ASH. As a result, the developer identified the Route Alternative as the

least disruptive proposed corridor across the development because it would parallel ROW set aside for the proposed ASH and would be adjacent to the commercial, as opposed to residential, portion of the development; Avenue 7E is planned as a residential area. Use of this option would impact upwards of 60 planned lots in the master-planned community. Routing a transmission line along this alignment would impact a planned street within the development and the residential lots planned to line either side of the street; use of this alignment would effectively cause the developer to have to revise his plat plan within this area. This option was eliminated from detailed study because of environmental impacts and substantial impact on the developer's master-planned community.

Avenue 8E Option

The Avenue 8E Option was identified due to residential development abutting the north and south sides of the A Canal between Avenue 6E and Avenue 6½E (proposed ASH) along the Applicants' Proposed Action and because it could result in less impact to master plan community development in the area by following a section line road.

The Avenue 8E Option would parallel the Route Alternative to the intersection of Avenue 6½E and County 14th. From there, the proposed route would proceed east adjacent to County 14th to the intersection with Avenue 8E. From the intersection of Avenue 8E and County 14th, the proposed route would head north adjacent to Avenue 8E to the intersection with the A Canal. From the intersection of Avenue 8E and the A Canal, the proposed route would then proceed along the Applicants' Proposed Action or the Route Alternative (Figure 2.2-1).

This option would be very similar to the Avenue 7E Option because it would avoid the constrained area along the A Canal between Avenue 6E and Avenue 6½E. However, the developer of the master plan community identified the Route Alternative as the least disruptive proposed corridor across the development because it would parallel ROW set aside for the proposed ASH and would be adjacent to the commercial, as opposed to residential, portion of the development. Avenue 8E is planned as a residential area and is the eastern boundary of the development. Routing a transmission line along this alignment would impact a planned street within the development and the residential lots planned to line the west side of the street; use of this alignment would effectively cause the developer to have to revise his plat plan within this area. This option was eliminated from detailed study because of environmental impacts and substantial impact on the developer's master-planned community.

Mexico Alignment Options

Within Mexico, the Applicants have secured a ROW for the short distance from the SLRC Power Center to the United States-Mexico border. The location where the Applicants' ROW meets the border established the approximate location for the Point of Change of Ownership of the proposed transmission line. Proposed transmission line options and alternatives considered by Western are located entirely within the United States between the area of the proposed border crossing and Gila and North Gila substations. The Applicants are unable to consider constructing additional parts of the transmission line in Mexico because the power transmission system is owned and operated by the Mexican federal government through the CFE. The Applicants have

been able to obtain a permit for their ROW in Mexico only because it is a very short segment of transmission line that directly exits the country. In addition, the shape and location of the international border would make any alignment through Mexico much longer than any of the U.S. options and would make the Proposed Project economically unviable. Any route within Mexico would be located predominantly in intensively cultivated irrigated agricultural land, and because of the much greater length would be expected to have substantially higher environmental impacts.

Underground Option

Undergrounding the transmission lines was identified in response to visual resource concerns about placing the proposed transmission line across the northwest boundary of the BMGR.

While technically feasible, underground construction of transmission lines is typically limited to special circumstances in highly congested areas or areas with highly damaging storms (i.e., hurricanes). The placement of transmission lines underground would require that each conductor be installed in an individual pipe. A single transmission circuit requires three conductors; a double-circuit requires six conductors. The underground design would also require dedicated fiber optic cables for operation of the transmission lines. Typically, the pipes and cables would be encapsulated in a reinforced concrete trench backfilled with stabilized materials (Tsuruga et al. 1999). Installation of the concrete trench would require trenching to at least 5 feet in depth and width (ATC 2006) and result in a large amount of ground disturbance. Constructing an underground transmission line would disturb the ground for the full length of the transmission line and result in impacts to soils, vegetation, wildlife habitat, special status species, and possibly cultural resources. Whereas, constructing an above-ground transmission line would not require ground disturbance along the full length of the transmission line and lessens the amount of impact to soils, vegetation, wildlife habitat, and special status species. Similarly, with an above-ground transmission line, structures can be placed to avoid cultural resources in most instances.

Although undergrounding the proposed transmission line would eliminate the addition of overhead poles and wires from the viewshed along the northwest boundary of the BMGR, this benefit would be offset by the much greater cost of undergrounding the transmission line and time required for repair work. Transmission lines are much more difficult and expensive to place underground than the distribution lines that provide electricity to homes and businesses (EEI 2006). Burying overhead distribution lines costs about 10 times the cost to install overhead distribution lines (EEI 2006). The cost of transmission lines is far greater than the cost of distribution lines; the design, installation, and maintenance costs are all higher for underground lines (ATC 2006). Some actual costs of recent installations include two Pacific Gas & Electric Company projects. The 27-mile long Jefferson – Martin 230-kV project cost \$221 million, or about \$8.2 million per mile, and the 2.5 mile Potrero – Hunters Point 115-kV project cost \$40 million, or \$16 million per mile (EnergyBiz 2006). By contrast, the proposed overhead double-circuit transmission line is expected to cost \$800,000 to \$1 million per mile.

When comparing overhead to underground transmission line maintenance, “the difference in repair time is best characterized in hours or days rather than weeks or months” because it “typically takes more time to locate, diagnose a problem and repair an underground transmission

line” (ATC 2006). In addition, “underground lines cannot dissipate heat as well as overhead lines...lower thermal ratings for underground transmission lines mean they do not have as much flexibility as overhead lines to carry heavy volumes of power on hot summer days” (ATC 2006). Undergrounding the proposed transmission line was eliminated from detailed analysis because of the substantially higher cost and environmental impacts.

Renewables Option

Alternative renewable energy sources, such as wind, solar, and geothermal resources, are often proposed as alternatives to gas- or coal-fired generation. The Applicants propose to construct their power generation plant in Mexico, and the Proposed Action within the United States is limited to the construction of a transmission link to Gila and North Gila substations. Alternative generation options outside of the United States are beyond the scope of this NEPA process.

Please note: Missing pages contain figures which can be found in the “Figures” folder on the San Luis Rio Colorado Project Draft Environmental Impact Statement compact disc (CD). Some of the figures were removed from this file to decrease file size for ease of downloading and/or viewing.

3 AFFECTED ENVIRONMENT

This chapter describes the baseline condition of the general area within the United States that could be affected by the proposed San Luis Rio Colorado Project (Proposed Project). Resources, ecosystems, and human communities are identified that could potentially be affected by implementation of the alternatives described in chapter 2. Information presented here includes geology, soils, paleontology, and seismicity; water resources; climate and air quality; biological resources; cultural resources; land use and recreation; transportation; visual resources; noise; socioeconomics; environmental justice; and health and safety. The baseline condition serves as a reference point for the evaluation of impacts presented in chapter 4. For ease of understanding the evaluation of impacts and correlating chapters 3 and 4, the document has been prepared so that a resource described in chapter 3 has the same section number in chapter 4 (e.g., 3.2: Water Resources, 4.2: Water Resources).

3.1 Geology, Soils, Paleontology, and Seismicity

This section describes the existing geologic and soil environment within the Proposed Project area. A discussion of the regional geology is presented to provide the reader with an understanding of the geologic setting of the area. The region of influence (ROI) for geology and soils includes the area that could potentially be disturbed by Proposed Project construction and operation activities within the United States. Disturbed areas would include the rights-of-way (ROWs) for access roads, portions of the ROW for the transmission lines, temporary equipment/material storage or staging areas, cable pulling/tensioning sites, and the substation expansion footprint.

3.1.1 Geology

The Proposed Project area is located in the Basin and Range lowlands province in southwestern Arizona. This physiographic province is characterized by elongated northwest-southeast trending fault-block mountain ranges separated by broad, deep alluvial valleys. These valleys were formed by the Colorado and Gila rivers, which dominated the geologic history of the area. The Gila and Butler mountains located east-northeast of the Proposed Project area consist of igneous, metamorphic, and sedimentary rocks.

Hard volcanic rock of Tertiary age forms the higher, more rugged exposures, and less consolidated sedimentary and volcanic rock of Tertiary age forms the lower, more rounded hills (Barmore 1980). Elevations within the basin range from 3,156 feet above mean sea level in the Gila Mountains to approximately 80 feet above mean sea level near the Colorado River.

The Yuma Mesa consists of three river terraces formed from entrenchment of the Colorado and Gila Rivers. The surface of the terraces and mesas generally lie about 60 to 80 feet above the present river valleys. The terrace material consists primarily of alluvium deposits of moderately consolidated rounded gravel, sand, silt, and clay overlain by wind-blown sand deposits (Wilson 2000). The sands on the terraces are composed primarily of loose and rapidly permeable sandy soils classified as Superstition sand, Superstition complex, and Rositas sand (Barmore 1980).

The geologic resources in the Proposed Project area, including paleontological, mineral, and energy resources, are limited. The most common mineral resources in the Proposed Project area are sand and gravel. Most of the active sand and gravel operations are located along the western slope of the Gila Mountains northeast of the City of Yuma. In addition, there are two sand and gravel operations on the Yuma Mesa. Paleontology is discussed in section 3.1.3.

3.1.2 Soils

The primary soil association on the Yuma Mesa is composed of the Rositas-Ligurta complex, which is closely associated with deep, somewhat excessively drained soils on terraces, alluvial fans, and sand dunes. These soils formed in mixed, sandy, windblown material and have slopes of 0 to 20 percent. Permeability of this series is rapid. Available water capacity is low to moderate with very slow surface runoff. The hazard from wind movement is high.

The primary soil association in the Gila Valley is the Indio-Ripley-Lagunita complex. These soils are typically deep and well-drained. They form on floodplains, low terraces, alluvial fans and drainage ways. Most soils in the Gila Valley are actively used for agriculture, and are designated as Prime Farmlands (under the Farmland Protection Act; 7 USC 4201) due to their physical and chemical characteristics.

Eolian (wind) processes have dominated the morphology of the ground surface from the United States-Mexico border to the edge of the Yuma Mesa. As the area transitions from the Yuma Mesa into the Gila River Valley, agricultural activities, irrigation, and development have largely or partially stabilized the soils. Areas not under cultivation are subject to continuing wind erosion.

The erosion factor (K-value) for most soils in the Proposed Project area indicate that there is a moderate to high potential for wind-blown soil erosion, especially when protective vegetation is disturbed or removed. Similarly, bare or sparsely vegetated ground would be susceptible to erosion by surface runoff during intense rain events. Much of the land in the northern portion of the Proposed Project area is cultivated or developed. As a result, the land surface in these areas is currently well-protected from wind and other erosion processes while crops are present and being irrigated.

Soils in the Proposed Project area were mapped and published by the U.S. Department of Agriculture (USDA), Soil Conservation Service (now called the Natural Resource Conservation Service [NRCS]) as the *Soil Survey of Yuma-Wellton Area, Parts of Yuma County, Arizona, and Imperial County, California* (1980). Soil series and characteristics of soils within the Proposed Project area are listed in table 3.1-1.

Table 3.1-1. Soil Series and Characteristics within the Proposed Project Area

Soil Series	Slope (% Grade)	Characteristics
Glenbar silty clay loam	< 1 %	Glenbar silty clay loam soils are deep, well-drained soils that formed in stratified stream alluvium. Glenbar soils are located on nearly level flood plains and alluvial fans. They are well-drained; medium to high runoff; moderately slow permeability. The hazard of soil blowing is moderate. When irrigated, it is suited to all adapted crops, including alfalfa hay, small grain, cotton, grain sorghum, vegetables, citrus fruit, and Bermuda grass. These soils are moderately limited for urban development because of moderate shrink-swell potential and low strength.
Indio silt loam	0 to 2 %	Indio silt loam soils are deep, well-drained soils that formed on flood plains and alluvial fans of the Colorado and Gila rivers and in some of the larger drainage ways. These soils formed in mixed alluvium weathered from rhyolite, andesite, and granite. Permeability of the Indio silt loam is moderate, with medium surface runoff. When irrigated, it is suited to all adapted crops, including alfalfa hay, small grain, cotton, sugar beets, grain sorghum, citrus fruit, vegetables, and Bermuda grass. These soils do not exhibit limitations for urban development.
Indio-Ripley-Lagunita complex	0 to 3%	Indio-Ripley-Lagunita complex soils are located on nearly level to gently sloping floodplains, alluvial fans, and low terraces and in drainage ways along the Gila River. Indio soil makes up about 35 percent of the complex, the Lagunita soil about 25 percent, and the Ripley soil about 25 percent. The remaining 15 percent consists of Glenbar silty clay loam and Vint loam fine sand. The soil complex is deep and well-drained. Permeability of the Indio and Ripley soils are moderate, with medium surface runoff. Permeability of the Lagunita complex is rapid with low surface runoff. Because this complex is located along riverbeds and floodplain terraces, they support important riparian, plant, and wildlife communities. These soils are severely limited for most urban development because of the potential hazards from flooding and the blowing of sand and dust.
Lagunita loamy sand	0 to 3%	These soils are deep, somewhat excessively drained, nearly level soils located on floodplains, low terraces, and alluvial fans and drainage ways. Permeability of these soils is rapid with slow surface runoff. When irrigated, it is suited to all adapted crops, including citrus fruit, alfalfa, and small grain. This soil is slightly limited for urban development because of the sandy texture.
Lagunita silt loam	0 to 3%	Lagunita silt loam soils are deep, somewhat excessively drained soils located on nearly level floodplains, low terraces, and low alluvial fans and in drainage ways. Permeability of these soils is rapid with moderate surface runoff. The hazard of soil blowing is moderate. When irrigated, it is suited to all adapted crops, including citrus fruit, alfalfa, cotton, vegetables, and small grain. This soil is slightly limited for urban development because of the potential for blowing dust.
Ripley silt loam	0 to 1%	Ripley silt loam soils are deep, well-drained soils located on nearly level floodplains and low terraces. Permeability of these soils is rapid with moderate surface runoff. The hazard of soil blowing is moderate. When irrigated, it is suited to all adapted crops, including citrus fruit, alfalfa, cotton, vegetables, and small grain. This soil is slightly limited for urban development because of the potential for blowing dust.

Table 3.1-1. Soil Series and Characteristics within the Proposed Project Area

Soil Series	Slope (% Grade)	Characteristics
Rosita sands	0 to 20%	Rositas sands are deep, somewhat excessively drained soils located on nearly level to rolling soil on terraces, alluvial fans, and sand dunes. Permeability of these soils is rapid with slow surface runoff. The hazard of soil blowing is high. These areas are usually used for range, but small areas may be used for irrigated crops if soil amendments and water intake are maintained. These soils are moderately limited for urban development because of soil texture and slope.
Rositas-Ligurta complex	0 to 20%	Rositas-Ligurta complex soils consists of deep, gently sloping soils on slow terraces and sand dunes. Rositas soil makes up about 55 percent of the complex and the Ligurta soil about 30 percent. The remaining 15 percent consists of Superstition sand. The Rosita soil is somewhat excessively drained, consisting of wind-deposited materials. Permeability is rapid with slow surface runoff. The hazard of sand blowing is high. The Ligurta soil is well-drained and saline. Permeability is moderately slow with medium surface runoff. Available water capacity is limited because of the high salt content. These areas are usually used for range, but small areas may be used for irrigated crops if soil amendments and water intake are maintained. Rositas soils are moderately limited for urban development because of slope and sandy texture. Ligurta soils are moderately limited because of moderate shrink-swell potential and small stones influencing the texture. These soils are highly susceptible to soil blowing.
Torriorthents – Torrifluvents complex (1 to 50% slopes)	0 to 50%	This unit is made up of deep, well-drained soils located on nearly level to steep soils on terrace escarpments and alluvial fans that have been dissected by geologic erosion. Torriorthents make up about 50 percent of this complex. These soils are on the lower parts of the alluvial fans and have slopes of 1 to 15 percent. Lagunita loamy sand, Carrizo very gravelly sand, and Rositas sand make up the remaining 20 percent of the complex. Permeability is moderate to moderately slow with medium to rapid runoff. This complex is severely limited for farming and limited for livestock of wildlife habitat due to water availability. This complex is severely limited for urban development because of slope, content of small stones and variability in soil texture.

Source: USDA 1980

3.1.3 Paleontology

The unnamed Quaternary (Holocene to middle Pleistocene) deposits in the Proposed Project area include residual alluvium, flood plain sediment, playa evaporites, eolian sand, and localized calcretes and paleosols. Scientifically important vertebrate fossils known to occur from the Quaternary deposits in the Proposed Project area are extremely rare. Fragments of tortoises from the Testudinidae family (*Gopherus* and *Hesperotestudo*) are known to occur in eolian sands southeast of the Proposed Project area. Invertebrate fossils are also extremely rare in the Proposed Project area. A single specimen from class Gastropoda (*Epiphragmophora hutsoni*) has been collected and recorded from Quaternary (Holocene) deposits northeast of the proposed undertaking. Fossil plant material (wood fragments) has been identified in sandy deposits northwest of the Proposed Project area.

The BLM has established a classification system for ranking paleontological resources according to their potential for yielding scientifically important fossils. Class I areas are known or likely to

produce abundant scientifically important fossils vulnerable to surface-disturbing activities. Class II areas show evidence of fossils but are unlikely to produce abundant scientifically important fossils. Class III areas are unlikely to produce fossils. The BLM classification system considers all vertebrate fossils scientifically significant. The majority of the Proposed Project area occurs in a Class II area.

3.1.4 Seismicity

The Proposed Project area is located entirely in seismic zone 4. Zone 4 represents the highest category of risk for seismic activity. This zone is categorized according to close proximity of the San Andreas, Algodones, Fortuna Wash, and Laguna Mountain faults. In 1940, a 7.2-magnitude earthquake caused considerable damage in the Yuma Valley. In addition, high groundwater levels contribute to the potential for soil liquefaction in the valley (City of Yuma 2002).

The Southern California Earthquake Data Center has monitored seismic activity in the Yuma area since 1975. The Yuma Desert Station, along with stations in Pilot Knob and the Imperial Valley, provide reasonably dense seismic coverage of the Proposed Project area (Reclamation 1976). The probability of earthquakes occurring within 100 years in and around the Yuma, Arizona area with magnitudes greater than or equal to 5.0, 6.01, 7.01, or 8.01 on the Richter Scales was determined from National Seismic Hazard Maps available through the United States Geological Survey (USGS) Earthquake Hazards Program (USGS 2002). Table 3.1-2 displays the conclusions reached by this research.

Table 3.1-2. Probability of Earthquake Occurrence within 100 Years

Magnitude on the Richter Scale	Probability of Occurrence (100 years)
• 5.00	90% to 100%
• 6.01	80% to 90%
• 7.01	30% to 40%
• 8.01	0%

Source: USGS 2002

The Yuma Valley has experienced significant liquefaction-induced ground failure during historic earthquakes (e.g., 1940 Imperial Valley). Liquefaction occurs when shallow (less than 50 feet below grade), saturated, unconsolidated material is subject to shaking. The shaking causes water pressure to increase which, in turn, causes the material to lose its structural integrity and behave as a liquid. Liquefaction commonly occurs in association with shallow groundwater, near surface water bodies, or in filled areas. The Yuma and Gila valleys are underlain by conditions that make the valleys susceptible to liquefaction (Bausch and Brumbaugh 1996). The Yuma Mesa does not have a high potential for liquefaction.

3.2 Water Resources

This section describes water resources within the Proposed Project area, including surface water, groundwater, and water quality. The affected environment for water resources analysis is focused on the Proposed Project area, but includes a discussion on water resources within the lower Colorado River watershed to establish a regional setting for the Proposed Project. The

ROI for water resources includes the area that could potentially be disturbed by Proposed Project construction and operation activities. Disturbance areas would include the ROWs for access roads, portions of the ROW for the transmission lines, temporary equipment/material storage or staging areas, cable pulling/tensioning sites, and the substation expansion footprint.

3.2.1 Surface Water

The Proposed Project area is located in the Yuma Basin, which covers approximately 750 square miles including lands in the United States and Mexico (ADEQ 2006). Elevations within the basin range from 3,156 feet above mean sea level in the Gila Mountains to approximately 80 feet above mean sea level near the Colorado River. The Colorado and Gila Rivers are the only perennial surface water sources in the area. However, upstream diversions limit the flow in the lower Gila River, and water in the Project Area is mainly agricultural irrigation return flows. Numerous ephemeral washes cross the area and flow only in response to significant rain events. Within the Proposed Project area, canals and laterals deliver irrigation water, primarily from the Colorado River, to agricultural fields on the Yuma Mesa and in the Gila River valley.

Colorado River allocations are based on a complex set of Federal decrees and laws known as the "Law of the River." The 1964 Supreme Court Decree, *Arizona v. California*, clarified Arizona's entitlement to use 2.8 million annual acre-feet of Colorado River water. An integral component of the Law of the River is the 1944 Water Treaty between the United States and Mexico, which commits the United States to deliver 1.5 million acre-feet of water annually to Mexico and an additional 200,000 acre-feet in times of surplus (Reclamation 2006).

The U.S. Bureau of Reclamation (Reclamation) operates the lower Colorado River based on downstream water requirements. The water releases include water delivered to Mexico and the three lower basin states (Arizona, Nevada, and California). The International Boundary and Water Commission (IBWC) is responsible for applying the boundary and water treaties between the United States and Mexico and settling differences that may arise out of these treaties. The Comisión Internacional de Límites y Aguas (CILA) is the Mexican section of the IBWC and is responsible for its country's border waters (WRRC 2005). The Comisión Nacional de Agua (CNA) is the federal agency in Mexico in charge of overall national water management.

In Arizona, water resources responsibility is shared by the Arizona Department of Water Resources (ADWR) and the Arizona Department of Environmental Quality (ADEQ). ADWR works to secure long-term dependable water supplies, while ADEQ is responsible for protecting water quality. At the local level, border towns, cities, and small water companies provide water to their customers and test water to ensure that water quality standards are met. The Organismo Operador Municipal de Agua Potable, Alcantarillado, y Saneamiento (OOMAPAS) is the local Mexican agency governing water and wastewater operation in the San Luis area. OOMAPAS operates strictly as a water delivery and wastewater service provider. The Comisión Estatal del Agua was created in 2003 as part of the delegation of water regulation authority from CNA to the Mexican states (WRRC 2005).

The Federal Emergency Management Agency (FEMA) of the U.S. Department of Homeland Security identified 100-year floodplains along the Gila River and the Gila Gravity Main Canal.

The Gila River 100-year floodplain is approximately 0.25 mile wide at the proposed transmission line crossing. A levee was built along the southern edge of Section 24, Township 8 South, Range 22 West on the south side of the Gila River to create the southern boundary of the 100-year floodplain. The floodplain extends north for approximately 0.25 mile at the proposed transmission line crossing area. According to the Yuma-Wellton Area Soil Survey, there is no risk of flooding on the type of soil found on the Yuma Mesa. Average precipitation in the Yuma area is less than 4 inches annually. Most of the rainfall events normally occur during the summer monsoon (July through September).

A survey has not yet been conducted to identify the dry washes that would be designated Waters of the United States (WUS) in the Proposed Project area. A survey for WUS within the proposed transmission line corridor will be completed, and any necessary permits obtained, before construction activities commence. WUS include both wetlands and non-wetlands that meet U.S. Army Corps of Engineers (USACE) criteria. USACE has determined that a jurisdictional wetland must have a predominance of hydrophytic vegetation, hydric soil, and wetland hydrology and must be connected to WUS. In arid, dryland fluvial systems, the Ordinary High Water Mark is used to determine a non-wetland WUS. Characteristics of the Ordinary High Water Mark in arid areas include, but are not limited to “a clear natural scour line impressed on the bank; recent bank erosion; destruction of native terrestrial vegetation; and the presence of litter and debris” (USACE 2001).

3.2.2 Groundwater

The hydrogeologic setting of the Yuma Basin consists of two major subdivisions based on water-bearing characteristics. The first subdivision forms the upper principal water-producing part of the aquifer and consists of recent Colorado and Gila river alluvial deposits (Olmsted et al. 1973). This division consists of an upper fine-grained unit overlying a coarse gravel unit. The primary regional aquifer in the Proposed Project area is the coarse grain unit. Depth to this layer from the mesa surface is approximately 80 to 180 feet.

The second subdivision is composed of ancestral Colorado River fluvial and deltaic alluvial deposits, a marine sedimentary sequence (Bouse Formation), and siltstone and sandstone deposits (Stearns et al. 1985). Water in this unit is generally of better quality than in the overlying unit. This unit is up to 2,000 feet thick and is underlain by crystalline bedrock (Stearns et al. 1985).

Within the Proposed Project area, Reclamation operates and maintains a system of groundwater wells and conveyance features known as the 242 Well Field and Lateral, 5-Mile Zone, or Protective and Regulatory Pumping Unit (PRPU). The PRPU encompasses a 5-mile-wide strip of land along the United States/Mexico border and extends approximately 13 miles east from the vicinity of San Luis, Arizona. The development and operation of the PRPU was authorized under Title I of the Colorado River Basin Salinity Control Act. The objectives of the PRPU are to “...manage and conserve the United States groundwater resources for the benefit of the United States, and to provide obligated water deliveries to Mexico” (P.L. 93-320). Minute No. 242 provides for bi-national monitoring and pumping limitations in the 5-Mile Zone.

Prior to the enactment of P.L. 93-320 (which authorized the PRPU) and Minute No. 242 (which effects pumping limitations), groundwater underflows were affected by withdrawals of groundwater in Mexico from the San Luis Mesa Well Field immediately south of the United States-Mexico border (Reclamation 2006). To fulfill treaty obligations (1.5 million acre-feet to Mexico), Minute No. 242 provided an accounting system whereby groundwater withdrawals were credited against total water deliveries from all sources. Minute No. 242 stipulates that the United States and Mexico would limit groundwater pumping within each country to 160,000 acre-feet annually within the 5-Mile Zone. Current pumping rates are far below this maximum. The 2004 pumping total for the 242 Well Field was 23,449 acre-feet (Reclamation 2006). This water is delivered to the southern international boundary for use by Mexico. Any new land uses within the 5-Mile Zone requiring groundwater pumping must be permitted by Reclamation and must be considered significantly beneficial for the general public.

The well field consists of 21 wells, the 242 Lateral and other connecting laterals, pipelines, and appurtenant facilities (access roads, 34.5 kV transmission line). The wells are spaced along a continuous line 0.5 miles apart. Installation of the initial facilities was completed in 1978. Construction of additional wells depends on the need to further meet treaty obligations (Reclamation 2006). Reclamation has plans to install an additional 14 wells on a line 1 mile north of the existing wells when additional pumping capacity is needed. However, the current pumping totals are substantially below the pumping capability of the existing well field and below the regulated limit; therefore, construction of these additional wells is not anticipated in the foreseeable future.

3.2.3 Water Quality

Water quality in the Proposed Project area varies with depth and location. No physical sampling or analysis of any media was conducted for this draft environmental impact statement (DEIS). According to previous studies conducted in the area, wells within the Proposed Project area are sampled regularly for organic chemicals, inorganic chemicals, volatile organic chemicals, and radiochemical analysis. Previous results from water sampled in the San Luis, Arizona area indicate that none of the contaminants exceeded the EPA's Minimum Contamination Level (MCL) criteria (BECC 2004). Elevated nitrate concentrations were detected in one well on the Yuma Mesa.

In 1995, the ADEQ conducted a baseline study to assess the groundwater quality of the Yuma Groundwater Basin (YGB). The study found that YGB groundwater had no dominant water chemistry and is chemically similar to Colorado River water (ADEQ 1998). Groundwater quality differences were a function of length of time an area had been irrigated, depth to groundwater, and the source of irrigation water. The laboratory results revealed no detection of pesticides.

All groundwater samples collected in the YGB exceeded at least one secondary MCL, with chloride, sulfate, iron, manganese, and total dissolved solids exceeding acceptable levels (ADEQ 1998). The result of this and other studies indicate that, although most groundwater in the YGB meets standards for use as a potable resource, with the high levels of any secondary MCL parameters, the water may not be palatable or be a good cleaning agent (ADEQ 1998).

3.3 Climate and Air Quality

This section describes the affected environment relative to air resources. The primary factors that determine the air quality of a region are the local climate and meteorological conditions, locations of air pollution sources, and types and magnitudes of pollutant emissions. The ROI for air quality is described in section 3.3.3.

3.3.1 Regional Climate and Meteorology

Climate can be a major factor in air quality. High winds can increase air pollutant dispersal, and low winds can result in local accumulations of pollutants. Dry conditions combined with high winds can result in high emissions of particulate matter as wind-blown dust. High temperatures can also increase atmospheric turbulence, thus increasing pollutant dispersal.

The desert region that includes Yuma and Imperial counties is classified under the modified Köppen Climate Classification System as arid, low-altitude desert characterized by extremely low relative humidity and very high summer temperatures. Yuma is one of the warmest and sunniest cities in the United States. Average summer highs exceed 100 degrees Fahrenheit (°F) for 4 months; winter average maximum temperatures range from 60 °F to 80 °F. Yuma receives less than 4 inches of precipitation annually. The majority of the rainfall events normally occur during the summer monsoon (July through September). Table 3.3-1 lists the climate data for Yuma, Arizona obtained from the Yuma Airport. The Yuma City and Yuma Citrus Station, two additional weather-reporting stations near the Proposed Project area, report annual average rainfall within 0.5 inches and annual average temperatures within 5 degrees of the Yuma Airport totals (WRCC 2006).

Table 3.3-1. Climate Data for Yuma, Arizona (1948 through 2005)

	Annual Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High °F	88.2	68.5	74.3	79.2	86.8	94.0	103.4	107.0	105.8	101.6	91.0	77.7	68.7
Low °F	60.6	44.1	46.9	51.0	56.9	63.7	72.1	80.4	79.9	73.8	62.4	51.0	44.4
Rain (inches)	2.96	0.43	0.22	0.23	0.12	0.05	0.01	0.22	0.51	0.27	0.29	0.19	0.43

Source: WRCC 2006.

3.3.2 Air Pollutants

This section provides a general description of air pollutants that are regulated in the United States including criteria pollutants: ozone, carbon monoxide (CO), oxides of nitrogen (NO_x) measured as nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead, particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}, respectively), non-methane-ethane volatile organic compounds (VOCs), and lead; and non-criteria or hazardous air pollutants (HAPs). Section 3.3.4 describes the existing ambient air quality within Yuma. Section 4.3 discusses natural gas-fired power plant emissions and compares them with emissions from generation using other types of fuel.

Ozone

Ozone, a colorless gas that is odorless at ambient levels, is the chief component of urban smog. Ozone is not emitted directly as a pollutant, but is formed in the atmosphere when hydrocarbon and oxides of nitrogen (NO_x) precursor emissions react in the presence of sunlight. Meteorology and terrain play major roles in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and cloudless skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved in the formation of ozone, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that can impact a large area.

Ozone impacts lung function by irritating and damaging the respiratory system. In addition, ozone causes damage to vegetation, buildings, rubber, and some plastics. Recognizing the impacts of day-long exposure, the U.S. Environmental Protection Agency (EPA) promulgated a new 8-hour standard for ozone in 1997.

On April 15, 2004, the EPA designated areas of the country that exceed the 8-hour ozone standard as being in non-attainment of the National Ambient Air Quality Standards (NAAQS) for that pollutant. The designations became effective on June 15, 2004 and incorporate air quality data for the years 2001 through 2003. The Proposed Project area is in attainment for ozone.

Particulate Matter (PM₁₀ and PM_{2.5})

Particulate matter is a mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, sulfates, and organic compounds; and complex mixtures such as diesel exhaust particles and soil. These substances may occur as solid particles or liquid droplets. Some particles are emitted directly into the atmosphere. Others, referred to as secondary particles, result from gases that are transformed into particles through physical and chemical processes in the atmosphere. Exposure to PM₁₀ and PM_{2.5} aggravates a number of respiratory illnesses and may even cause early death in people with existing heart and lung disease. Both long-term and short-term exposure can have adverse health impacts.

PM_{2.5} poses an increased health risk because the particles are smaller and can deposit deeper and accumulate in the lungs and is, therefore, particularly harmful to human health. The EPA has determined that PM_{2.5} is more of a health risk than PM₁₀, and has established ambient concentration standards for PM_{2.5} that are more stringent than those established for PM₁₀ (see section 3.3.4). PM_{2.5} is also the major cause of reduced visibility (haze) in parts of the United States (EPA 2006).

Carbon Monoxide

CO is a colorless and odorless gas that is emitted directly as a by-product of combustion of carbon-containing materials. The highest concentrations are generally associated with cold stagnant weather conditions that occur during winter. In contrast to ozone, which tends to be a

regional pollutant, CO problems tend to be localized because CO gradually reacts with oxygen in the air to form carbon dioxide.

High concentrations of CO are also related to internal combustion engine vehicle traffic within large urban areas. This problem has been successfully addressed in several urban airsheds through vehicle emission testing programs.

CO is harmful because it is readily absorbed through the lungs into the blood, where it binds with hemoglobin and reduces the ability of the blood to carry oxygen. As a result, insufficient oxygen reaches the heart, brain, and other tissues. The nature of the climate in Yuma and the limited size of the local population would suggest that ambient concentrations of CO would not be an issue in this area.

Oxides of Nitrogen

NO_x is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Many of the nitrogen oxides are colorless and odorless. However, one common pollutant, NO₂, along with particles in the air, can often be seen as a reddish-brown layer over many urban areas.

Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fossil fuels. NO_x can also be formed naturally.

Ozone, as discussed above, is formed when NO_x and VOCs react in the presence of sunlight.

NO_x and SO₂ (see below) react with other substances (primarily water) in the air to form acids, e.g., nitrous acid and sulfuric acid, which fall to earth as rain, fog, snow, or dry particles. Some may be carried by wind for hundreds of miles. Acid rain causes deterioration of cars, buildings, vegetation, and historical monuments. It also causes lakes and streams to become more acidic which, in extreme cases, may make them unsuitable for many fish.

NO_x can also react with ammonia, moisture, and other compounds to form nitric acid and related particles. Human health concerns include effects on breathing and the respiratory system, damage to lung tissue, and premature death. Small particles that penetrate deeply into sensitive parts of the lungs can cause or worsen respiratory disease such as emphysema and bronchitis and can aggravate existing heart disease.

Increased nitrogen loading in water bodies upsets the chemical balance of nutrients used by aquatic plants and animals. Additional nitrogen accelerates "eutrophication," a condition that accelerates algae and plant growth in water, which leads to oxygen depletion and reduces fish and shellfish populations.

Nitrate particles and nitrogen dioxide can block the transmission of light, reducing visibility.

Sulfur Dioxide

SO₂ belongs to the family of oxides of sulfur gases (SO_x). These gases dissolve easily in water to form acids. Sulfur is prevalent in all raw materials, including crude oil, coal, and ore, that contain common metals like aluminum, copper, zinc, lead, and iron. SO_x gases are formed when sulfur-containing fuel, such as coal and oil, is burned; when gasoline is extracted from oil; or when metals are extracted from ore. SO₂ dissolves in water vapor to form acid. The acid then interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and their environment.

Sources of SO₂ are industrial facilities that derive their products from raw materials like metallic ore, coal, and crude oil, or that burn coal or oil to produce process heat. Examples are petroleum refineries, cement manufacturing, and metal processing facilities. In addition, locomotives, large ships, and some non-road diesel equipment currently burn high-sulfur fuel and release SO₂ emissions to the air in large quantities.

A wide variety of health and environmental impacts are associated with SO₂ because of the way it reacts with other substances in the air. Particularly sensitive groups include people with asthma who are active outdoors, children, the elderly, and people with heart or lung disease.

Peak levels of SO₂ in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO₂ gas and particles cause respiratory illness and aggravate existing heart disease.

SO₂ can react with other chemicals in the air to form tiny sulfate particles. When these are breathed, they gather in the lungs and are associated with increased respiratory symptoms and disease, difficulty in breathing, and premature death. Sulfate particles also reduce visibility in many parts of the United States.

SO₂ and NO_x react with other substances in the air to form acids, which fall to earth as rain, fog, snow, or dry particles. Acid rain damages forests and crops, changes the makeup of soil, and makes lakes and streams acidic and unsuitable for fish. Continued exposure over a long time changes the natural variety of plants and animals in an ecosystem.

Volatile Organic Compounds

VOCs are chemicals that react in the ambient air with NO_x and hydrocarbons in the presence of heat and sunlight to form ozone. Examples of VOCs include fugitive vapors from oil and gas processing and storage and hydrocarbon emissions from incomplete combustion. This group of chemicals does not include methane or other compounds determined by the EPA to have negligible photochemical reactivity. VOC is not a primary criteria pollutant and does not have a standard. Emissions of VOC are regulated as a precursor to ozone.

Hazardous Air Pollutants and Materials

HAPs are defined as air pollutants that may cause or contribute to an increase in mortality or in serious illness, or which may pose a hazard to human health. HAPs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at very low concentrations. In general, for those HAPs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and Federal governments have set ambient air quality standards.

Fossil fuels combustion can result in the emission of HAPs. HAPs expected to be emitted as a result of the combustion of natural gas are as follows:

- 1,3 Butadiene
- Acetaldehyde
- Acrolein
- Benzene
- Ethylbenzene
- Formaldehyde
- Napthalene
- Polycyclic aromatic hydrocarbons (as Benzo(a)pyrene)
- Propylene Oxide
- Toluene
- Xylene

In addition, ammonia, which is not classified as a HAP, is a hazardous material that would be emitted by the proposed SLRC Power Center. The ammonia would be used to reduce other potential air pollutants, but some unreacted ammonia would escape.

3.3.3 Region of Influence

The ROI, where potential air quality impacts can occur, includes near-field ambient air quality in the vicinity of the Proposed Project, and far-field ambient air quality at distant areas that can contain their own special air quality protection programs. Air quality impacts from the SLRC Power Center will be assessed insofar as they affect the United States. Potential impacts within Mexico are outside the purview of NEPA, and thus beyond the scope of this DEIS. The ROI can also include other non-project emission sources outside the Proposed Project area that may add to potential Proposed Project impacts.

3.3.3.1 Near-field

Near-field ambient air quality is typically evaluated within 10 kilometers (km) (approximately 6 miles) of the air emission sources. Impacts to near-field air quality can be evaluated against several regulatory criteria including:

- State or Federal ambient air quality standards,
- Prevention of Significant Deterioration (PSD) standards (in attainment areas), and
- Significant impact criteria (in non-attainment areas).

3.3.3.2 Far-field

Impacts to far-field air quality are evaluated in areas where there is a special interest in protecting pristine air quality and scenic values. These evaluations typically address Federal Class I areas (as defined under the Clean Air Act [CAA]) which include national parks and wilderness areas. A distance limitation on far-field areas has not been established. The distances of far-field areas are typically established to take into consideration any areas of special interest that are outside the near-field area. Under PSD regulations, far-field evaluations can assess a variety of air quality related values (AQRVs) including:

- Incremental impacts to ambient air quality,
- Visual range degradation, and
- Deposition of acid-forming chemical compounds.

3.3.4 Ambient Air Quality

Air quality is considered good to excellent within the ROI, with a visual range (based on data for Joshua Tree National Park) of nearly 155 miles. Joshua Tree National Park, located 103.7 miles northwest of the Proposed Project power plant, is the Class I area (see below) that is closest to the Proposed Project area. The Yuma area is in attainment with the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants except PM₁₀. The NAAQS are established by the EPA to protect public health and welfare. The Arizona Ambient Air Quality Standards (AAAQS) are analogous to the NAAQS.

Table 3.3-3 presents the background concentration values provided by the ADEQ for the area in the vicinity of the Proposed Project. The background, or air quality prior to the addition of the Proposed Project, is well below the applicable AAAQS except for PM₁₀. The background concentrations of PM₁₀, which result from natural sources and anthropogenic sources already operating in the area, are still in compliance with the standard, but are in the 75th percentile of the standard.

Federal PSD rules (40 CFR part 51.166) were established to protect the air quality in areas where concentrations of criteria air pollutants meet the NAAQS. These areas are referred to as attainment areas.

Table 3.3-3. Ambient Air Quality Standards

Pollutant	Averaging Period	Standards and Background ($\mu\text{g}/\text{m}^3$) ^a			
		Arizona Primary Standards	Arizona Secondary Standards	California Standards	Background Concentration ^b
NO ₂	Annual	100	100	--	4
	1-hour	--	--	470	--
CO	8-hour	10,000	--	10,000	582
	1-hour	40,000	--	--	582
SO ₂	Annual	80	--	--	6
	24-hour	365	--	105	45
	3-hour	--	1,300	--	246
	1-hour	--	--	655	--
PM ₁₀	Annual	50	50	20	39
	24-hour	150	150	50	114
PM _{2.5}	Annual	15	15	12	--
	24-hour	65	65	--	--
Ozone	8-hour	157	157	--	--
	1-hour	--	--	180	--
Lead	Quarterly	1.5	1.5	--	--
	30-Day	--	--	1.5	--

a $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

b Used in Wellton-Mohawk Generating Facility air quality modeling analysis.

An area near the City of Yuma (20 miles north of the proposed SLRC Power Center) has been designated as being in non-attainment for PM₁₀; however, monitoring data has demonstrated compliance with the standard since 1990. The Proposed Project is located in an attainment area, but a Conformity Determination (Arizona Administrative Code Title 18, Chapter 2, Article 16) will be evaluated relative to the Yuma non-attainment area (section 4.3.3).

ADEQ began working with stakeholders in the Yuma area in July 2001 to develop a maintenance plan based on data that showed no exceedances of the NAAQS for PM₁₀. However, the Yuma area experienced a violation of the 24-hour NAAQS on August 18, 2002. This exceedance was due to high winds associated with a large thunderstorm. The high wind event data met all the technical criteria to be considered a natural event. Consequently, work on the Yuma Maintenance Plan was temporarily suspended because EPA policy required the development of a Natural Events Action Plan (NEAP) to prevent the area from being downgraded to a serious non-attainment area. The NEAP was developed by the Yuma area stakeholders and ADEQ and was submitted to EPA in February 2004. A NEAP Implementation Report was submitted to EPA on Aug. 17, 2005 (ADEQ 2006).

ADEQ is now developing a Maintenance Plan for the Yuma area that, upon EPA approval, will allow the area to be considered for re-designation to attainment for PM₁₀ (ADEQ 2006).

The PSD rule establishes the total allowable increase of air pollutant concentrations above baseline levels. This allowable increase is referred to as an increment. Table 3.3-4 presents the increments that have been established for Class II and Class I areas.

Class I areas are specifically designated natural areas that include national parks, wildernesses, and other protected Federal areas. Class II areas are all other areas that are not designated Class I, and include urban areas as well as natural areas that have not been designated as Class I.

Table 3.3-4. PSD Increment Standards

Pollutant	Averaging time	Increments	
		Class II (\bullet g/ m ³) ^a	Class I (\bullet g/ m ³)
NO ₂	Annual	25	2.5
	Annual	20	2
SO ₂	24-hour	91	5
	3-hour	512	25
PM ₁₀	Annual	17	4
	24-hour	30	8

a \bullet g/ m³ = micrograms per cubic meter

For areas that do not meet the NAAQS for any criteria pollutant (non-attainment areas), significant impact thresholds have been established for the permitting of new major sources (40 CFR Part 51.165). The impact thresholds can also serve as guidelines for determining the level of impact assessment required for sources in attainment areas. Table 3.3-5 presents the Class II significance levels.

Although there are no regulatory significant impact levels for Class I areas (because there are no non-attainment Class I areas under Federal or State rules), significance levels can be interpolated from the Class II significance levels using the ratio of Class I and Class II increments. Table 3.3-5 presents these interpolated values.

Table 3.3-5. Significant Impact Levels

Pollutant	Averaging time	Significant Impact Levels	
		Class II (\bullet g/ m ³) ^a	Class I (\bullet g/ m ³)
NO ₂	Annual	1	0.1
	Annual	1	0.1
SO ₂	24-hour	5	0.3
	3-hour	25	1.2
PM ₁₀	Annual	1	0.2
	24-hour	5	1.3
CO	8-hour	500	--
	1-hour	2,000	--

a \bullet g/ m³ = micrograms per cubic meter

Joshua Tree National Park is the nearest PSD Class I area and is located 103.7 miles northwest of the Proposed Project-related power plant. None of the tribal reservations in the ROI for this Proposed Project have applied for designation as a Class I area.

There are seven wilderness areas within 45 miles of the proposed SLRC Power Center that are also located in Class II areas (table 3.3-6). Even though they are classified as Class II, the areas are considered sensitive relative to visibility and other indicators of air quality.

Table 3.3-6. Class II Wilderness Areas Near the Proposed Project Area

Class II Wilderness Areas	Distance and Direction from Proposed Project
Muggins Mountains Wilderness	28 miles northeast
Kofa Refuge Wilderness	42 miles northeast
Imperial Refuge Wilderness	38 miles north
Trigo Mountains Wilderness	38 miles north
Little Picacho Wilderness	29 miles north
Picacho Peak Wilderness	38 miles northwest
Indian Pass Wilderness	41 miles northwest

3.3.5 Air Quality Regulations

3.3.5.1 Federal Regulations

The primary Federal air quality rules that will be applicable to the Proposed Project are the NAAQS. However, it will only apply to Proposed Project actions within the United States. Federal and Arizona air quality rules do not apply to actions outside the borders of the United States.

Clean Air Act

The CAA established the NAAQS to protect public health and welfare. In 1977, the CAA was amended by establishing the PSD rules. In 1990, additional amendments to the CAA set forth renewed emphasis on the protection of visibility in Class I areas and encouraged the EPA to establish new standards for ozone and PM_{2.5}. In 2003, the Clear Skies Act was passed establishing a cap-and-trade regulatory system for emissions of NO_x, SO₂, and mercury from power plants. The mercury regulations only apply to coal-fired power plants.

3.3.5.2 State Regulations

The air quality program in Arizona is implemented and enforced by the ADEQ Air Quality Division. Regulations for maintaining the State's air quality are published in Arizona Administrative Code - Title 18, Environmental Quality, Chapter 2 Air Pollution Control. The following articles under chapter 2 apply to activities within Arizona:

- Article 2 Ambient Air Quality Standards, Area Designations, Classifications
- Article 6 Emissions from Existing and New Non-point Sources
 - Section 604 Open Areas, Dry Washes, or Riverbeds
 - Section 605 Roadways and Streets
 - Section 606 Material Handling
 - Section 607 Storage Piles
- Article 8 Emissions from Mobile Sources (New and Existing)
 - Section 802 Off-road Machinery
 - Section 804 Roadway and Site Clearing Machinery
- Article 14 Conformity Determinations

The air quality program in Imperial County, California is implemented and enforced by the Imperial County Air Pollution Control District (ICAPCD). Regulations for maintaining the county's air quality are published in the ICAPCD Rules and Regulations. The following rules from these regulations may apply to the Proposed Project:

- Rule 407 Nuisances – Prohibits the release of air contaminants that may cause injury, detriment, nuisance, or annoyance.
- Rule 800 Fugitive Dust Requirement for Control of PM₁₀ – This rule applies to activities that may generate emissions of fugitive dust. Dust control plans for construction activities must be filed with ICAPCD.
- Rule 925 General Conformity – Adoption of the Federal General Conformity rule.

3.4 Biological Resources

For biological resources, the ROI is the area that would be directly or indirectly disturbed by construction and operation activities within the United States. Disturbance areas would include the ROW for access roads, portions of the ROW for the transmission lines, temporary equipment/material storage or staging areas, cable pulling/tensioning sites, and the substation expansion footprint. For vegetation, disturbance will be limited to the immediate vicinity of these activities. The ROI for wildlife is extended 0.5 mile beyond the area of construction because the Proposed Project could affect wildlife within a greater area. This section describes the biological resources within 3 miles of the Proposed Project components within the United States to provide context for the area within the ROI.

3.4.1 Vegetation Communities

Vegetation resources were analyzed in March 2006 using high-resolution aerial photography and field verification to map vegetation types within 3 miles of the Proposed Project components within the United States. Five land cover classes were identified based on vegetative characteristics: Creosotebush – White Bursage Shrublands, Sonoran Riparian Scrub, Agriculture, Development, and Low-density Development, which consists of low-density residential lots intermixed with desert vegetation. Creosotebush – White Bursage Shrublands, Sonoran Riparian Scrub, and Agriculture are discussed in more detail below. Vegetation coverage surrounding the ROI is shown in figures 3.4-1, 3.4-2, and 3.4-3.

Creosotebush – White Bursage Shrublands

Natural areas surrounding the Proposed Project area are dominated by the Creosotebush – White Bursage (*Larea tridentata* – *Ambrosia dumosa*) Shrubland series. This community is widespread throughout the Lower Colorado River Valley and is a subdivision of the Sonoran Desertscrub biotic community (Brown 1994). This community is characterized by a sparse, open shrub canopy of creosotebush and white bursage. Other common species also present at low densities include brittlebush (*Encelia farinosa*), mesquite (*Prosopis sp.*), and big galleta grass (*Hilaria rigida*). The diversity of shrubs increases in dry washes. Ironwood (*Olneya tesota*) is also present in low density along the eastern edges of the Proposed Project area. Approximately

74,300 acres of this vegetation community type are present within 3 miles of Proposed Project components.

Sonoran Riparian Scrub

The Proposed Project would cross the Gila River floodplain approximately 2.5 miles north of Gila Substation. Vegetation within the floodplain consists of Sonoran Riparian Scrub, another community within the Lower Colorado River Valley subdivision (Brown 1994). Dominant species within this community include saltcedar (*Tamarix chinensis*), cottonwood (*Populus fremontii*), honey mesquite (*Prosopis glandulosa*), desert broom (*Bacharis sarothroides*), and arrow-weed (*Tessaria sericea*). Approximately 2,900 acres of this vegetation community type are present within 3 miles of Proposed Project components.

Agriculture

Approximately 30 percent (36,500 acres) of the land within 3 miles of the Proposed Project components is under current agricultural practices. South of Gila Substation, agricultural lands are predominantly to the west of the Applicants' Proposed Action transmission line route and are primarily citrus and alfalfa. North of Gila Substation, the proposed transmission line would cross agricultural fields that are primarily used for produce. Within the Yuma area, high-value crops include 20 varieties of lettuce, mixed greens, broccoli, cauliflower, cabbage, lemons, dates, melons, cotton, alfalfa, and Durum wheat. Bermuda grass, onions, and a variety of flowers are also grown for seed. Additional information on agricultural areas is provided in section 3.6.

Regulatory Status

As stated by the Arizona Native Plant Law (ARS 2006a),

...it is unlawful for a person to destroy, dig up, mutilate, collect, cut, harvest or take any living highly safeguarded native plant or the living parts of any highly safeguarded native plant, including seeds or fruit, or any other living protected native plant or the living parts of any other protected plant, except seeds or fruit, from state land or public land without obtaining any required permit, tags, seals or receipts from the department, or from private land without obtaining written permission from the landowner, and any required permit, tags, seals or receipts from the department.

Exception is given to property owners; however, permitting may still be necessary (Arizona State Legislature).

Most of the desert plants in Arizona fall into one of five groups protected from theft, vandalism, and unnecessary destruction under the Arizona Native Plant Law. This includes all of the cacti, most of the trees, and many of the smaller plants. Protected plants can be removed only with permits from the Arizona Department of Agriculture. All plants protected under the Arizona Native Plant Law must be salvaged if it is determined that they would be destroyed by the Proposed Project. The five categories of protected native plants are:

Highly safeguarded native plants - Plants whose prospects for survival in the State are in jeopardy or which are in danger of extinction throughout all or a significant portion of their ranges, and those native plants that are likely in the foreseeable future to become jeopardized or in danger of extinction throughout all or a significant portion of their ranges.

Salvage restricted plants - Plants that are not included in the highly safeguarded category but are subject to high potential for damage by theft or vandalism.

Export restricted plants - Plants that are not included in the highly safeguarded category but are subject to over-depletion if their exportation from the State is permitted.

Salvage assessed plants - Plants that are not included in the highly safeguarded or salvage restricted categories but have sufficient value if salvaged to support the cost of salvage tags and seals.

Harvest restricted plants - Plants not included in the highly safeguarded category but are subject to excessive harvesting or over-cutting because of the intrinsic value of their byproducts, fiber, or woody parts.

Protected plant taxa occurring within the ROI include all cacti, paloverde (*Cercidium sp.*), ironwood (*Olneya tesota*), and blue sand lily (*Triteleiosis palmeri*), which has been identified by the Arizona Game and Fish Department's (AGFD) Arizona Heritage Data Management

System (HDMS) as occurring within the northeastern area of the ROI in Township 9 South, Range 21 West southeast of the Gila substation (AGFD 2006).

Noxious Weeds

Noxious weeds are invasive, usually not indigenous, and spread aggressively and replace native vegetation. Noxious weeds often invade sites where the native vegetation and soils have been removed or disturbed. The Arizona Noxious Weed Law (ARS 2006b) lists noxious weeds for the State (Appendix B) and authorizes actions that may be necessary to control, suppress, or eradicate noxious weeds. Invasive species, including noxious weeds, are also addressed as an alien species in Executive Order (EO) 13112, *Invasive Species*. This EO directs Federal agencies to prevent introduction of invasive species; provide for their control; and minimize economic, ecological, and human health impacts. Under this EO, Federal agencies cannot authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species unless all reasonable measures to minimize risk of harm have been analyzed and considered.

The three categories of noxious weeds designated by the State of Arizona are Prohibited, Regulated, and Restricted. Species listed as Prohibited noxious weeds are not allowed to be transported into the State of Arizona and are prohibited from being sold within the State. Currently 54 species are listed as Prohibited. In addition, nine species are listed as Regulated that are controlled to prevent spread within the State. There are currently 16 species listed as Restricted that are actively managed with removal strategies. Lands containing these species can be placed under quarantine to prevent other infestations. Noxious weed species of concern in the Yuma area are giant salvinia (*Salvinia molesta*), buffelgrass (*Cenchrus ciliaris*), Sahara mustard (*Brassica tournefortii*), and ravengrass (*Saccharum ravennae*) (Arizona Department of Agriculture 2006).

Giant salvinia is an aquatic macrophyte that floats on the water surface similar to azolla (*Azolla Mexicana*) and duckweed (*Lemna minor*). The plant is native to Brazil, but has been spread to many areas around the world. When introduced to areas with slow moving water, population size increases quickly, with small plant fragments able to serve as propagules (USGS 2005b). Within the U.S., giant salvinia was first observed in South Carolina in 1995. By 2005, populations have been recorded in all Gulf Coast States and southeast coastal States north to Kentucky. Populations have also been observed in California and in Arizona along the lower Colorado River (USGS 2005b). This species is listed as a regulated noxious weed by the State of Arizona.

Buffelgrass is a bunchgrass native to African savannah. The species is capable of colonizing a variety of vegetation communities including riparian areas, desert scrub, and desert thorn scrub. Buffelgrass is highly resistant to fire, regenerating new growth from roots that are able to withstand high temperatures. This characteristic has led to the reduction of shrub species including creosotebush and white bursage in areas where buffelgrass populations are able to carry fire through the shrublands (The Nature Conservancy 2002). This species is listed as a regulated noxious weed by the State of Arizona.

Sahara mustard is an annual weed that is common throughout southwestern U.S. deserts. The plant is most common in areas with windblown sediments, but also grows in disturbed sites along roadsides and in abandoned fields. Plants germinate following early winter rains and are often 4 to 40 inches tall and setting seed by February (California Invasive Plant Council 2006). This early seed set is credited with outcompeting native species by gaining early access to water resources and shading out species that germinate later in the growing season.

Ravennagrass is a tall bunch grass that grows to 3 to 5 feet tall. It is similar in morphology to pampas grass (*Cortaderia sellona*). Typical habitat for this species is along riparian areas and canals, but it has also been observed in Mohave and Sonoran desert scrublands in California (USGS 2005b). Makarick (1999) identified ravennagrass as highly competitive and capable of altering succession within the Grand Canyon of the Colorado River. Several isolated populations exist in Yuma County. This species is not listed on the Arizona noxious weed list, but is considered a concern in Yuma County by the Arizona Department of Agriculture.

3.4.2 Wildlife

Wildlife habitat in the ROI, as defined under section 3.4.1, includes sparse, dry Sonoran Desertscrub communities on flat, upland areas, which are dominated by Creosotebush – White Bursage Shrublands, Agriculture, and Sonoran Riparian Scrub along the Gila River. These habitats support a broad community of mammals, birds, reptiles, and amphibians. Wildlife species commonly occurring within Creosotebush – White Bursage Shrublands or Sonoran Riparian Scrub are listed in Appendix B. Species commonly associated with agricultural areas include rabbits, ground squirrels, and harriers. Appendix B provides a list of species observed within the ROI during a field visit in March 2006.

3.4.3 Special Status Species

Special status plant and wildlife species are subject to regulations under the authority of Federal and State agencies. Special status species include those species that are listed as Federal endangered, threatened, proposed, or candidate species; that are designated by BLM as sensitive species; or that are listed as Wildlife of Special Concern by the State of Arizona. Appendix B contains a list of all of the special status species that may occur in the ROI.

The USFWS has published a list of proposed, candidate, threatened, and endangered species occurring by county in Arizona (USFWS 2006a). This list was consulted to determine which species might be present within 3 miles of Proposed Project components. The species include the bald eagle, California brown pelican, flat-tailed horned lizard, Sonoran pronghorn, southwestern willow flycatcher, yellow-billed cuckoo, and Yuma clapper rail. The Arizona Natural Heritage Program was contacted in February 2006 and replied with a letter listing which special status species have been observed within 3 miles of Proposed Project components (AGFD 2006). BLM Sensitive species and AGFD Wildlife of Special Concern are discussed in section 3.4.3.2.

3.4.3.1 Federally Listed Species

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is listed as threatened under the Federal Endangered Species Act (USFWS 1999a). A proposal for de-listing the bald eagle was issued in July 1999 (USFWS 1999a) and again recently in February 2006 (USFWS 2006b), but has not yet been implemented. The bald eagle feeds on fish, small to medium-sized mammals, and carrion. It is generally found closely associated with riverbanks, lakeshores, and coastlines during the breeding season (Spahr et al. 1991). Large stick nests are common in large trees, primarily in cottonwoods, and conifers when cottonwoods are not available. Snags, trees with large openings in the upper crown portion, and trees with dead tops are frequently used for perching and roosting (Spahr et al. 1991). The bald eagle usually prefers perches that are the highest in a given area and are located near bodies of water and feeding areas. Fish are the primary food source of the eagle during the breeding season, although they will also eat waterfowl, upland birds, small mammals, and carrion (Spahr et al. 1991). Roosting habitat is often along rivers, lakes, or reservoirs, but can also be located as far as 20 miles from a water source (Spahr et al. 1991). The shelter that a roost tree provides is more important than distance to water and foraging areas. Characteristic roosts are large trees that have a protected microclimate, a crown extending above the forest canopy, and are located in areas providing good visual vantage points (Spahr et al. 1991).

Habitat for this species is not known to occur within the 3-mile buffer of the ROI. There are no large trees that would be favorable for nesting and there is little open water or other suitable foraging habitat. The bald eagle has not been reported within 3 miles of Proposed Project components (Schwartz 2006).

California Brown Pelican

The California brown pelican is a federally listed endangered species (USFWS 1970). In Arizona, this species is typically associated with open water habitats where nesting occurs on isolated islands and occasionally along large rivers and lakes. The Proposed Project area does not include suitable nesting or foraging habitats for this species. There are no known occurrence records for this species within the Proposed Project area (Schwartz 2006). This species is not expected to occur within the Proposed Project area due to lack of suitable habitat.

Flat-Tailed Horned Lizard (*Phrynosoma mcallii*)

The flat-tailed horned lizard is a Federal proposed species, a BLM-designated sensitive species, and an AGFD Wildlife Species of Special Concern (AGFD 2006).

In early 2003 (68 FR 331; January 3, 2003), the USFWS withdrew a proposed rule to list the species as threatened. The USFWS had determined that threats to the species identified in a proposed rule were not as significant as earlier believed, and that the threats to the species and its habitat were not likely to endanger the species in the foreseeable future throughout all or a significant portion of its range. This decision was reversed, however, following the lawsuit *Tucson Herpetological Society v. Norton* in 2005 (04-75 PHX NVW, D. Ariz).

The distribution of the flat-tailed horned lizard ranges from southwestern Arizona to the head of the Gulf of California and the Coachella Valley. The species typically occurs in areas with fine, sandy soils and sparse desert vegetation. It is also found in areas consisting of mudhills and gravelly flats. The species has declined because of habitat destruction for agriculture and development (AGFD 2003a).

This species has been observed within five of the six Township/Range areas within 3 miles of Proposed Project components that are located south of Interstate 8 (AGFD HDMS 2006). Habitat types preferred by the flat-tailed horned lizard are common in this portion of the ROI. In addition, the ROI is located within an identified Flat-tailed Horned Lizard Management Area (FTHL MA), the Yuma Desert Management Area, for the flat-tailed horned lizard (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003). With the exception of agricultural and heavily developed areas, the majority of the area within 3 miles of Proposed Project components south of Interstate 8 and east of the proposed transmission line alignments is considered habitat for this species.

Razorback Sucker

The razorback sucker was listed as an endangered species on October 23, 1991, with an effective date of November 22, 1991 (USFWS 1991). Critical habitat was designated in 15 river reaches within the historic habitat of the razorback on March 21, 1994 with an effective date of April 22, 1994 (USFWS 1994). Critical habitat includes Lake Mead and Lake Mohave up to their full-pool elevations. In the Lower Basin, isolated populations occur in lakes Mohave, Mead, and the lower Colorado River below Lake Havasu. According to the Razorback Sucker Recovery Plan (USFWS 1998b), the Proposed Project area is located outside of the current distribution of this species. While this species has historically occupied the Gila River, it has not been documented this far south in many years (USFWS 1998b), and the flows in the lower Gila River would not likely support a viable population. Thus, the razorback sucker is not expected to occur in the Proposed Project area.

Sonoran Pronghorn (*Antilocapra americana sonoriensis*)

The Sonoran pronghorn was listed as endangered in 1967 (NatureServe 2006). Sonoran pronghorn were formerly found throughout much of Arizona in meadows and fields up to the piñon-juniper zone, sometimes into ponderosa pine. They are currently absent or nearly so in the southeastern quarter and uncommon in the southwestern portion of the State. Those in the southwestern portion of the state occupy areas with stable sand dunes that have meadow-like conditions within or adjacent to them (NatureServe 2006). Rarely, some small herds occupy ranges with sparse stands of ponderosa pine or juniper. The latter sites generally have low understory vegetation that permit distant visibility and allow rapid mobility (NatureServe 2006).

Habitat for this species is not known to occur within 3 miles of Proposed Project components. The Sonoran pronghorn has not been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The USFWS listed the southwestern willow flycatcher as endangered in February 1995 because of “loss of riparian breeding habitat, nest parasitism by the brown-headed cowbird (*Molothrus ater*), and a lack of adequate protective regulations” (60 FR 10693-10715; February 27, 1995). In addition, this species is considered an AGFD Wildlife of Special Concern.

Southwestern willow flycatchers nest in riparian habitat characterized by dense stands of intermediate-sized shrubs or trees, such as willows, usually with an overstory of scattered larger trees, such as cottonwoods. With the loss of preferred habitat throughout the southwest, southwestern willow flycatchers have been observed using saltcedar thickets for nesting. Because such saltcedar thickets occur along the Gila River, it is possible that this species could occasionally nest in the area of the Proposed Project (AGFD 2002a, Newell et al. 2004).

The southwestern willow flycatcher has been observed in the Gila River riparian area within 3 miles of Proposed Project components (AGFD HDMS 2006).

Yellow-billed Cuckoo (*Coccyzus americanus*)

The yellow-billed cuckoo is a Federal candidate for listing in the western United States Distinct Population Segment (DPS) (USFWS 1987). The yellow-billed cuckoo is a riparian obligate bird that feeds in cottonwood groves and nests in willow thickets. Nest sites have been correlated with large and relatively large willow-cottonwood patches, dense understory, high local humidity, low local temperature, and in proximity to slow or standing water. In Arizona, populations have been observed in central and southern portions of the State and in the extreme northeastern corner. Habitat can also include mesquite adjacent to riparian areas.

Typical yellow-billed cuckoo habitat does not occur within the Gila River floodplain adjacent to the ROI. This area is dominated by saltcedar, with a low diversity of cottonwood and willow, which is not the preferred habitat for this species (Franzreb and Laymon 1993). The yellow-billed cuckoo has not been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Yuma Clapper Rail (*Rallus longirostris yumanensis*)

The Yuma clapper rail is a bird that was listed as endangered by the USFWS in 1967 (32 FR 4001: March 11, 1967). This species is also considered a Wildlife of Special Concern by AGFD (AGFD 2006).

In Arizona, Yuma clapper rail habitat typically includes freshwater streamsides and marshlands with heavy riparian and marsh vegetation, such as cattails. The Yuma clapper rail requires a wet substrate, such as a mudflat, sandbar, or slough bottom that is covered by dense, mature herbaceous or woody vegetation that exceeds 15 inches in height. The rail probes in freshwater emergent wetlands for aquatic and terrestrial invertebrates and occasionally for small fish. Nests are built in emergent vegetation. The declines in Yuma clapper rail populations have been

primarily attributed to loss of marsh habitat (AGFD 2001a). There is no Designated Critical Habitat for the Yuma clapper rail within the Proposed Project area (AGFD HDMS 2006).

The Yuma clapper rail has been observed within the Gila River riparian area within 3 miles of Proposed Project components (AGFD HDMS 2006).

3.4.3.2 BLM Sensitive Species, USFWS Species of Concern, and AGFD Wildlife of Special Concern

The BLM has published a list of Sensitive plant and animal species occurring within the Yuma Field Office Service Area, which covers primarily Yuma and La Paz counties. The USFWS has published a list of Species of Concern in Yuma County. The AGFD has also published a list of Wildlife of Special Concern in Yuma County. These lists are combined with the list of other federally-listed species in Yuma County in Appendix B. This list was consulted to determine which species might be present in the ROI. In addition, the AGFD has published a list of Wildlife of Special Concern for the State of Arizona (AGFD 2006). The following species are listed as BLM Sensitive species or AGFD Wildlife of Special Concern.

Blue Sand Lily (*Triteleopsis palmeri*)

In addition to being on the BLM Sensitive list, this species is salvage restricted under the Arizona Native Plant Law. The lily has a narrow distribution in sand dunes from 300 to 4,500 feet in elevation and is more common in Mexico. They are in flower between February and May. Habitat for this species exists near the ROI, and occurrences have been reported south of Interstate 8 within Township 9 South, Range 21 West (AGFD HDMS 2006).

Dune Sunflower (*Helianthus niveus* ssp. *tephrodes*)

Dune sunflower is a perennial plant that grows in sandy windblown deposits and flowers from September through May. The plants have long taproots which extend deep into sand dunes and can grow up to 3 feet tall. (Center for Plant Conservation 2006). The species is a “species of concern” to the USFWS, but does not have official status. Four populations are known to exist in the U.S. (Center for Plant Conservation 2006), one of which is located within 3 miles of Proposed Project components in Township 9 South, Range 21 West (AGFD HDMS 2006).

Kearney Sumac (*Rhus kearneyi* spp. *kearneyi*)

Kearney sumac is a BLM Sensitive species. Kearney sumac is an evergreen shrub that typically grows on arid slopes between 1,000 and 2,000 feet in elevation and flowers from January through March. In Arizona, distribution ranges through the Tinajas Atlas, Cabeza Prieta, and Gila Mountains. Populations also occur in Baja California and Mexico (AGFD 2005a). All components of the Proposed Project would occur in non-mountainous areas at elevations below that which is typical for this species. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Kofa Mountain Barberry (*Berbis harrisoniana*)

Kofa Mountain barberry is a BLM Sensitive species. This species is an evergreen shrub that grows 1.5 to 5 feet tall and occurs between 2,200 and 3,500 feet in elevation. This species flowers from January through March. Within Arizona, distribution ranges between the Kofa Mountains in Yuma and La Paz counties, the Sand Tank Mountains in Maricopa County, and the Ajo Mountains in Pima County (AGFD 2004b). All components of the Proposed Project would occur in non-mountainous areas at elevations below that which is typical for this species. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Parish Wild Onion (*Allium parishii*)

Parish wild onion is a BLM Sensitive species and is salvage restricted under Arizona Native Plant Law. It grows in mountainous locations between 2700 and 4200 feet in elevation and is predominantly located within the Kofa Mountains in Yuma County (AGFD 2005b). The blooming period is between April and May. All components of the Proposed Project would occur in non-mountainous areas at elevations below that which is typical for this species. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Sand Food (*Pholisma sonora*)

Sand food is a BLM Sensitive species and is highly safeguarded under the Arizona Native Plant Law. It is a grayish white, mushroom-shaped root parasite with surface structures visible between April and June. This species is found in sandy areas in low-elevation desert (less than 1,000 feet in elevation) and is limited in Arizona to the Yuma desert near the Mexico border. Common host species include white bursage (*Ambrosia dumosa*), arrow-weed (*Pluchea sericea*), and desert eriogonum (*Eriogonum deserticola*) (AGFD 2004a). Suitable habitat exists for this species in the far southern portions of the Proposed Project area. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Schott Wire-lettuce (*Stephanomeria schottii*)

Schott wire-lettuce is a BLM Sensitive species. This species is an herbaceous annual that grows in sandy dune areas in southern Arizona and Mexico. Flowers appear in mid-March through mid-May and are cream-colored and nocturnal, although some reports indicate that flowers may remain open in the morning. Known locations in Arizona include the Yuma desert, Pinta Dunes, Mohawk Dunes, and the San Cristobal Valley (AGFD 2005c). Suitable habitat exists in the southern portions of the Proposed Project area. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Cheese-weed Moth Lacewing (*Oliacres clara*)

The cheese-weed moth lacewing is a BLM Sensitive species. It is a small, brown, winged insect with a wingspan of 35 to 40 millimeters and a body length of 18 millimeters. Larvae feed on

creosote roots, which are prevalent within the Proposed Project area, for approximately 1 year before emerging. The synchronized adult emergence occurs between mid-April and mid-May, during which time populations aggregate at the top of local high topographic features for breeding. In Arizona, populations occur within the Colorado Desert in the southwest corner of the State. AGFD reported 10 known populations (AGFD 2003c). No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

McNeill Sooty Wing Skipper (*Hesperopsis graciellae*)

The McNeill sooty wing skipper is a BLM Sensitive species. It is a small, dark-colored butterfly. Larvae are restricted to their host plant quailbush (*Atriplex lentiformis*), which occurs in subriparian areas along the lower Colorado and Gila rivers. Within Arizona, populations have been recorded in the Havasu National Wildlife Refuge, Cibola National Wildlife Refuge, and along the Virgin and Salt Rivers (AGFD 2003d). Suitable habitat may exist near the Gila River crossing, but is not likely to occur elsewhere in the Proposed Project area. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Flannelmouth Sucker (*Catostomus latipinnis*)

The flannelmouth sucker is a BLM Sensitive species. This species occurs in the Colorado River basin but has been extirpated from the Gila River (AGFD 2001b). No habitat is present within 3 miles of Proposed Project components. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Chuckwalla (*Sauromalus obesus*)

The chuckwalla is a BLM Sensitive species. It is a large, dark-colored lizard with loose skin folds around the neck and legs. Their habitat consists predominantly of rocky slopes and cliffs where they can use the rock surfaces and crevices for heating and cooling, and for shelter. Within Yuma County, chuckwallas are most common in the Gila Mountains, and have not been recorded below 1,000 feet in elevation (AGFD 2005d). All components of the Proposed Project would occur in non-mountainous areas and well below this elevation. Any rocky outcrops that may be crossed by the Proposed Project are very small in extent and disconnected from suitable habitat. No chuckwalla suitable habitat is present within the ROI. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Rosy Boa (*Charina trivirgata*)

The rosy boa is a BLM Sensitive species. This species is a light cream to blue-gray colored constrictor snake, often with three dark reddish-brown longitudinal stripes. In Arizona, habitat is typically associated with rocky hillsides and canyons with granite substrate. They are also found on relatively rock-free flats where they use rodent burrows for shelter. Recorded occurrences in Arizona range between 700 and 5,640 feet in elevation (AGFD 2003e). All Proposed Project components would be located at or below 300 feet, making occurrences of the rosy boa unlikely. No rosy boa suitable habitat exists within the ROI. No occurrences have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Yuman Desert Fringe-toed Lizard (*Uma rufopunctata*)

The Yuman Desert fringe-toed lizard is a BLM Sensitive species and an AGFD Wildlife of Special Concern (AGFD 2006).

This species ranges from the far southwest corner of Arizona to adjacent areas in Mexico. Habitat for this lizard consists of sparsely vegetated areas within Creosotebush – White Bursage Shrublands with fine windblown sand substrate. Fringe-toed lizards will often bury themselves in these fine sands to escape predators and for temperature regulation (AGFD 2003b). Habitat types preferred by the Yuman Desert fringe-toed lizard are common within the ROI. This species has been reported in seven of the eight Township/Range areas within 3 miles of Proposed Project components south of Interstate 8 (AGFD HDMS 2006). Habitat for this species exists primarily south of Interstate 8 and east of the proposed transmission line alignments.

Cactus Ferruginous Pygmy Owl (*Glaucidium brasilianum cactorum*)

The cactus ferruginous pygmy owl is a resident in the extreme southwestern United States and northern Mexico. The USFWS (1997) listed the Arizona population, a Distinct Population Segment (DPS), as endangered in 1997 and determined that the listing of the Texas population was not warranted. In 1998, the USFWS proposed critical habitat for Arizona; the critical habitat was designated in 1999 in Pima, Cochise, Pinal, and Maricopa counties (USFWS 1999b). The Arizona DPS was removed from the Federal List of Endangered and Threatened Wildlife, and critical habitat designations were revoked (USFWS 2006c). The species is listed by AGFD as Wildlife of Special Concern.

Historically, pygmy owls were recorded in association with riparian woodlands in central and southern Arizona (USFWS 2002). Plants present in these riparian communities included cottonwood (*Populus fremontii*), willow (*Salix spp.*), ash (*Fraxinus velutina*), and hackberry (*Celtis spp.*). However, recent records have documented pygmy owls in a variety of vegetation communities such as riparian woodlands, mesquite bosques, Sonoran desertscrub, semi-desert grassland, and Sonoran savanna grassland communities (USFWS 2002).

Habitat for this species is not known to occur within 3 miles of Proposed Project components. The cactus ferruginous pygmy owl has not been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

Great Egret (*Casmerodius albus*) and Snowy Egret (*Egretta thula*)

The great egret and snowy egret are AGFD Wildlife of Special Concern. Within Arizona, they have been known to breed along parts of the Colorado River and winter in the southern part of the State. Breeding habitat includes riparian zones with emergent vegetation and tall trees (including cottonwood, willow, and salt cedar) for nesting. Foraging habitat occurs in riparian zones with mudflats and marshlands, but also occurs within agricultural lands where they can catch small rodents and insects (AGFD 2002c). The northern portion of the ROI contains some suitable habitat for both the great egret and snowy egret. The great egret has been reported along the Gila River and adjacent agricultural fields near the northern part of the ROI

(Schwartz 2006). The snowy egret has been recorded near the confluence of the Colorado and Gila rivers but has not been recorded within 3 miles of the Proposed Project components.

Least Bittern (*Ixobrychus exilis*) and California Black Rail (*Latterallus jamaicensis coturniculus*)

Both the least bittern and California black rail are AGFD Wildlife of Special Concern. The California black rail is also a BLM Sensitive species. Both species have been known to occur along the lower Colorado River in Yuma County, but neither has been reported along the lower Gila River (AGFD 2004c, 2004d). Habitat for these species is associated with riparian areas containing emergent vegetation. Neither species has been reported to occur within 3 miles of Proposed Project components (AGFD HDMS 2006).

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is a BLM Sensitive species. It is the only known predatory songbird and eats other small birds, mice, and insects. The species is known to impale captured prey on thorny plants, where it is stored for future use. Habitat typically consists of open woodlands and scrublands where it is often observed perching on fence posts and wires. The species has not been reported to occur within 3 miles of the centerline (AGFD HDMS 2006).

Western Burrowing Owl (*Athene cunicularia hypugea*)

The western burrowing owl is listed as a BLM Sensitive species. Western burrowing owls were observed in the general area of the Proposed Project during a field visit in March 2006. They may occur in areas with Sonoran scrubland cover and with soils suitable for burrows. Suitable habitat of good quality exists near the ROI (AGFD HDMS 2006).

Bats

Nine BLM Sensitive or AGFD Wildlife of Special Concern bat species may occur in the ROI (Appendix B). These species typically roost in abandoned mines, caves, rock crevices, buildings, and under bridges. Most bats forage for insects over a diversity of habitats, but some also feed on nectar. Water bodies provide drinking water for bats; riparian areas and wetlands are productive sources of insects, the primary food of most bats in the ROI. Rock crevices and caves suitable as day roosts and hibernacula for bats, are present in the Gila Mountains west of the Proposed Project area. Suitable day roosts may also be present under highway and railroad bridges near the Proposed Project. No occurrences of special status bats have been reported within 3 miles of Proposed Project components (AGFD HDMS 2006).

3.5 Cultural Resources

This section presents information on the existing cultural resources known in the region and expected to occur in the Proposed Project area. Although the situation has started to change in recent years, intensive investigation has been sparse in southwest Arizona, so only sporadic data are available for constructing a cultural history for the region. Few stratified sites have been

identified and fewer still have been excavated. Given these limitations, investigators in the region have been forced to rely on a highly generalized understanding of cultural historical sequences. As a result of these factors, the southern deserts of Arizona and southeastern California remain one of the most poorly understood archaeological regions of the southwestern United States. The following presents an overview of cultural periods as they are currently understood from a scientific standpoint.

3.5.1 Prehistoric Periods

3.5.1.1 Paleoindian Period

In the western deserts, the oldest remains attributable to human activity are represented by the San Dieguito Complex, a long-lived desert tradition based on scraping and chopping tools stretching from the Pacific Ocean to the Arizona deserts. Four phases of the complex are generally accepted. From earliest to latest, these are Malpais, San Dieguito I, San Dieguito II, and San Dieguito III. The Malpais phase of the San Dieguito Complex is controversial, and it has been argued (Hayden 1976) that it is a lithic industry that may predate the widely-accepted Clovis culture (ca. 11,500 to 11,000 B.C.).

Hayden (1976) places the beginning of San Dieguito I at approximately 15,000 B.C. Artifacts of this phase differ from the preceding Malpais primarily on the basis of a lesser degree of surface patination or varnish. The subsequent San Dieguito II may begin as early as 10,000 B.C. in southern California and Western Arizona and is believed to have ended with the onset of the climatically arid Altithermal period at circa 7000 B.C. In contrast to earlier phases, San Dieguito II is characterized by the presence of bifaces and bifacial flaking technology along with continued use of unifacial tools (Huckell 1998).

San Dieguito III is more solidly dated than preceding phases by radiocarbon methods and begins about 6000 B.C. Material culture of this phase is more diverse and technologically sophisticated stone tool assemblage that includes a variety of unifacial and bifacial scraper types, knives, and small blades (Warren 1967). This final stage of the San Dieguito Complex is entirely absent from western Arizona and has been found only in southern California (Huckell 1998).

In contrast to its relative ubiquity in southeastern Arizona, evidence for a Clovis occupation of southwestern Arizona is limited to an isolated Clovis point in the northwestern Papageria (Ezell 1954), and the volcanic-debris layer of Ventana Cave that may have a Clovis occupation (Haury 1950; Huckell 1979).

3.5.1.2 Archaic Period

The Amargosan culture sequence, originally defined by Rogers (1939) and applied to southern California and the lower Colorado River region, can also be applied to the Archaic period of southwestern Arizona, but dating of differing phases is problematic, and the most recent interpretation suggests that it may have begun as early as 7500 B.C. (Bruder and Spain 1986).

As with the chronological placement, there is also some disagreement about the overall assemblage associated with the Amargosa I tradition. Amargosa I projectile points are largely stemmed and basally notched, although at Ventana Cave Amargosa I projectile points are typically triangular bladed, with parallel-sided or slightly expanding stems and may include leaf-shaped points (Haury 1950). Amargosa II is identified by changes in projectile point styles. Triangular, short, corner-notched points similar to those of the Chiricahua-stage Cochise Culture of southeastern Arizona are present in southwestern Arizona. Grinding implements (metates and mortars) also appeared in this stage in Arizona, but not in California (Rogers 1958). Dating of Amargosa II is problematic and is generally dated from about 3500 to 1500 B.C. (Bruder and Spain 1986), but may have lasted as late as A.D. 500 (Rosenthal et al. 1978).

Amargosa III is the final preceramic phase (ca. 1000 B.C. to A.D. 300) in southwestern Arizona. Materials of this phase have been identified mainly in the Sierra Pinacate and lower Colorado River Valley. Amargosa III material culture is characterized by an increase in the quantity of ground stone and the absence of patination on flaked-stone artifacts. Projectile points are similar to those of the San Pedro Cochise (Rogers 1939). Hayden (1967) indicates that late Amargosa III materials are associated with brown plain-ware pottery from the Sierra Pinacate to the Tucson area.

The Archaic sequence in the western deserts of the southwest is poorly understood as there are exceedingly few stratified sites from which absolute dates have been obtained. As a result, insufficient data are available to synthesize settlement patterns or attempt sociocultural reconstructions for the Archaic of the western deserts. Rock features or areas cleared of desert pavement, along with trails systems, are common features of the western deserts, but their roles in settlement, subsistence, and land use are poorly understood by archaeologists.

3.5.1.3 Formative Period

The introduction of ceramics is often taken as the hallmark of a new cultural tradition. Ceramics have traditionally been associated with agriculture and a shift from a mobile subsistence strategy to a more sedentary way of life. Although these long-held views have been challenged in recent years, the introduction of ceramics in large numbers is still viewed as signaling a new cultural period.

Several important changes occurred in approximately A.D. 500. First, large dart points gave way to smaller arrow points, indicating a shift from the atlatl or spear thrower to the bow and arrow, and pottery appears at sites along the lower Gila and lower Colorado rivers. These changes imply that agriculture, possibly accompanied by a more sedentary lifestyle, was adopted along the major rivers of the western Papagueria and the Proposed Project area.

The Formative-period culture of the western deserts is known as the Patayan (McGuire and Schiffer 1982; Rogers 1945; Schroeder 1952; 1958). As with the preceding traditions in the region, this culture is poorly known relative to other southwestern prehistoric cultures. There was a general eastward spread of Lowland Patayan ceramics between A.D. 550 and 1100, which has been interpreted as an eastward population movement from the lower Colorado River region. Three temporal phases based on changes in ceramic attributes are generally accepted for the

Patayan cultural sequence: Patayan I from about A.D. 800 to A.D. 1050, Patayan II from A.D. 1050 to about A.D. 1600, and Patayan III from that time until A.D. 1900 (Rogers 1945). Formative period sites are generally dated by the presence of Patayan ceramics. Few Patayan habitation sites have been excavated, and those that have been discovered appear to be deeply buried beneath alluvium in the Gila and Colorado rivers' floodplains in areas undisturbed by river scouring. Most of the sites bearing Patayan ceramics appear as surface manifestations and appear to be very short-term occupations or episodic reuses of limited activity loci (Rogers 1945; McGuire and Schiffer 1982). Sites are characterized by features that include circular areas cleared of desert pavement, rock features of various types, patterned rock alignments or geoglyphs, rare petroglyphs, trail segments and systems, ceramic and lithic scatters, and quarries. Thermal features and habitation features are exceedingly rare.

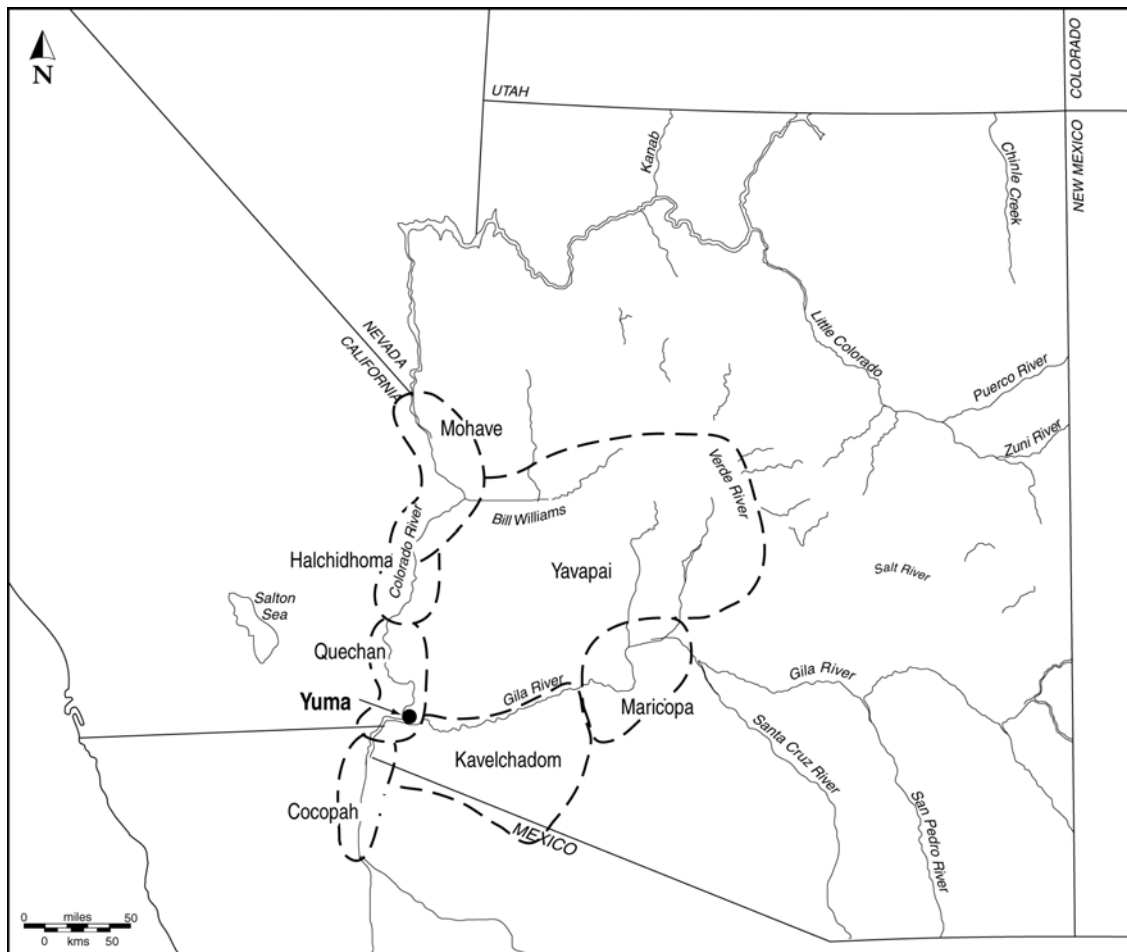
3.5.2 Native Americans of the Proposed Project Area

The Native Americans of the lower Colorado and Gila rivers region are classified as part of the Yuman subgroup of Hokan speakers (Kroeber 1943). Yuman speakers inhabit large sections of what are currently western Arizona, southern California, and northwestern Mexico. According to Kroeber's (1943) typology, there were four branches of Yuman speakers: the Colorado River delta groups (Cocopah, Kohuana, and Halyikwamai), the River Yumans along the Colorado and Gila rivers (Yuma or Quechan, Mohave, Halchidhoma, and Maricopa), the Upland Yumans of western Arizona (Yavapai, Walapai, and Havasupai), and the Western Yumans of the California deserts (Dieguezo, Kamia, Kailiwa, and Paipai). Yuman groups were bordered to the north and west by Numic speakers, who originally came out of the Great Basin into the Mojave and Sonoran deserts ca. A.D. 1100 (Chemehuevi, Panamint, and Kawaiisu) and to the west and east by speakers of Uto-Aztecan languages (Takic speakers [Serrano and Cahuilla] in southern California, and Piman speakers [Pima and Tohono O'odham] in Arizona and northern Mexico). Figure 3.5-1 illustrates contact-period cultural groups of the southwest (Kendall 1983).

The Colorado River delta groups and the River Yumans are of central concern to this Proposed Project. Ethnographic accounts of these groups have centered on three main tribes: the Mojave, Quechan, and Cocopah. All three tribes share many characteristics, with differences being more of degree than kind. Yuman subsistence along the river tended to be a combination of hunting, gathering, fishing, and agriculture. The Mojave relied on agriculture more than the other groups. According to Castetter and Bell (1951), approximately 50 percent of the Mojave diet was derived from agricultural products, compared with 30 percent for the Cocopah, with the Quechan somewhere in between. Cultivated crops included corn, squash, melons, beans, and grasses. All agriculture relied on floodwater techniques, in which seeds were planted in the newly deposited sediments after the river receded. No irrigation works or other land modifications have been identified in the lower Colorado River region. Only one crop per year was planted, and fields tended to be small (2 to 3 acres).

River Yumans used more than 75 wild plants as food sources, with the most important being mesquite and screwbean (Castetter and Bell 1951). The primary source of dietary protein came from fish caught in the Colorado River. Among the more important species were the humpbacked sucker and squawfish (Colorado pikeminnow). Regularly hunted game included such small mammals as rabbits, squirrels, and pack rats. Larger game that figured in the diet

included deer and bighorn sheep, which were probably hunted with less frequency and were less abundant than small game. Their meat was highly regarded by River Yumas, particularly during winter, when reliable sources of dietary fat were in especially short supply.



Source: Kendall 1983

Figure 3.5-1. Contact-period Cultural Groups of the Southwest

3.5.3 The Historical Period

3.5.3.1 Spanish Colonial Era (1540–1820)

Shortly after the conquest of central Mexico by Hernan Cortes, the accounts of Cabeza de Vaca in 1536 and Fray Marcos de Niza in 1539 provided descriptions of some areas of the American southwest. In 1540, Francisco Vasquez de Coronado led the first large-scale expedition into the southwest.

A portion of the Coronado expedition embarked from the west coast of New Spain in two ships, commanded by Captain Hernando de Alarcón, who was to resupply Coronado by sea, and eventually reached the mouth of the Colorado River where he encountered members of the Cocopah tribe (Martin 1954). He then worked his way upriver to the confluence of the Colorado and Gila rivers, where he encountered the Yuma (Quechan), who used reed rafts to ferry themselves across the Colorado River. The next group of Europeans believed to have entered the

region was led by Friars Juan de San Buenaventura and Francisco de Escobar, who may have traveled along the Gila River and through the Proposed Project area on their way to the Gulf of California in 1605.

As with the remainder of the New World, Europeans had a significant impact on the Native American inhabitants of southern Arizona. They introduced diseases, new ideas, and improved technologies disrupted and changed social systems. The mission structure in Arizona was a substantial component of this presence. Many of the Spanish and later EuroAmerican routes of travel in southern Arizona followed the course of the Gila River, probably along Native American trail systems.

Between 1698 and 1701, a Jesuit priest known as Father Kino made intermittent journeys from Sonora to the Gila River near present-day Wellton, to the Cabeza Prieta region, to Tinajas Altas, and to the Sierra Pinacate. In that time he founded a *visita* near a large Native American village he called San Dionisio at the confluence of the Gila and Colorado rivers. Many other travelers used the Gila River route on their way to California, including Juan Bautista de Anza and Father Francisco Garcés in 1774–1776.

The first Anglo-Americans to explore the region were trappers traveling individually and in groups down the Gila River from New Mexico in search of beaver pelts. By the time of the Mexican-American War of 1846–1848, an Anglo-American presence in the area had been firmly established.

3.5.3.2 Anglo-American Era (1854–Present)

American interest in Arizona was initiated by the need to establish better lines of communication and transportation routes to California. The Gila Trail, following Native American and Spanish travel routes, was established by trappers and followed the Gila River to the Colorado River. The Gila Trail was the route chosen by American forces on their way to California in 1846 led by Colonel Stephen Kearny and the “Army of the West.” Discovery of gold in California in 1848 turned what had been a military route into a migrant trail.

In the 1850s, survey parties sought a railroad route across southern Arizona to California. In 1858, transportation routes were greatly improved when stagecoaches began carrying mail from San Antonio to San Diego on the Butterfield Overland Route running along the Gila River. By June 1877, construction crews of the Southern Pacific Railroad had reached the California side of the Colorado River at what is today the City of Yuma. The line was extended across the Colorado River by September.

Mining, especially of copper and gold, has been the biggest economic draw in southwest Arizona. Most early prospecting in Arizona occurred during the period between 1853 and 1861. In 1858, the discovery of gold placers near Dome, northeast of the Proposed Project area, resulted in the founding of the town of Gila City on the south bank of the Gila River at the northern end of the Gila Mountains (Vivian 1965). Mining enterprises were established in the late 1800s after the Civil War, and transportation routes connected settlements throughout southern Arizona. The most productive mine in the area was the Fortuna Mine, west of the Gila

Mountains. Other well-known mines in the region are the Harquahala, North Star, and King of Arizona mines, all of which were gold mines established in the late 1880s or the 1890s (Walker and Bufkin 1979).

The livestock industry has been important in the region since the 1870s. Many of the early herds existed primarily to support the miners, military installations, and Native American reservations. Ranching was greatly increased after 1880. Large ranches began to give way to feed lots by 1900. Today, there are several large feedlots along the Gila River, east of the Proposed Project area.

Like ranching, farming initially began to support military installations and various settlements along the Colorado River. As transportation improved and the population increased, so too did demand for cultivated goods, making irrigation agriculture profitable. Homesteading was widespread along the Gila River between 1920 and 1940 and continued in the area between 1947 and 1953 under Reclamation's Gila and Yuma Irrigation projects.

3.5.3.3 Transportation and Communication

Transportation routes and associated facilities such as trails, railroads, highways, and airfields are significant historic themes in the Proposed Project area. The presence and development of transportation and communication systems along the lower Gila River Valley into the Proposed Project area facilitated the movement of people and goods and linked southwestern Arizona to the other parts of the southwest and the rest of the nation. These east-west transportation routes through southwestern Arizona were used by Native Americans, Europeans, and Euro Americans.

3.5.3.4 Water Control

Irrigation has been practiced along the lower Colorado River for centuries. Spanish missionaries in the Yuma area noted that the Quechan were engaged in irrigation farming. Several early irrigation efforts were undertaken by Euro Americans in the 1870s. By the 1880s, there were several irrigation features along the lower reaches of both the Colorado and Gila rivers. By 1893, the Colorado River Irrigation Company succeeded in irrigating an area 22 miles long by 6 miles wide and located immediately south of Yuma. By 1900, the Irrigation Land and Improvement Company had purchased the Colorado Canal and Levee Company and the Eureka Canal Company. This combined company constructed miles of canals in the northern Yuma Valley in the first few years of the 20th century. Shortly thereafter, the company was absorbed into the United States Reclamation Service as part of the Yuma Irrigation Project (YIP) (Swanson and Altschul 1991).

The Reclamation Act and the Yuma Irrigation Project

The U.S. Congress passed the Newlands, or Reclamation, Act on June 17, 1902. The act sought to reclaim, through irrigation, marginal lands that would otherwise be unfit for cultivation or habitation. The Reclamation Act created the Reclamation Service, which was charged with assisting in the development (through irrigation and agricultural programs) of the arid west.

The Lower Colorado River region was one of the first to receive Reclamation Service dollars in the form of the YIP. The Reclamation Service's first operations involved the construction of several levees along the Colorado River to better control it. The first major attempt to harness the Colorado River was the construction of Laguna Dam 9 miles upstream of Yuma.

Construction of the dam was begun in 1905 and completed in 1909. The YIP consisted of one diversion dam, 10 primary canals, 218 miles of laterals, one power plant, two pumping plants, and one 930-foot-long siphon across the Colorado River (Pfaff et al. 1992).

Levees

Providing irrigation to agricultural interests in the Yuma Valley served no end if the lands and YIP infrastructure were subjected to the annual, and often severe, flooding that characterized the Colorado River. From the outset, the goal of the YIP, in addition to providing irrigation water, was to provide flood control. To this end, a system of levees was constructed downstream of the dam on both sides of the Colorado and Gila Rivers. Although a few levees had been constructed earlier by private irrigation companies, the Reclamation Service constructed an entirely new system. Construction of the 14-mile-long Yuma Valley levee began in 1905. Levees were constructed along both banks of the Gila River between 1906 and 1909.

By the late 1930s, water diverted from Laguna Dam was insufficient to supply the needs of both the Yuma (Arizona) and Imperial (California) valleys. As a result, Imperial Dam was completed in 1938. The All American Canal (completed in 1940) was constructed to bring water from the new dam to the Imperial Valley. The construction of the canal also brought a measure of economic activity back to Yuma during the Great Depression. In addition, the canal was soon thereafter used to provide water to lands within the YIP, replacing several sections of the project's original canals.

The Gila Project

Construction of the Gila Gravity Main Canal was a significant modification to and expansion of the earlier YIP. The Gila Project (of which the Gila Gravity Main Canal is a principal structure) was constructed between 1936 and 1940 under the Boulder Canyon Act of December 21, 1928 (Pfaff et al. 1992).

The Gila Gravity Main Canal and its associated features were constructed between 1936 and 1939. The Wellton-Mohawk Division of the Gila Project consists of approximately 65,000 acres in the Gila River Valley between the Dome and Texas Hill, Arizona (Bell nd). The Gila Gravity Main Canal begins at Laguna Dam and passes through the northern tip of the Laguna Mountains. Associated features of the Gila Gravity Main Canal include an inverted siphon crossing of the Gila River, the Wellton and Mohawk canals and associated distribution canals, and several pumping plants. The pumping plants were powered by electrical transmission lines constructed for increased power needs by the military, enhanced irrigation systems, and population growth fueled by the success of irrigated agriculture.

3.5.3.5 Military Presence along the Lower Colorado and Gila River Valley

In addition to the role that water and water issues played in the development of the lower Colorado River region, the military was another major developmental factor in the history of the region, particularly since World War II. The 20th century saw the establishment of several important training areas and military installations that continue to play an important role in the region.

During World War II, Yuma's population increased from 5,000 people (prior to the war) to more than 50,000 in 1942. Two reasons for the increase were the presence of the Desert Training Center; with camps and facilities to the north, east, and west of Yuma; and the establishment of the Marine Corps Air Station Yuma (MCAS Yuma). However, this high-level military activity lasted only a short time after the end of the war (see below). Today, albeit much reduced, the U.S. Army Yuma Proving Ground, the MCAS Yuma, and the BMGR continue to be the military presence in the region. Today, Yuma Auxiliary Airfield # 2, near the proposed project alignment, is still used as a training field by MCAS Yuma.

Desert Training Center and Military Aviation

During the opening days of World War II, the Army sought a location at which to train American soldiers for desert combat. The deserts of Arizona and California were selected and eventually converted into an 18,000-square-mile training facility called the Desert Training Center (DTC). The DTC was maintained after 1943, although the name was changed to the California-Arizona Maneuver Area (C-AMA). At its height, the DTC/C-AMA supported 14 division-sized camps (approximately 15,000 troops per division), along with numerous support facilities such as airfields, temporary campsites, railroad sidings, depots, training areas, ranges, hospitals, and maneuver areas (Bischoff 1999).

Two divisional camps existed near Yuma. Camp Laguna was located 25 miles upstream of Yuma on the Arizona side of the river, and Camp Pilot Knob was located a few miles west of town, north of Pilot Knob. A third divisional camp, Camp Horn, was located north of the Gila River about 50 miles to the east of Yuma on what today is the U.S. Army Yuma Proving Ground.

American involvement in World War II also led to a proliferation of military air bases and installations throughout the state. Attracted by vast expanses of uninhabited land, unencumbered airspace, and nearly year-round flying weather, military planners established air bases, pilot and aircrew training schools, auxiliary airfields, and bombing and gunnery ranges across Arizona. In 1942, the U.S. Army Air Forces appropriated the flying facilities at Yuma's Fly Field and renamed the installation Yuma Army Air Field. Initially, the base served as an advanced, single-engine-plane, and later, a twin-engine-plane-flying training school. Beginning in January 1944, the program shifted to training bomber crews in flexible gunnery techniques. Concomitant to developing the pilot-training programs, the U.S. Army Air Forces constructed several auxiliary airfields to support the training activities at Yuma Army Air Field and its sub-post, Datelan (or Dateland) Army Air Field, among them the Yuma Auxiliary Field #2, still used by USMC Yuma, and Yuma Auxiliary Field #4, now the private Rolle Airfield. Each field was built to a common standard, consisting of three macadam runways configured as an equilateral triangle,

with a rectangular macadam parking apron appended to one side. The runways consisted of 2-inch-thick, field-mixed asphalt pavement (macadam) laid on a 4-inch-thick gravel base. Field grades of the runways and aprons had a slope of 1.0–1.5 percent to allow the rapid runoff of surface water without erosion. The auxiliary airfields were further protected from external runoff by diversion ditches and levees.

In 1946, Yuma Army Air Field was deactivated and declared surplus. The U.S. Air Force reactivated the installation as Yuma Air Base in 1951, and renamed the base Vincent Air Force Base in 1956. In 1959, the U.S. Navy was assigned jurisdiction of the newly designated Marine Corps Auxiliary Air Station. Since 1962, the base has been designated as the Marine Corps Air Station Yuma. In 1956, Yuma County received a joint-use patent for the area that is now the civil sector of Yuma International Airport. However, all of the runways and taxiways are under military control (Newton 1941; Thompson 2004, 2005). In late 1941, the U.S. Army Air Forces established a bombing and gunnery range in southwestern Arizona to train pilots for combat. Comprising over 2 million acres of largely uninhabited desert, the range stretched eastward from Yuma to Gila Bend. During World War II, the eastern and western range components were known as the “Gila Bend Gunnery Range” and “Yuma Aerial Gunnery and Bombing Range,” respectively. In 1987, the range was renamed the Barry M. Goldwater Range in honor of the former U.S. senator. Currently, the U.S. Air Force administers the land and airspace of the eastern section, and the Marine Corps manages the land and airspace of the western section, west of the Gila Mountains, on behalf of the Navy (Thompson 2004). Today, Yuma Auxiliary Field #2 is still used as a training field by the Marine Corps.

3.5.4 Previous Research

Although a previous records search report has not yet been finalized, several known historical-period linear features are expected to be encountered by the Proposed Project. These include, but are not limited to, the following:

- Juan Bautista de Anza Trail
- Gila Trail
- Butterfield Trail
- Southern Pacific (now Union Pacific) Railroad
- Historic U.S. Highway 80
- Other historic road alignments
- Canals, ditches, levees, and facilities of the Yuma and Gila Irrigation projects and earlier private irrigation systems
- Electrical transmission lines, some of which were constructed in the late 1940s and early 1950s

Other historical period features that may be encountered include:

- Military features including World War II-era landing strips, target areas and ground training and maneuver areas associated with the DTC/C-AMA and military aviation
- Historic structures and buildings

Prehistoric features that may be encountered include:

- Archaeological sites in upland dune areas and desert pavement covered landforms in uplands, areas adjacent to major drainages, and areas adjacent to the Colorado and Gila rivers
- Traditional cultural properties (TCPs) that are significant to Native American tribes might also be encountered. Ethnographic research, interviews with tribal elders, and field visits assist in the identification of TCPs.

The following research is being conducted for the Proposed Project:

- Class I File Search of the Applicants' Proposed Project, Route Alternative, access roads, and facilities
- Identification of previous surveys of the Proposed Project area
- Class III survey of the ROW and adjacent areas
- Interviews with elders and tribal members
- Site visits with elders and tribal members
- Potential Effects and Recommendations

3.6 Land Use

This section describes the affected environment relative to land use. The ROI for land use is the ROW of the proposed transmission system additions and the adjacent land uses. In addition, land use and recreation information from areas in Yuma County outside of the ROI are provided to the extent that such information assists in understanding the affected environment as it relates to land use.

3.6.1 Regional Land Use

The proposed transmission line corridors are located in southwestern Yuma County, Arizona. Yuma County is bordered on the east by Pima and Maricopa counties, on the north by La Paz County, on the west by California, and on the south by Mexico. The county's principal industries are agriculture, tourism, military/federal government, and retail trade. The City of Yuma is the county seat.

Yuma County encompasses approximately 3,530,637 acres, or 5,516 square miles, of primarily Sonoran Desert with inclusions of rugged mountains. This acreage accounts for approximately 4.8 percent of Arizona's land base and supports approximately 3 percent (160,026 people) of the State of Arizona's population (U.S. Census 2000a). Population density in Yuma County averages 29 people per square mile. During the winter months, the population increases by an estimated 90,000 with part-time residents (Yuma Data Bank 2006e). Approximately 81.6 percent of the land is under Federal control (BLM 14.8 percent and other public entities 66.8 percent), 7.7 percent under State control, and 10.5 percent in private ownership (ADC 2004a). Land jurisdiction near the proposed transmission system additions includes the Navy, BLM, Reclamation, the State of Arizona, and private landowners as shown in figures 3.6-1, 3.6-2, and 3.6-3.

In a regional context, Yuma County has many recreational opportunities, including bird watching, camping, hunting, hiking, horseback riding, bicycling, recreational shooting, hobby rock collecting, and off-highway vehicle driving. Additionally, non-commercial trapping in accordance with State and Federal laws is permitted on BLM-administered land including most wilderness areas. The region is visited by a large number of recreational users. However, the area of the proposed transmission system additions receives very little recreational use.

The western segment of the BMGR covers approximately 1,017,000 acres and primarily serves the U.S. Marine Corps and the U.S. Air Force. Military activities and facilities include air-to-air and air-to-ground training, air-to-ground target complexes, West Coast Tactical Air Combat Training System Range, auxiliary airfield, parachute drop, cargo recovery zone, explosive ordnance disposal, small arms ranges, Air Defense Complex, and ground support areas (Parsons 2005). The BMGR, west of the Gila Mountains, serves mainly as a Marine Corps training site. The main user group is the MCAS Yuma. Much of the activity on the west side is ground-based, although both Navy and Marine jet aircraft and helicopters use the airspace and Yuma Auxiliary Field #2 (Global Security 2005).

The BLM Yuma Field Office manages a combination of land and resources encompassing 1.2 million acres of southwestern Arizona and southeastern California (BLM 2005). The area includes 155 miles of the lower Colorado River, a destination for hundreds of thousands of visitors seeking water-related recreation year-round. The desert becomes populated with long-term campers during winter. The area provides suitable habitat for a number of common wildlife species described in section 3.4. Historic trails that once crossed the area are discussed in section 3.5. The BLM Yuma Field Office sells selected parcels of land for several rapidly growing communities and manages agricultural and residential permits and leases along the Colorado River (BLM 2005).

The Reclamation Yuma Area Office manages the PRPU authorized by Title I of the Colorado River Basin Salinity Control Act. The PRPU is located within a 5-mile-wide strip of land along the United States-Mexico border in southwestern Arizona. The strip of land extends about 13 miles eastward from the vicinity of San Luis, Arizona. The objectives of the unit are to manage and conserve the United States groundwater resources for the benefit of the United States and to provide obligated water deliveries to Mexico. The unit has been developed by constructing a well field and delivery system, called the 242 Well Field and Lateral, to intercept part of the groundwater underflow that is moving southward into Mexico from the Yuma Mesa in the United States. Enactment of Public Law 93-320 authorized the unit, and Minute 242 affects pumping limitations (Reclamation 2006).

3.6.2 Planning Controls

Land use controls for unincorporated, non-Federal land in Yuma County include the Yuma County Zoning Ordinance and the Yuma County 2010 Comprehensive Plan. Land use controls within the City of Yuma planning area include the Yuma City Code and the City of Yuma 2002 General Plan.

Additional planning documents include the City of Yuma/Yuma County Joint Land Use Plan (JLUP) and JLUP Implementation Strategies Review. The City of Yuma and Yuma County have prepared a JLUP that is included as an amendment to their respective general plans. The JLUP has been developed to serve two principal objectives: 1) To plan for land uses in the vicinity of MCAS Yuma and the Yuma International Airport that will be compatible with airfield operations; and 2) To plan for other land uses meeting City and County growth objectives within a study area that extends beyond the immediate airfield environment.

Federal land use in the ROI is administered by the Navy, BLM, and Reclamation. Military air installations are required to identify compatible land uses in the vicinity of airfields in accordance with the requirements of 32 CFR Part 256. As such, MCAS Yuma identified Air Installation Compatible Use Zones (AICUZs) for Auxiliary Field #2, an auxiliary airfield on the BMGR used for carrier deck landing practice. The MCAS Yuma AICUZ designated a Clear Zone, Accident Potential Zone I (APZ I), and Accident Potential Zone II (APZ II) for the Range's Auxiliary Field #2 flight path. The Clear Zone is an area that presents a high potential for accidents, and has traditionally been acquired by the Government in fee and kept clear of obstructions to flight. The APZ I is the area beyond the Clear Zone that presents a significant potential for accidents. The APZ II is the area beyond APZ I that presents a measurable potential for accidents. Real estate interests to be considered for Clear Zones and accident potential zones include the right to control the height of structures to ensure that they do not become a hazard to flight (32 CFR 256.9). No major aboveground transmission lines are permitted in APZ I (32 CFR 256.8). The proposed transmission line corridors intersect the APZ II of the Range Auxiliary Field #2 near County 19th Street and near the section line associated with County 20th Street. The proposed transmission line corridors are at least 1.3 miles from any APZ I areas and 1.5 miles from any Clear Zones.

The BLM currently manages land in Yuma County under the Yuma District Resource Management Plan (RMP) (1985). The Yuma District RMP focuses on six resource management areas: wildlife habitat, special management areas, grazing, land ownership adjustment, ROWs, and recreation. The Yuma District RMP is currently undergoing a periodic review and update, but this process has not yet been completed.

Reclamation manages the 5-Mile Zone along the international border under the 5-Mile Zone PRPU RMP. The 5-Mile Zone PRPU RMP identifies an environmental commitment to land use stating, "all land use permits will contain specific stipulations to protect existing resources, decrease potential conflicts with adjacent landowners, and prevent land use conflicts within the study area. Additionally, any developments within the [flat-tailed horned lizard] Yuma Desert Management Area will require special mitigation to avoid adverse effects or loss of unique desert habitat and mitigate for habitat losses and/or impacts to flat-tailed horned lizard habitat."

3.6.3 Region of Influence

For this discussion, land use will be described in three segments: 1) from the Point of Change of Ownership near the international boundary to the northern boundary of the BMGR; 2) from the northern boundary of the BMGR to the Gila Substation; and 3) from Gila Substation to North

Gila Substation. These segments were identified because the predominant land use varies among segments.

Segment 1

Land jurisdiction in this area includes Navy, BLM, Reclamation, State of Arizona, and private ownership. The Arizona State Land Department manages the State of Arizona lands.

The predominant land use designations along the proposed transmission line corridors between the Point of Change of Ownership near the international boundary and the northern boundary of the BMGR is agriculture on the west and open desert on the east (figure 3.6-1).

The location where the proposed transmission lines would cross the United States-Mexico border is patrolled by U.S. Customs and the Border Patrol Division of the U.S. Department of Homeland Security. A restriction on development along the border is identified in a 1907 Presidential Proclamation mandating that no construction be allowed along the border that could inhibit the protection or monitoring of the border (DOE 2005b).

Land ownership within the 5-Mile Zone includes overlapping jurisdiction of Reclamation and BLM. The 5-Mile Zone PRPU RMP regulates land use within a 5-mile-wide strip of land that extends 13 miles eastward from San Luis along the United States-Mexico border in southwestern Arizona. Within the 5-Mile Zone, there are 21 existing water wells spaced 0.5 miles apart adjacent to the Southerly International Border. Plans for water well field development include placing an additional 14 wells 1 mile north of the existing wells. Other major features of the 5-Mile Zone PRPU include the 242 Lateral, other collector lines, a 34.5-kV transmission line, access roads, and attendant facilities. A road network is laid out along the section lines within this area; many additional vehicular tracks are present off the road network. The majority of the roads within the network are dirt; however, portions have been graded and covered with gravel. The Border Patrol intensely monitors this area.

The Arizona State Land Department maintains jurisdiction of center-pivot irrigation fields west of Avenue 4E between County 23rd and County 19th. There are two gravel mining operations within this area; one is located south of County 20th and 0.5 miles west of Avenue 3E, and the other is located south of County 19th on the west side of Avenue 4E.

The land adjacent to Avenue 3E between County 19th and County 16th is predominantly privately owned citrus groves and other high-value crops interspersed with rural residences. There is an RV park on the southeast corner of Avenue 3E and County 18th. The land west of Avenue 4E between County 19th and County 16th includes a greater amount of residences and less agriculture. Agriculture use areas are being transformed into residential land use within this area. This trend increases heading north toward Interstate 8.

Avenue 4E between the United States-Mexico border and County 17th creates the western boundary of the BMGR, which is under the jurisdiction of the Navy. BMGR facilities in this area include small arms ranges and Auxiliary Field #2. Activities associated with the BMGR include military aircraft operations and ordnance and other training. The small arms ranges are

located east of Avenue 4E and north of County 19th. The flight path for Auxiliary Field #2 generally parallels County 19th and County 23rd near Avenue 3E and Avenue 4E. The runway is approximately 3 miles east of Avenue 4E near County 19th.

Near the proposed transmission line corridors, the proposed ASH would parallel County 23rd to Avenue 4E, then proceed north parallel to Avenue 4E. At County 18th, the proposed ASH would proceed northeast to Avenue 6½E (an extension of Araby Road). An overpass is included as part of the proposed ASH design at County 19th. The overpass would carry County 19th over the ASH.

Segment 2

Land jurisdiction in this area includes Navy, Reclamation, State of Arizona, and private ownership, but is rapidly changing. The City of Yuma has annexed the majority of the land in this area over the past few years, with annexations occurring as recently as early 2006. In addition, the City of Yuma is proposing to annex additional islands of land currently under the jurisdiction of Yuma County. State of Arizona land is primarily open desert; however, some parcels are scheduled for auction during the 2006 to 2007 period. Auctioned State land is expected to be quickly developed into medium- and high-density housing with supporting commercial areas.

The following information is taken directly from the Yuma County 2010 Comprehensive Plan as it pertains to development along the boundary of the BMGR:

The Gila Bend Air Force Auxiliary Field/Barry M. Goldwater Range Joint Land Use Study was completed February 2005 as part of a statewide compatibility project. The study was prepared to provide tools to address land use conflicts that might affect the ability of the base to conduct its mission, and to ensure land use compatibility around active military reservations, as required under Title 28, Chapter 25, Article 7, of the Arizona Revised Statutes (ARS). In order to implement the findings of this study the following density and intensity guidelines are established:

- Amendments to land use classifications up to 3 miles from the BMGR boundary will take into consideration the impacts of increasing density in regard to potential conflicts with the BMGR.
- Property access to roadways bordering the BMGR boundary (particularly County 14th Street in Yuma County) will be limited to reduce the opportunities for unauthorized access to the BMGR.
- Use of access roads to the BMGR will be restricted in order to discourage access to the BMGR by unauthorized personnel.

An additional recommendation made in the Gila Bend Air Force Auxiliary Field/Barry M. Goldwater Range Joint Land Use Study (Parsons 2005) was to establish a 2-acre minimum lot size for residential uses as a permanent rather than interim measure. This document does not provide recommendations for the placement of transmission lines or structures.

The predominant land use designations along the proposed transmission line corridors between the northern boundary of the BMGR and the Gila Substation varies among open desert, public, agriculture, single-family residences, mobile home parks/subdivisions, multi-family apartments, and low- and high-density residential (figure 3.6-2). In this area, remaining open desert land is currently undergoing rapid development for residential and commercial use including a master-planned community (Ocotillo) containing 4,000 to 5,000 lots. Existing development associated with this master-planned community includes several residences immediately adjacent to the north side of the A Canal between Avenue 6E and the proposed ASH. Residential sites have also been established south of the A Canal between Avenue 6E and the proposed ASH.

Existing features in this area include the A Canal, the existing 69-kV transmission line, Union Pacific Railroad, El Paso natural gas pipeline, and Interstate 8. A permit from the Arizona Department of Transportation (ADOT) would be required to cross Interstate 8. A permit from Union Pacific Railroad would be required to cross the railroad. In addition, there are communication towers near the existing transmission line crossing of Interstate 8 and the existing transmission line crossing near Avenue 9E. Additional facilities within this area include schools and the City of Yuma water treatment facility. The Ron Watson Elementary School is located 1 mile north of Interstate 8 just east of Avenue 11E, and the site of a planned high school is located 1 mile north of Interstate 8 just east of Avenue 7E. The City of Yuma water treatment facility is located north of the proposed transmission line corridor just east of Avenue 9E.

The proposed transmission line corridors cross the northwest corner of the BMGR. This land is open desert under the jurisdiction of Navy. County 14th is the northern boundary for the BMGR. The Cannon Air Defense Complex, including radar and laser facilities, is located south of County 14th between Avenue 7E and Avenue 8E. The north side of County 14th between Avenue 6E and Avenue 7E is lined with residences.

Segment 3

Land jurisdiction in this area includes Reclamation, State of Arizona, and private ownership.

The predominant land use designations along the proposed transmission line corridors, between the Gila and North Gila substations, include agriculture and industry (figure 3.6-3). The Gila River separates the valley between the two substations; riparian land adjacent to the Gila River is under Arizona State Land Department jurisdiction. Gila Substation is located on a terrace above the South Gila Valley, and North Gila Substation is located on a terrace above the confluence of the North and South Gila valleys. Farming activities take place on both sides of the Gila River. Farming activities in this area include aerial chemical application. Near the proposed alignment, the agricultural field alignments are parallel to the existing transmission lines and proposed transmission corridor.

The proposed transmission line corridor would generally parallel the east side of the existing 69-kV and 161-kV transmission lines between the two substations. Western is considering removing the easternmost existing transmission line to provide ROW for the new line. Removal of an existing line could result in fewer structures and/or the replacement of the H-frame (two poles per structure) with a single monopole, although on a wider ROW.

Existing ROW near North Gila Substation is constrained due to topography and the development of a trailer park within Yuma Lakes on the south side of Redondo Pond, which has resulted in encroachment of the existing transmission lines. Additional development within this area is occurring south of North Gila Substation near the historic stage stop.

Modifications to Gila Substation would occur within a 20-acre undeveloped but partially disturbed site located just north of the existing substation. Final site layout has not been designed. The Gila Gravity Main Canal and residential developments are also located northwest of the substation and proposed transmission line corridor. North Gila Substation would be modified within the existing footprint of the substation site.

3.7 Transportation

This section describes the existing transportation network within the Proposed Project area including roadways, aviation, and rail service. The ROI for transportation includes roads near the proposed transmission line corridors that would be used for delivery of construction equipment, construction worker access, and maintenance access. Roads within the ROI include Interstate 8, U.S. Highway 95, Old U.S. Highway 80, various county section line roads, and existing access roads for the A Canal, the existing Gila-Sonora Transmission Line, and the existing Gila-North Gila Transmission Line. Interstate 8 extends 365 miles between Casa Grande, Arizona and San Diego, California. U.S. Highway 95 connects Arizona cities along the Colorado River.

Within Yuma County, the Yuma Metropolitan Planning Organization (YMPO) is a transportation policy-making organization made up of representatives from local government and transportation authorities including the City of San Luis, the City of Somerton, the Town of Wellton, the City of Yuma, the Cocopah Indian Tribe, Yuma County, and the Arizona Department of Transportation. The YMPO is responsible for coordinating and establishing a comprehensive transportation planning process for Yuma County. The YMPO conducts quarterly traffic counts on arterial and most collector streets, the results of which are published annually. Table 3.7-1 shows the average annual daily traffic flows for roads within the ROI in 2005.

Table 3.7-1. Average Annual Daily Traffic in the Vicinity of the Proposed Transmission Line Corridors

Road Segment	Location	Site	Traffic Volume (average annual daily traffic) (vehicles)
U.S. Highway 95	North of Piceno Road	43	13,516
Business 8 (Old U.S. Highway 80)	East of Avenue 3E	29	20,098
U.S. Highway 95	West of Araby Road	25	9,267
Interstate 8	East of Araby Road Interchange	204	31,754

Source: YMPO 2006a

Proposed roads and improvements in the area include:

- ASH or State Route 195 – The ASH is a proposed 23-mile, four-lane divided highway linking the proposed new San Luis East Port of Entry to Interstate 8 at the Araby Road Interchange. The ASH corridor was developed to accommodate truck traffic between Mexico and the U.S. interstate system in Yuma County and is part of the YMPO 2003-2026 Regional Transportation Plan (YMPO 2003).
- Yuma Expressway – The Yuma Expressway is proposed to replace Avenue D, heading north-south and then connect and replace County 14th, heading east-west. This expressway is part of the City of Yuma Major Roadways Plan 2005. Currently, there is no agenda set regarding a start date for construction. Compliance documents have not yet been developed.
- East Yuma Freeway – The East Yuma Freeway is a proposed four-lane travel route that would be located on the south side of the A Canal from the proposed ASH (Araby Road), cross Interstate 8, and terminate at a point east of Avenue 9E. This freeway is proposed in the City of Yuma Major Roadways Plan 2005, but has not yet been approved by the City, and a portion of the freeway adjacent to the south side of the A Canal is being considered for other land use options.

Aviation

MCAS Yuma/Yuma International Airport is located east of Avenue 3E approximately 1 mile south of Interstate 8. MCAS Yuma/Yuma International Airport is a joint-use facility. Operational uses at the MCAS Yuma/Yuma International Airport include military, local and transient general aviation, and air taxi. Two hundred and twenty-one aircraft (42 military and 179 civilian) are based at this facility (AirNav 2006).

Auxiliary Field #2 is a military airfield located on the BMGR 3 miles east of Avenue 4E and south of County 19th. This airfield is used for carrier deck landing practice and other military training operations.

Other Federal Aviation Administration (FAA)-recognized airfields within 5 miles of Proposed Project components include the Rolle Airfield and Somerton Airport. Information on the Rolle Airfield and Somerton Airport is presented to describe the local aviation network. The proposed transmission line corridors are located at a minimum of 4 miles to the east of the FAA-mandated obstruction-free zones associated with these airfields.

The Rolle Airfield is located on the north side of County 22nd approximately 7 miles west of Avenue 3E. The Rolle Airfield is a public use facility. Operational uses at the Rolle Airfield include local general aviation and military aviation, which includes frequent night military operations; no aircraft are permanently based at this facility (AirNav 2006).

The Somerton Airport is located on the north side of Highway 95 approximately 5 miles west of Avenue 3E. The Somerton Airport is a private use facility. Operational uses at the Somerton Airport include local and transient general aviation. Twenty-four aircraft are based at this facility (AirNav 2006).

Areas of restricted airspace are associated with the MCAS Yuma/Yuma International Airport and the BMGR. The open space between these two restricted airspace areas creates a civilian-use aviation corridor.

Rail Service

The proposed transmission line corridor would cross the Sunset Route, an east-west freight corridor of the Union Pacific Railroad south of the Gila Substation near Avenue 9½E. The Union Pacific Railroad handles all freight rail operations in the Yuma area with as many as 70 trains per day (YMPO 2003). The Sunset Route connects Los Angeles, El Paso, Houston, and New Orleans. “This all-weather freight corridor links the Port of Los Angeles in California with the Port of Houston in Texas. These two ports are the two largest shipping volume, inter-modal, deepwater ports in the United States. Through these two ports pass most of the imported and exported goods consumed or produced in the United States” (YMPO 2003). Metallic ores including copper, silver, gold, and zinc make up the largest commodity group shipped by rail from Arizona, while some 10,000,000 tons of coal are shipped in to run the State’s power plants (UPR 2006).

The YMPO 2003-2026 Regional Transportation Plan identified two potential freight rail alignments that could connect Yuma to the United States-Mexico border near San Luis. One of the freight rail alignments is proposed near the western Arizona border. The other freight rail alignment is proposed to parallel the ASH from the proposed new San Luis East Port of Entry to Avenue 3E, and then the freight rail line would head north along Avenue 3E to the Union Pacific Railroad (YMPO 2003). The Union Pacific Railroad is conducting a study to identify potential rail alignments near the City of Yuma; however, the study is too early in the process for Union Pacific Railroad to disclose any details (Peterson 2006).

3.8 Visual Resources

This section discusses the existing visual resources in the vicinity of the Proposed Project. The discussion includes evaluation of the quality of the existing landscape and the sensitivity of the existing visual resources to changes associated with the Proposed Project. The Proposed Project area is described in the three segments established for land use because of differences in dominant land use and corresponding visual character: Segment 1 - from the Point of Change of Ownership near the international boundary to the northern boundary of the BMGR; Segment 2 - from the northern boundary of the BMGR to the Gila Substation; and Segment 3 - from Gila Substation to North Gila Substation.

The following aesthetic values are considered when evaluating the visual quality of, and modifications to, the existing landscape:

- Form – topographical variation, mountains, valleys
- Line/Pattern – canals, roads, and transmission line corridors
- Color/Contrast – brightness, diversity
- Texture – vegetation, buildings, disturbed areas

The sensitivity of the existing visual resources to changes associated with the Proposed Project is based on a number of factors:

- The extent to which the existing landscape is already altered from its natural condition.
- The number of people within visual range of the area, including residents, highway travelers, and those involved in recreational activities.
- The degree of public concern or agency management directives for the quality of the landscape.

3.8.1 Existing Visual Condition

The Proposed Project area is in the Yuma Desert east and southeast of the City of Yuma. Vegetation in the area is sparse and low to the ground, consisting of scattered creosote and mesquite, and a slightly denser cover that includes grasses and some paloverde in the drainage cuts. Topography of the Yuma Desert in the vicinity of the Proposed Project area is characterized by sloping plains and broad valleys with distant mountains in the background in some directions.

The land use section describes the various land uses that occur along the three line segments, and the sections below describe the affects these land uses have on existing visual quality.

Segment 1 of the Proposed Project would cross the border immediately north of the proposed power generation facility, turning northeast to the boundary of the BMGR. The proposed route then proceeds north along the boundary of the BMGR and parallel to the proposed ASH and Western's existing Gila-Sonora 69-kV transmission line. The southern portion of Segment 1 of the Proposed Project is located within an area of predominantly native desert vegetation. Development in this area includes the existing 69-kV line, wells, and canals; other evidence of human activity includes numerous cross-country vehicle tracks. The northern part of this segment includes some dispersed agriculture and a few residences. The views from the residences on the west boundary of the BMGR look to the east over the undeveloped BMGR to the Gila Mountains in the distance and to the west over agriculture and residences. With this level of disturbance and the distant views of development and agriculture, such as lemon groves, the overall existing scenic integrity in Segment 1 is moderate to low.

Segment 2 of the Proposed Project starts near the northwest corner of the BMGR where the proposed route heads north to the canal, then turns generally northeast, paralleling the A Canal and Western's 69-kV transmission line into Gila Substation. The area around Segment 2 has been subject to significant past and current residential and commercial development. The segment also includes Interstate 8, several branches of the Gila Gravity Main Canal, local roads, and other transmission and distribution lines. The existing 69-kV transmission line south of Gila Substation is also visible to travelers on Interstate 8. There are existing and proposed residences within the viewshed of the existing and proposed transmission lines including residences situated on the south terrace of the South Gila Valley. The existing scenic integrity in this section is low, as the area appears considerably altered from its natural state and is experiencing rapid residential and commercial development.

Within Segment 3, the proposed route leaves Gila Substation and parallels the existing transmission lines to the north, crossing the South Gila Valley and Gila River channel, then turning northwest and into APS' North Gila Substation, paralleling existing transmission lines. In this area there is little undisturbed vegetation due to past and ongoing activities, including the agricultural activities; existing Gila and North Gila substations; and connecting transmission lines, canals, and U.S. Highway 95. In Segment 3, the existing scenic integrity is low given the transmission lines, U.S. Highway 95, agricultural activities, and RV park near North Gila Substation.

There are no Arizona State by-ways or wild and scenic rivers in the surrounding area, and there is no substantial recreational use in the immediate vicinity of the Proposed Project. For a discussion of the potential to visually impact significant cultural resources in the Proposed Project vicinity, see Section 3.5 Cultural Resources. For a discussion of recreational activities in the Proposed Project vicinity, see Section 3.6 Land Use and Recreation.

3.8.2 Key Observation Points

Key observation points (KOPs) were selected for the Proposed Project area in consultation with agency representatives to provide representative views from areas where the Proposed Project could be seen. Figure 3.8-1 shows the locations of the KOPs within the Proposed Project area. Figures 3.8-2, 3.8-3, and 3.8-4 show photographs depicting the existing view from each KOP; each figure is followed by a description.



Figure 3.8-2. Key Observation Point 1

KOP 1 – KOP 1 is representative of the view from residences adjacent to the BMGR in the northern portion of Segment 1. This KOP was selected because scoping comments included visual concerns from residences in this area. This KOP is located at Avenue 5¼E and County 14¼, looking to the southeast across open desert at the Gila Mountains. The existing 69-kV transmission line structure is visible in the foreground, and the Gila Mountains are visible in the background.



Figure 3.8-3. Key Observation Point 2

KOP 2 – KOP 2 shows the existing view in Segment 2 where the proposed line would cross Old U.S. Highway 80 (also known as Business 8, 32nd Street, and/or County 11). This KOP was selected because it is a frequently traveled road and, therefore, provides an opportunity for the

Proposed Project to be viewed by many people. This point is located at the intersection of A Canal and the Highway with the view to the northeast looking across Old U.S. Highway 80. The existing 69-kV transmission line structures, palm trees, and communications tower are visible in the foreground, and Interstate 8 crosses the Highway about 1/8 mile beyond.



Figure 3.8-4. Key Observation Point 3

KOP 3 – KOP 3 is representative of the agriculture that occurs in Segment 3 between the Gila and North Gila substations. This point shows the view from U.S. Highway 95 (just east of the 69-kV and 161-kV transmission line crossing) facing northwest. This location was chosen because U.S. Highway 95 is the main east-west road for travelers in this area. U.S. Highway 95 can be seen in the foreground, the existing transmission lines are crossing agricultural lands in the midground, and the mountains are visible in the background.

3.8.3 Visual Management System

The BLM Visual Resource Management (VRM) system was used to evaluate the existing landscape and potential effects to the landscape on all Federal lands in the ROI, as the Navy and Reclamation lands currently do not provide guidance for the management of visual resources. According to the Reclamation RMP Guidebook, the standard or guide for visual planning and management is the U.S. Forest Service or BLM Visual Management System. The U.S. Marine Corps manages the BMGR west of the Gila Mountains, with underlying responsibility resting with the Navy, so the BLM VRM system will also be used to evaluate visual resources on Navy lands. This same system was also used to evaluate potential visual impacts on private lands in the area.

The VRM system was developed to inventory, classify, analyze, and manage visual resources. The VRM guidelines suggest that a number of specific steps be used for identifying and evaluating the scenic quality along the proposed routes. First, the scenic quality in the area is

assessed, followed by the establishment of distance zones at discrete intervals from the proposed routes. Visual sensitivity to changes in the visual environment at key viewing points is then established to include the likely number of viewers at each of these points. Finally, the relative value of scenic resources based on these factors is used to determine a VRM class for use in defining management objectives for the scenic resources in the area through which the proposed line would pass.

3.8.3.1 Scenic Quality

The scenic quality of the area through which the proposed and alternative routes would pass was rated according to BLM VRM inventory guidelines (BLM 1986a,b). These guidelines classify discrete areas as A (lands of outstanding or distinctive diversity or interest), B (lands of common or average diversity or interest), or C (lands of minimal diversity or interest) on the basis of their landforms, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.

Most of Segment 1 primarily consists of open expanses of desert with generally flat topography and minimal landscape features in the foreground and middleground, but mountains are visible in the background in several directions. Nearly all of the areas within Segments 2 and 3 have been disturbed or altered in some way. Although the expansive adjacent scenery in all segments does enhance the scenic quality of the area through which the transmission line would be built, none of the landscape features in the area could be considered unique within the topographic region in which the proposed lines would be located. On the basis of these descriptors, the scenic quality of the area through which the proposed lines would pass is rated Class B, indicating that the area is of common scenic value.

3.8.3.2 Distance Zones

The distance zone in which projects would be readily perceptible has an important influence on their overall impact. Changes in form, line, color, and texture associated with changes in scenic quality become less perceptible to viewers with increasing distance. Distance zones, as defined in the BLM VRM system, were used to classify the proposed transmission line route. The combined area of the foreground-middleground zones is the area between the viewer and a distance of up to 3 to 5 miles (5 to 8 km); the background zone includes the area 3 to 5 miles (5 to 8 km) from the viewer up to 15 miles (24 km) from the viewer. In addition, a seldom seen zone is defined as the area more than 15 miles (24 km) beyond any given viewing point. The viewing zone for the proposed lines is limited to the foreground-middleground zone of Interstate 8 and residential areas within the eastern municipal boundary of Yuma. Because of the low, sparse, and fairly uniform vegetation and featureless topography, the proposed line would be visible in the foreground-middleground distance zone.

3.8.3.3 Visual Sensitivity

Public concern for change in scenic quality along the proposed transmission line routes was measured in terms of high, medium, or low sensitivity to changes in the landscape from the KOPs. Sensitivity ratings for the proposed route, as defined in the BLM VRM system, take into

account the type of user, the amount of use, the level of public interest and adjacent land uses, and viewer duration.

The southern portion of Segment 1 of the proposed transmission line would be located in an isolated area with a relatively low level of recreational use and few local residents. Other local activities are limited to agriculture, transportation, border security activities, and electricity transmission facilities. The central portion of the proposed transmission line is within the Yuma municipal limits, crossing low- to medium-density residential areas. None of the highways in the vicinity of the transmission line routes are designated as scenic highways (Department of Transportation 2006). There are few viewers in the area south of the City of Yuma, but those who reside there are more likely to be sensitive to changes in visual quality than residents within the more developed areas. Even though the area lacks unique landscape features, the visual sensitivity of this portion of the Proposed Project area is classified as moderate to high. Residents are likely to be less sensitive to additional modifications of the landscape within the residential areas of Yuma, so the visual sensitivity of the Proposed Project in that area is classified as moderate.

3.8.3.4 Visual Resource Management Classes

The BLM uses four VRM classes to manage visual resources:

- Class I is typically designated to protect areas and allow for only very limited management activity, with a view to preserving the existing landscape. The level of change allowed should be very low and should not attract attention.
- Class II aims to retain the existing elements of a landscape, with changes repeating the basic elements of form, color, and texture found in the most important landscape features. Landscape management activities should not be evident, with the level of change maintained at a low level. Any visible contrast with the characteristic landscape should not attract attention.
- Class III aims for partial retention of the existing landscape with only moderate changes allowed in the characteristic landscape. Contrast with the characteristic landscape may be evident and begin to attract attention; changes should remain subordinate within the existing visual landscape.
- Class IV includes activities that lead to significant modification of the existing character of the landscape. The level of change may be high, and contrasts may attract attention and are likely to be a visible feature of the landscape.

Landscape management should attempt to minimize the impact of contrasting activities through the careful location of activities and minimal disturbance. Some mitigation of impacts through the repetition of elements of the characteristic landscape may be required.

The BLM Yuma Field Office manages most of the agricultural lands and a few desert areas with VRM Class III. Class IV areas in the district include sparsely vegetated desert plains and the highly impacted lands near communities.

On the basis of analysis of scenic quality, distance zones, and visual sensitivity, lands administered by Reclamation and Navy (BMGR) that would be crossed by the proposed transmission line are classified as Class III.

3.9 Noise

This section describes the basic measurements used for sound, applicable noise regulations, and existing sources of noise within the Proposed Project area.

3.9.1 Fundamentals of Sound

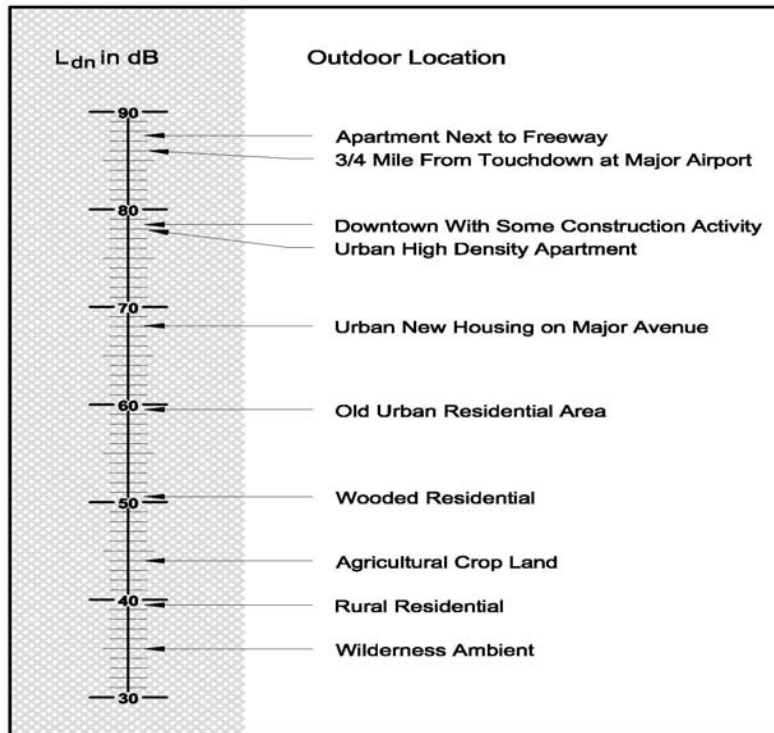
Noise is defined generally as unpleasant, unexpected, or undesired sound that disrupts or interferes with normal human activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to noise is annoyance. An individual's response to noise is influenced by the type of noise, perceived importance of the noise, appropriateness in the setting, time of day, type of activity during which the noise occurs, and the sensitivity of the individual.

Sound is generally characterized by amplitude and frequency. Amplitude is a measure of sound pressure and is perceived as a sound's loudness. Amplitude is measured in units of decibels (dB) on a logarithmic scale. A sound level of 0 dB is approximately the lower threshold of human hearing. Normal speech has a sound level of approximately 55 dB. Sound levels above approximately 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is approximately 3 dB. An increase or decrease in sound level of about 10 dB is usually perceived by the average person as a doubling, or halving, of the sound's loudness.

Frequency describes a sound's pitch and is measured in Hertz (Hz). Most humans can identify sounds with frequencies between about 16 and 20,000 Hz. People hear sounds most readily at frequencies between 1,000 and 6,000 Hz (EPA 1979).

The A-weighted decibel (dBA) measures sound in a manner similar to the response of the human ear, so that more weight is given to the frequencies that people hear more easily. Typical ranges of common sounds include approximately 60 to 90 dBA for an automobile at a distance of 50 feet, approximately 76 to 89 dBA for a heavy truck at a distance of 50 feet, approximately 80 to 110 dBA for the driver of a motorcycle, and approximately 103 to 115 dBA for the operator of a chainsaw.

The day-night average noise level (L_{dn}) is the A-weighted average sound level for a 24-hour period. It is calculated by adding a 10 dB "penalty" to sound levels in the night (10 p.m. to 7 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours. Sound levels typical of outdoor areas are listed in figure 3.9-1 using the L_{dn} .



Source: EPA 1979.

Figure 3.9-1. Typical Sound Levels

3.9.2 Applicable Regulations

In 1974, the EPA established guidelines to help protect human health and welfare for residential and outside space and farm residences. The EPA identified outdoor L_{dn} levels equal to or less than 55 dBA to prevent activity interference and annoyance. When annual averages of the daily level are considered over a period of 40 years, the EPA identified average noise levels equal to or less than 70 dBA as the level of environmental noise that will prevent any measurable hearing loss over the course of a lifetime. The EPA identified an L_{dn} level of 55 to protect against both of these scenarios (EPA 1974).

There are no noise codes applicable to transmission lines in Arizona. Arizona State Law addresses noise in Chapter 25, Article 7 for military airport operation compatibility, building codes, and airport influence areas (A.R.S. § 28-8481, § 28-848, § 28-8485). A noise study was completed by the City of Yuma and Yuma County, and the resulting noise contours were adopted into the City of Yuma Zoning Ordinance in 1979 as the Airport District. The Yuma County Planning and Zoning Ordinance restricts the type of development in the Airport District in areas in which existing noise levels exceed 65 dBA.

3.9.3 Existing Noise Sources

The primary sources of noise in the area of the proposed transmission line corridor include civilian and military aircraft operations, the Union Pacific Railroad, and vehicular traffic along

Interstate 8, U.S. Highway 95, and other main roads in the area. Additional sources of noise include agricultural activities and construction areas for commercial and residential development. Sensitive noise receptors would be residences located along the proposed transmission line corridors. The ROI for noise includes residences located along the proposed transmission line corridors.

Land use along the proposed transmission line corridors varies among open desert, agriculture, and rural residences between the proposed Point of Change of Ownership near the international boundary and the northern boundary of the BMGR. Noise sources in this area include two gravel-mining operations, agricultural activities, center pivot irrigation, BMGR small arms ranges, and military aircraft operations. Noise levels may be as low as 35 dBA in the absence of BMGR activities, similar to those in typical ambient wilderness areas. However, the MCAS Yuma AICUZ has identified an existing L_{dn} noise contour of 60 dBA around the military flight path for Auxiliary Field #2 between County 23rd and County 19th. The Yuma County Noise Exposure and Compatibility Overlay map provided in the Yuma County 2010 Comprehensive Plan identifies additional 65 dBA, 70 dBA, and 75 dBA noise contours within the 60 dBA contour surrounding Auxiliary Field #2. The proposed transmission line corridor would intersect approximately 5 miles of 60 dBA or greater existing noise contours.

Land use varies near the proposed transmission line route between the northern boundary of the BMGR and the Gila Substation among open, public, agriculture, single-family residence, mobile home park/subdivision, and low- and high-density residential land uses. Open land is currently being developed for residential and commercial use. Noise sources include military and civilian aircraft operations, residential and commercial development construction activities, vehicular traffic on Interstate 8 and other main roads, and the Union Pacific Railroad. Typical L_{dn} sound levels in suburban areas average 50 dB; urban areas range from 68 to 90 dB. Peak noise levels for existing conditions in this area were modeled in 2002 and range from 57 dBA to 67 dBA (ADOT 2005).

Land use between Gila and North Gila substations is primarily agriculture. Noise sources include agricultural activities, crop-dusting, vehicular traffic on U.S. Highway 95, and military aircraft operations. Typical L_{dn} sound levels in agricultural areas are about 44 dB.

Portions of the proposed transmission line corridor parallel existing transmission lines. Corona-generated audible noise (60-cycle hum) is associated with transmission lines and is generally characterized as a cracking or hissing noise. Corona can occur on the conductors, insulators, and hardware of an energized high-voltage transmission line. This noise is most noticeable during wet weather. Audible noise from transmission lines is often lost in the background noise at locations beyond the edge of the ROW (DOE 2005a).

3.10 Socioeconomics

The ROI for socioeconomics is Yuma County because the Proposed Project and its associated components within the United States would be located completely within county limits. Additionally, the communities within commuting distance of the Proposed Project and its

associated components fall within county limits. It is expected that the majority of Proposed Project employees would reside in the City of Yuma or City of San Luis.

3.10.1 Population Trends and Demographic Characteristics

Yuma County, now classified as a Metropolitan Statistical Area, is one of the fastest growing counties in Arizona. The City of Yuma is also growing very rapidly. As shown in table 3.10-1, the City of Yuma population increased from 54,923 in 1990 to 77,515 in 2000, a net increase of 41 percent during the 10-year period.

Table 3.10-1. Historical Population Trends

Area	1990 Census	2000 Census	2003 Estimate	% 1990 - 2000	% 2000 - 2003
Arizona	3,665,228	5,130,632	5,629,870	40.0	9.7
Yuma County	106,895	160,026	175,045	49.7	9.4
City of Yuma	54,923	77,515	83,330	41.1	7.5
City of San Luis	4,212	15,322	19,745	263.8	28.9

Source: Yuma Data Bank 2006a.

As shown in table 3.10-2, the population in Yuma County is 68.3 percent white, with 50.5 percent of persons reporting themselves as being of Hispanic origin (including Latino). Black persons comprised 2.2 percent and American Indian and Alaska Native persons comprised 1.6 percent of the Yuma County population in 2000.

Table 3.10-2. State, County, and Local Demographic Characteristics, 2000 Census

Demographic Characteristic	Arizona	Yuma County	City of Yuma	City of San Luis
Gender				
Male	49.9%	50.5%	49.8%	55.8%
Female	50.1%	49.5%	50.2%	44.2%
Age				
0-14	22.5%	24.4%	25.1%	29.7%
15-24	14.3%	14.6%	16.5%	18.8%
25-44	29.5%	25.6%	27.1%	34.2%
45-64	20.9%	18.9%	17.5%	13.4%
65 and over	13.0%	16.5%	13.9%	4.0%
Median age	34.2 years	33.9 years	31.2 years	25.8 years
Race				
White - alone	75.5%	68.3%	68.3%	58.8%
Hispanic - of any race ^a	25.3%	50.5%	45.7%	89.1%
Black - alone	3.1%	2.2%	3.2%	3.0%
Native American & Alaska Native - alone	5.0%	1.6%	1.5%	1.5%

^aPeople who identify their origin as Spanish, Hispanic, or Latino may be of any race.

Source: U.S. Census 2000b.

Yuma County, the City of Yuma, and the City of San Luis have almost equal numbers of men and women in the population. As shown in table 3.10-2, the populations of Yuma County, the City of Yuma, and the City of San Luis are relatively young, with median ages of 33.9, 31.2, and 25.8 years respectively. More than 16 percent of the county's population was 65 or older, while only 4 percent of San Luis' population was 65 or older. Just more than 65 percent of the Yuma County population older than 25 years has graduated from high school, compared with more than 81 percent of all Arizona residents, indicating a less educated labor force than in other parts of the State (U.S. Census 2000a). Twenty-four percent of the county's population is foreign born, almost twice the 12.8 percent for Arizona residents as a whole (U.S. Census 2000a). About 64 percent of these residents came to Yuma before 1990. More than 45 percent of county residents speak a language other than English at home (U.S. Census 2000a).

3.10.1.1 Housing

Housing availability was assessed for Yuma County, the City of Yuma, and the City of San Luis. The majority of the Proposed Project employees would likely reside in the City of Yuma or the City of San Luis.

Yuma County

The 2000 Census reported 74,140 housing units in Yuma County (Yuma Data Bank 2006a). More than 72 percent of the housing units are owner-occupied (38,911 units) with an average of 2.86 persons residing in each household. The 2000 Census reported that the annual average vacancy rate is 1.8 percent for owner-occupied units and 14.1 percent for rentals (Yuma Data Bank 2006a). The median value of an owner-occupied housing unit in 2000 was \$72,100, compared to \$109,400 for the State as a whole (Yuma Data Bank 2006a).

City of Yuma

Based on the 2000 Census, there were 34,475 housing units in the City of Yuma. Of the 26,649 occupied housing units, more than 63 percent were owner-occupied, with 37 percent being renter-occupied. On average, 2.79 persons live in each household. The vacancy rate was between 1.6 percent for owner-occupied units and 12.3 percent for rentals. The median value for owner-occupied housing units in 2000 was \$78,100 (Yuma Data Bank 2006a).

City of San Luis

The 2000 Census reports that there were 2,206 housing units in the City of San Luis. On average, 4.38 persons live in each household (U.S. Census 2000a). In 2000, the vacancy rate was 2.6 percent for owner-occupied units and 7.9 percent for rentals, and the median value for owner-occupied housing units was \$64,500 (Yuma Data Bank 2006a).

3.10.1.2 Education

In fiscal year 2003-2004, there were seven public and private high schools in Yuma County with a total enrollment of approximately 9,900 students. There were also 56 public and private

elementary schools with a total enrollment of more than 24,600 students (Yuma Data Bank 2006b).

Institutes of higher learning located in the City of Yuma include the Arizona Western College, Northern Arizona University, the University of Arizona, and the University of Phoenix. The Arizona Western College is a multi-campus community college granting Associate of Arts and Applied Science degrees. Northern Arizona University, the University of Arizona, and the University of Phoenix all have campuses or outreach programs in Yuma offering 4-year degree programs.

3.10.1.3 Community Services and Public Safety

Yuma County provides a variety of municipal-type community services including public housing, public health, a roads department, and the solid waste disposal utility. The Sheriff's Department is also a Yuma County public safety service.

The City of Yuma and City of San Luis provide the full range of community services to its residents including water, sanitary sewer and solid waste utilities, law enforcement, fire protection, recreation, and library services.

Utilities

Major suppliers of electrical services in Yuma County are APS and Wellton-Mohawk Irrigation and Drainage District (ADC 2004a). Natural gas is supplied by Southwest Gas Corporation and Qwest is the major provider of telephone services (ADC 2004a).

Health Care

The Yuma Regional Medical Center provides a full range of specialty medical services, including the acute care facility, which offers 24-hour emergency service. The county hospital bed capacity is 318 (ADHS 2003). In addition, there are 34 other medical facilities in Yuma County, including outpatient treatment centers (Yuma Data Bank 2006f).

3.10.2 Economic Resources

Agriculture, tourism, military, and retail trade are the principal industries in Yuma County (ADC 2004a). Despite the population growth, Yuma County is still an economically challenged area, primarily because of the seasonal nature of agricultural employment. Principal field crops include grain, hay, and cotton. Lettuce is the principal vegetable crop, while lemons are the primary fruit crop. High-value crops within the area are primarily produce crops including:

- 20 varieties of lettuce
- Mixed greens
- Broccoli
- Cauliflower
- Cabbage

- Dates
- Melons

High-value crops also include the following seed crops:

- Onion
- Bermuda grass
- Variety of flowers

Additional high-value crops include:

- Cotton
- Alfalfa
- Durum wheat

The county also supports an active livestock production operation.

Tourism is a major and growing economic sector in Yuma County as well as the rest of Arizona. Winter visitors and international shoppers constitute the majority of travelers to the area. The 2002 annual taxable sales in Yuma County tourist activities, including retail stores, restaurants, bars, hotels and motels, exceeded \$1 billion (Yuma Data Bank 2006c).

The military also contributes substantially to the local economy. MCAS Yuma and the U.S. Army Yuma Proving Grounds contribute directly to the economy via wages paid and goods and services purchased. In addition, many retired Navy and Marine Corps personnel live within a 40-mile radius of Yuma.

The State of Arizona designated Yuma County as an Enterprise Zone to provide for business development incentives such as State income and property tax credits to encourage industrial development in the area (ADC 2004a).

3.10.2.1 Employment

Major employment sectors include agriculture, tourism, and the military. The City of Yuma's top private sector employers are Dole Fresh Vegetables, Salyer American Fresh, Yuma Regional Medical Center, Gowan Company, and Shaw Industries (ADC 2004b). Major public sector employers include the City of Yuma, U.S. Army Yuma Proving Grounds, Yuma Elementary Schools, MCAS Yuma, and Yuma County (ADC 2004b). Table 3.10-3 shows 2003 employment by industry in Yuma County.

Government employment is especially important to Yuma County because it is a steady source of "outside" dollars coming into the county, thereby contributing to the economic base. Each outside dollar generates about \$2.00, whereas dollars earned from inside the community generate only \$1.00 (DOE 2005c). Employment at the military bases in Yuma County provides important outside dollars.

Table 3.10-3. Employment by Industry, Yuma County, 2003

Industry	Average Annual	
	Employment	Total Percent
Construction	3,625	6.7
Education and Health Services	5,500	10.2
Financial Activities	1,300	2.4
Government	12,575	23.3
Information	1,025	1.9
Leisure and Hospitality	4,325	8.0
Manufacturing	2,550	4.7
Professional and Business Services	3,750	7.0
Trade, Transportation, and Utilities	8,800	16.3
Total Employment	53,900	100.0

Note: Totals do not add because of nondisclosure of confidential industry data.
 Source: ADC 2004a.

As shown in table 3.10-4, the unemployment rate of Yuma County is significantly higher than the State unemployment rate. The high unemployment rate in Yuma County may reflect the seasonal nature of agricultural work. The data on labor force and unemployment by season and by place of work indicate seasonal swings in Yuma County unemployment. In Yuma County, summer-month unemployment rates are five times the State average (Yuma Data Bank 2006b). In addition, many retirees are full-time residents of the county. For example, 31 percent of the residents in Yuma County are Non-Hispanic white residents 65 years and older, compared to 17.7 percent statewide (Yuma Data Bank 2006a).

Table 3.10-4. Unemployment Rates in 2004

Community	Civilian Labor Force	Unemployment Rate
Arizona	2,762,612	4.8%
Yuma County	75,982	22.9%
City of Yuma	40,607	15.8%
City of San Luis	4,242	64.5%

Source: Yuma Data Base 2006d.

3.10.2.2 Income

Personal income is defined as all income received by individuals from all sources. Personal income sources may include income from work (labor income or earnings), income from savings and investments (investment income), and income from outside sources such as Social Security or Medicare (transfer payment income).

The agricultural sector in Yuma County, although employing the greatest number of workers in 2003, paid next to the lowest average wage in the county at \$7.34 per hour (ADC 2004a). Table 3.10-5 shows the 2003 employment and average wages by occupation.

Table 3.10-5. 2003 Employment and Average Wages by Occupation

Occupation	Employment	Average Hourly Wages
Farming, Fishing & Forestry	8,810	\$ 7.34
Office & Administration	6,940	\$11.60
Transportation & Material Moving	5,640	\$ 8.75
Sales & Related Occupations	4,550	\$11.10
Food Preparation & Serving Related	3,920	\$ 7.19
Education, Training & Library	3,580	\$13.99
Construction & Extraction	3,430	\$12.33
Management	1,940	\$29.90

Source: ADC 2004a.

Per capita income is calculated by dividing all personal income received by all permanent county residents by the total county population. Personal income for Yuma County was \$3.268 billion dollars in 2003. Per capita income for the county was \$19,158 in 2003, while the State of Arizona per capita income was \$27,232 (BEA 2005).

Poverty levels indicate what percentage of the population has income below what is necessary for basic necessities, such as adequate housing, food, transportation, energy, and health care. The 2000 Census reports that 15.5 percent of Yuma County families and 19.2 percent of individuals were classified as living in poverty based on the national poverty threshold. Table 3.10-6 shows the poverty level in the ROI for 2000.

Table 3.10-6. Poverty Level in the Region of Influence, 2000

Area	Percent of Families Below the Poverty Level	Percent of Individuals Below the Poverty Level
Yuma County	15.5	19.2
City of Yuma	12.1	14.7
City of San Luis	36.3	35.8

Source: U.S. Census 2002b.

3.10.2.3 Government and Public Finance

The State of Arizona relies on income, property, and sales taxes to meet expenditures. Personal income taxes are patterned after Federal code and are collected via withholding for State payroll taxes.

The two primary sources of local government revenues are intergovernmental transfers (i.e., funds passed through from Federal and State governments, such as grants-in-aid and payments in lieu of taxes [PILT] for Federally-owned land), and local taxes and assessments.

Property tax is generally the most important local tax, providing money necessary to fund community services, and is constrained in Yuma County by the amount of land being taxed. Only 10.5 percent of the land in Yuma County is privately held and subject to property tax (ADC 2004a). The State of Arizona controls 7.7 percent of the land, BLM manages 14.8 percent of the land, and other public entities, primarily the military, control 66.8 percent of the land (ADC

2004a). PILT is a program administered by BLM to offset the loss of tax revenues to communities because of tax-exempt Federal land within their jurisdictions. In 2005, BLM sent \$1,909,810 to Yuma County for 1,564,374 acres of tax-exempt land managed by BLM, Reclamation, USACE, and USFWS (BLM 2006).

Table 3.10-7 shows that the net assessed valuations used for property taxes have almost doubled in the past 12 years. This is likely the result of annual reappraisals of property and construction of new properties rather than increases in the property tax rate, which has remained relatively stable during the same timeframe. Property tax in Arizona is based on assessed valuation, which is 25 percent of market value for commercial property and 10 percent of market value for residential property. The total property tax is 14.01 percent for all entities in the City of Yuma and 14.39 percent in the City of San Luis (ADC 2004a).

Table 3.10-7. Net Assessed Valuations

Area	1990	2000	2003
Yuma County	\$383,123,731	\$552,869,545	\$615,920,229
City of Yuma	\$187,552,327	\$256,612,102	\$322,623,524
City of San Luis	\$ 4,759,686	\$ 18,755,594	\$ 25,938,585

Sources: ADC 2004a; 2004b; 2004c.

Local governments use sales taxes and property taxes to fund community services and programs. Table 3.10-8 shows the sales tax by industry sector. Yuma County has a 1.5-percent sales tax and the City of Yuma's sales tax rate is 1.7 percent (ADC 2004a).

Table 3.10-8. Sales Tax by Industry Sector

Area	Retail Goods	Restaurant Services	Lodging
Yuma County	7.1%	6.0%	6.6%
City of Yuma	8.8%	8.5%	10.3%
City of San Luis	8.5%	8.5%	9.1%

Source: Yuma COC 2006.

3.11 Environmental Justice

Environmental justice has been defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Concern that minority and low-income populations might be bearing a disproportionate share of adverse health and environmental impacts led President Clinton to issue an EO in 1994 to address these issues. EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations directs Federal agencies to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The EO is clear that its provisions apply fully to programs involving Native Americans. Native American issues are also addressed within section 3.5. When conducting NEPA evaluations, Western incorporates environmental justice considerations into both its technical analyses and its public involvement program in accordance with EPA guidelines and the Council on Environmental Quality (CEQ) regulations.

Impacts on minority or low-income populations that could result from the Proposed Project were analyzed for the geographic areas in which the Proposed Project and its associated components would be located to determine if they would have a disproportionately high and adverse impact on minority populations. Figure 3.11-1 shows the census tracts surrounding the Proposed Project and its associated components within the United States. These census tracts were targeted because they capture the potential impacts to the resource areas for both the construction and operations phases of the Proposed Project. The ROI includes the six census tracts containing the components of the Proposed Project within the United States (figure 3.11-1). In general, these census tracts are sparsely populated; the average population density in Yuma County is 31.7 persons per square mile (ADHS 2003).

To meet current and future power demands in this section of southwestern Arizona, the Proposed Project would need to be located somewhere within this southwestern region. Therefore, the environmental justice analysis focuses on this region, specifically Yuma County, the location for the Proposed Project. Additionally, due to the large Hispanic population (which, for purposes of this report, includes Latinos) in the southwestern portion of Arizona, Yuma County was chosen as the geographic area of comparison for this analysis.

The nearest Indian reservations include the Fort Yuma Quechan Reservation, located more than 6 miles west of the APS' North Gila Substation, and the Cocopah Indian Community, located approximately 6 miles west of the BMGR western boundary. However, the Proposed Project area and surrounding region have been identified as traditionally and culturally significant to a number of tribes having ancestral ties to this area.

3.11.1 Minority Populations

For the purpose of this DEIS, "minority" refers to people who classified themselves in the 2000 Census as Black or African American, Asian or Pacific Islander, American Indian or Alaskan Native, Hispanic of any race or origin, or other non-white races (CEQ 1997). Because the Hispanic population can be either white or non-white, it is not possible to calculate minority population by adding racial minorities to the Hispanic population (an ethnic classification). Therefore, this DEIS includes as minorities all racial and ethnic groups other than non-Hispanic whites.

Demographic information from the U.S. Census Bureau was used to identify minority populations in the ROI. Information on locations and numbers of minority populations was obtained from the 2000 Census. Census data is reported on the level of census tracts, a geographic area that varies with size depending largely on population density (low-population density census tracts generally cover larger geographical areas).

The total minority population in Yuma County is 55.7 percent. As shown in table 3.11-1, the 2000 Census data on minority groups for the six census tracts in the Proposed Project show that minority populations are lower than or similar to those of Yuma County as a whole.

Table 3.11-1. Census 2000 Racial and Ethnic Characteristics

Race	Yuma	Census Tract					
	County	109.01	109.02	111.01	111.02	113	114.02
Total Population, Census 2000	160,026	6,297	7,714	5,549	6,894	5	7,703
White - alone	68.3%	69.5%	89.7%	84.5%	87.1%	100%	67.3%
Black or African American - alone	2.2%	1.7%	0.5%	1.3%	0.4%	0%	6.4%
American Indian or Alaska Native - alone	1.6%	1.2%	0.5%	0.9%	0.9%	0%	2.1%
Asian - alone	0.9%	0.8%	0.5%	0.6%	0.7%	0%	0.4%
Native Hawaiian or Other Pacific Islander - alone	0.1%	0.3%	Less than 0.1%	0.2%	0.1%	0%	0%
Some other race - alone	23.6%	22.7%	7.0%	10.5%	9.1%	0%	22.4%
Two or more races	3.2%	3.8%	1.9%	2.0%	1.8%	0%	1.4%
Aggregate of non-white races ethnicity	31.6%	30.5%	10.4%	15.5%	13.05%	0%	32.7%
Hispanic - of any race	50.5%	48.1%	15.3%	20.6%	15.5%	0%	57.5%

Notes: People who identify their origin as Spanish, Hispanic, or Latino may be of any race.
 Source: U.S. Census 2000b, U.S. Census 2000c

3.11.2 Low-Income Populations

Environmental justice guidance defines low-income using statistical poverty thresholds used by the U.S. Census Bureau. Information on low-income populations was developed from 1999 incomes reported in the 2000 Census. In 1999, the poverty-weighted average threshold for an individual was \$8,501 (U.S. Census 2000d). As shown in table 3.11-2, 19.2 percent of individuals are below the poverty level in Yuma County.

Table 3.11-2. Percent of Individuals Below Poverty Level

	Yuma	Census Tract					
	County	109.01	109.02	111.01	111.02	113	114.02
Percent of individuals below the poverty level	19.2%	18.8%	11.4%	8.9%	10.9	Not available	22.3%

Source: U.S. Census 2000d.

None of the census tracts in the study area meet the criteria for identification as low-income populations. The low-income populations in these census tracts are either lower than the corresponding poverty level population in Yuma County or not meaningfully higher than the county poverty level population.

3.11.3 Migrant Workers and Transient Populations

Agriculture is the major employment sector in Yuma County. Many of these jobs are seasonal, using migrant workers, many from Mexico, to harvest crops. The number of migrant workers is

difficult to measure because this population is transient in nature. For the most part, migrant farm workers residing in Yuma County occupy rented trailers or apartments in or near Yuma. The majority of this population would be expected to work in the agricultural areas of the Yuma Valley, west of the Proposed Project area. During peak harvest times, many migrant farm workers travel to and from work daily from Mexico.

During the winter, the Yuma area is a popular destination for transient populations of retirees, commonly referred to as “snowbirds.” The additional winter population in Yuma County is estimated to be 90,000 persons (Yuma Data Bank 2006e). In 2000, winter visitors spent an estimated \$218.5 million in the Yuma area (Yuma Data Bank 2006a). Some of these snowbirds maintain residences in the county, while most arrive in motor homes and other RVs, which are scattered at RV parks throughout the area. Anecdotal evidence suggests that these transient populations are largely white and above the poverty level. Therefore, this transient population would not require analysis under Environmental Justice.

3.12 Health and Safety

This section discusses the regulation of worker and public health and safety, and the hazards from the construction and operation of the proposed transmission system additions. This section also includes a discussion of electric and magnetic field (EMF) effects, corona effects, and safety considerations in the vicinity of transmission lines. The ROI for health and safety includes the ROW for the transmission system additions. Existing conditions related to air quality, water quality, noise, and geologic conditions are discussed in their respective resource sections in this chapter. Aviation is discussed in the land use and transportation sections.

3.12.1 Regulatory Considerations

Occupational health and safety issues are primarily the responsibility of the Occupational Safety and Health Administration (OSHA). OSHA regulations applicable to the proposed construction and operation activities include 29 CFR 1910 (general industry standards) and 29 CFR 1926 (construction industry standards). The State of Arizona has supplemental worker safety requirements consisting of the Arizona Occupational Safety and Health Act of 1970 and standards adopted under that statute (ARS 2006). The Arizona Department of Occupational Safety and Health (ADOSH) operates under an approved plan (29 CFR 1910) with the U.S. Department of Labor to retain jurisdiction over most occupational safety and health issues within Arizona.

3.12.2 Electric and Magnetic Fields

Both current and voltage are required to transmit electrical energy over a transmission line. The current, a flow of electrical charge measured in amperes, creates a magnetic field. The voltage, the force or pressure that causes the current to flow measured in units of volts, or kilovolts (kV), creates an electric field. Both fields occur together whenever electricity flows, hence the general practice of considering both as EMF exposure. Transmission lines, like all electrical devices and equipment, produce EMFs. Electric field strength is usually constant with a given voltage, while magnetic field strength can vary depending on the electrical load, design of the transmission line,

and configuration and height of conductors. Both the magnetic field and the electric field decrease rapidly, or attenuate, with distance depending on the source.

Concern about exposure to power-frequency EMFs surfaced in 1979 with the publication of a study by Wertheimer and Leeper in the American Journal of Epidemiology. The study suggested a statistical association between estimates of exposure to power-frequency magnetic fields and childhood cancer. Additional studies have been published that suggest a positive association between estimates of exposure to EMF and health effects.

However, epidemiology studies have not been consistent, and the controversy that exists with EMF is that many of the studies do not show an association between exposure to these fields and health effects. An example of such a study was published by J. P. Fulton, in the American Journal of Epidemiology, 1980k, titled: *Electrical wiring configurations and childhood leukemia in Rhode Island*.

A more current major epidemiology study of power lines and childhood cancer was performed by the U.S. National Cancer Institute, published in 1997, titled: *Residential Exposure to Magnetic Fields and Acute Lymphoblastic Leukemia in Children*, by MS Linet, et al. This study, one of the largest of such studies to date, concluded: "Our results provide little evidence that living in homes characterized by high measure time-weighted average magnetic-field levels or by the highest wire-code category increases the risk of Acute Lymphoblastic Leukemia in children."

Epidemiology evidence that suggests an association between estimates of exposure to EMF and health effects is weak; other studies have concluded that no association exists. Consequently, the epidemiology evidence is inconclusive and inconsistent. An inherent weakness and limitation of epidemiology research is the inability to demonstrate a cause-and-effect relationship between a potential disease-causing agent and a disease. The epidemiology studies to date have not been able to identify a dose-response relationship between EMF and health effects. Laboratory studies have not been able to confirm that EMF exposure at residential or occupational levels damages cells or tissues or that long-term exposure of animals to EMF causes cancer. Positive correlations have not been replicated, and it has proven very difficult to eliminate other environmental exposures that could be influencing the results. The limitations of epidemiology and lack of consistency, coupled with the lack of confirmation from laboratory research, has led the major study reviews to conclude that the present research evidence does not support the theory that exposure to power-frequency EMF poses a human health risk.

Brief summaries of some major U.S. and international studies on EMF health impacts follow:

The U.S. Congress authorized the Electric and Magnetic Fields Research and Public Information Dissemination Program (EMF-RAPID Program) in the Energy Policy Act of 1992. The Congress instructed the National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health, and DOE to direct and manage a program of research and analysis aimed at providing scientific evidence to clarify the potential health risks from exposure to extremely low-frequency electric and magnetic fields (ELF-EMF). The NIEHS published their report in 1999,

Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields (NIEHS 1999). This report concluded that:

The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak. The strongest evidence for health effects comes from associations observed in human populations with two forms of cancer: childhood leukemia and chronic lymphocytic leukemia in occupational exposed adults. While the support from individual studies is weak, the epidemiological studies demonstrate, for some methods of measuring exposure, a fairly consistent pattern of a small, increased risk with increasing exposure that is somewhat weaker from chronic lymphocytic leukemia than for childhood leukemia. In contrast, the mechanistic studies and the animal toxicology literature fail to demonstrate any consistent pattern across studies although sporadic findings of biological effects have been reported. No indication of increased leukemias in experimental animals has been observed.

In our opinion, this finding is insufficient to warrant aggressive regulatory concern.

The National Academy of Sciences published a report in 1999: *Research on Power-Frequency Fields Completed Under the Energy Policy Act of 1992*. In response to a request from the DOE, following the directives of the Energy Policy Act of 1992, the National Research Council (NRC) established a committee of scientists and engineers to review the activities conducted under the EMF-RAPID program.

The 1999 NRC report concluded that:

An earlier Research Council assessment of the available body of information on biologic effects of power-frequency magnetic fields (NRC 1997) led to the conclusion "that the current body of evidence does not show that exposure to these fields presents a human health hazard. Specifically, no conclusive and consistent evidence shows that exposures to residential electric and magnetic fields produces cancer, adverse neurobehavioral effects, or reproductive and developmental effects". The new, largely unpublished contributions of the EMF-RAPID program are consistent with that conclusion. We conclude that no finding from the EMF-RAPID program alters the conclusions of the previous NRC review on the Possible Effects of Electromagnetic Fields on Biologic Systems (NRC 1997).

In March of 2001, the United Kingdom's National Radiation Protection Board's (NRPB) independent Advisory Group on Non-ionising Radiation (AGNIR) published a report and review of scientific research on EMF, *ELF Electromagnetic Fields and the Risk of Cancer*. The main conclusions of that report were:

Laboratory experiments have provided no good evidence that extremely low frequency electromagnetic fields are capable of producing cancer, nor do human epidemiological studies suggest that they cause cancer in general. There is, however, some epidemiological evidence that prolonged exposure to higher levels of power frequency magnetic fields is associated with a small risk of leukaemia in children. In practice, such

levels of exposure are seldom encountered by the general public in the UK. In the absence of clear evidence of a carcinogenic effect in adults, or of a plausible explanation from experiments on animals or isolated cells, the epidemiological evidence is currently not strong enough to justify a firm conclusion that such fields cause leukaemia in children. Unless, however, further research indicates that the finding is due to chance or some currently unrecognised artifact, the possibility remains that intense and prolonged exposures to magnetic fields can increase the risk of leukaemia in children.

Electric and Magnetic Fields from 60-Hz Powerlines: What do We Know about Possible Health Risks? (Morgan 1989) concluded that 60-Hertz EMF do not pose a significant risk to agriculture, animals, or ecosystems.

The Electric Power Research Institute (1998) (along with the Veterans Affairs Medical Center and the Bonneville Power Administration) conducted a four-phase study that exposed sheep to EMF fields from a 500-kV transmission line. The research was done to determine whether long-term exposure to EMF fields impacted melatonin levels, immune function, and animal health. Early phase studies of exposed groups of animals showed no impact on melatonin levels. In later studies, immune cells were monitored in two exposed groups of animals to find out if exposure to fields resulted in immune cell reduction in the exposed animals. Cell reduction would affect immune function and animal health. Final results showed that immune cells were not consistently or significantly reduced in exposed sheep.

A team of Canadian researchers led by McBride reported in the May 1999 issue of the *American Journal of Epidemiology* that, if there is a risk (of childhood leukemia from EMF exposure), it is undetectable through epidemiological studies.

Dr. Sander Greenland, in a 2000 report entitled *A Pooled Analysis of Magnetic Fields, Wire Codes and Childhood Leukemia*, concluded that: exposures to fields less than 3 milligauss (mG) is unlikely to cause leukemia; there is suggestive evidence of a link between childhood leukemia and exposure to fields higher than three mG; and future studies of EMF and childhood leukemia should focus on highly exposed populations.

A paper by Dr. Anders Ahlbom published in the September 2000 issue of the *British Journal of Cancer* stated that the research team did not find any evidence of an increased risk of childhood leukemia at residential magnetic field levels lower than 4 mG.

A 2002 report by the Department of Health Services, State of California, *An Evaluation of the Possible Risks from Electric and Magnetic Fields from Power Lines, Internal Wiring, Electrical Occupations and Appliances*, was prepared in response to the California Public Utilities Commission. The three preparing scientists agreed, to one degree or another, that EMF can cause some degree of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's disease, and miscarriage. The scientists were not in universal agreement that EMFs are related to other conditions such as heart disease, Alzheimer's disease, suicide, and adult leukemia.

Additional information on EMF is available from the following resources:

- California Department of Health Services, California EMF Program; web site located at <http://www.dhs.ca.gov/ps/deodc/ehib/emf/general.html>
- Medical College of Wisconsin, Electromagnetic Fields and Human Health; web site located at <http://www.mcw.edu/gcrc/cop/powerlines-cancer-FAQ/toc.html>
- Environmental Health Information Service; web site located at <http://ehis.niehs.nih.gov/>
- Microwave News; web site located at <http://www.microwavenews.com>
- World Health Organization; web site located at <http://www.who.int/emf>

Research related to possible adverse health effects of EMF has been in progress for more than 30 years and has studied the relationship, if any, of EMF to human, plant, and animal health. The balance of scientific evidence to date does not conclusively demonstrate a relationship between EMF and adverse health effects. Scientific research continues on a wide range of questions relating to EMF exposure and is expected to continue for several more years.

No Federal regulations have established environmental limits on the strengths of EMF from transmission lines. Some States have set guidelines or standards on EMF for newly constructed lines, but each is based primarily on maximum fields that are produced by existing lines, and not on factual health data. Most of Western's existing transmission lines would meet those existing guidelines or standards.

Sources of existing EMF in the vicinity of the Proposed Project are the existing transmission lines, distribution feeds to homes and businesses, commercial wiring and equipment, and common household wiring and appliances for residences and communities in the area. EMF field levels in homes and businesses vary widely with wiring configurations, the types of equipment and appliances in use, and proximity to these sources.

3.12.3 Corona Effects

Corona is a luminous discharge that is the electrical breakdown strength of air into charged particles caused by the electrical field at the surface of conductors. Corona is of concern for potential to contribute to power loss, radio and television interference, audible noise (60-cycle hum), and photochemical reactions. Corona can occur on the conductors, insulators, and hardware of an energized high-voltage transmission line. Corona on conductors occurs at locations where the field has been enhanced by protrusions, such as nicks, dust, insects, or drops of water. During fair weather, the number of these sources is small, and the corona effect is insignificant. However, during wet weather, the number of these sources increases and corona effects are much greater (DOE 2005a).

The Electric Power Research Institute (EPRI) reports that "Corona and arcing activity may occur at numerous points in overhead transmission, substation, and distribution power systems. This activity may result in audio noise or radio interference complaints or indicate a defective component that may be close to failure. If the offending component can be located, it can be replaced." (EPRI 2001)

Audible Noise. Corona-generated audible noise from transmission lines is generally characterized as a cracking or hissing noise. This noise is most noticeable during wet weather conditions. There are no noise codes applicable to transmission lines in Arizona. Audible noise from transmission lines is often lost in the background noise at locations beyond the edge of the ROW. Additional discussion of noise is presented in section 3.9.

Radio and Television Interference. Corona-generated radio interference is most likely to affect the amplitude modulation (AM) broadcast band (535 to 1,605 kilohertz); frequency modulation (FM) radio is rarely affected. Only AM receivers located very near to transmission lines have the potential to be affected by radio interference. The potential for interference from corona effects is more severe during damp or rainy weather.

Visible Light. Corona may be visible at night as a bluish glow or as bluish plumes. On the transmission lines in the area, the corona levels are so low that the corona on the conductors is usually observable only under the darkest conditions with the aid of binoculars, night vision cameras, or sophisticated corona cameras.

Photochemical Reactions. When coronal discharge is present, the air surrounding the conductors is ionized, and many chemical reactions produce small amounts of ozone and other oxidants. Approximately 90 percent of the oxidants are ozone, while the remaining 10 percent are composed principally of nitrogen oxides.

3.12.4 Safety

The potential safety considerations in the immediate vicinity of the proposed transmission lines include the potential for electric shock; the clearance of the power lines above the ground; military, private, and agricultural flight activities; proximity of the transmission lines to the proposed Area Service Highway; unauthorized climbing of the poles; and the interaction of power lines and wildfires.

The electric field created by a high-voltage transmission line extends from the energized conductors to other conducting objects, such as the ground, towers, vegetation, buildings, vehicles, and persons. Potential field effects can include induced currents, steady-state current shocks, spark discharge shocks, and, in some cases, field perception and neurobehavioral responses.

Induced Currents. When a conducting object, such as a vehicle or person, is placed in an electric field, currents and voltages are induced. The magnitude of the induced current depends on the electric-field strength, size, and shape of the object. The induced currents and voltages represent a potential source of nuisance shocks near a high-voltage transmission line.

Steady-State Current Shock. Steady-state current shocks are those that flow continuously after a person contacts an object, such as a vehicle, and provides a path to ground for the induced current. The effects of these shocks range from involuntary movement in a

person to direct physiological harm. Steady-state current shocks occur in instances of direct or indirect human contact with an energized transmission line.

Spark-Discharge Shocks. Induced voltages appear on objects such as vehicles when there is an inadequate ground. If the voltage were sufficient, a spark-discharge shock would occur upon contact with the ground. Spark-discharge shocks that create a nuisance occur in instances of carrying or handling conducting objects, such as irrigation pipe, under transmission lines.

Field Perception and Neurobehavioral Responses. When the electric field under a transmission line is sufficient, it can be perceived by hair-raising on an upraised hand. This is the effect of harmless levels of static electricity, similar to the effect of rubbing stocking feet on a carpet.

Proposed Transmission System Additions

There are multiple existing transmission lines and substations in the vicinity of the proposed transmission system additions. Both the public and routine maintenance workers are occasionally in the area of these facilities, although there are gates and locked fences to prevent public entry into the substations. Worker health issues related to the substations include hazards to occasional maintenance workers such as electrocution, trips, and falls. An additional safety concern in the immediate vicinity of transmission lines is the potential for unauthorized persons to climb the support structures, although this is not a concern for the existing structures because there are no built-in ladders on the structures.

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Please note: Missing pages contain figures which can be found in the “Figures” folder on the San Luis Rio Colorado Project Draft Environmental Impact Statement compact disc (CD). Some of the figures were removed from this file to decrease file size for ease of downloading and/or viewing.

4 ENVIRONMENTAL CONSEQUENCES

This chapter evaluates the potential environmental consequences, or impacts, on the human environment as a result of constructing and operating the proposed San Luis Rio Colorado Project (Proposed Project). Potential effects are evaluated for the following:

- Geology, Soils, Paleontology, and Seismicity
- Water Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Land Use and Recreation
- Transportation
- Visual Resources
- Noise
- Socioeconomics
- Environmental Justice
- Health and Safety

Chapter 3 described the affected environment or region of influence (ROI) that could be affected by construction and operation of the Proposed Project. The ROI varies depending on the resource being analyzed. All resources described in chapter 3 have the same section number in chapter 4 (e.g., 3.2: Water Resources, 4.2: Water Resources) to aid the reader.

Direct and indirect effects of the Applicants' Proposed Action, Route Alternative, 230-kV Alternative, and No Action Alternative are identified for each resource area. Direct effects are "caused by the action and occur at the same time and place." Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8, Council on Environmental Quality [CEQ] Terminology and Index).

Significance criteria were established for each resource area based on the following factors: 1) whether the effect is environmentally or scientifically significant; and/or 2) whether the effect has policy significance. The determination of the magnitude of an impact is based on an analysis of both the context of the action and the intensity of the impact to a particular resource. Thresholds of significance were identified to determine the level of significance for resource impact evaluation. Thresholds of significance include:

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporation
- Less than Significant Impact
- No Impact

Mitigation identified early in the planning process is embedded as part of the Applicants' Proposed Action and included in the description of the proposal. This mitigation was committed to prior to the evaluation of environmental impacts; therefore, the impact levels identified integrate the effects of the committed mitigation. The same mitigation commitments are made for the Route Alternative and the 230-kV Alternative. Additional mitigation may be proposed if the impacts identified from the proposal are found to still be significant. Additional mitigation measures, if any, are described for each affected resource area. The additional mitigation, when properly implemented, would further reduce, minimize, or eliminate impacts from construction and operation of the Proposed Project. Residual impacts after applying this additional mitigation are identified, and the level of significance is reassessed. Commitment to any such additional mitigation may be disclosed in the final environmental impact statement (FEIS), and would be formalized in the Record of Decision (ROD).

This assessment analyzes only those impacts that could occur within the United States as a result of the Proposed Project. For most resources, the analysis of impacts assesses only those activities and Proposed Project components located within the United States, such as construction and operation of the transmission lines and substation expansion, disturbance within the rights-of-way (ROW) for the transmission lines and access roads, and temporary disturbance at equipment/material storage or lay-down areas.

Within the United States, some resource areas could be impacted as a result of Proposed Project-related activities within Mexico (e.g., air quality, groundwater consumption, and noise). These resource areas include an evaluation of impacts in the United States resulting from activities associated with the proposed power plant in Mexico. This evaluation is included to provide a complete picture of the potential impacts; however, since the components creating the potential impacts are located outside of the United States, they are not subject to regulation under the National Environmental Policy Act (NEPA). Similarly, Proposed Project activities and impacts within Mexico are outside the scope of this draft environmental impact statement (DEIS), and are subject to regulation under Mexican law.

4.1 Geology, Soils, Paleontology, and Seismicity

4.1.1 Methodology

The main elements examined when assessing impacts to geologic and soil resources are the amount and location of land disturbed during construction. Disturbance areas would include the ROW for access roads, portions of the ROW for the transmission lines, temporary equipment/material storage or lay-down areas, and the substation expansion footprint. Types of disturbance include surface disturbance and deep disturbance (e.g., augured holes for poles or structures).

Geologic and soil conditions along the proposed transmission line route alternatives were observed in the field in March 2006. In addition, topographic surveys, geologic and seismic hazard maps, and soil surveys were reviewed as part of this analysis.

The impact analysis for geologic resources evaluated potential effects to critical geologic attributes, including damage to unique geologic features, access to mineral or energy resources, and mass movement induced by the construction of the transmission lines. The impact analysis also evaluated regional geologic conditions such as earthquake potential.

The impact analysis for soil resources evaluated effects to specific soil attributes, including the potential for soil erosion and compaction by construction activities. The soils analysis addressed the area of land that would be disturbed within the project area.

The impact analysis for paleontological resources evaluated effects to scientifically important fossils. Geologic maps of the project area published by the Arizona Geological Survey and the American Association of Petroleum Geologists, topographic quadrangles, aerial photos, and the U.S. Bureau of Land Management (BLM) and various museum paleontology databases were reviewed as part of this analysis. In addition, the Mesa Southwest Museum's Curator of Paleontology, who has worked in the area, was consulted.

4.1.2 Significance Criteria

The impact analyses for geology, soils, paleontology, and seismicity were based on the following significance criteria. Would the Proposed Project:

- Be located on or near an important geological feature?
- Result in the loss of availability of a known mineral resource (e.g. sand and gravel) that would be of value to the region?
- Indirectly affect the impact to people, including the risk of loss, injury, or death resulting from strong seismic ground-shaking or liquefaction?
- Directly or indirectly result in the loss of, or make inaccessible, an important paleontological resource?
- Result in soil erosion and subsequent loss and/or mixing of soils?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.1.3 Assessment of Impacts

As described in section 3.1, the ROI includes the area that could potentially be disturbed by Proposed Project construction, operation, and maintenance activities. Disturbance areas would include the ROW for access roads, portions of the ROW for the transmission lines, temporary equipment/material storage or staging areas, cable pulling/tensioning sites, and the substation expansion footprint.

4.1.3.1 Applicants' Proposed Action

Geology and Seismicity

Construction and operation of the Applicants' Proposed Action would not likely affect existing geological resources. There are no unique or important geologic features within the Proposed Project area. The Applicants' Proposed Action would be located near an active sand and gravel operation; however, to ensure safety and prevent the limitation of access to sand and gravel, the proposed transmission line would not be located directly over or within the area of operation. The Proposed Project would use local sand and gravel resources to make concrete footings for monopoles. An average of 145 cubic yards of concrete would be used per 500-kV monopole, resulting in approximately 22,000 cubic yards of concrete for the Applicants' Proposed Action constructed with a 69-kV underbuild between Gila and North Gila substations. This estimate is conservative because the amount of concrete required for the intermediate 69-kV monopoles would be much less than what would be required for the 500-kV monopoles. The use of sand and gravel for the Proposed Project would be a less than significant impact because there is a known abundance of federally- and privately-owned sand and gravel resources available in Yuma County. The Applicants' Proposed Action would have a less than significant impact on geological resources, including availability of minerals.

Construction and operation of the Applicants' Proposed Action would not result in ground failure, subsidence, expansive soils, liquefaction, or slope failure. However, severe earth shaking or seismic activity and resultant ground failure, subsidence, expansive soils, liquefaction, or slope failure could damage residences, buildings, and other infrastructure, including Proposed Project components. Damage to Proposed Project components could create a safety hazard for people and require additional maintenance or reconstruction. Site-specific geotechnical evaluations of structure sites would be conducted prior to final design and construction to evaluate foundation suitability and construction issues. Information from the geotechnical evaluations would be used to determine proper engineering design and construction methods, which would minimize damage to the transmission line and substation components during a seismic event. Geologic and seismic risks are well-understood and are addressed by building codes and utility industry standards. To minimize potential damage from earth shaking, structures would be constructed and maintained to Federal Uniform Building Code standards for Zone 4 areas. Under this code, structures would be designed to withstand an earthquake measuring 8.0 on the Richter scale through design and construction measures, including but not limited to foundation reinforcement, compaction, or edge containment. The potential for these direct impacts would be mitigated to less than significant by proper engineering design and construction of all Proposed Project structures. Indirect impacts resulting from seismic activity would be less than significant.

Soils

Construction activities would temporarily increase the risk of soil erosion along disturbance areas. Vegetation clearing and soil disruption at the Proposed Project structures and access roads would result in an increased potential for wind and water erosion of surface soils. Similarly, construction during periods of dry and windy conditions could result in a local increase in wind

erosion of soils. Erosion control measures, such as site watering and overland travel where practicable, would be used to minimize wind erosion. Site watering would be used during windy conditions to keep sand and dust from blowing from the site. Table 2.1-2 lists a summary of rules, from the Arizona Administrative Code, pertaining to fugitive dust control that would be implemented for the Proposed Project. Overland travel would be conducted within the access road ROW, and shrubs would be removed, but no road would be graded; this would retain a maximum amount of native vegetation and reduce wind erosion.

Once the erosion controls implemented during Proposed Project construction were established, activities associated with the operation and maintenance would not likely result in significant impacts to soil erosion. Impacts to soil erosion would be less than significant.

Transmission structure construction would involve excavations and concrete fill. The excavated soil would be dispersed over the surrounding area. Soft, compressible soils may require deeper footings for the towers, imported fill material, or concrete to meet code requirements. Similarly, weak soils may have to be regraded or reinforced with imported fill material to provide a suitable base for access by construction and maintenance equipment. An area of approximately 0.9 acres would be temporarily disturbed during each structure's assembly. The proposed transmission line would require 136 structures (about 5 per mile) and result in cumulative totals of 122.4 acres of temporary disturbance and 0.69 acres of permanent disturbance (the areas of the structures' bases). If existing transmission were to be consolidated with the proposed transmission line, 149 structures would be required and result in 134.1 acres of temporary disturbance and 0.76 acres of permanent disturbance, a portion of which would be offset by removing existing 69-kV H-frame structures between Gila and North Gila substations. Cable-pulling sites would temporarily disturb approximately 5 acres. Modifications to Gila Substation would permanently disturb 20 acres.

The Proposed Project would require minor local grading. The land in the Proposed Project area is mostly flat and would not require grading at most structure locations. Access to structures would be primarily along existing roads and trails. Overland travel on short spurs of 100 to 150 feet would be used to access some structures to reduce grading disturbance. Grading and fill material would be required on the entire 20-acre site for the proposed modifications at Gila Substation.

The Applicants' Proposed Action would not result in substantial soil erosion and subsequent loss and/or mixing of soils; impacts to soils would be less than significant.

Paleontology

As discussed in chapter 3, BLM established a classification system for ranking paleontological resources as to their potential for yielding scientifically important fossils. Class I areas are known or likely to produce abundant scientifically important fossils vulnerable to surface-disturbing activities. Class II areas show evidence of fossils but are unlikely to produce abundant scientifically important fossils. Class III areas are unlikely to produce fossils. The BLM classification system considers all vertebrate fossils scientifically significant. The majority of the Proposed Project area occurs in a Class II area.

The potential for impact to significant fossils is considered low in Class II areas because these areas show evidence of fossils but are unlikely to produce abundant scientifically important fossils. If present, both surface and subsurface fossils could be damaged or destroyed during ground-disturbing activities. The greatest potential to impact surface and subsurface fossils comes from excavations of surface sediments and shallow bedrock. These types of excavations are commonly associated with road and facility construction. While construction activities could disturb or destroy individual fossil specimens, the activities may also result in the discovery of fossils that might otherwise not be found. The discovery of new fossils would be a beneficial impact to the knowledge of the paleontological resources in the region. Borings may also affect fossils, but because this effect is not visible, verifiable, or preventable, and the bored areas would be a very small percentage of the disturbed area, the impact to significant fossils posed by boring is considered low. The construction of transmission line infrastructure, including access roads, would not likely affect scientifically important fossils.

Based on the geologic maps of the Proposed Project area published by the Arizona Geological Survey and the American Association of Petroleum Geologists, topographic quadrangles, aerial photos, a review of the BLM and various museum paleontology databases, and consultation with the Mesa Southwest Museum's Curator of Paleontology (who has worked in the area), outcrop exposures tend to be isolated, and reported specimens are extremely rare for the location of the Proposed Project.

Previous field work conducted near the Proposed Project area identified a potential for secondarily deposited fossil specimens along the Gila River. This field work also found that no fossil resources were identified near Gila Substation (DOE 2005c). The land near the Gila River is disturbed from its natural state within the Proposed Project area, as it has been converted to agricultural uses. In addition, the Proposed Project would span the Gila River, and no structures would be placed in previously undisturbed areas; therefore, it is not likely that paleontological resources would be encountered along the Gila River. Based on previous field work, it is not likely that paleontological resources would be encountered near Gila Substation. Modifications at North Gila Substation would occur within the existing boundary of the substation site; therefore, there would be no impact to paleontological resources as a result of modifications to the North Gila Substation.

Based on the existing topography and scarcity of previously discovered specimens in the Proposed Project area, a paleontological field survey would not provide additional knowledge unless extensive outcrops free of soil, slope wash, and vegetation could be identified. Paleontological monitoring would not necessarily result in the discovery of fossils unless there was a surface indication suggesting their presence. Construction personnel would be instructed on the protection of paleontological resources as identified in Western's standard construction practices (Table 2.1-3) and as part of the mandatory Environmental Awareness Training. The Applicants' Proposed Action would not result in the loss of, nor would it make inaccessible, an important paleontological resource; therefore, impacts to paleontological resources would be less than significant.

4.1.3.2 Route Alternative

Under the Route Alternative, the proposed transmission line would require three additional structures resulting in 2.7 additional acres of temporary disturbance and essentially the same amount of permanent disturbance compared to the Applicants' Proposed Action. The Proposed Project-related impacts would be essentially the same as those identified for the Applicants' Proposed Action, with the exception that the Route Alternative would not be located near any existing gravel and sand operations. Impacts would be less than significant.

4.1.3.3 230-kV Alternative

The 230-kV Alternative would require smaller, less massive structures; therefore, permanent soil disturbance would be less than what would be needed for 500-kV structures. The Applicants' Proposed Action route or Route Alternative constructed to 230-kV would require the same amount of temporary disturbance as previously identified. However, the cumulative total of permanent disturbance would be approximately 0.34 acres for either route with or without the additional structures required for the 69-kV underbuild because the area of disturbance for each monopole would be very small (0.0023 acres, i.e., 100 square feet). An average of 115 cubic yards of concrete would be used per 230-kV monopole, resulting in approximately 17,000 cubic yards of concrete for the 230-kV Alternative constructed with a 69-kV underbuild between Gila and North Gila substations. This estimate is conservative because the amount of concrete required for the intermediate 69-kV monopoles would be much less than what would be required for the 230-kV monopoles. The Proposed Project-related impacts would be essentially the same as those identified for the Applicants' Proposed Action or the Route Alternative, with the exception that structures would require less permanent disturbance, ground excavation, and concrete for footings compared with the 500-kV structures. Impacts would be less than significant.

4.1.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be issued, the interconnection request to Western's system would not be granted, and construction and operation of the Proposed Project in the United States would not occur. There would be no geological, soil, or paleontological resource impacts associated with the No Action Alternative.

4.1.4 Mitigation Measures

There would be no significant adverse impacts to geology, soils, or paleontology. There would be no significant adverse indirect impacts associated with seismicity. Therefore, no additional mitigation is considered necessary or proposed.

4.2 Water Resources

4.2.1 Methodology

The water resources analysis assessed impacts to surface water, groundwater, and water quality. The assessment included a review of existing water resources in the project area, with an evaluation of direct and indirect impacts from project construction and operation. The focus of the analysis was on those water bodies that have the potential to be impacted during construction and operation of the transmission system. Surface waters in the project area include the Gila River, the A Canal, the Gila Gravity Main Canal, Redondo Pond, and possibly ephemeral watercourses (see figure 3.4-1).

Western will “avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands” and “avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative” in compliance with Executive Order 11990, Protection of Wetlands. Western would consult the U.S. Army Corps of Engineers (USACE) prior to constructing the Proposed Project. Any impacts to Waters of the United States (WUS) or wetlands come under the jurisdiction of section 404 of the Clean Water Act (CWA). A jurisdictional wetlands delineation and WUS determination would be conducted prior to an application for a section 404 permit.

An inventory of groundwater wells located within the project area was obtained from the Arizona Department of Water Resources to identify the depth to groundwater in the Proposed Project corridor and to assess the potential impact of dewatering. This analysis also assessed the potential impacts to groundwater within the 5-Mile Zone Protective and Regulatory Pumping Unit (PRPU) as the Proposed Project-related activities outside the United States would use groundwater within the 5-Mile Zone established under Minute No. 242.

Impacts to water quality were assessed by identifying any potential effects from transmission and substation construction activities in the United States on surface and groundwater resources. The potential for any hazardous materials associated with the Proposed Project and alternatives to adversely impact water resources were determined. The criteria used to analyze the level of water quality impacts resulting from construction and operation of the Proposed Project involved comparisons of expected pollutant discharges with relevant Federal, State, and local water quality standards. If the Federal and State water quality standards were to be exceeded, a significant adverse impact would occur. Compliance with section 401 of the CWA would require the development of a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. The State of Arizona has jurisdictional authority for the National Pollutant Discharge Elimination System (NPDES) program under section 401.

Floodplains located in the project area were assessed using Federal Emergency Management Agency (FEMA) floodplain maps, soil reports, and available environmental documents. Any structures to be built within a floodplain were assessed for environmental consequences, including the potential for the structure to substantially alter normal drainage patterns and runoff. The “Notice of Intent to prepare an Environmental Impact Statement and to conduct public scoping meetings; notice of floodplains and wetland involvement” was published in the *Federal*

Register (71 FR 7033) on February 10, 2006. The determination of potential impacts is consistent with Executive Order 11988, Floodplain Management.

4.2.2 Significance Criteria

The impact analysis for water resources was based on the following significance criteria. Would the Proposed Project:

- Result in discharges of contaminants or significant quantities of sediment into waters or watercourses?
- Substantially deplete surface or groundwater resources?
- Substantially alter the normal flow of a water body?
- Substantially alter normal drainage patterns and runoff?
- Place structures within a 100-year flood hazard area that would impede or redirect flood flows?
- Violate any local, State, or Federal groundwater use regulations?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.2.3 Assessment of Impacts

As described in section 3.2, the ROI includes the area that could potentially be disturbed by Proposed Project construction, operation, and maintenance activities. Disturbance areas would include the ROW for access roads, portions of the ROW for the transmission lines, temporary equipment/material storage or staging areas, cable pulling/tensioning sites, and the substation expansion footprint.

4.2.3.1 Applicants' Proposed Action

The Proposed Project area is located in an arid region of low annual precipitation (less than 4 inches of precipitation annually) with relatively low associated runoff potential. Most of the rainfall events normally occur during the summer monsoon (July through September). These storm events can produce locally heavy rainfall of short duration. Construction activities normally create an increased potential for erosion and sediment discharge into nearby watercourses, especially during periods of heavy rainfall; however, the soils in the Proposed Project area are represented by either very sandy soils with low runoff potential, areas of development, or farmed agricultural areas, severely limiting the chance of flash flooding. Footings for transmission towers constructed in areas prone to flash flood events could be subject to scouring, resulting in structure failure; transmission structures would be placed to span such areas. To keep the structure heights as low as practicable and still have adequate ground clearance, structures would be placed on high points to the extent possible. However, if structures are to be located within or near a watercourse, a geotechnical engineer would be consulted regarding the design of structure footings. The Applicants' Proposed Action would not substantially alter normal drainage patterns or affect runoff rates because the Proposed

Project area does not typically experience runoff following a heavy rainfall due to the soils and geology of the area.

Prior to construction, the USACE would verify the geographic extent of the Proposed Project's CWA section 404 jurisdiction and determine whether the Proposed Project qualifies for a Nationwide Permit 12 or requires an individual permit. A screening-level map of WUS and an assessment of the potential scope and magnitude of impacts associated with construction and operation of the Proposed Project would be developed based on coordination with the USACE.

Western avoids placing transmission line structures in floodplains to the extent allowed by design and span lengths, as floods can wash out structure footings, affecting transmission reliability. The Gila River 100-year floodplain is approximately 0.25 mile wide where the existing transmission lines cross. The proposed structures would be placed to span the FEMA-defined Gila River 100-year floodplain; this span would be approximately 1,400 feet. Structures constructed near the 100-year floodplain would include additional concrete reinforcement around the footing to withstand potential flood flow-rates. The Applicants' Proposed Action would not place structures within a 100-year flood hazard area. There would be no impacts to 100-year floodplains.

The risk of impacts to surface waters from construction and operation of the Proposed Project would be greatest during construction and revegetation, but surface waters are limited to the Gila River and Redondo Pond in the Project Area. Proposed transmission line construction activities would not occur within the Gila River floodplain, because the Proposed Project would be designed to span the floodplain. If transmission would be consolidated and a 69-kV circuit would be underbuilt on the proposed transmission line, then removal of two existing 69-kV transmission line structures would result in a temporary minor disturbance of the Gila River floodplain; however, this would have no impact on the normal flow of the water body and would remove objects currently within the floodplain. The Applicants' Proposed Action would be located near the southwest portion of Redondo Pond; the proposed structures would be placed near locations of existing 69-kV transmission line structures that would be removed. Potential sources of erodible material during the construction phase include loose fill adjacent to canals and drainage features, disturbed earth from grading activities, and excavated and backfilled soils around tower structures. Temporary sedimentation associated with construction would be managed by erosion control measures stipulated in the SWPPP. Erosion would decrease to natural levels as the disturbed areas are reseeded and vegetation is reestablished. The Applicants' Proposed Action would not result in discharges of contaminants or sediment into water or watercourses or substantially alter the flow of a water body.

Due to the high groundwater levels in the Gila River Valley, casings would be used to drill and place structures. When a casing is used, the casing maintains the shape of the excavation and the water in the excavated area is displaced by concrete backfill. If required, dewatering during excavation for placement of transmission structure foundations would be temporary and would occur during construction of the specific transmission structures within areas of high groundwater. Water removed during dewatering is usually dispersed on the surrounding ground; it could also be stored in holding tanks or evaporation ponds or used for dust control. Groundwater levels would return to normal levels following placement of these structures. Any

dewatering would be localized, of short duration, and return the water to the ground; therefore, the Applicants' Proposed Action would not substantially deplete groundwater resources.

Minute No. 242 identifies pumping regulations within 5 miles of either side of the United States-Mexico border. Within the United States, the International Boundary and Water Commission (IBWC) is responsible for applying boundary and water treaties and settling related disputes along the border. The Mexican counterpart of the IBWC is the Comisión Internacional de Límites y Aguas (CILA); the Comisión Nacional del Agua (CNA, Mexican Secretary of Water) is the Mexican federal agency in charge of overall national water management. The Proposed Project has been developed under consultation with agencies in both the United States and Mexico. The Proposed Project-related power plant would be located in Mexico, within 5 miles of the international border. The proposed power plant would include a well that would pump 300 gallons per minute of groundwater within the 5-Mile Zone. The water would be used for potable uses and other plant uses requiring clean water; it would not be used for evaporative cooling. This water is already being pumped and used for irrigation, and would be converted from agricultural use to the power plant. Therefore, there would be no increase in groundwater pumping over the current level. The power plant would be bound by Minute No. 242 and use conditions from the IBWC. Water supply and quality in the area would be maintained in compliance with Minute No. 242. Compliance with this regulation ensures that the Proposed Project would not negatively impact the United States' or Mexico's water supply and would not violate international and congressional water rights requirements and regulations. Cooling water (estimated at 6,336 gallons per minute) for the proposed power plant would come from the San Luis Rio Colorado municipal wastewater treatment plant and, therefore, would not affect water resources within the United States. The Applicants' Proposed Action would not violate any local, State, or Federal groundwater use regulations.

Impacts to surface water, groundwater, and water quality would be less than significant.

4.2.3.2 Route Alternative

The Proposed Project-related impacts to surface water, groundwater, and water quality would be essentially the same as those described for the Applicants' Proposed Action. The difference would be that the Route Alternative would span the northern edge of Redondo Pond, whereas the Applicants' Proposed Action would be located adjacent to the southwest edge of Redondo Pond. Route Alternative impacts to surface water, groundwater, and water quality would be less than significant.

4.2.3.3 230-kV Alternative

The Proposed Project-related impacts to surface water, groundwater, and water quality would be essentially the same as those described for the Applicants' Proposed Action or Route Alternative and would be less than significant.

4.2.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be issued, the interconnection request to Western's system would not be granted, and construction and operation of the Proposed Project would not occur. There would be no surface water or water quality impacts associated with the No Action Alternative.

However, interconnection with an existing CFE substation within Mexico would allow the Proposed Project-related power plant to be constructed, maintained, and operated to deliver power to areas within Mexico. In this scenario, groundwater pumping within 5 miles of the international border would still occur as described above.

4.2.4 Mitigation Measures

There would be no significant adverse impacts to surface water, groundwater, and water quality. Therefore, no additional mitigation is considered necessary or proposed.

4.3 Air Quality

The impact analysis for air quality evaluated the impacts of the Proposed Project on air quality within the United States. Air impacts within the United States may be the result of air emissions produced during the construction, operation, and maintenance of the proposed transmission lines within the United States. The impact analysis also evaluated impacts in the United States that may result from operation of the Proposed Project-related power plant.

4.3.1 Methodology

This section describes the methodology for estimating emissions and determining impacts from the construction, operation, and maintenance of the proposed transmission line and the proposed power plant.

Transmission Line Construction Impacts

Construction activities associated with the transmission line would be concentrated around structure sites, temporary construction and maintenance pads, staging areas, pulling sites, and access roads along the proposed alignment. The majority of associated air emissions would be generated in the immediate vicinity of these locations.

Transmission line construction would involve several phases of activity from initial inspections and surveys to ROW restoration activities. Many of these activities may occur concurrently at various locations along the proposed alignment. These activities would include:

- Inspection and survey
- Construction equipment support (e.g., fuel trucks and maintenance)
- Materials yarding and hauling to ROW
- Access road clearing, grading, or upgrading (if necessary)
- Excavation and installation

- Structure assembly
- Conductor and ground wire stringing and tensioning
- ROW cleanup and restoration

Estimated construction emissions include tailpipe emissions of particulate matter less than 10 microns in diameter (PM₁₀), oxides of nitrogen (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and sulfur dioxide (SO₂), as well as fugitive dust emissions (as PM₁₀) from construction equipment traffic. Tailpipe emissions are based on data from EPA's AP-42 Volume II, Table II-7.1, which are, effectively, unregulated Tier 0 (pre-1996) emission factors; therefore, these emission estimates are conservative.

Fugitive dust (as PM₁₀) emissions were calculated using the equations and factors in EPA's AP-42 Volume I, Chapter 13.2.2 Unpaved Roads (EPA 2006b). These estimates assume that 20 miles of unpaved access roads would be used over the length of the transmission line. An emission control efficiency of 50 percent was applied to these estimates to account for road watering (emission estimates also included emissions generated by road watering trucks).

Transmission Line Operation and Maintenance Impacts

Air quality impacts from the transmission line operations and emissions from vehicle traffic related to periodic transmission line maintenance would not be significant and are not further discussed.

Power Plant Construction Impacts

Because of the power plant's location in Mexico, distance from the United States-Mexico border, and the limited duration of construction activities, air quality impacts within the United States from these activities are expected to be insignificant.

Power Plant Operation and Maintenance Impacts

Estimated criteria air pollutant emissions from the combined-cycle turbine stacks were modeled to determine impacts on the United States side of the international border. Impacts from other possible sources of emissions at the power plant site, including cooling towers and emergency generators, are considered insignificant.

Emissions

Emissions of PM₁₀, SO₂, NO_x, and CO and from the power plant were estimated at 100-percent load and above the range of ambient temperatures from 50°F to 104°F. This analysis is a conservative approach because the proposed power plant would create fewer emissions at temperatures above 104°F due to operational limits at higher temperatures. Dispersion modeling (as described below) of emissions generated at 104°F was analyzed for temperatures up to 122°F. The results of this analysis are conservative because the actual air emissions at 122°F would be lower than those modeled. Emission estimates assumed continuous operation, as well as startup and shutdown events.

Impact Assessment

The American Meteorological Society/EPA Regulatory Model (AERMOD, version 04300) was used for the impact analyses. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with stack emission sources situated in terrain where ground-level elevations can exceed the stack heights of the emission sources. This model also offers an advanced dispersion technique that incorporates state-of-the-art boundary layer parameterization techniques, convective dispersion, plume rise formulations, and complex terrain/plume interactions.

Dispersion Model Setup

AERMOD was set up in the regulatory default mode that includes the following adjustments:

- Stack-tip downwash
- Model accounts for elevated terrain effects
- Use calms processing routine
- Use missing data processing routine
- "Upper Bound" values for supersquat buildings
- No exponential decay

Based on the land use classification procedure of Auer (1978), land use in the area surrounding the Proposed Project site that would influence pollutant dispersal is more than 50 percent rural. Therefore, rural dispersion coefficients were assigned.

The calm processing option allows the user to direct the program to exclude hours with persistent calm winds in the calculation of concentrations for each averaging period. This option is generally recommended by EPA Modeling Guidelines for regulatory applications. The AERMOD model recognizes a calm wind condition as a wind speed of 0 meters per second (if ASCII data are input) and a wind direction equal to that of the previous hour. The calm processing option excludes these hours from the calculation of concentrations for the various averaging periods.

Building Downwash

The dispersion modeling also calculates the building wake effects (downwash) caused by the heat recovery steam generator and combustion turbine structures.

Receptor Grid

Grids of model receptors that extended east from the California border to the east side of Range 22 West were placed according to the criteria shown below:

- 250-meter (820-foot) spacing from the United States-Mexico border to the edge of the Yuma non-attainment boundary
- 500-meter (1,640-foot) spacing from the edge of the Yuma non-attainment boundary up to a east-west line that passes through Somerton

Receptor and terrain data were generated using U.S. Geological Survey (USGS) Digital Elevation Model data and the AERMOD Terrain Preprocessor, AERMAP (version 03107).

Meteorological Data Selection

1990 through 1994 surface and upper air data were used for the dispersion modeling. Variability of meteorological data was accounted for by using multiple years of collected data. These data include Hourly United States Weather Observations (HUSWO) surface data for Phoenix, Arizona (Station 23183), and Radiosonde Observation (RAOB) upper air data for Tucson, Arizona (Station 23160). These data sets were chosen because there is no suitable data available for the Yuma area.

Meteorological Data Processing

Surface and upper air data were processed with AERMET (version 02222), a meteorological data preprocessor for AERMOD. Atmospheric stability parameters and temperature and wind profiles for each hour of data were calculated as part of this processing.

4.3.2 Significance Criteria

The impact analysis for air quality was based on the following significance criteria. Would the Proposed Project:

- Result in a significant increase (as defined in 40 CFR 51.165) of any criteria pollutant for which the project region is in non-attainment under an applicable local, State, or Federal ambient air quality standard?
- Potentially contribute to a violation of an ambient air quality standard for any criteria pollutant for which the project region is in attainment under an applicable local, State, or Federal ambient air quality standard?
- Violate any air quality standard or air quality related value (AQRV) guideline at any federal Class I area?
- Indirectly result in violation to any local, State, or Federal air quality standard due to increased fugitive dust emissions?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.3.3 Assessment of Impacts

4.3.3.1 Applicants' Proposed Action

Power Plant

Both of the combined-cycle combustion turbines were included in the air dispersion modeling. The modeling evaluated the effects of building downwash, continuous operation, and startup and

shutdown events. The sources were modeled at 100-percent load and over the range of ambient temperatures from 50°F to 104°F. Startup and shutdown emissions were also included and were assumed based on data from similar power plant projects. The assumed schedules for the startup and shutdown events are presented in table 4.3-1.

Impacts from other possible sources of emissions at the power plant site, including cooling towers and emergency generators, are considered insignificant because the dispersal of these emissions would result in negligible ambient concentrations prior to reaching the United States border.

Table 4.3-1. Combustion Turbine Startup and Shutdown Schedules

Averaging Period (hours)	Cold Starts (downtime > 48 hours)	Warm Starts (downtime > 8 hours and < 48 hours)	Hot Starts (downtime < 8 hours)	Interval Between Cold Starts (hours)	Interval Between Warm Starts (hours)	Interval Between Hot Starts (hours)
1	0	0	1	0	0	0
3	0	0	1	0	0	0
8	1	0	1	0	0	0
24	1	0	5	0	0	0
8760	20	100	200	48	8	0

Tables 4.3-2 and 4.3-3 show the results of the dispersion modeling for the combustion turbines – the predominant emission sources at the power plant. Prior to reaching the United States, additional dispersion of the air pollutants occurs because of the distance between the Proposed Project and the U.S. border. In addition, the prevailing winds in the dispersion modeling meteorological data are from the east and west. Thus, the resulting ambient impacts in the United States are low relative to the AAAQS and PSD increment; therefore impacts to air quality in the Yuma area would be less than significant.

Table 4.3-2. AAAQS Impact Analysis

Pollutant	Averaging Period	Background (µg/m³)	Estimated Maximum Concentration (µg/m³)	Max Concentration with Background (µg/m³)	AAAQS (µg/m³)	Impact Relative to AAAQS
NO ₂	Annual	4	0.1	4.1	100	4.1%
CO	1 hr	582	184.2	766.2	40000	1.9%
	8 hr	582	25.8	607.8	10000	6.1%
PM ₁₀	24 hr	114	0.3	114.3	150	76.2%
	Annual	39	0.1	39.1	50	78.1%
SO ₂	3 hr	246	0.6	246.6	1300	19.0%
	24 hr	45	0.2	45.2	365	12.4%
	Annual	6	0.0	6.0	80	7.5%

Table 4.3-3. PSD Increment Consumption Analysis

Pollutant	Averaging Period	Estimated Maximum Concentration ($\mu\text{g}/\text{m}^3$)	Class II Increment ($\mu\text{g}/\text{m}^3$)	Impact Relative to Class II Increment
NO ₂	Annual	0.1	25	0.3%
	24 hr	0.3	30	1.0%
PM ₁₀	Annual	0.1	17	0.3%
	3 hr	0.6	512	0.1%
SO ₂	24 hr	0.2	91	0.2%

The results of the dispersion modeling show that potential maximum impacts (tables 4.3-2 and 4.3-3) would be below ambient air quality standards and increment standards. Most of the modeled values are well below the standards; therefore, the Proposed Project would not result in a violation of the AAAQS. Estimated maximum PM₁₀ impacts are close to the AAAQS because background concentration levels are close to the AAAQS; the estimated contribution from the proposed power plant would add 0.2 percent to the impact relative to the AAAQS. Portions of Yuma County are in non-attainment for PM₁₀; however, Proposed Project emissions would not result in a significant increase of PM₁₀. The nearest Class I area is the Joshua Tree National Park, located 103.7 miles northwest of the Proposed Project power plant. The proposed power plant would not violate air quality standards at the Joshua Tree National Park. Hazardous air pollutant (HAP) (section 3.3) concentrations are anticipated to be below the level of concern at the proposed power plant site boundary, which is approximately 1 mile away from the United States border. Impacts from the proposed power plant would be less than significant.

Transmission Line

Fugitive dust from transmission line construction activities and tailpipe emissions from both gasoline-powered and diesel-fired construction equipment would be generated during construction and maintenance of the proposed transmission line. These impacts would be temporary and would occur at various locations along the ROW during construction or maintenance activities. These impacts would not affect long-term air quality. Table 4.3-4 presents estimated emissions for the proposed transmission line construction.

Table 4.3-4. Proposed Transmission Line Construction, Estimated Emissions

Phase	Emissions (ton/yr)						
	NO _x	VOC	CO	SO ₂	PM ₁₀		
					Point	Fugitive	Total
Inspection and survey	6.46	0.29	1.81	0.70	0.40	9.75	10.15
Equipment support	5.37	0.24	1.50	0.58	0.33	5.54	5.87
Materials yarding and hauling to ROW	0.69	0.08	0.20	0.06	0.05	0.01	0.06
Access road grading	1.70	0.14	0.44	0.19	0.15	0.00	0.15
Excavation and installation	5.29	0.34	1.45	0.56	0.36	2.39	2.75
Structure assembly	5.96	0.54	1.57	0.59	0.42	0.16	0.58
Conductor/ground wire stringing/tensioning	16.89	1.34	4.57	1.78	1.24	0.59	1.84
ROW restoration	1.30	0.10	0.33	0.15	0.11	0.01	0.12
Total	43.66	3.07	11.87	4.61	3.06	18.45	21.52

Western would implement its standard construction practices identified in table 2.1-1 and implement measures identified in section 2.1.1.9 to mitigate further the generation of fugitive dust and emissions that would be produced during construction activities.

General Conformity Review

Section 176(c) of the Clean Air Act (CAA) requires that Federal actions conform to the appropriate State Implementation Program (SIP). The final rule for “Determining Conformity of Federal Actions to State or Federal Implementation Plans” was promulgated by the EPA on November 30, 1993 (58 FR 63214) and took effect on January 31, 1994 (40 CFR Parts 6, 51, and 93). This “General Conformity” rule established the conformity criteria and procedures necessary to ensure that Federal actions conform to the SIP and meet the provisions of the CAA. In general, this rule ensures that all criteria air pollutant emissions and VOC are specifically identified and accounted for in the SIP’s attainment or maintenance demonstration and conform to a SIP’s purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. If the action were undertaken in a federally classified non-attainment or maintenance area, the provisions of the final rule for conformity would apply. The State of Arizona implements the provisions of the CAA; this rule was adopted on July 1, 1994, as R18-2-1438, General Conformity for Federal Actions.

The section of the proposed transmission line that is north of Township 11 South would be within the Yuma PM₁₀ non-attainment area, and thus the provisions of this rule would apply for this air pollutant. However, actions are exempted when the totals of direct and indirect emissions are below specified emissions levels [40 CFR §51.853(b)1]. The applicable level is 100 tons per year for PM₁₀ in a moderate non-attainment area. PM₁₀ emission from the operation of the transmission line would be related to periodic maintenance and inspection activities and would be negligible. PM₁₀ emissions from transmission line construction are estimated to be 22 tons during the 12 months of construction, which is less than the general conformity applicability level of 100 tons per year (ton/yr).

The provisions of the general conformity rule would also apply if the non-attainment area emissions from the transmission line construction were greater than 10 percent of this area’s total emissions [40 CFR §51.853(i)]. PM₁₀ total emissions for the year 2001 for Yuma County were estimated to be 11,318 tons/yr (EPA 2006c); the estimated transmission line construction PM₁₀ emissions would be 0.2 percent of total emissions for Yuma County. Thus, pursuant to the provisions of 40 CFR §51.853(b)(1) and 40 CFR §51.853(i), the Proposed Project is exempt from any further review for conformity determination for PM₁₀ emissions.

Emissions within the Yuma PM₁₀ non-attainment area would be below 100 tons per year and less than 10 percent of the area’s total emissions, thus there would be no conformity issues; therefore, impacts associated with construction of the transmission line would be less than significant.

Substation Modifications

Modifications at Gila Substation would require the leveling, filling and grading of a 20-acre parcel and use of diesel-fired equipment during construction. Fugitive dust and tailpipe

emissions would be generated during construction; however, these impacts would be minimized by compliance with Western's standard construction practices (table 2.3-1). These impacts would be temporary (i.e., would occur during a portion of the 12-month construction period) and would not affect long-term air quality. Modifications to North Gila Substation would occur within the existing substation boundary, which is already graded with a gravel surface. Substation modifications would have a less than significant impact on air quality.

4.3.3.2 Route Alternative

The Proposed Project-related impacts would be essentially the same as those identified for the Applicants' Proposed Action. Impacts would be less than significant.

4.3.3.3 230-kV Alternative

The Proposed Project-related impacts would be essentially the same as those identified for the Applicants' Proposed Action. Impacts would be less than significant.

4.3.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be issued, the interconnection request to Western's system would not be granted, and construction, operation, and maintenance of the Proposed Project in the United States would not occur. However, the construction and operation of interconnection transmission lines to a CFE substation within Mexico would allow the proposed power plant to be constructed, maintained, and operated to deliver power to areas within Mexico. In this scenario, no new transmission lines would be constructed within the United States; however, impacts to the United States from the operation of the proposed power plant could be similar to those described above if the power plant were constructed to serve Mexico loads. This scenario is not subject to United States regulation because all of the project-related activities would occur within Mexico.

4.3.4 Mitigation Measures

There would be no significant adverse impacts to air quality; therefore, no additional mitigation is considered necessary or proposed.

4.4 Biological Resources

Impacts to biological resources were assessed based on the types of habitat that would be traversed by the Proposed Project components, the amount of disturbance expected to occur within each habitat type relative to the total amount of that habitat type within the local area (the area within 3 miles of the Proposed Project components, which was identified to provide context for the area within the ROI described below), the seasonal timing of construction activities, and mitigation measures incorporated into the Proposed Project aimed at lessening disturbance. Discussion of biological resources is separated into three sections: vegetation, wildlife, and special status species (which include species listed or proposed for listing as Endangered or

Threatened under the Federal Endangered Species Act, species considered Sensitive by the BLM, and Wildlife Species of Concern in the State of Arizona).

The ROI for assessing direct and indirect impacts to vegetation is the area that would be directly disturbed by construction, operation, and maintenance of the Proposed Project. Vegetation would be affected only in the immediate area of disturbance. The ROI for assessing impacts to wildlife extends 0.5 mile beyond the areas of construction, operation, and maintenance because some wildlife species could be affected within this larger area.

4.4.1 Vegetation

4.4.1.1 Methodology

The impact analysis for vegetation resources evaluated effects on plant communities and specific plant species. This analysis considered species protections as identified by the Arizona Native Plant Law. This analysis also considered the potential for the expansion of noxious weeds into areas disturbed by Proposed Project activities. Disturbance areas include the ROW for access roads, portions of the ROW for the transmission lines, temporary equipment/material storage or lay-down areas, the substation expansion footprint, and the footprint of transmission line support structures.

4.4.1.2 Significance Criteria

The impact analysis for vegetation was based on the following significance criteria. Would the Proposed Project:

- Result in a long-term loss of habitat causing the listing of or jeopardizing the continued existence of a plant or animal species?
- Result in the long-term loss of riparian vegetation?
- Result in uncontrolled expansion of noxious weeds (Presidential Executive Order 13112 – Invasive Weed Species)?
- Result in the violation of the Arizona Native Plant Law?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.4.1.3 Assessment of Impacts

Vegetation impacts by land cover class (figures 3.4.1 through 3.4.3) were calculated for all Proposed Project components. Specific impacts to vegetation resources are addressed for each of the Proposed Project alternatives below.

4.4.1.3.1 Applicants' Proposed Action

The Applicant's Proposed Action would cross or be adjacent to 17.7 miles of Creosotebush – White Bursage Shrublands, 7.2 miles of Agriculture, 2.9 miles of Development, and 0.4 miles of

Sonoran Riparian Scrub land cover classes and would not cross or be adjacent to Low-density Development. These totals do not add to the length of the proposed route because portions of the route are on the boundary of two land cover classes. Calculation of permanent disturbance within each land cover class is based on these numbers and the assumption that a 69-kV circuit would be underbuilt on the proposed structures requiring additional structures between Gila and North Gila substations; therefore, the following amounts may identify a greater area of disturbance than what would actually occur. Permanent disturbance resulting from the placement of support structures would occur in Creosotebush – White Bursage Shrublands (0.47 acres) and Development (0.08 acres); Sonoran Riparian Scrub and Agriculture areas are discussed below.

Within Creosotebush – White Bursage Shrublands, 8.3 miles of the Applicants' Proposed Action route would be located within an existing transmission corridor. The remaining 9.4 miles of the Applicants' Proposed Action route would require new access roads. Where possible, access would be by overland travel and no road would be bladed. Large shrubs would be avoided to the extent practical, but some shrubs would need to be removed. Plant species likely to be removed include creosotebush, white-bursage, narrow-leaf bursage, brittlebush, and big galleta grass. Gila Substation modifications would permanently disturb 20 acres of Creosotebush – White Bursage Shrublands; however, much of this area has been previously disturbed by use as a spoil bank for materials from dredging the local canal network.

No permanent impacts would occur to vegetation within the Sonoran Riparian Scrub because this area would be spanned by the transmission line, and no structures would be placed within this cover class. In the event that Western consolidates transmission lines crossing the Gila River, two existing structures within riparian vegetation may be permanently removed. Approximately 0.2 acres (400 feet by 25 feet) of riparian vegetation would be disturbed during the process of structure removal. The zone of disturbance is within the upper elevations of the floodplain, and dominant species include saltcedar, quail bush, and arrow-weed. Prior to disturbance, field surveys would be conducted to identify any BLM sensitive species or species protected under the Arizona Native Plant Law present within the disturbance zone. Riparian areas revegetate rapidly and these effects would be limited in duration to the time that would be required to construct the river crossing. The benefits of removing existing structures from Sonoran Riparian Scrub would include reducing the risk of high water flows affecting the existing and proposed transmission lines. The presence of the existing structures does not constitute a restriction to flood flows. Construction of the Applicants' Proposed Action would not result in the long-term loss of Sonoran Riparian Scrub.

Agriculture areas adjacent to or crossed by the Applicants' Proposed Action are supported by center-pivot irrigation systems (approximately 2.5 miles) and row-irrigation (approximately 4.5 miles). Approximately 13 structures would be located adjacent to the center-pivot areas. These structures would be placed in areas outside of the irrigated circles and next to an existing road (Avenue 4E). As such, the permanent disturbance near center-pivot agricultural lands would be minimal and not occur within the fields. Approximately 32 structures would be placed within the row-irrigated areas, 9 structures would be located between County 12th and County 14th and 23 structures would be located between Gila and North Gila substations. These structures would

result in the permanent disturbance of a cumulative total of 0.16 acres of agricultural land, a portion of which would be offset by the removal of existing 69-kV H-frame structures.

Whenever surface soils are disturbed, there is the potential for the colonization of new species. Disturbed areas that are adjacent to agricultural areas would pose the greatest risk for colonization of noxious weeds, as these areas are likely to receive more water, increasing germination success of all species. Patches of soil disturbance related to constructing this route would be small in size and widely spaced. This dispersed pattern across the landscape would limit the extent to which an individual colonizer in a given disturbed patch would be able to spread locally. To further assist in the prevention of the spread of noxious weeds, disturbed areas would be reseeded with native species and dirt clumps on construction vehicles would be removed prior to transporting them to the construction site to minimize transport of seeds. The disturbed sites would also be monitored during recolonization, and any colonizing noxious weeds would be actively controlled with mechanical removal as needed. Construction of the Applicants' Proposed Action would not result in the uncontrolled expansion of noxious weeds.

During a field visit on March 29, 2006, small mesquite and ironwood were identified within the Proposed Project area; however, no ironwood, cacti, or other species protected under the Arizona Native Plant Law were identified within the ROW of this alternative. Prior to disturbance, field surveys would be conducted to identify any BLM sensitive species or species protected under the Arizona Native Plant Law present within the construction area and appropriate actions would be taken to avoid adverse impacts on the species. This option would not result in the uncontrolled expansion of noxious weeds, and would not violate the Arizona Native Plant Law. There would be some disturbance to vegetation resources, but the extent of this disturbance would be a small fraction of the total area of similar resources within 3 miles of the Proposed Project components. Construction of the Applicants' Proposed Action would not result in a long-term loss of habitat causing the listing or jeopardizing the continued existence of a plant species or the long-term loss of riparian vegetation. The Applicants' Proposed Action would have a less than significant impact on vegetation.

4.4.1.3.2 *Route Alternative*

As compared to the Applicants' Proposed Action, the Route Alternative would cross or be adjacent to less agricultural land (6.5 miles) and a similar amount of Creosotebush – White Bursage Shrublands (17.3 miles), Development (2.9 miles), Sonoran Riparian Scrub (0.71 miles), Agriculture (7.5 miles), and Low-density Development (0.25 miles). However, the degree of disturbance within Creosotebush – White Bursage Shrublands would be lower than that for the Applicants' Proposed Action because the Route Alternative would use 2.6 miles more of existing improved road for access. The Route Alternative would also impact less Development, as it would run adjacent to and not cross the developed area near North Gila Substation. Impacts to Low-density Development and Sonoran Riparian Scrub land cover classes would be similar to those discussed for the Applicants' Proposed Action because the two alternatives are co-located in these areas. Permanent disturbance resulting from the placement of support structures would occur in Creosotebush – White Bursage Shrublands (0.46 acres), Development (0.08 acres), and Low-density Development (0.01 acres); Sonoran Riparian Scrub

and Agriculture areas are discussed below. Gila Substation modifications would be the same as the Applicants' Proposed Action.

Within Creosotebush – White Bursage Shrublands, approximately 6.8 miles of the Route Alternative would use existing transmission corridors and roads. The remaining 8.8 miles, within Creosotebush – White Bursage Shrublands, would require new access. Where possible, access would be by overland travel and no road would be bladed. Large shrubs would be avoided to the extent practical, but some shrubs would need to be removed. Plant species likely to be removed include creosotebush, white-bursage, narrow-leaf bursage, brittlebush, and big galleta grass. Gila Substation modifications would permanently disturb 20 acres of Creosotebush – White Bursage Shrublands; however, much of this area has been previously disturbed by use as a spoil bank for materials from dredging the local canal network.

Impacts to the Sonoran Riparian Scrub would be similar to the Applicants' Proposed Action, because the Route Alternative would cross the Gila River in the same location as the Applicants' Proposed Action. Near Redondo Pond, the Route Alternative would cross an area containing saltcedar that was mapped as riparian vegetation. This habitat has been highly disturbed by recreational use and does not support wildlife species typically found within southwestern Sonoran Riparian Scrub. Disturbance near Redondo Pond caused by the Route Alternative would not result in a loss of riparian habitat because vegetation is primarily sparse and the more dense vegetation near the pond would be spanned. The construction of the Route Alternative would not result in the long-term loss of riparian vegetation.

The Route Alternative would cross between or be adjacent to Agriculture lands supported by center-pivot irrigation systems (approximately 2.9 miles) and row-irrigation (approximately 4.6 miles). Approximately 10 structures would be located between and five structures would be located adjacent to the center-pivot areas. These structures would be placed in areas outside of the irrigated circles and next to an existing road (Avenue 3E) that would be used for access. As such, the permanent disturbance near center-pivot agricultural lands would be minimal and not occur within the fields. Approximately 23 structures would be placed within the row-irrigated areas between Gila and North Gila substations. These structures would result in the permanent disturbance of a cumulative total of 0.11 acres of agricultural land, a portion of which would be offset by the removal of existing 69-kV H-frame structures. Permanent disturbance would be minimal because access would be provided by the service road for the existing transmission line.

The potential for expansion of noxious weeds would be similar to that of the Applicants' Proposed Action, because construction activities associated with the Route Alternative would be similar to those for the Applicants' Proposed Action. The construction of the Route Alternative would not result in the uncontrolled expansion of noxious weeds. As noted above, during a field visit on March 29, 2006, small mesquite and ironwood were identified within the Proposed Project area; however, no ironwood, cacti, or other species protected under the Arizona Native Plant Law were identified within the ROW of this alternative. Prior to disturbance, field surveys would be conducted to identify any BLM sensitive species or species protected under the Arizona Native Plant Law present within the construction area and appropriate actions would be taken to avoid adverse impacts on the species. This option would not violate the Arizona Native Plant Law.

There would be some disturbance to vegetation resources, but the extent of this disturbance would be a small fraction of the total area of similar resources within 3 miles of the Proposed Project components. Overall, the construction of the Route Alternative would have lower impacts on vegetation resources compared to the Applicant's Proposed Action because the Route Alternative would require a similar number of structures, but fewer new access roads. Construction of the Route Alternative would not result in a long-term loss of habitat causing the listing of, or jeopardizing the continued existence of, a plant species or the long-term loss of riparian vegetation.

4.4.1.3.3 *230-kV Alternative*

Span distance between structures for the 230-kV Alternative would be the same as that of the 500-kV option; however, the structures would be smaller, less massive, and require less permanent surface disturbance. Permanent disturbance resulting from the placement of 230-kV support structures on the Applicants' Proposed Action route would occur in Creosotebush – White Bursage Shrublands (0.21 acres) and Development (0.03 acres); Sonoran Riparian Scrub and Agriculture areas are discussed below. Permanent disturbance resulting from the placement of 230-kV support structures on the Route Alternative would occur in Creosotebush – White Bursage Shrublands (0.21 acres), Development (0.03 acres), and Low-density Development (0.001 acres); Sonoran Riparian Scrub and Agriculture areas are discussed below. Gila Substation modifications would occur on the full 20-acre parcel, the same as the Applicants' Proposed Action.

Impacts to Sonoran Riparian Scrub would be the same as described for either of the route alternatives. Within center-pivot irrigation areas, structures would also be placed outside of the irrigated circles to avoid impacts. The number of structures that would be placed within row-irrigated areas would be similar to the route chosen, as described above. These structures would result in the permanent disturbance of 0.05 acres of agricultural land, a portion of which would be offset by removing existing 69-kV H-frame structures.

Vegetation impacts would be reduced from those discussed above for the proposed routes constructed to 500-kV standards because the 230-kV structures would have a smaller footprint of disturbance.

Construction of a double-circuit 230-kV transmission line along either of the proposed routes would not result in a long-term loss of habitat causing the listing or jeopardizing the continued existence of a plant species or the long-term loss of riparian vegetation. This option would not result in the uncontrolled expansion of noxious weeds, and would not violate the Arizona Native Plant Law. There would be some disturbance to vegetation resources, but the extent of this disturbance would be a small fraction of the total area of similar resources in the immediate Proposed Project area. This option would have a less than significant impact on vegetation.

4.4.1.3.4 *No Action*

Under the No Action Alternative, the Proposed Project would not be constructed, and there would be no disturbance to vegetation resources. The potential benefits of removing existing

structures from the Gila River floodplain would not be realized. The No Action Alternative would have no impact on vegetation.

4.4.1.4 Mitigation Measures

There would be no significant adverse impacts to vegetation. Therefore, no additional mitigation is considered necessary or proposed.

4.4.2 Wildlife

4.4.2.1 Methodology

The impact analysis for wildlife resources evaluated effects on general wildlife communities common within the Proposed Project area. This analysis considered the impact of habitat loss resulting from Proposed Project associated activities and impacts that may result from the presence, operation, and maintenance of Proposed Project components. The ROI for wildlife includes all land within 0.5 miles of Proposed Project components because potential impacts can occur to wildlife beyond areas of actual ground disturbance.

4.4.2.2 Significance Criterion

The impact analysis for wildlife was based on the following significance criterion. Would the Proposed Project:

- Affect the biological viability of a local, regional, or national population of wildlife species?

Thresholds of significance were determined by evaluating the expected impacts against the significance criterion for each of the alternatives.

4.4.2.3 Assessment of Impacts

The Proposed Project could result in short-term effects (i.e., lasting during the period of construction or maintenance) on wildlife due to displacement associated with construction and maintenance of Proposed Project facilities and long-term effects (i.e., lasting the life of the Proposed Project or longer) resulting from loss of habitat at permanent facilities. Direct mortality to individuals of a species could also result from construction activities and habitat removal during construction of the proposed transmission lines and substation modifications.

Burrowing animals, such as reptiles, small mammals, and insects, could be lost if their burrows were destroyed by construction activities and they were present in the burrows at the time of construction. Mortality risk to birds could also increase, especially if construction were to take place during the nesting season. However, timing construction to avoid the nesting season would minimize this impact. Eggs and nestlings would be vulnerable to mortality from removal of vegetation and from operation of construction and maintenance equipment. Abandonment of nests due to disturbance would also increase mortality to nestlings.

Wildlife such as small mammals, birds, and coyotes could also be displaced during construction from noise, vehicles, and high levels of human activity. Displaced animals can be stressed because adjacent habitats are usually fully occupied and cannot readily accommodate increased population densities. It is anticipated that most displaced wildlife species would return to remaining suitable habitats following construction.

The minimal losses of wildlife that could result from direct mortality from construction activities or temporary displacement during construction activities would be insignificant in a regional context. Viability of a local, regional, or national population would not be threatened, and there would be no measurable long-term effect on population numbers or distribution over a species' range of occurrence.

4.4.2.3.1 *Applicants' Proposed Action*

Construction of the Applicants' Proposed Action would temporarily disturb approximately 80.1 acres of creosotebush habitat and permanently remove less than 0.47 acres of habitat for placement of transmission support structures. Construction activities could temporarily displace birds and other wildlife, especially larger mammals, from the vicinity of construction sites during periods of activity. The displaced animals would likely return to the area after the temporary construction disturbance. Gila Substations modifications would permanently disturb 20 acres of creosotebush habitat, but most of this area is previously disturbed. These impacts would be a small loss compared to the surrounding available areas and would not affect the biological viability of local, regional, or national populations. Construction of the Applicants' Proposed Action would have a less than significant impact on wildlife.

Operation of the transmission line could pose a mortality risk to birds from collisions with the conductors and overhead ground wires, especially at the Gila River crossing. Birds could collide with transmission lines during periods of poor visibility, panic flushes, or during migration. The crossing of the Gila River poses the greatest mortality risk to birds because large numbers of birds feed, breed, and fly along the river.

Mitigation measures that would be incorporated into the Proposed Project design to reduce potential collision mortality include attaching state-of-the-art marking devices to overhead ground wires at the Gila River crossing (section 2.1.1.1). No structures are anticipated to require lights for aircraft avoidance, which have been associated with nighttime collisions by birds. In addition, if some of the existing transmission lines crossing the Gila River are consolidated with the proposed transmission line, the total number of wires crossing the river would be similar, but the new transmission line would be vertical, double-circuit and higher allowing more clearance for lower flying birds. Anticipated mortality levels are not expected to result in long-term loss of population viability for any species.

Bird electrocution would not occur with the proposed transmission line because the spacing between conductors and from conductor to the structure would be greater than the guidelines outlined in the *Avian Protection Plan Guidelines* (Avian Power Line Interaction Committee [APLIC] and USFWS 2005), which recommends a horizontal separation of 60 inches and a vertical separation of 48 inches for standard raptor protection. With proposed mitigation

measures to reduce bird mortality, impacts from the transmission line would not affect the biological viability of local, regional, or national populations of bird species. Transmission line construction along the Applicant's Proposed Route would have less than significant impacts on birds with mitigation incorporated.

4.4.2.3.2 *Route Alternative*

In general, impacts associated with the Route Alternative would be similar to those described for the Applicants' Proposed Action. However, there are differences with regard to sensitive species, which are discussed below (section 4.4.3).

4.4.2.3.3 *230-kV Alternative*

Span distance between structures for the 230-kV Alternative would be the same as those of the 500-kV option; however, the structures would be shorter, less massive, and result in less permanent ground disturbance. Although the 230-kV would be shorter and less massive than the 500-kV option, the proposed 230-kV structures would be larger than the existing structures at the Gila River crossing and would allow more clearance for lower flying birds. The 230-kV Alternative would result in the same amount of temporary disturbance and 0.21 acres of permanent disturbance, compared to 0.47 acres for the Applicants' Proposed Action route and 2.2 acres for the Route Alternative constructed to 500-kV standards. Gila Substation modifications would permanently disturb 20 acres of creosotebush habitat, the same as the route alternatives. Therefore, wildlife impacts would be somewhat less than those discussed above for the proposed route alternatives.

Construction of a 230-kV transmission line along either of the route options would not affect the biological viability of local, regional, or national populations of wildlife. The 230-kV Alternative would have a less than significant impact on wildlife with mitigation incorporated.

4.4.2.3.4 *No Action*

Under the No Action Alternative, the Proposed Project would not be constructed, and there would be no disturbance to wildlife resources. The potential benefits of removing existing structures from the Gila River floodplain would not be realized. The No Action Alternative would have no impact on wildlife.

4.4.2.4 Mitigation Measures

There would be no significant adverse impacts to wildlife species; therefore, no additional mitigation is considered necessary or proposed.

4.4.3 Special Status Species

4.4.3.1 Methodology

The impact analysis for special status species evaluated the potential for the Proposed Project to affect species protected under State or Federal law. This analysis is similar to the analysis for general wildlife in terms of extent, with the ROI extending 0.5 miles from any Proposed Project components. Discussion focuses on each individual sensitive species that could occur within the Proposed Project area. Section 7 consultation will be completed prior to construction. The following analysis is a preliminary assessment and is pending USFWS determination.

4.4.3.2 Significance Criteria

The impact analysis for special-status species was based on the following significance criteria.

Would the Proposed Project:

- Violate any local, State, or Federal law or statute pertaining to protected species?
- Affect the continued existence of a local, regional, or national population of protected species?
- Affect nesting or brooding periods of any listed species?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.4.3.3 Assessment of Impacts

Impacts were assessed for each special status species potentially occurring within the Proposed Project area.

4.4.3.3.1 *Applicants' Proposed Action*

Special Status Plant Species

Blue sand lily (BLM Sensitive, Native Plant Law Salvage Restricted), dune sunflower (USFWS Species of Concern), sand food (BLM Sensitive, Native Plant Law Highly Safeguarded), and Schott wire-lettuce (BLM Sensitive) all occur on areas of sandy wind-blown deposits. Blue sand lily and dune sunflower have both been recorded within 3 miles of the Applicants' Proposed Action. Prior to disturbance, field surveys would be conducted to identify any BLM sensitive species or species protected under the Arizona Native Plant Law present within the construction area and appropriate actions would be taken to avoid adverse impacts on the species. The results of these surveys would be used to avoid populations of special status plant species or identify individuals for transplant in accordance with the Arizona Native Plant Law. Surveys would be performed at times of the year when these species are most easily detected, which is typically when the plants are in bloom thereby making them easier to accurately identify. The avoidance or relocation of these species would reduce impacts to insignificant levels. Constructing this

alternative would not violate any local, State, or Federal law or statute pertaining to protected plants or affect the continued existence of a local, regional, or national population of protected plant species. The Applicants' Proposed Action would have less than significant impact on special status plants.

Bald Eagle (Threatened, proposed for delisting)

The bald eagle is not likely to occur in the Proposed Project area based on a lack of suitable habitat and absence of observations. Any eagles that may happen to be in the area during construction would temporarily disperse to other areas until activities levels subsided. This temporary disturbance would have minimal impact. Some power lines present a risk of electrocution for large birds whose wingspan can bridge the distance between live wires and grounded structures. The Proposed Project would be constructed such that the spacing between conductors and from conductor to the structure would be greater than the guidelines outlined by APLIC for standard raptor protection (i.e., a horizontal separation of 60 inches and a vertical separation of 48 inches). Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have a less than significant impact on the bald eagle.

Cactus Ferruginous Pygmy Owl (Delisted, State of Arizona Wildlife of Special Concern)

Any suitable habitat for this species within the Proposed Project area is of low to marginal quality. The closest known populations are a considerable distance (more than 50 miles) from the Applicants' Proposed Action. This species requires the presence of pre-existing cavities in trees and cacti for nesting. No saguaros are present in the Proposed Project area and suitable sized mesquite or ironwood are widely dispersed and occur in very low density. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have no impact on the cactus ferruginous pygmy owl.

California Black Rail (BLM Sensitive, State of Arizona Wildlife of Special Concern)

There is no suitable habitat for this species near the Gila River crossing point. The Proposed Project would not disturb any low marshland areas. All construction near the Gila River crossing would occur outside of the breeding season for this species (May through August) and would occur well outside of habitat preferred by this species. No habitat would be disturbed, as support structures would be placed within upland vegetation. Any rails that may happen to be in the area during construction would temporarily disperse to other areas until activities levels subsided. Transmission lines and ground wires would be marked with state-of-the-art techniques to reduce the risk of avian collisions. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have a less than significant impact on the California black rail.

Great Egret and Snowy Egret (State of Arizona Wildlife of Special Concern)

Support structures near the Gila River would be placed in upland zones and would not disturb riparian habitat. Any egrets that may happen to be in the area during construction would temporarily disperse to other areas until activities at that location were completed. There is a potential for collisions to occur as birds enter or exit foraging areas along the river and in agricultural fields near the proposed transmission line. These risks would be mitigated by using state-of-the-art techniques to make transmission lines and ground wires more visible.

Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of these species; affect the continued existence of a local, regional, or national population of these species; or affect nesting or brooding periods for these species. The Applicants' Proposed Action would have a less than significant impact on the great egret or snowy egret.

Least Bittern (State of Arizona Wildlife of Special Concern)

There is suitable habitat for the least bittern at the Gila River crossing point; however, the Proposed Project would not disturb any low marshland areas. Any bittern that may happen to be in the area during construction would temporarily disperse to other areas until activities at that location were completed. All construction near the Gila River crossing would occur outside of the breeding season for this species (May through August) and would occur well outside of habitat preferred by this species. No habitat would be disturbed, as support towers would be placed within upland vegetation. Transmission lines and ground wires would be marked with state-of-the-art techniques to reduce the risk of avian collisions. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have a less than significant impact on the least bittern.

Loggerhead Shrike (BLM Sensitive)

This species is uncommon within the Proposed Project area; however, the Applicants' Proposed Action does cross desert scrub habitat suitable for foraging and nesting. During construction, any loggerhead shrike present would leave the construction area for other habitat areas. Disturbance within this community would be small in extent and insignificant compared with the amount of similar habitat within the region. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have a less than significant impact on the loggerhead shrike.

Southwestern Willow Flycatcher (Endangered, State of Arizona Wildlife of Special Concern)

Suitable southwestern willow flycatcher nesting habitat exists within saltcedar in the Gila River floodplain. However, suitable habitat is not present at the proposed Gila River crossing point. In

this location, habitat characteristics are not suitable due to the low stature of vegetation, the absence of moist soil within tree patches and the absence of other resident willow flycatchers in the area (Engle 2003, 2006). The flycatcher does move through the area and there is a possibility they may collide with the conductors or ground wires. To further reduce possible impacts, construction activities near the crossing point will be limited to times outside of the breeding season (May through August) and transmission lines and ground wires would be marked with state-of-the-art techniques to reduce the risk of avian collisions. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have a less than significant impact on the southwestern willow flycatcher.

Western Burrowing Owl (BLM Sensitive)

The western burrowing owl is not known to breed within the Proposed Project area; however, it may forage in the creosotebush habitat or agricultural areas on and adjacent to the Applicants' Proposed Action. Removal of this habitat would not significantly affect the burrowing owl because foraging habitat would remain adequate within the region. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have a less than significant impact on the western burrowing owl.

Yellow-billed Cuckoo (Candidate, State of Arizona Wildlife of Special Concern)

There is no suitable yellow-billed cuckoo habitat near the Gila River crossing point. The area under and immediately adjacent to the existing power line is composed primarily of sparse saltcedar and arrow-weed, there are essentially no large trees, including cottonwood or willow, and no marsh habitat is present at the site (Engle 2006). Construction near the Gila River crossing would occur outside of the breeding season for this species (May through August). No habitat would be disturbed, as support towers would be placed within upland vegetation. Despite the absence of nesting habitat, cuckoos may move through the area creating the possibility of impacts with lines. Transmission lines and ground wires would be marked with state-of-the-art techniques to reduce the risk of avian collisions. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action is expected to have a less than significant impact on the yellow-billed cuckoo.

Yuma Clapper Rail (Endangered)

There is no suitable Yuma clapper rail habitat near the Gila River crossing point. The area under and immediately adjacent to the existing power line is composed primarily of sparse saltcedar and arrow-weed, there are essentially no large trees, including cottonwood or willow, and no marsh habitat is present at the site (Engle 2006). All construction near the Gila River crossing would occur outside of the breeding season for this species (May through August) and would

occur well outside of habitat preferred by this species. No habitat would be disturbed, as support towers would be placed within upland vegetation. Transmission lines and ground wires would be marked with state-of-the-art techniques to reduce the risk of avian collisions. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Applicants' Proposed Action would have a less than significant impact on the Yuma clapper rail.

Chuckwalla (BLM Sensitive)

There is no suitable habitat for this species within the Proposed Project area. There are some small rocky areas, but they are composed primarily of alluvial deposits and are isolated from typical chuckwalla habitat. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Applicants' Proposed Action would be expected to have no impact on the chuckwalla.

Flat-Tailed Horned Lizard (Proposed, State of Arizona Wildlife of Special Concern)

Proceeding north from the United States-Mexico border, approximately 5.2 miles of the Applicants' Proposed Action would cross the Yuma Desert Flat-tailed Horned Lizard Management Area (FTHL MA). The route would then continue adjacent to the boundary of the FTHL MA for approximately 7.9 miles; however, this stretch of the transmission line would be built on the west side of the proposed ASH, which would form the western boundary of the FTHL MA, separating the FTHL MA from the transmission line.

Under this alternative, approximately 0.15 acres of flat-tailed horned lizard habitat would be permanently disturbed by the placement of transmission support structures. This option would require new, temporary, 12-foot-wide, 4.4-mile-long new access to structures within the FTHL MA during construction; access would not be graded or improved. Shrubs would be removed as needed and the area watered to support cranes and heavy haul vehicles. Watering could attract flat-tailed horned lizards to the temporary access and increase the possibility of individual mortality; however, the watering would be temporary and localized to the area of construction. The access to structures would not be permanently maintained. Maintenance activities would use overland travel. One staging area would be located within the FTHL MA. This site would temporarily disturb an area of 200 feet by 400 feet; it would be surrounded by a protective fence to prevent flat-tailed horned lizards from entering the staging area. A pedestrian survey of the staging area and relocation of any found flat-tailed horned lizards by a qualified biologist during installation of the fence would ensure that no flat-tailed horned lizards would be contained within the site.

Potential impacts include the loss of habitat associated with the permanent placement of support structures, access roads to support structures, the potential for accidental mortality associated with vehicular use during construction and maintenance operations, and the increased presence of perching areas for potential predators like the American kestrel (*Falco sparverius*) and common raven (*Corvus corvax*). The Applicant recognizes the sensitivities of this species to the

Proposed Project and would operate in good faith in cooperation with all regulatory agencies and the Flat-tailed Horned Lizard Interagency Coordinating Committee.

Mitigation methods outlined in the Flat-tailed Horned Lizard Rangeland Management Strategy (FTHL Interagency Coordinating Committee 2003) were incorporated into the Proposed Project and would be followed as appropriate. These mitigation measures include the following:

- An individual with the authority to halt operations that violate appropriate protective procedures or pose unreasonable risk to FTHL would be designated as a field contact representative and would be in contact with the appropriate regulatory agencies.
- The boundary of work areas would be clearly flagged to reduce the areas of project related activities to the minimum extent necessary. Workers would be advised of these boundaries to prevent unintentional additional disturbance outside of the designated areas.
- Within FTHL habitat, disturbance related to site access and construction and material storage would be limited to the minimum extent necessary for the project. Where grading is necessary, surface soils would be stored and replaced following construction.
- Existing roads would be used for travel and equipment storage whenever possible.
- A biological monitor would be on-site during all construction and restoration operations. The responsibilities of the monitor would include educating workers on the biology and status of the FTHL, protective measures designed to reduce potential impacts, the function of flagging work sites, procedures to be used if FTHL are encountered, and appropriate measures to be exercised while commuting to and from the work site to reduce the risk of mortality on roads. In addition to education, the monitor would ensure that all activities follow mitigation procedures and would have the authority to stop activities that are in violation, monitor areas of active surface disturbance for the presence of FTHL, and transport any FTHLs encountered to areas outside of the work zone.
- The Applicant would develop a habitat restoration plan that would focus on returning disturbed areas to conditions suitable to promote use levels similar to those prior to construction. The restoration plan would also remove any project-related hazards including holes and trenches that could trap FTHL.

Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Applicants' Proposed Action would have a less than significant impact on the flat-tailed horned lizard.

Rosy Boa (BLM Sensitive)

The Applicants' Proposed Action traverses sandy desert flats and is several miles from the slopes and valleys associated with the Gila Mountains. There is potential for rosy boas to travel out into desert flatlands while foraging or use small mammal holes for shelter, but it is unlikely that they would be found as far out into the flats as the Proposed Project area. To protect against the possibility of disturbance to this species during construction, biologists monitoring work sites for flat-tailed horned lizards and Yuman Desert fringe-toed lizards would also look for and remove

any rosy boas. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Applicants' Proposed Action would have a less than significant impact on the rosy boa.

Yuman Desert Fringe-toed Lizard (BLM Sensitive, State of Arizona Wildlife of Special Concern)

This lizard inhabits open expanses of windblown sand deposits, some of which would be crossed by the Applicants' Proposed Action. The Proposed Project would temporarily disturb 46.8 acres and permanently disturb 2 acres within vegetation classes containing areas of wind-blown sand deposits. A qualified biologist would be on-site during construction to monitor the presence of fringe-toed lizards and ensure that all individuals encountered are safely moved outside of the construction zone. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Applicants' Proposed Action would have a less than significant impact on the Yuman desert fringe-toed lizard.

Sonoran Pronghorn (Endangered, State of Arizona Wildlife of Special Concern)

No recent observations of this species have been recorded west of the Gila Mountains. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Applicants' Proposed Action would have no impact on the Sonoran pronghorn.

Bats (BLM Sensitive, State of Arizona Wildlife of Special Concern)

There are no known roosting or breeding sites for bats along the route of the Applicants' Proposed Action. No caves, mines, bridges, or rocky areas potentially containing roosting or hibernating locations would be disturbed. Transmission lines would be located within potential foraging habitat, which is most likely to occur along agricultural areas and the Gila River where the presence of water would make insects more prevalent. No large cacti, agave, or yucca species that would attract nectar-feeding bats were identified during the field visit on March 29, 2006. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of these species or affect the continued existence of a local, regional, or national population of these species. The Applicant's Proposed Project would have a less than significant impact on bats.

Cheese-weed Moth Lacewing (BLM Sensitive)

Suitable habitat for the cheese-weed moth lacewing is prevalent throughout much of the Proposed Project area. Creosotebush habitats would be impacted or removed during construction. However, this disturbance would be reduced to the greatest extent possible and would not be significant in a local or regional context. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The

Applicants' Proposed Action would have a less than significant impact on the cheese-weed moth lacewing.

McNeill Sooty Wing Skipper (BLM Sensitive)

In the event that Western decides to consolidate transmission lines crossing the Gila River, there would be some disturbance to suitable McNeill sooty wing skipper habitat. Approximately 0.2 acres (400 feet by 25 feet) of vegetation would need to be cleared to remove two support structures currently within the outer edges of the floodplain. Vegetation in this area is composed primarily of quail bush, the host plant for the skipper; saltcedar, which the skippers use as a food source; and arrow-weed. Following the removal of the structures, disturbed areas would be revegetated with quail bush and other native species. Similar habitat is also prevalent in areas immediately adjacent to this location, and the temporary loss of this habitat would not be significant in a regional context. Flights of adult skippers occur twice during the summer, first from April through May, then from July through October. Skippers may be present in larval form during other times of the year.

Prior to clearing, surveys would be conducted to establish presence or absence within the quail bush patch to be cleared. If McNeill sooty wing skippers are present, efforts would be made to reroute the approach path to structures through the lowest quality habitat possible. Clearing of vegetation would be scheduled to occur during the late fall, coinciding with the avoidance of Yuma clapper rail, in an effort to time disturbance activities with a period of adult flights when they would be more able to disperse to similar vegetation nearby. Clearing this area at other times would likely have a greater impact on individuals in the larval stage when they are less able to avoid disturbance.

Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Applicants' Proposed Action would have a less than significant impact on the McNeill sooty wing skipper.

Flannelmouth sucker (BLM Sensitive)

The flannelmouth sucker inhabits the Colorado River and has been extirpated from the Gila River basin. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Applicants' Proposed Action would have no impact on the flannelmouth sucker.

4.4.3.3.2 *Route Alternative*

Special Status Plant Species

Blue sand lily (BLM Sensitive, Native Plant Law Salvage Restricted), dune sunflower (USFWS Species of Concern), sand food (BLM Sensitive, Native Plant Law Highly Safeguarded), and Schott wire-lettuce (BLM Sensitive) all occur on areas of sandy wind-blown deposits. Blue sand

lily and dune sunflower have both been recorded within 3 miles of the Route Alternative. Special status plant species would be surveyed prior to construction. The results of these surveys would be used to avoid populations of special status plant species or identify individuals for transplant in accordance with the Arizona Native Plant Law. Surveys would be performed at times of the year when these species are most easily detected, which is typically when the plants are in bloom making them easier to accurately identify. The avoidance or relocation of these species would reduce impacts to insignificant levels. Overall, the impacts associated with the Route Alternative are similar to those of the Applicants' Proposed Action with regard to sensitive plant species. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to protected plants or affect the continued existence of a local, regional, or national population of protected plant species. The Route Alternative would have less than significant impact on special status plants.

Bald Eagle (Threatened, proposed delisting)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the bald eagle. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have a less than significant impact on the bald eagle.

Cactus Ferruginous Pygmy Owl (Delisted, State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the cactus ferruginous pygmy owl. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have no impact on the cactus ferruginous pygmy owl.

California Black Rail (BLM Sensitive, State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the California black rail. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have less than significant impact on the California black rail.

Great Egret and Snowy Egret (State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the great or snowy egret. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of these species; affect the continued existence of a local, regional, or national population of these species; or

affect nesting or brooding periods for these species. The Route Alternative would have a less than significant impact on the great egret or snowy egret.

Least Bittern (State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the least bittern. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species or affect nesting or brooding periods for this species. The Route Alternative would have a less than significant impact on the least bittern.

Loggerhead Shrike (BLM Sensitive)

This species is uncommon within the Proposed Project area; however, this option does cross desert scrub habitat suitable for foraging and nesting. Disturbance within this community would be small in extent and insignificant compared with the amount of similar habitat within the region. Overall, the impacts associated with the Route Alternative are less than those of the Applicants' Proposed Action because portions of this alternative are placed within agricultural areas where the Applicants' Proposed Action would be within desert scrub. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have a less than significant impact on the loggerhead shrike.

Southwestern Willow Flycatcher (Endangered, State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the southwest willow flycatcher. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have a less than significant impact on the southwestern willow flycatcher.

Western Burrowing Owl (BLM Sensitive)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the western burrowing owl. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have a less than significant impact on the western burrowing owl.

Yellow-billed Cuckoo (Candidate, State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the yellow-billed cuckoo. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would be expected to have no impact on the yellow-billed cuckoo.

Yuma Clapper Rail (Endangered)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the Yuma clapper rail. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have a less than significant impact on the Yuma clapper rail.

Chuckwalla (BLM Sensitive)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the chuckwalla. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species; affect the continued existence of a local, regional, or national population of this species; or affect nesting or brooding periods for this species. The Route Alternative would have no impact on the chuckwalla.

Flat-Tailed Horned Lizard (State of Arizona Wildlife of Special Concern)

Proceeding north from the United States-Mexico border, approximately 5.2 miles of the Route Alternative would cross the Yuma Desert Flat-tailed Horned Lizard Management Area (FTHL MA). Farther north, the route is adjacent to the boundary of the FTHL MA for approximately 5.2 miles; however, this stretch of the proposed transmission line would be built on the west side of the proposed ASH, which would form the western boundary of the FTHL MA, separating the FTHL MA from the transmission line.

Compared to the Applicants' Proposed Action, the Route Alternative would use more existing access within flat-tailed horned lizard habitat, thereby creating less disturbance. The Route Alternative would be adjacent to an existing access road for 2.6 miles within the FTHL MA; therefore, the Route Alternative would only require 2.8 miles of new access within FTHL MA compared to 4.4 miles for the Applicants' Proposed Action. Additionally, 3.7 miles of this alternative would be positioned 1 mile west of the FTHL MA; the similar stretch of the Applicant's Proposed Project is along the FTHL MA border. New access would not be graded or improved; shrubs would be removed from the easement as needed, and the ground watered to support cranes and heavy haul vehicles during construction. Watering could attract flat-tailed

horned lizards to the temporary access and increase the possibility of individual mortality; however, the watering would be temporary and localized to the area of construction. The access to structures would not be permanently maintained. Maintenance activities would use overland travel. One staging area would be located within the FTHL MA. This site would temporarily disturb an area of 200 feet by 400 feet; it would be surrounded by a protective fence to prevent flat-tailed horned lizards from entering the staging area. A pedestrian survey of the staging area and relocation of any found flat-tailed horned lizards by a qualified biologist during installation of the fence would ensure that no flat-tailed horned lizards would be contained within the site.

Approximately 0.15 acres of flat-tailed horned lizard habitat would be permanently disturbed from the placement of structures under the Route Alternative. Overall, the Route Alternative would have fewer impacts to flat-tailed horned lizard habitat than the Applicants' Proposed Action because the Route Alternative would use an existing access road and a portion of the route would be located farther from the FTHL MA boundary than the Applicants' Proposed Action.

Potential impacts include the loss of habitat associated with the permanent placement of support structures, access roads to support structures, the potential for accidental take associated with vehicular use during construction and maintenance operations, and the increased presence of perching areas for potential predators like the American kestrel (*Falco sparverius*) and common raven (*Corvus corvax*). The Applicant recognizes the sensitivities of this species to the Route Alternative and would operate in good faith in cooperation with all regulatory agencies.

Mitigation methods outlined in section 4.4.3.3.1 would also be followed for constructing this alternative. These protocols would ensure that constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Route Alternative would not significantly impact the flat-tailed horned lizard.

Rosy Boa (BLM Sensitive)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the rosy boa. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Route Alternative would have a less than significant impact on the rosy boa with mitigation incorporation.

Yuman Desert Fringe-toed Lizard (BLM Sensitive, State of Arizona Wildlife of Special Concern)

Segments of the Route Alternative would be constructed in agricultural areas, reducing impacts on desert scrub as compared to the Applicants' Proposed Action. These agricultural areas are less likely to contain areas of wind blown sand which are preferred habitat for this species. As such, constructing this alignment would have less impact on the Yuma Desert fringe-toed lizard than the Applicants' Proposed Action. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued

existence of a local, regional, or national population of this species. The Route Alternative would have a less than significant impact on the Yuman desert fringe-toed lizard.

Sonoran Pronghorn (Endangered, State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the Sonoran pronghorn. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Route Alternative would have no impact on the Sonoran pronghorn.

Bats (BLM Sensitive, State of Arizona Wildlife of Special Concern)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to bats. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of these species or affect the continued existence of a local, regional, or national population of this species. The Route Alternative would have a less than significant impact on bats.

Cheese-weed Moth Lacewing (BLM Sensitive)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the cheese-weed moth lacewing. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Route Alternative would have a less than significant impact on the cheese-weed moth lacewing.

McNeill Sooty Wing Skipper (BLM Sensitive)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the McNeil sooty wing skipper. Mitigation measures outlined in section 4.4.3.3.1 would also be followed while constructing this alignment. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Route Alternative would have a less than significant impact on the McNeill sooty wing skipper.

Flannelmouth sucker (BLM Sensitive)

There is no discernable difference between the Applicants' Proposed Action and the Route Alternative with regard to the flannelmouth sucker. Constructing this alternative would not violate any local, State, or Federal law or statute pertaining to the protection of this species or affect the continued existence of a local, regional, or national population of this species. The Route Alternative would have no impact on the flannelmouth sucker.

4.4.3.3.3 230-kV Alternative

Span distance between structures for the 230-kV Alternative would be the same as for the 500-kV option; however, the transmission support structures would be smaller, less massive, and require less permanent ground disturbance than 500-kV structures. The Proposed Project would be constructed such that the spacing between conductors and from conductor to the structure would be greater than the guidelines outlined by APLIC for standard raptor protection (i.e., a horizontal separation of 60 inches and a vertical separation of 48 inches). Support structure locations would be sited using the same protocols and guidelines, with the same attempts to reduce the extent of disturbance to the greatest extent possible. Impacts to biological resources under the 230-kV Alternative would be similar to but slightly less than those stated above for each proposed alternative because the ROW width would be narrower and the area of impact associated with the structure footprint would be slightly smaller. However, the benefits of the reduced area of impact from the 230-kV Alternative as compared to the 500-kV option would be minimal.

4.4.3.3.4 No Action

Under the No Action Alternative, the Proposed Project would not be constructed, and there would be no disturbance to special status species. The potential benefits of removing existing structures from the Gila River floodplain would not be realized. The No Action Alternative would have no impact on special status species.

4.4.3.4 Mitigation Measures

There would be no significant adverse impacts to special status species; therefore, no additional mitigation is considered necessary or proposed.

4.5 Cultural Resources

4.5.1 Methodology

The following information identifies the methodology for evaluating effects to cultural resources. Significant cultural resources include prehistoric sites, historical-period sites, districts, buildings, structures, objects, and other properties with traditional religious and/or cultural importance to Native American and other groups that are either listed in or are eligible for listing in the National Register of Historic Places (NRHP; <http://www.cr.nps.gov/nr/>) according to NHRP criteria to evaluate properties for the National Register (36 CFR 60.4). Cultural resources that fail to meet NRHP eligibility requirements and possess characteristics that are unique to the project area may be further considered under NEPA. All historic properties, either listed in the NRHP or eligible for listing in the NRHP, must possess certain characteristics including integrity of location, setting, design, materials, workmanship, feeling, or association. Cultural resources must meet one or more of the following NRHP eligibility criteria:

- Criterion a The property is associated with an event or pattern of events important to the history of the locality, state, or nation, and that related types of properties are likely to exist.
- Criterion b The property is associated with a person who is important to the history of the locality, state, or nation.
- Criterion c The property is significant as a type or method of construction, is the work of a master, or has high artistic values.
- Criterion d The property is likely to yield scientific information important to the history or prehistory of the locality, state, or nation.

In addition to the NRHP criteria, a property also derives significance from an understanding of its historic context developed as part of the evaluative process. Significance can only be determined in relationship to the historic developments from which it emerged. Historic contexts organize information about the significant themes, places, and times in prehistory and history and would be used to evaluate a property's significance.

Impacts to cultural properties that are determined to be not eligible under NRHP criteria are not considered to have an effect under NHPA or a significant effect for NEPA, and no further treatment or consideration would be necessary for such sites prior to construction. For sites listed in the NRHP or determined to be NRHP-eligible under one of more of the NRHP criteria, all impacts would be considered to be potentially adverse (see significance criteria below), and mitigation measures would be devised and approved by SHPO to lessen or obviate adverse effects.

Consultation with concerned Native American tribes may also yield information that the Proposed Project might affect traditional cultural properties (TCPs) or traditional use areas. Interviews with tribal elders and field visits would assist in identifying TCPs and/or traditional use areas.

4.5.2 Significance Criteria

The impact analysis for cultural resources was based on the following significance criteria. Would the Proposed Project:

- Directly or indirectly affect and thereby cause a change in the integrity of an archaeological or historical resource eligible under the NHPA?
- Disturb any human remains, including those located outside of designated cemeteries?
- Directly or indirectly affect any traditional use or TCP locations?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.5.3 Assessment of Impacts

4.5.3.1 Applicants' Proposed Action

The following information presents potential impacts to cultural resources that could occur as a result of the Proposed Project. Western conducted a Class I record search for the Applicants' Proposed Action and Route Alternative to identify any previously recorded sites and determine the potential for previously unrecorded cultural resources along the proposed routes. Upon determination of the Preferred Route and prior to construction, Western will conduct a Class III pedestrian survey of the route to identify cultural resources that could be impacted by the route. Methods for dealing with any identified cultural resources will be addressed in the Programmatic Agreement (PA) between Western, the Applicants, the State Historic Preservation Office (SHPO), and any other signatories of the PA.

Adverse impacts to cultural resources (archaeological, historical, or TCP) may result from activities related to the Proposed Project. The impacts may affect the characteristics that qualify a property for listing in the NRHP. Criteria for assessing adverse and other effects are provided in the implementing regulations for the NHPA put forth by the Advisory Council on Historic Preservation (AHP) under 36 CFR 800.4-800.5.

Adverse impacts may include, but are not limited to, physical destruction or damage to all or part of a property, change in the character of the property's use, or alterations to its setting that contribute to its significance, and diminishing of the property's integrity through the alteration or introduction of visual, atmospheric, or audible characteristics.

Section 106 of the NHPA, as amended, requires that the Federal agency take into account the effects of any undertakings on properties that are eligible for listing in the NRHP or are listed in the NRHP.

Although specific potential impacts have yet to be identified, mitigation measures will be identified for historic properties and TCPs that may be affected or suffer adverse effects from Proposed Project activities. In accordance with the PA, Western, in consultation with other signatories, will determine the eligibility of and effects to historic properties within the Proposed Project's Area of Potential Effect (APE). Mitigation measures to avoid or minimize potential impacts include avoidance, rerouting, micro-siting, data recovery, photographic and architectural recording, and other measures that may be identified as a result of consultation with PA signatories. Western's preferred mitigation is to avoid any eligible sites. Because a large transmission line like the Proposed Project has only a few structures per mile, structure locations and associated access roads can be adjusted to avoid eligible sites. Significance criteria for cultural resources will be evaluated following the Class III pedestrian survey and implementing avoidance measures.

4.5.3.2 Route Alternative

The methods for identifying and addressing cultural resources would be essentially the same as those described for the Applicants' Proposed Action.

4.5.3.3 230-kV Alternative

The methods for identifying and addressing cultural resources would be essentially the same as those described for the Applicants' Proposed Action.

4.5.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be issued, the interconnection request to Western's system would not be granted, and construction and operation of the Proposed Project would not occur. There would be no impacts to cultural resources as a result of the No Action Alternative.

4.6 Land Use

4.6.1 Methodology

The land use impact analysis examines the compatibility of the construction and operation of the transmission system additions with current and planned land uses. To determine if an action may cause a significant impact, both the land area displaced by the transmission line ROW and the compatibility of the transmission line ROW with land uses potentially crossed were considered. As identified in section 3.6, the ROI for land use is the ROW of the proposed transmission system additions and the adjacent land uses.

Federal land use in the ROI is managed by the Department of the Navy (Navy) and Reclamation. Reclamation-managed lands are BLM withdrawn. Public lands within Yuma County are also managed by BLM; however, the Proposed Project does not involve any BLM-managed lands.

Military air installations are required to identify compatible land uses in the vicinity of airfields, in accordance with the requirements of 32 CFR part 256. The following Department of Defense (DoD) regulations pertain to land use compatibility with flight paths:

- Real estate interests to be considered for clear zones and accident potential zones include the right to control the height of structures to insure that they do not become a hazard to flight (32 CFR 256.9).
- No major aboveground transmission lines are permitted in Accident Potential Zone I (32 CFR 256.8).

The MCAS Yuma identified Air Installation Compatible Use Zones for Auxiliary Field #2, an auxiliary airfield on the BMGR used for carrier deck landing practice.

The BLM currently manages land in Yuma County under the Yuma District RMP (1985), which focuses on six resource management areas: wildlife habitat, special management areas, grazing, land ownership adjustment, rights-of-way, and recreation. The Yuma District RMP is currently being reviewed and updated, but this process has not yet been completed. The BLM Yuma District Planning Area overlaps with Reclamation's 5-Mile Zone PRPU RMP. The Reclamation lands are BLM withdrawn lands.

Reclamation manages the 5-Mile Zone along the international border under the 5-Mile Zone PRPU RMP, which identifies an environmental commitment to land use stating that, “all land use permits will contain specific stipulations to protect existing resources, decrease potential conflicts with adjacent landowners, and prevent land use conflicts within the study area. Additionally, any developments within the Yuma Desert Management Area will require special mitigation to avoid adverse effects or loss of unique desert habitat and mitigate for habitat losses and/or impacts to flat-tailed horned lizard habitat.”

Land use controls for unincorporated, non-Federal land in Yuma County include the Yuma County Zoning Ordinance and the Yuma County 2010 Comprehensive Plan. Land use controls within the City of Yuma planning area include the Yuma City Code and the City of Yuma 2002 General Plan. Private land is subject to the planning and zoning jurisdiction of either the City of Yuma or Yuma County depending on location.

4.6.2 Significance Criteria

The impact analysis for land use was based on the following significance criteria. Would the Proposed Project:

- Conflict with existing Air Installation Compatible Use Zone regulations as established by the DoD?
- Conflict with military radar and/or communications installations?
- Interfere with cell phone tower operation or microwave communications paths?
- Conflict with Federal land management objectives?
- Conflict with the flat-tailed horned lizard Yuma Desert Management guidelines?
- Conflict with any City of Yuma and/or Yuma County land use plans, policies, regulations, or zoning?
- Convert a substantial percentage of prime or unique farmland to non-agricultural uses?
- Conflict with the practice of chemical application on agricultural lands?
- Result in substantial loss of recreational uses?
- Be located within 400 feet of existing or proposed new schools?
- Result in the condemnation of residences?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.6.3 Assessment of Impacts

Land use impacts were assessed in three segments: 1) from the Point of Change of Ownership near the international boundary to the northern boundary of the BMGR; 2) from the northern boundary of the BMGR to Gila Substation; and 3) from Gila Substation to North Gila Substation.

A road network is laid out along the section lines within the Proposed Project area. There are many additional vehicle tracks off the road network especially south of County 22nd. Most of the roads within the network are dirt; however, portions have been graded and covered with gravel. Existing roads would be used to the extent possible to provide access to the proposed structures.

New access roads that would be needed for portions of the proposed transmission line are described for each alternative. New access roads would be staked, and overland travel would be used to minimize the amount of disturbance.

Neither of the proposed routes is located within 400 feet of an existing or proposed new school; therefore, there would be no impacts to existing or proposed schools.

4.6.3.1 Applicants' Proposed Action

Transmission Line

The Applicants' proposed transmission line corridor was based largely on the alignment of Western's existing Gila-Sonora Transmission Line, which is a single-circuit 69-kV electric transmission line that runs 18.9 miles from Sonora Substation, south of the City of Yuma, then northeast to Gila Substation.

The 200-foot-wide ROW and/or easement for the transmission line would involve lands managed by Reclamation, Navy, the State of Arizona, Yuma Mesa Irrigation and Drainage District (YMIDD), and private landowners within the City of Yuma and Yuma County. The transmission line ROW and/or easement would parallel portions of existing transmission lines, the A Canal, and the proposed ASH. Western will evaluate opportunities to share portions of the proposed ROW and/or easement with the existing transmission line ROW, canal ROW, and proposed ASH ROW and/or easement.

The Applicants' Proposed Action would be located within 600 feet of two existing residences and one RV park.

Segment 1

The southernmost portion of this area receives infrequent public use, but there is considerable illegal immigrant activity that has disturbed areas along the border. As a result of illegal immigrant activity, the U.S. Border Patrol continuously monitors this area using motorized vehicles, cameras, lights, and other surveillance means.

Construction of the transmission line structures would result in ground disturbance in a portion of the 5-Mile Zone PRPU that is also within the FTHL MA. The length of the proposed transmission line within the FTHL MA would be approximately 5.2 miles and would result in 0.15 acres of permanent disturbance associated with the placement of monopole structures. This portion of the proposed transmission line would also require approximately 4.4 miles of new access road within the FTHL MA. Western would implement the mitigation measures identified in the Flat-tailed Horned Lizard Rangelwide Management Strategy, prepared by the Flat-tailed Horned Lizard Interagency Coordinating Committee (2003), to reduce potential impacts within this area (see Section 4.4 Biological Resources). North of County 23rd, the proposed transmission line would parallel the western boundary of the BMGR, the existing Gila-Sonora Transmission Line, and roughly parallel the proposed ASH. The proposed ASH corridor creates the western boundary of the flat-tailed horned lizard habitat management area; therefore, north of

County 23rd, the proposed transmission line would be located on the west side of the proposed ASH to avoid additional impacts to the flat-tailed horned lizard.

The Applicants' Proposed Action would be adjacent to agriculture supported by center-pivot irrigation systems for approximately 2.5 miles. Approximately 13 structures would be placed adjacent to or between the center-pivot areas along Avenue 4E. These structures would be placed in areas outside of the irrigated circles. As such, the permanent disturbance of center-pivot agricultural lands would be minimal.

Several engineering constraints have been identified at the intersection of Avenue 4E and County 19th. The proposed ASH would be parallel to Avenue 4E, the Gila-Sonora Transmission Line, and the BMGR western boundary in the area of County 19th. The proposed ASH project would require an overpass for County 19th to cross the ASH and allow military access to the restricted BMGR via County 19th. The ASH design does not include an interchange at County 19th. To maintain safety clearances below the proposed transmission lines, the transmission support structures would need to be built higher to accommodate the additional height of the overpass. This is the same area in which MCAS Yuma has requested that structure heights be reduced for the safety of pilots using the BMGR Auxiliary Field #2 landing pattern. Within this area, the proposed transmission line could be constructed as two single-circuit transmission lines to reduce the height of structures near the landing pattern; however, the two single-circuit transmission lines would still have to maintain safety clearances over the proposed overpass that would be higher than what is acceptable for aviation activities. Building the transmission support structures higher would conflict with military aviation operations within this area; shorter structures would not be possible because of the proposed overpass. In addition to the proposed overpass at County 19th, there is an engineering pinch-point created by a gravel pit located on the southwest corner of the intersection of County 19th and Avenue 4E and the BMGR small arms firing range and associated safety zone located on the northeast corner of the intersection. The proposed ASH would parallel Avenue 4E for approximately 0.25 mile to the north of County 19th and would then proceed to curve to the northeast parallel to the western edge of the small arms firing range safety zone. Approximately 5 miles of new access road would be required across the northwest corner of the BMGR.

The proposed transmission line would not cross any Accident Potential Zone 1 areas; therefore, there would be no impact to Air Installation Compatible Use Zones. Building taller transmission support structures to accommodate the proposed ASH overpass at County 19th would directly conflict with the request from MCAS Yuma personnel to reduce the height of structures within this area to the extent practicable, and result in a significant impact.

Segment 2

The proposed transmission line would parallel Avenue 5½E between the northern boundary of the BMGR and the YMIDD's A Canal; the proposed transmission line would then proceed generally northeastward parallel to the A Canal and Western's 69-kV transmission line, cross Interstate 8, and enter the west side of Gila Substation. This portion of the proposed route would cross 1.5 miles of farmland and result in the permanent disturbance of 0.04 acre of farmland associated with the placement of monopole structures.

The portion of this proposed route between Avenue 6E and Avenue 6½E (west of the proposed ASH) would cross a high-density residential development area (Ocotillo) that is currently under construction along both sides of the A Canal. The Gila-Sonora Transmission Line is located adjacent to the south side of the canal and has a 100-foot-wide ROW. The proposed transmission line would be adjacent to the south side of the A Canal to share ROW with the existing transmission line. Residential development adjacent to the south side of the A Canal is immediately adjacent to the existing transmission line ROW and canal and does not allow sufficient space for the needed additional ROW for the proposed transmission line; therefore, this portion of the route could require the condemnation of several residences. The condemnation of residences would be a significant impact; Western would first negotiate with home owners. The Route Alternative, described in section 4.6.3.2, would avoid this area of residential development and, therefore, would avoid the possibility of condemning these homes.

The existing Gila-Sonora Transmission Line crosses Interstate 8 adjacent to the north side of the A Canal; on the north side of Interstate 8, the Gila-Sonora Transmission Line crosses to the south side of the A Canal. The proposed transmission line would cross Interstate 8 adjacent to the north side of the A Canal and share a portion of the existing Gila-Sonora Transmission Line ROW. If this route were to be constructed, the City of Yuma communication tower located on the northwest corner of the intersection of Avenue 9E and the A Canal would need to be relocated because it is currently located within the path of the proposed transmission line. This portion of the route would be located on the north side of the A Canal to avoid the south side of the canal, which the City of Yuma has proposed for the location of the East Yuma Freeway.

There are cellular phone towers located at the intersection of Interstate 8 and the A Canal. Cellular phone antennae are commonly mounted on transmission structures; therefore, the proposed transmission lines would not interfere with any cellular phone tower operations or microwave communication paths. The proposed transmission lines would not conflict with any military radar and/or communications installations (Zittle 2006). The Applicants' Proposed Action would have no impact on cellular phone tower operation, microwave communications paths, or military radars and/or communications installations.

The City of Yuma passed a resolution in March 2006 in opposition of a 500-kV transmission line along the proposed ASH and East Yuma Freeway. The East Yuma Freeway was proposed to be located adjacent to the south side of the A Canal and east of the proposed ASH (Avenue 6½E); the proposed freeway was planned to share a portion of the existing transmission line ROW adjacent to the south side of the A Canal. The proposed transmission line would conflict with the City of Yuma's resolution and result in a significant impact. However, the East Yuma Freeway is not likely to be developed adjacent to the south side of the A Canal between the proposed ASH and Interstate 8 (Yuma Sun 2006b); therefore, this location is an opportunity to share the existing transmission line ROW with that needed for the proposed transmission line. In addition, north of Interstate 8, the proposed transmission line would be located adjacent to the north side of the A Canal and would not interfere with the portion of the East Yuma Freeway that is still proposed.

The existing road network and access roads for the A Canal and Gila-Sonora Transmission Line would provide access for proposed structures within this segment.

Segment 3

As part of the system impact study, Western will evaluate opportunities to consolidate existing transmission lines with the proposed transmission line between Gila and North Gila substations. Like the rest of the project the new transmission structures would be steel monopoles, which would create less impact to agriculture as compared with lattice structures. If existing transmission is consolidated with the proposed transmission line, then existing transmission structures and conductors of one of the two transmission lines would be removed. The existing 35- to 50-foot-wide ROW would be expanded by an additional 150 to 165 feet in order to be wide enough for the proposed transmission line. Transmission consolidation could result in fewer structures and would replace the wooden H-frame (two poles per structure) with a single monopole. This portion of the proposed route would cross 3.2 miles of farmland and result in the permanent disturbance of 0.08 acre of farmland associated with placing of monopole structures, a portion of which would be offset by removing existing H-frame structures.

A combination of ground and aerial chemical application is currently used on the crops between Gila and North Gila substations. The new transmission structures would be approximately 100 feet taller than the existing structures. Taller structures pose an added risk to aerial applications; however, with consolidation of existing transmission, the proposed structures would replace existing structures in this area that aerial applicators currently work around. The crops are row-irrigated and arranged parallel with the existing transmission lines. Flight patterns for aerial application, flown parallel to the existing transmission lines, would not be impacted by the increased height of the structures. Safety risks associated with the taller structures would be mitigated by placing aircraft warning balls on the static line that cross agricultural fields. By incorporating mitigation, the impact of the addition of new, taller structures and potential removal of numerous existing structures in agricultural fields would be less than significant because the new structures would be located in the place of existing structures. The Applicants' Proposed Action would not conflict with the practice of chemical application on agricultural lands to any greater extent than the existing transmission lines do.

Yuma Lakes is a development located southeast of North Gila Substation that includes RV parks and Redondo Pond, a recreational use area for fishing and small boats. The proposed transmission line would be located south of Redondo Pond; therefore the Applicants' Proposed Action would have a less than significant impact on recreational activities at Redondo Pond. Existing and proposed development within Yuma Lakes is encroaching upon the existing transmission line approaches to North Gila Substation. Widening the ROW by 150 to 165 feet within the Yuma Lakes would impact the RV courts that are encroaching on the existing transmission lines by relocating recreational activities currently within the existing ROW, this impact would be less than significant because the recreational activities could occur within other areas of the Yuma Lakes.

The existing road network and access roads for the existing transmission lines between Gila and North Gila substations would provide access for proposed structures within this segment. Short spur roads of 100 to 150 feet per structure may be needed across agricultural areas. Spur road placement would be coordinated with the affected farmers.

Substation Modifications

Modifications at Gila Substation would occur adjacent to the north side of the existing Gila Substation on a federally-owned 20-acre parcel of land. This parcel of land is partially disturbed from canal construction and spoil piles; it is currently vacant and would need to be graded and developed with some fill material needed to build up the site. Parcel development would not conflict with other land uses; therefore, impacts to land use associated with modifications to Gila Substation would be less than significant.

Modifications at the North Gila Substation would occur within the existing boundary of the substation; therefore, there would be no impacts to land use associated with modifications to North Gila Substation.

The majority of the Applicants' Proposed Action would have a less than significant impact on land use and recreation; however, the impact analysis identified the following two significant impacts. A significant impact was identified at the intersection of County 19th and Avenue 4E because building taller transmission support structures to accommodate the proposed ASH overpass at County 19th would directly conflict with the request from MCAS Yuma personnel to reduce the height of structures within this area to the extent practicable. Another significant impact was identified because it would result in a conflict as identified by the significance criterion, "Conflict with any City of Yuma and/or Yuma County land use plans, policies, regulations, or zoning?" The segment of the proposed transmission line adjacent to the south side of the A Canal would directly conflict with the City of Yuma resolution opposing a 500-kV transmission line in this area. Under the cited criterion, this would result in a significant impact.

4.6.3.2 Route Alternative

Portions of the Route Alternative were identified in response to land use issues and recommendations identified during the scoping process and stakeholder meetings.

Transmission Line

The Route Alternative would be located within 600 feet of eight existing residences and one RV park.

Segment 1

Within this segment, the Route Alternative was identified in response to concerns regarding the flat-tailed horned lizard and the placement of a proposed transmission line along the western boundary of the BMGR.

Similar to the Applicants' Proposed Action, the southernmost portion of this area receives infrequent public use, but there is considerable illegal immigrant activity that has disturbed areas along the border. As a result of illegal immigrant activity, the U.S. Border Patrol continuously monitors this area using motorized vehicles, cameras, lights, and other surveillance means.

Construction of the Route Alternative would result in ground disturbance in a portion of the 5-Mile Zone PRPU that is also within the FTHL MA; however, this portion of the proposed route was identified because it would minimize impacts within the FTHL MA by using the existing access road for the 242 Well Field. The length of the transmission line within the FTHL MA would be approximately 5.4 miles and would result in the permanent disturbance of 0.15 acres for the placement of transmission support structures, similar to the Applicants' Proposed Action. The Route Alternative would be adjacent to the east side of the existing Gila-Sonora Transmission Line and associated access road for 2.6 miles to maximize the use of the existing access road and minimize disturbance within the FTHL MA. The Route Alternative would only require 2.8 miles of new access road compared to 4.4 miles of new access for the Applicants' Proposed Action within the FTHL MA. The Route Alternative would have less impact on the FTHL MA than the Applicants' Proposed Action because it would use an existing access road.

North of County 23rd, the Route Alternative would cross 3.5 miles of State of Arizona land, of which 2.9 miles is within or adjacent to center-pivot irrigation farmland. The Route Alternative would parallel Avenue 3E, which is an existing improved road that passes between fields irrigated with center-pivot sprinklers. Structure placement would be designed so that the structures would be between fields to avoid conflicts with sprinkler systems and other potential impacts to farmland. The proposed transmission line would be located adjacent to the east side of Avenue 3E to avoid a residence located on the southwest corner of the intersection of Avenue 3E and County 20th.

From the intersection of Avenue 3E and County 19^{1/4}, the proposed route would proceed northeast toward the intersection of Avenue 4E and County 18^{3/4}. This portion of the Route Alternative was identified because it would avoid the area of engineering constraint associated with the Applicants' Proposed Action at the intersection of Avenue 4E and County 19th. Engineering constraints at this intersection include an active gravel pit located on the southwest corner, the BMGR small arms firing ranges and related safety zones located on the northeast corner, the proposed ASH and associated County 19th overpass, and the Auxiliary Field #2 landing pattern. At the intersection of Avenue 4E and County 19th, MCAS Yuma identified a need to construct the transmission line as low as possible to reduce potential interference with the Auxiliary Field #2 flight path for safety reasons, due to proximity to the landing strip. This proposed route would be located 1 mile farther west of the BMGR Auxiliary Field #2 landing pattern than the Applicants' Proposed Action. This shift would move the proposed transmission line to a location where planes would be at a higher altitude in their approach path thereby improving the safety for pilots and eliminating the need to construct shorter structures. In addition, the Route Alternative would shift the proposed transmission line 1 mile to the west of the BMGR boundary, flat-tailed horned lizard habitat, and proposed ASH for approximately 5 miles and it would avoid the active gravel pit. The Route Alternative would approach the proposed ASH near the point where the ASH would curve to the northeast around the small arms firing ranges safety zone, creating more flexibility for placement of transmission structures. Approximately 5.2 miles of new access would be required across the northwest corner of the BMGR compared to 5 miles of new access for the Applicants' Proposed Action.

From the intersection of Avenue 4E and County 18^{3/4}, the route would proceed northeast parallel to the proposed ASH corridor to the intersection of Avenue 5^{1/4}E with County 16th. This portion

of the Route Alternative would parallel the Applicants' Proposed Action and would require a permit from the Navy to cross the northwest corner of the BMGR. The proposed transmission line alignment would be located west of the proposed ASH to avoid flat-tailed horned lizard habitat. The proposed ASH would be between the proposed transmission line alignment and the USMC small arms firing range safety zone. The location of this segment would need to be closely coordinated with Arizona Department of Transportation (ADOT) to avoid impact to the proposed ASH. Within this area, the current design of the proposed ASH is 60 percent complete (ADOT 2004).

The Route Alternative would not cross any Accident Potential Zone 1 areas; therefore, there would be no impact to Air Installation Compatible Use Zones. The Route Alternative would be 1 mile farther west from Auxiliary Field #2 where planes would be at a higher altitude in their approach path thereby improving the safety for pilots. The Route Alternative would require less disturbance in the FTHL MA than the Applicants' Proposed Action and would avoid the area of engineering constraint at the intersection of County 19th and Avenue 4E. The Route Alternative would have less impact on land use than the Applicants' Proposed Action, and the impacts would be less than significant.

Segment 2

Within this segment, the Route Alternative was identified to avoid impact to the area of high-density residential development along the A Canal between Avenue 6E and Avenue 6½E (west of the proposed ASH).

From the intersection of Avenue 5¼E with County 16th, the Route Alternative would proceed to parallel the proposed ASH corridor to the intersection with the A Canal. Near the intersection of the proposed ASH corridor with County 14th, the transmission line would cross to the east side of the proposed ASH. A commercial area is planned along the eastern side of the proposed ASH through the master-planned community (Ocotillo); as such, the developer has stated a preference for the proposed transmission line to be placed adjacent to the east side of the proposed ASH (where it is proposed to parallel the ASH) to avoid impacts to the residential portion of the development design. Heading east from the proposed ASH, the developer identified a preference for the proposed transmission line to be located adjacent to the south side of the A Canal, because the development plan included an undeveloped area in this location for future ROW. This portion of the Route Alternative was identified because it would avoid the high-density residential development area adjacent to the A Canal between Avenue 6E and Avenue 6½E (west of the proposed ASH) that is currently under construction; by avoiding this area, the Route Alternative would avoid the possibility of condemning the homes in this area. In addition, this portion of the Route Alternative would be located up to 1 mile east of the Applicants' Proposed Action; this would decrease the visibility of the transmission line for residents along the BMGR boundary between County 15th and County 14th.

The Interstate 8 crossing would be similar to that described in the Applicants' Proposed Action. The Route Alternative would have no impact on cellular phone tower operation, microwave communications paths, or military radars and/or communications installations.

Similar to the Applicants' Proposed Action, the Route Alternative would also conflict with City of Yuma's resolution opposing a 500-kV transmission line and result in a significant impact.

However, the Route Alternative would have less impact than the Applicants' Proposed Action because it would avoid the area of high-density residential development and would not require the condemnation of residences or convert farmland to non-agricultural uses.

The existing road network and access roads for the A Canal and Gila-Sonora Transmission Line would provide access for proposed structures within this segment.

Segment 3

Within this segment, the Route Alternative was identified in response to concerns about the placement of an additional transmission line within the area of development near Gila Substation.

The Route Alternative would have the same impacts as the Applicants' Proposed Action across the agricultural land because it would follow the same route as the Applicants' Proposed Action.

Near North Gila Substation, the Route Alternative would not parallel the existing transmission lines through the Yuma Lakes area. Instead, the Route Alternative would parallel the existing transmission lines to the intersection with Avenue 9E and then proceed north adjacent to the east side of Avenue 9E. The Route Alternative would then turn west along the northern edge of the Yuma Lakes area and proceed to North Gila Substation. Redondo Pond is the primary recreational area within the Proposed Project area. The proposed transmission line would span the north end of Redondo Pond but would not interfere with recreational activities at Redondo Pond; therefore, impacts to recreation would be less than significant. The Route Alternative would not be located within the area where RV parks are encroaching upon the existing transmission lines; therefore, impacts would be less than the Applicants' Proposed Action and less than significant. In addition, if transmission is consolidated and a set of structures is removed from the existing ROW, the current situation at the RV parks would be improved.

Substation Modifications

Impacts would be the same as those identified for the Applicants' Proposed Action because the Route Alternative would require the same substation modifications.

The Route Alternative would have less impact on land use and recreation than the Applicants' Proposed Action, and the majority of the impacts would be less than significant; however, the impact analysis identified the following significant impact. Similar to the Applicants' Proposed Action, the Route Alternative would also conflict with City of Yuma's resolution opposing a 500-kV transmission line and result in a significant impact. However, the Route Alternative would have less impact than the Applicants' Proposed Action because it would avoid the area of high-density residential development and would not require the condemnation of residences or convert farmland to non-agricultural uses.

4.6.3.3 230-kV Alternative

Transmission Line

The context of the impacts associated with the 230-kV Alternative would be similar to those identified for the Applicants' Proposed Action or the Route Alternative. However, the intensity of impacts would be considerably lower because this alternative would require a 150-foot ROW, which is 25 percent, or 160 acres, less ROW than the 200-foot ROW required for the 500-kV transmission line.

Substation Modifications

Modifications at Gila Substation would occur adjacent to the existing Gila Substation on a federally-owned 20-acre parcel of land. This parcel of land is currently vacant and would need to be graded and developed as described earlier. The substation modifications would be developed to 230-kV standards and would require less equipment than the Applicants' Proposed Action. However, the 20-acre parcel would still be fully developed; therefore, impacts would be similar to those associated with the Applicants' Proposed Action. Development of the parcel would not conflict with other land uses; therefore, there would be no impacts to land use associated with modifications to Gila Substation.

Modifications at North Gila Substation would be developed to 230-kV standards and would occur within the existing boundary of the substation; therefore, impacts to land use associated with modifications to North Gila Substation would be less than significant.

4.6.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be granted and interconnection of the transmission lines with Western's transmission system would not occur. The ROW and easements would not be acquired, and current land uses and development trends would be expected to continue. There would be no additional land use or recreation impacts associated with the No Action Alternative.

4.6.4 Mitigation Measures

Under the Applicants' Proposed Action and Route Alternative, the portion of the proposed transmission line adjacent to the south side of the A Canal and between the proposed ASH and Interstate 8 would conflict with the significance criterion, "Conflict with any City of Yuma and/or Yuma County land use plans, policies, regulations, or zoning?" The segment of proposed transmission line along the A Canal would directly conflict with the City of Yuma resolution opposing a 500-kV transmission line in this area. Under the cited criterion, this would result in a significant impact.

This route was identified by the developer of the master-planned community as the location that would pose the fewest impacts for a transmission line through the planned community because the development plan reserved an undeveloped ROW adjacent to the south side of the A Canal in

anticipation of the construction of the East Yuma Freeway. This route provides the greatest potential for joint use of ROW with other linear facilities including the A Canal, Gila-Sonora Transmission Line, and proposed ASH. Since the Yuma City Council disapproved funding for the East Yuma Freeway in this location, it appears the highway would not be built, and the set-aside ROW would be available for the proposed transmission line. All other routing options through this rapidly developing bottleneck area would have substantially higher environmental impacts, especially considering the effects on the developer's Ocotillo master plan. Given the lack of other viable routing options, Western has not been able to mitigate the significant impact on the City of Yuma's land use policies by moving the proposed alignment from this location. Western recognizes that the impact from constructing this segment of the proposed transmission line in this location would remain an unmitigated significant impact from the City of Yuma land use policy perspective.

Applicants' Proposed Action

Additional significant impacts associated with the Applicants' Proposed Action include the area of engineering constraint at the intersection of County 19th and Avenue 4E, potential condemnation of homes between Avenue 6E and Avenue 6½E adjacent to the south side of the A Canal, and encroachment of development along the existing transmission line approach to the North Gila Substation. Portions of the Route Alternative were identified in part to avoid these areas of impact; therefore, selection of the Route Alternative would mitigate these impacts to less-than-significant levels, as would the 230-kV Alternative if built on the Route Alternative.

4.7 Transportation

4.7.1 Methodology

The transportation impact analysis examined the potential effects on transportation in the Proposed Project area from the construction, operation, and maintenance of the Proposed Project. The analysis compared the number of daily trips to and from the construction areas with existing traffic along these routes, analyzed the number of heavy haul trips, and addressed maintenance activities. The analysis also examined potential effects on aviation routes from the construction, operation, and maintenance of the proposed transmission system additions.

4.7.2 Significance Criteria

The impact analysis for transportation was based on the following significance criteria. Would the Proposed Project:

- Result in the permanent disruption of local or regional traffic?
- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- Violate FAA air safety regulations?
- Result in damage to the transportation infrastructure?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.7.3 Assessment of Impacts

As identified in section 3.7, the ROI for transportation includes roads near the proposed transmission line corridors that would be used for delivery of construction equipment, construction worker access, and maintenance access; aviation; and rail service. Roads within the ROI include Interstate 8; U.S. Highway 95; Old U.S. Highway 80; various county section line roads and farm roads; and existing access roads for the A Canal, existing Gila-Sonora Transmission Line, and existing Gila-North Gila Transmission Line.

The impact analysis conservatively assumes that 140 transmission structures would be constructed and 100 vehicle round-trips would be required per structure, of which 20 round trips would be driven by heavy haul trucks. The peak workforce required for construction of the proposed transmission line and substation modifications is estimated to be 30 to 40 workers. Construction activities would take place 6 days per week, 10 hours per workday, over approximately 12 months. Based on these estimates, there would be 28,000 one-way vehicle trips over the course of 312 working days or 90 one-way vehicle trips per working day.

4.7.3.1 Applicants' Proposed Action

Transmission Line

Access to the proposed transmission line would be primarily from existing roads, section line roads, and access roads. Approximately 4.4 miles of new access roads or trails would be needed along the southernmost portion of the route within the 5-Mile Zone PRPU and FTHL MA. Access would be by overland travel along the ROW where no roads exist and terrain and soil conditions are stable. Near the border, Western construction personnel would coordinate construction activities with the U.S. Border Patrol. Western construction personnel would coordinate the use of private farm roads with the farm owners. Easements for permanent access would be obtained from landowners and, in all cases, routes would be surveyed for cultural and biological resources before use.

Heavy construction vehicles and equipment would be required at the site of each new transmission structure along the ROW, but not along the entire length of the ROW between structures. Wherever possible, access to each structure along the ROW would be via existing roads. Structure components would be delivered from staging areas to structure locations using flatbed trucks.

Short-term construction-related traffic impacts would be expected. Construction traffic along an individual highway would result in a less than 1 percent increase in average annual daily traffic within the Proposed Project area (table 4.7-1). Pole deliveries would create a short-term light increase in traffic where major highways are used. Western would consult with ADOT prior to construction to determine if any temporary re-routing of traffic would be necessary. In addition, construction crews would move along the ROW and would be at a given location for only a short

time. The Applicants' Proposed Action would not result in extended temporary or permanent disruption of regional or local traffic or cause an increase in traffic that is substantial in relation to the existing traffic load and capacity; therefore, impacts to transportation from the construction, operation, and maintenance of the Applicants' Proposed Action are anticipated to be less than significant.

Table 4.7-1. Estimated Daily Traffic Increase from Construction Traffic

Road Segment	Location	Traffic Volume* (average annual daily traffic) (vehicles)	Percent Increase
U.S. Highway 95	North of Piceno Road	13,516	0.67
Business 8 (Old U.S. Highway 80)	East of Avenue 3E	20,098	0.45
U.S. Highway 95	West of Araby Road	9,267	0.97
Interstate 8	East of Araby Road Interchange	31,754	0.28

*Source: YMPO 2006

MCAS Yuma requested that the double-circuit 500-kV transmission line be constructed as two separate single-circuit transmission lines for a short distance near the BMGR Auxiliary Field #2 landing pattern to reduce the height of the support structures for military aviation activities; however, reducing the height of structures would not allow enough safety clearance between the proposed transmission line and a proposed overpass at the intersection of County 19th and Avenue 4E. Building the transmission support structures higher would conflict with military aviation operations within this area; shorter structures would conflict with the proposed overpass. Either of these conflicts would result in a significant impact.

The proposed transmission lines would not cross any Accident Potential Zone 1 areas. A portion of the proposed transmission line would be routed through the civilian-use aviation corridor created by open space between the areas of restricted airspace associated with the MCAS Yuma/Yuma International Airport and the BMGR. However, civilian air traffic within this area would be flying at a minimum altitude of 500 feet, which is adequately higher than the proposed transmission structures; therefore, air traffic would not need to be re-routed. The proposed transmission line would not be located within the FAA-mandated obstruction-free zones associated with any of the airfields near the Proposed Project area. The Applicants' Proposed Action would not violate FAA air safety regulations; therefore, impacts would be less than significant.

All appropriate authorizations for the transmission line crossing of the Sunset Route of the Union Pacific Railroad would be acquired prior to construction; therefore, there would be no impact to rail services.

Substation Modifications

Substation modifications would involve minor temporary increases in traffic during the installation of equipment. The traffic would consist of employees and heavy equipment delivery and construction vehicles. Construction of the substation modifications would occur during a portion of the 12-month Proposed Project construction period. Substation modifications

associated with the Applicants' Proposed Action would result in a small, temporary increase in traffic which would be less than significant.

4.7.3.2 Route Alternative

Transmission Line

Transportation impacts associated with the Route Alternative would be less than those identified for the Applicants' Proposed Action because the Route Alternative would not be located in the area of engineering conflict at the intersection of County 19th and Avenue 4E. The Route Alternative would avoid the need to place taller structures at this location that would interfere with MCAS Yuma operations. No significant transportation impacts would be associated with the Route Alternative.

Substation Modifications

Substation modifications impacts would be essentially the same as those identified for the Applicants' Proposed Action and would be less than significant.

4.7.3.3 230-kV Alternative

Transmission Line

Construction of a double-circuit 230-kV transmission line would require a number of vehicle trips similar to that of a double-circuit 500-kV transmission line. Transportation impacts to vehicle traffic and rail services would be similar to those identified for the Route Alternative or Applicants' Proposed Action. Transportation impacts associated with aviation for the 230-kV Alternative would be less than those identified for the Applicants' Proposed Action or the Route Alternative because the structures would be shorter. However, the impacts associated with the Applicants' Proposed Action constructed to 230-kV standards would still be significant because the height of the structures would still conflict with either the proposed overpass at County 19th or the Auxiliary Field #2 landing pattern, whereas the Route Alternative constructed to 230-kV would avoid those impacts, and have less than significant impacts.

Substation Modifications

The context of the impacts associated with the 230-kV Alternative would be similar to that identified for the Applicants' Proposed Action and the Route Alternative. However, the intensity of impacts would be lower because this alternative would require that less and/or smaller equipment be delivered for the modifications, resulting in less traffic to and from the substation sites. Substation modifications impacts to transportation would be less than significant.

4.7.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be granted, and interconnection of the transmission lines with Western's transmission system would not occur.

Current traffic patterns and trends would be expected to continue. There would be no transportation impacts associated with the No Action Alternative.

4.7.4 Mitigation Measures

No additional mitigation measures have been identified for transportation.

4.8 Visual Resources

4.8.1 Methodology

The impact analysis for visual resources used the method identified in the BLM Visual Resource Management system (VRM system) to evaluate the existing landscape and potential effects to the landscape on all Federal lands, as Navy and Reclamation currently do not provide guidance for the management of visual resources on their lands. According to the Reclamation RMP Guidebook, the standard or guide for visual planning and management is the U.S. Forest Service or BLM VRM system. The USMC manages the BMGR west of the Gila Mountains, with underlying responsibility resting with the Navy. This same system was also used to evaluate potential visual impacts on private lands in the area.

The VRM system was developed to inventory, classify, analyze, and manage visual resources in a systematic and comparable manner. The VRM guidelines suggest that a number of specific steps be used to identify and evaluate the scenic quality along the proposed routes. The scenic quality in the area is assessed first, followed by establishing distance zones at discrete intervals from the proposed routes. Visual sensitivity to changes in the visual environment at key viewing points is then established, to include the likely number of viewers at each of these points.

Finally, the relative value of scenic resources based on these factors is used to determine a VRM class for defining management objectives for the scenic resources in the area through which the proposed line would pass.

As identified in section 3.8, the Proposed Project area falls within the BLM VRM Class III category. The impact analysis for visual resources evaluates modifications to the Proposed Project area and sensitivity of viewers. This analysis will then be compared with the management objectives established by BLM for Class III areas. The following aesthetic values are considered when evaluating the visual modifications to the existing landscape:

- Form – topographical variation, mountains, and valleys
- Line/Pattern – canals, roads, and transmission line corridors
- Color/Contrast – brightness and diversity
- Texture – vegetation, buildings, and disturbed areas

The sensitivity of the existing visual resources to changes associated with the Proposed Project is based on a number of factors:

- The extent to which the existing landscape is already altered from its natural condition;
- The number of people within visual range of the area, including residents, highway travelers, and those involved in recreational activities; and
- The degree of public concern or agency management directives for the quality of the landscape.

4.8.2 Significance Criteria

The impact analysis for visual resources was based on the following significance criteria. Would the Proposed Project:

- Substantially degrade the existing visual character or quality of the project area and its surroundings?
- Conflict with visual management objectives for Class III areas as identified by the BLM?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.8.3 Assessment of Impacts

The existing visual resources within the Proposed Project area are classified as BLM VRM Class III (section 3.8). Management of Class III areas aims for partial retention of the existing landscape with only moderate changes allowed in the characteristic landscape. Contrast with the characteristic landscape may be evident and begin to attract attention; changes should remain subordinate within the existing visual landscape.

The impact assessment is described in the three segments established for land use because of differences in dominant land use and corresponding visual character: Segment 1 - from the Point of Change of Ownership near the international boundary to the northern boundary of the BMGR; Segment 2 - from the northern boundary of the BMGR to Gila Substation; and Segment 3 - from Gila Substation to North Gila Substation.

The ROI for visual resources includes the Proposed Project area and areas from which the Proposed Project may be viewed.

4.8.3.1 Applicants' Proposed Action

Transmission Line

The proposed transmission line would use steel monopole structures shown in figure 2.3-5. Compared with wood structures, steel structures are lighter in color and can be more reflective, but tend to blend better with a backdrop of sky. The proposed steel structures would be

galvanized to prevent rusting, and over time they would oxidize and the reflectance (shine) would be reduced. Galvanized steel structures would also have a longer life than wood structures and would require less maintenance. Thus, the use of galvanized steel structures would reduce both the visual impact and the need for ongoing maintenance. Conductors and ground wires used would not be dulled to reduce reflectance to minimize bird collisions with wires. However, the structures, conductors, and ground wires would all dull somewhat over time.

Segment 1

The southern portion of Segment 1 of the Proposed Project is located within an area of predominantly sparse native desert vegetation. Existing disturbance to the natural landscape in this area includes the 69-kV transmission line, wells, canals, and center-pivot irrigation systems; other evidence of human activity includes numerous roads, trails, and cross-country vehicle tracks. The southern portion of this area receives infrequent public use, but there is considerable illegal immigrant activity. As a result, this area is continuously monitored by the U.S. Border Patrol using motorized vehicles, cameras, lights and other surveillance means. Because there is little use of this area aside from Border Patrol monitoring, the visual impact would be less than significant.

The northern part of this segment includes some dispersed agriculture and a few residences. The views from the residences on the west boundary of the BMGR look to the east over the undeveloped BMGR to the Gila Mountains in the distance and to the west over agriculture and residences. The proposed transmission line would be located to the east of these residences.

A map of key observation points (KOPs) is provided as figure 3.8-1. KOP 1 (figure 4.8-1) is representative of views from residences adjacent to the BMGR. The existing 69-kV transmission line structure is visible in the foreground, and the Gila Mountains are visible in the background.

Figure 4.8-1. Key Observation Point 1

A simulation of the proposed transmission line, constructed with double-circuit 500-kV steel monopole structures, as it could appear from KOP 1 is provided as figure 4.8-2.

Figure 4.8-2. Key Observation Point 1 with 500-kV Monopole Simulation, Applicants' Proposed Action

Visual changes introduced by the new transmission structures would not substantially modify the overall existing visual character of the area. However, residents near the northwest corner of the BMGR are more sensitive to changes within the visual landscape looking across the BMGR. The steel monopoles attract less attention and as such would be used within this area. Management of Class III areas aims for partial retention of the existing landscape with only moderate changes allowed in the characteristic landscape; contrast with the characteristic landscape may be evident and begin to attract attention. Due to the increased sensitivity within

this area, the changes to the visual landscape would be considered moderate and begin to attract attention. This level of change would still be within the management objectives for a Class III area; therefore, impacts to visual resources would be apparent, but less than significant under the VRM analysis.

Segment 2

The area around Segment 2 has been subject to significant residential and commercial development. The segment also includes Interstate 8, several local roads, canals, the Union Pacific Railroad, Gila Substation, and other transmission and distribution lines. The existing 69-kV transmission line south of the Gila Substation is visible to travelers on Interstate 8. There are multiple residences, residential developments, and planned developments within the viewshed of the existing and proposed transmission lines.

KOP 2 (figure 4.8-3) is a frequently traveled road and, therefore, provides an opportunity for many people to view the Proposed Project. The existing 69-kV transmission line structures, palm trees, and a communications tower are visible in the foreground, and the existing transmission line crosses Interstate 8 in the midground.

Figure 4.8-3. Key Observation Point 2

A simulation of the proposed transmission line, constructed with double-circuit 500-kV steel monopole structures, as it could appear from KOP 2 is provided as figure 4.8-4.

Figure 4.8-4. Key Observation Point 2 with 500-kV Monopole Simulation

Visual changes introduced by the new transmission structures would not substantially modify the overall existing visual character of the area because the area is already substantially modified from its natural state. Management of Class III areas aims for partial retention of the existing landscape with only moderate changes allowed in the characteristic landscape; contrast with the

characteristic landscape may be evident and begin to attract attention. Changes would remain subordinate within the existing visual landscape; therefore, impacts to visual resources would be apparent, but less than significant under the VRM analysis.

Segment 3

Within Segment 3, the entire length of the proposed transmission line would parallel and use a portion of the existing utility corridor. There is little undisturbed natural vegetation in this area due to past and ongoing activities including agricultural activities, existing Gila and North Gila substations and connecting transmission lines, canals, and U.S. Highway 95. As part of the system impact study, Western will evaluate opportunities to consolidate one of the existing transmission lines with the proposed new line. If existing transmission is consolidated with the new transmission line, then existing transmission structures and conductors of one existing line would be removed, and the new structures would be placed within the existing ROW. Western proposes using steel monopoles within this area to lessen impacts to farmland. The new structures would be taller but fewer in number compared with the existing wood-pole H-frame structures.

KOP 3 (figure 4.8-5) is the main east-west route north of Interstate 8 and, therefore, provides the greatest opportunity for many people to view the Proposed Project. U.S. Highway 95 can be seen in the foreground, the existing transmission lines are crossing agricultural lands in the midground, and the mountains are visible in the background.

Figure 4.8-5. Key Observation Point 3

A simulation of the proposed transmission line, constructed with double-circuit 500-kV steel monopole structures, as it could appear from KOP 3 is provided as figure 4.8-6.

Figure 4.8-6. Key Observation Point 3 with 500-kV Monopole Simulation

Visual changes introduced by the new transmission structures would not substantially modify the overall existing visual character of the area because of the existing transmission lines and other human development. Management of Class III areas aims for partial retention of the existing landscape with only moderate changes allowed in the characteristic landscape; contrast with the characteristic landscape may be evident and begin to attract attention. Changes would remain subordinate within the existing visual landscape; therefore, impacts to visual resources would be less than significant, particularly if one of the existing transmission lines is removed.

Substation Modifications

The proposed transmission line's approach into the substations would be an addition, but it would be similar to the existing lines entering and exiting the substations. Gila Substation modifications would be evident, but they would not attract much attention, as the modifications would occur adjacent to the existing substation; therefore, the impacts would be less than significant. Modifications at North Gila Substation would occur within the existing substation boundary and would not increase the visual impact of the facilities, impacts would be less than significant.

4.8.3.2 Route Alternative

Along the northwestern corner of the BMGR, the Route Alternative would be approximately 1 mile to the east of the Applicants' Proposed Action. This additional distance would make the structures appear smaller and less noticeable. The Route Alternative would have less impact than the Applicants' Proposed Action in the area of increased visual sensitivity near the northwest corner of the BMGR because it would be located farther away, appear smaller and less noticeable, and would be parallel to the proposed ASH. A simulation of the Route Alternative within Segment 1 is provided as figure 4.8-7 double-circuit 500-kV steel monopole structures. The level of change associated with the Route Alternative would be lower than that of the Applicants' Proposed Action and would be less than significant.

Figure 4.8-7. Key Observation Point 1 with 500-kV Monopole Simulation, Route Alternative

In addition, the proposed route would be located near the northern edge of Redondo Pond. Compared with the Applicants' Proposed Action, the Route Alternative would be more visible to the users of Redondo Pond; however, the pond is located within an area that is greatly disturbed from its natural state by features like the man-made pond, existing transmission lines, roads, RV

parks, and residences. This level of change would be within the management objectives for a Class III area; therefore, impacts to visual resources would be less than significant.

Substation Modifications

The Proposed Project-related impacts would be essentially the same as those identified for the Applicants' Proposed Action and would be less than significant.

4.8.3.3 230-kV Alternative

Transmission Line

Under the 230-kV Alternative, the context of impacts would be similar to the Applicants' Proposed Action or Route Alternative. The number of structures and span length of the 230-kV Alternative would be similar to the Applicants' Proposed Action or the Route Alternative; however, the impacts of the 230-kV Alternative would be lower because this alternative would require structures that would be 25 feet shorter and less massive than the double-circuit 500-kV structures.

Substation Modifications

Under the 230-kV Alternative, the context of impacts would be similar to that of the Applicants' Proposed Action or Route Alternative. However, the intensity would be lower because this alternative would require a smaller transformer and other equipment that would require a smaller area. The entire 20-acre parcel would be leveled and fenced, the same as the other alternatives.

4.8.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be granted, and interconnection of the transmission lines with Western's transmission system would not occur. Construction of the Proposed Project would not occur; therefore, there would be no visual impacts associated with the No Action Alternative.

4.8.4 Mitigation Measures

There would be no significant adverse impacts to visual resources; therefore, no additional mitigation is considered necessary or proposed.

4.9 Noise

4.9.1 Methodology

The noise impact analysis evaluated the potential noise levels generated during construction and operation of the Proposed Project. Examples of noise-emitting sources include heavy equipment used in earthmoving, foundation auguring, structure erection, and other activities during construction. Noise sources also include operational "hum" from the completed transmission

lines and facilities, and vehicles used for occasional maintenance activities. The analysis included quantification of projected noise levels and assessment of the potential for corona effects from transmission lines. Noise levels at the residences nearest to the alternative routes were estimated by using a simple noise propagation model on the basis of estimated sound levels from the source. Potential noise levels from operation of the power plant were estimated, and noise propagation modeling was used to identify the potential noise level at the United States-Mexico border. This analysis reflects the level of noise that would be heard by U.S. Border Patrol agents as they conduct border-monitoring activities.

4.9.2 Significance Criteria

The impact analysis for noise was based on the following significance criteria. Would the Proposed Project:

- Expose persons to, or generate noise, or vibration levels in excess of any standards established in the local general plan or noise ordinance, or any other applicable standards of other agencies?
- Result in a substantial permanent increase in ambient noise or vibration levels in the project vicinity above levels existing without the project?
- Result in a substantial temporary or periodic increase in ambient noise or vibration levels in the project vicinity above levels existing without the project?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.9.3 Assessment of Impacts

Ambient Noise

As described in section 3.9, noise levels are measured as a composite decibel (dB) value. The A-weighted decibels (dBA) represent the human hearing response to sound for a single sound event. Day-Night Average Sound Level (L_{dn}) represents the average sound level over a complete 24-hour period, which is often used for the evaluation of community noise effects. For construction of the Proposed Project, the L_{dn} predicts average community noise levels near the ROW. For this analysis, the calculation of the L_{dn} assumes that no construction would occur between 10 p.m. and 7 a.m.

In 1974, the EPA identified safe noise levels that could be used to protect public health and welfare, including prevention of hearing damage, sleep disturbance, and communication disruption. Outdoor L_{dn} values of 55 dBA were identified as desirable to protect against activity interference and hearing loss in residential areas and at educational facilities. When annual averages of the daily level are considered over a period of 40 years, the EPA identified average noise levels equal to or less than 70 dBA as the level of environmental noise that will prevent any measurable hearing loss over the course of a lifetime. The significance of estimated potential noise levels at the nearest residence was assessed by comparing them with the EPA noise guideline (EPA 1974) and measured background noise levels.

Noise Modeling

As a conservative approach, noise levels would be reduced for receptors further removed from the ROW by approximately 6 dBA for each doubling of distance from the source based on the following equation (Harris 1991).

Equation 1

$$L_2 = L_1 - 20 \log_{10} (R_2/R_1)$$

Where:

L_2 = Noise level at a selected distance R_2 from the source.

L_1 = Noise level measured at a distance R_1 from the source.

The effect of multiple noise sources is estimated by determining the logarithmic sum of all noise levels. The total noise from multiple sources at a given location is calculated as follows:

Equation 2

$$L_{eq} = 10 * \log_{10} (10^{L1/10} + 10^{L2/10} + \dots + 10^{Ln/10})$$

Where: L_1, L_2, \dots, L_n are the source sound levels of multiple sources.

These equations are used to estimate any potential increases in existing ambient noise levels at selected sensitive receptors. Proposed Project noise sources include construction sources, operational sources, and maintenance sources.

The ROI for noise includes residences located along the proposed transmission line corridors.

4.9.3.1 Applicants' Proposed Action

Power Plant

The combustion turbines would be housed in an enclosed metal building to protect the unit from the elements and to provide for optimal noise reduction. The estimated noise level 100 feet from the turbine would be approximately 75 dBA. This noise level would drop below background noise levels before reaching the U.S. border; therefore, there would be no noise impacts from the proposed power plant.

Transmission Line

Table 4.9-1 presents typical noise levels of construction equipment at a distance of 45 feet (15 meters) (Crocker 1982). These values assume that the equipment is operating at full power.

Table 4.9-1. Typical Construction Noise Levels

Equipment Category	Noise Level at 45 feet (15 meters) (dBA)
Dump Truck	88
Portable Rock Drill	88
Concrete Mixer Truck	85
Pneumatic Tool	85
Grader	85
Front-End Loader	84
Mobile Crane	83
Excavator	82
Backhoe	81
Dozer	78
Generator	78

The construction equipment would not all be operating at the same time and would be spread throughout the construction area depending on the activity. The typical uncontrolled noise 45 feet from a construction site would be approximately 85 dBA. This value and the data presented above indicate that there would be a temporary increase in ambient noise limited to the construction phase of the Proposed Project. The nearest residence to the construction activity would be 420 feet away. At this distance, the construction noise is estimated to be 65.6 dBA. This level is above the outdoor L_{dn} values of 55 dBA identified as desirable to protect against activity interference and hearing loss in residential areas, but is below 70 dBA (the level of environmental noise that will prevent any measurable hearing loss over the course of a lifetime). Construction activities would result in a temporary increase in noise but the noise level would not be a substantial increase because it falls within the parameters identified by the EPA; therefore, impacts would be less than significant.

Noise generated from corona is expected to be 45 to 50 dBA directly beneath the transmission line. This noise level would be barely detectable above natural background levels. In addition, audible noise from transmission lines is often lost in the background noise at locations beyond the edge of the ROW (DOE 2005a). Existing noise sources in the Proposed Project area south of Interstate 8 include military and civilian aircraft operations, residential and commercial development construction activities, vehicular traffic on Interstate 8 and other main roads, and the Union Pacific Railroad. Typical L_{dn} sound levels in suburban areas average 50 dBA; urban areas range from 68 to 90 dBA. Peak noise levels for existing conditions in this area were modeled in 2002 and range from 57 dBA to 67 dBA near the northern boundary of the BMGR (ADOT 2005). Land use between Gila and North Gila substations is primarily agriculture; existing noise sources in this area includes agricultural activities, crop-dusting, vehicular traffic on U.S. Highway 95, and military aircraft operations. Typical L_{dn} sound levels in agricultural areas are about 44 dB.

There would be no noticeable permanent increase in noise above the existing ambient levels. There are no noise codes applicable to transmission lines in Arizona. Impacts from noise would be less than significant.

Substation Modifications

The typical uncontrolled noise 45 feet from a construction site would be approximately 85 dBA. This value and the data presented above indicate that there would be a temporary increase in ambient noise limited to the construction phase of the Proposed Project. The nearest residence to the construction activity would be 642 feet. At this distance the construction noise is estimated to be 61.9 dBA. This level is above the outdoor L_{dn} values of 55 dBA, but is below 70 dBA. Construction activities would result in a temporary increase in noise but the noise level would not be a substantial increase because it falls within the parameters identified by the EPA; therefore, impacts would be less than significant.

4.9.3.2 Route Alternative

Impacts associated with the proposed power plant and substation modifications would be the same as those identified for the Applicants' Proposed Action, because the location of these facilities would be the same under the Route Alternative.

The typical uncontrolled noise 45 feet from a construction site would be approximately 85 dBA. The nearest residence to Route Alternative construction activity would be 145 feet. This measurement is from the residence to the nearest possible point of the proposed transmission line centerline at this location. At this distance, the construction noise is estimated to be 74.8 dBA. This level is above the outdoor L_{dn} values of 55 dBA and 70 dBA established by the EPA. This circumstance assumes that construction of a structure would occur adjacent to the existing residence. Construction noise levels at the existing residence would be reduced below 70 dBA by ensuring that construction activities would occur a minimum of 260 feet away. This can be accomplished by designing the transmission line such that a structure would not be constructed adjacent to the residence, which would be desirable for other reasons as well, such as visual. Construction activities would result in a temporary increase in noise but the noise level would not be a substantial increase because it would fall within the parameters identified by the EPA; therefore, impacts would be less than significant.

Noise generated from corona is expected to be 45 to 50 dBA directly beneath the transmission line. This noise level would be barely detectable above natural background levels. In addition, audible noise from transmission lines is often lost in the background noise at locations beyond the edge of the ROW (DOE 2005a). There would be no noticeable permanent increase in noise above the existing ambient levels. There are no noise codes applicable to transmission lines in Arizona. Impacts from noise would be less than significant.

4.9.3.3 230-kV Alternative

The Proposed Project-related impacts would be essentially the same as those identified for the Applicants' Proposed Action or Route Alternative; impacts would be less than significant.

4.9.3.4 No Action Alternative

Under the No Action Alternative, a Presidential permit would not be issued, the interconnection request to Western's system would not be granted, and construction and operation of the Proposed Project in the United States would not occur. There would be no noise impacts associated with the No Action Alternative.

4.9.4 Mitigation Measures

Construction noise levels at existing residences would remain below 70 dBA by ensuring that construction activities would occur a minimum of 260 feet away. This can be accomplished by designing the transmission line such that a structure would not be constructed adjacent to the residence.

4.10 Socioeconomics

4.10.1 Methodology

The analysis of socioeconomics considered effects on economic activity as measured by changes in employment and earnings, and the community as measured by changes in population or demographics and the demand for housing and community services. The socioeconomic impacts estimated in this analysis were generated by anticipated expenditures and employment allocated to the Proposed Project and its associated components. The analysis measured incremental effects and their overall effects on the ROI from changes in expenditures, income, and employment associated with the Proposed Project. The ROI is Yuma County, the area surrounding the Proposed Project location, where the majority of proposed construction and operation employees and their families would likely reside, spend their wages and salaries, and use their benefits.

The importance of the Proposed Project and its impacts was determined relative to the context of the affected environment. Existing socioeconomic conditions were compared with those associated with the Proposed Project to assess the significance of these changes. The regional baseline conditions as presented in section 3.10 provide the framework for analyzing the importance of potential socioeconomic impacts that could result from the Proposed Project.

4.10.2 Significance Criteria

The impact analysis for socioeconomics was based on the following significance criteria. Would the Proposed Project:

- Induce population growth or demographic changes that would adversely impact government and community facilities and services?
- Result in insufficient existing housing within commuting distance to meet the needs of in-migrating workers and their families?
- Result in changes in regional employment or pay rates?

- Have an effect upon, or result in a need for new or altered governmental services such as fire protection, police protection, schools, or other governmental services?
- Result in a need for new infrastructure systems, including power or gas utilities, communication systems, water and sewer services, or solid waste disposal systems?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.10.3 Assessment of Impacts

4.10.3.1 Applicants' Proposed Action

With respect to the region's economic base, the project-related employment would occur in two stages. The first stage would include the temporary employment of a workforce to construct the Proposed Project. The second stage would require a smaller level of permanent employment to operate and manage the Proposed Project. Construction of the Proposed Project is anticipated to span 12 months, requiring a range of 30 to 40 employees, depending on the construction phase. The workforce would include both skilled and non-skilled workers. Approximately 4 permanent workers would be needed to operate and maintain the Proposed Project. The majority of the required workforce would be available in the Yuma area; however, to determine the maximum potential impact, it was assumed that the entire workforce would migrate into the county and its communities. The Applicants' Proposed Action would not cause any noticeable change in existing demographic characteristics within the socioeconomic ROI.

Population

To be conservative, it is assumed that the Proposed Project would result in an in-migration of a maximum of 40 workers to Yuma County for an estimated 12 months, and approximately 4 permanent workers for the Proposed Project operation. In actuality, expectations are that most of the Proposed Project workforce would already be area residents and would commute from the cities of Yuma, Somerton, and San Luis. Using the Census 2000 figure of 2.86 persons per household for the county, the population associated with the additional workforce migrating into the county is estimated to be 114 persons during the construction phase and 11 during the operation phase. The construction estimate, using a very conservative analysis, represents approximately 0.07 percent of the Census 2000 Yuma County population and approximately 0.1 percent of the combined Census 2000 populations of the cities of Yuma and San Luis. This increase is within historical population fluctuations. The Proposed Project would not create a noticeable change in population within the ROI. The Applicants' Proposed Action would not induce population growth or demographic changes; therefore, impacts to area populations would be less than significant.

Housing

Assuming one housing unit per additional employee, a maximum of 40 temporary housing units would be required for the construction phase and a maximum of approximately 4 housing units would be required on a long-term basis for the operations phase. In this highly conservative

analysis, the required additional 40 housing units represent 0.1 percent of the housing stock available in the ROI and 0.3 percent of the combined housing stock available in the cities of Yuma and San Luis. Therefore, ROI housing capacity would exceed the maximum possible Proposed Project-related demand. Actual impacts would likely be much lower, as most of the workers are expected to already live in the area. The Proposed Project would create a very small change in existing housing within the ROI. Both the City and County of Yuma would experience a very small demand for housing to accommodate the Proposed Project-related workforce, which would not result in insufficient housing supply; therefore, the impacts to the supply of housing would be less than significant.

Employment and Pay Rates

The Proposed Project would provide employment opportunities in the region. Assuming both a temporary (12-month) construction workforce of 40 and a long-term operations workforce of 4 employees, the Proposed Project-related employment represent a less than 0.1 percent increase in County employment. The Proposed Project-related employment would not result in changes to regional or local employment; therefore, there would be a less than significant impact to regional or local employment.

Assuming a temporary (12-month) construction workforce of approximately 40 employees for construction and payroll and pay rates commensurate with local utility operations salaries, the payroll generated by the construction phase of the Proposed Project would be approximately \$3.2 million for the year of construction. The effects of the construction payroll expenditures associated with the Project would result in an increase of less than 1 percent of the total personal income for Yuma County. Operational workforce would require only 4 employees; payroll generated from operations would be negligible compared to total personal income for Yuma County. Because this does not exceed historical fluctuations, the Proposed Project-related impact to regional and local pay rates would be positive, but less than significant.

In addition to payroll, Project-related local expenditures in the City and County of Yuma are estimated to be \$1.5 million for concrete, rebar, and other materials and supplies. Additional employment opportunities and income generated by the Proposed Project would represent an overall beneficial economic impact to the region, but the impact would also be temporary and less than significant.

Governmental Services

As stated in the population section, the largest increase in population is attributed to the temporary 12-month construction period of the Proposed Project and represents approximately 0.07 percent of the 2000 Census county population and 0.1 percent of the combined 2000 populations of the cities of Yuma and San Luis. The construction workforce would be temporary and relatively small. The operations workforce would also be small. Because the local governmental services have been created and operated to meet current demand, the temporary increase in population resulting from Proposed Project-related employment and the subsequent increased use of the local governmental services would also be small. The Proposed Project would not create a noticeable change in governmental services; such as fire protection, police

protection, schools, or other governmental services within the ROI (sections 3.10.1.2 and 3.10.1.3); therefore, both the construction- and the operations-related use of local governmental services would be less than significant.

Infrastructure Systems

The largest potential increase in population would be temporary and would represent a maximum of approximately 0.07 percent of the 2000 county population and 0.1 percent of the combined 2000 populations of the cities of Yuma and San Luis. The construction workforce would be temporary and relatively small. The operations workforce would also be small. Because infrastructure services have been constructed and operated to meet current demand, the increase in population resulting from project-related employment and the subsequent increased use of infrastructure services would also be small. The Proposed Project would not create a noticeable demand on the local infrastructure systems including power or gas utilities, communication systems, water and sewer services, or solid waste disposal systems within the ROI; therefore, both the construction- and operations-related use of local infrastructure systems would be less than significant.

4.10.3.2 Route Alternative

Both the construction- and operation-related employment for the Route Alternative would be comparable to the Applicants' Proposed Action. Therefore, the Proposed Project-related impacts to population, housing, employment and pay rates, governmental services, and infrastructure services would be similar to those described for the Applicants' Proposed Action and would be less than significant.

4.10.3.3 230-kV Alternative

Both the construction- and operation-related employment for the 230-kV Alternative would be comparable to the Applicants' Proposed Action. Therefore, the Proposed Project-related impacts to population, housing, employment and pay rates, governmental services, and infrastructure Services would be similar to those described for the Applicants' Proposed Action and would be less than significant.

4.10.3.4 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and operated. As a result, increasing reliance would be placed on existing small, older, less efficient power generation in the area and on a constrained transmission system; therefore, system reliability may decrease. Ultimately, this could affect population growth trends, the economy, housing, and community services until such time as an alternative power source becomes available. Growth in population, the economy, and housing would likely continue at existing rates. The temporary construction impacts described in sections 4.10.2 and 4.10.3 would not occur. The increase of 30 to 40 jobs associated with construction and 4 jobs for operation of the Proposed Project would not occur. In addition, the increase to the local economy of an estimated \$4.7 million, combining \$3.2 million for payroll and \$1.5 million for materials for the year of construction, would not

occur. There would be no change in regional employment, income, governmental services, or infrastructure systems from Proposed Project-related activities.

4.10.4 Mitigation Measures

The Proposed Project-related workforce would result in a very small expected increase in population relative to the total regional population. There would be no significant adverse impacts to the available supply of housing, employment and pay rates, governmental services, or infrastructure systems. Therefore, no additional mitigation is considered necessary or proposed.

4.11 Environmental Justice

4.11.1 Methodology

Section 3.11 identified minority and low-income populations in the Proposed Project area pursuant to EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629). This section discusses the potential for environmental justice impacts to those populations. The ROI for environmental justice includes the six census tracts containing the components of the Proposed Project within the United States (section 3.11). This analysis was performed in three steps:

- Identify minority and/or low income populations in the ROI,
- Identify the anticipated impacts from implementation of the Proposed Project, and
- Determine if the anticipated Proposed Project-related impacts would disproportionately impact the minority and/or low-income populations.

The analysis protocol for identifying minority or low-income populations follows the guidelines described in the Environmental Justice Guidance under the National Environmental Policy Act (CEQ 1997). Information on locations and numbers of minority and low-income populations for each census tract within the Proposed Project area was obtained and derived from 2000 Census data. As stated in section 3.11.1, “minority” refers to people who classified themselves in the 2000 Census as Black or African American, Asian or Pacific Islander, American Indian or Alaskan Native, Hispanic of any race or origin, or other non-White races (CEQ 1997). As stated in section 3.11.2, environmental justice guidance defines low-income populations using U.S. Census Bureau statistical poverty thresholds. Information on low-income populations was developed from 1999 incomes reported in the 2000 Census. In 1999, the poverty-weighted average threshold for an individual was \$8,501 (U.S. Census 2001).

Second, the anticipated impacts from implementing the Proposed Project were analyzed. Analyses of potential impacts from the Proposed Project are provided in chapter 4 for each resource including: geology and soils, water resources, air resources, biological resources, cultural resources, land use and recreation, transportation, visual resources, noise, socioeconomics, and health and safety, during the construction, operation, and maintenance phases of the Proposed Project.

Third, an analysis was performed to determine if the anticipated impacts of the Proposed Project would disproportionately affect minority and low-income populations. The basis for making this determination was a comparison of locations predicted to experience human health or environmental impacts with any areas in the ROI known to contain high percentages of minority or low-income populations, as reported by the U.S. Census Bureau and defined by the CEQ. Impacts on minority or low-income populations that could result from the Proposed Project were analyzed for the geographic areas in which the Proposed Project would be located to determine if they would have disproportionately high and adverse impacts. Impacts related to the Proposed Project were analyzed within the census tracts containing the components of the Proposed Project.

Analysis of environmental justice impacts is also applied to issues that are unique to and involve Native Americans, in particular, to cultural resource issues. Input from tribal representatives will determine if significant impacts are likely to occur to cultural resources of importance to the tribes. Potential impacts of the Proposed Project related to Native American cultural resources could occur not only to individual resources, but also to the traditional, sacred, and historic landscape of the area within which the Proposed Project is located. Impacts to the cultural landscape and individual resources could have a significant impact on the role of the landscape in tribal traditions and the use of the landscape by tribal members.

4.11.2 Significance Criteria

The impact analysis for environmental justice was based on the following significance criteria.

Would the Proposed Project:

- Result in high and adverse health or environmental impacts such as impacts from noise, dust or air emissions, displacement of residences, visual effects, traffic increases or delays, EMF effects, or other effects?
- If high health or environmental impacts are anticipated, would they disproportionately affect minority populations (determined by percent of minority populations within census tracts compared with the county)?
- If high and adverse health or environmental impacts are anticipated, would they disproportionately affect a population living below the poverty level (determined by percent of minority populations within census tracts compared with the county)?
- Result in impacts to cultural landscapes?

Impacts associated with environmental justice are considered to be significant if the impacts of construction and operation of the Proposed Project would have disproportionately high and adverse impacts on minority or low-income populations, or if affected minority or low-income populations were not informed of and offered an opportunity for meaningful involvement to ensure that their interests and concerns about the Proposed Project would be considered.

4.11.3 Assessment of Impacts

Studies pertaining to cultural resources, including cultural landscapes, are ongoing. A Class I survey was completed for the Proposed Project area. Class III surveys are being conducted for the Proposed Project area. In addition, Western has developed a PA to address the method for handling cultural resources that may be identified in the Proposed Project area. Interested tribes will be invited to be signatories to the PA. The results of cultural surveys and studies will be made available to interested tribes. Western will coordinate with tribes and tribally-affiliated interests to identify potential impacts and measures that would be taken to mitigate impacts.

4.11.3.1 Applicants' Proposed Action

The anticipated effects to minority and low-income populations from implementing the Proposed Project are discussed in the following subsections.

Minority Populations

Disproportionately high and significant effects to minority populations are unlikely based on three factors: a lower percentage of minority populations in the Proposed Project area compared with Yuma County as a whole, a low population density within the Proposed Project area (the average is 29 persons per square mile), and overall low expected impacts from the construction and operation of the Proposed Project.

The total minority population in the six census tracts covered by the Proposed Project is estimated at 7,001 people, 20.4 percent of the total population. The total minority population in the individual census tracts range from 0 percent to 32.7 percent; these values are approximately the same as or less than the 31.6 percent minority population of Yuma County as a whole. There may be neighborhoods near the Proposed Project area with higher percentages of minorities, but any impacts of the Proposed Project to these residents, like any other resident, are expected to be less than significant and would be further mitigated by the low population density.

Public outreach to minority and low-income persons regarding scoping for the Proposed Project included English and Spanish advertisements in local newspapers and newsletter mailings in English and Spanish to a distribution list that included local government officials, agencies, tribes, and individuals as described in section 2.2.3. Proposed Project scoping meetings were held in San Luis, Arizona, a majority Hispanic municipality near the Proposed Project area on the international border. Beginning with scoping, Western and the Applicants have been involved with the tribes and tribally-affiliated interests to address the concerns that they have expressed.

Low-Income Populations

The portion of the low-income population with available information within the census tracts covered by the Proposed Project ranges from 8.9 to 22.3 percent. The low-income population within Yuma County as a whole is 19.2 percent. None of the census tracts in the study area meet the criteria for identification as low-income populations. The low-income populations in these

census tracts are either lower than the corresponding poverty level population in Yuma County or not meaningfully higher than the county poverty level population. Based on these criteria and the low potential of the Proposed Project to significantly affect human health and/or the environment, there would be no disproportionately high and adverse effects to low-income populations by the Proposed Project.

4.11.3.2 Route Alternative

The Route Alternative crosses the same census tracts as the Applicants' Proposed Action; therefore, Proposed Project-related impacts to minority and low-income populations would be indistinguishable from those described for the Applicants' Proposed Action and would be less than significant.

4.11.3.3 230-kV Alternative

The Proposed Project-related impacts to minority and low-income populations would be the same as those described for the Applicants' Proposed Action and would be less than significant.

4.11.3.4 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and operated and would not impact any populations, including minority or low-income populations.

4.11.4 Mitigation Measures

Studies pertaining to cultural resources, including cultural landscapes, are ongoing. No specific measures have been identified to completely avoid, reduce, or mitigate potential impacts to the cultural landscape. Western's preferred method of mitigation is avoidance. However, if this method of mitigation cannot be implemented, Western would consult with tribes and tribally-affiliated interests to identify additional mitigation measures.

4.12 Health and Safety

4.12.1 Methodology

The analysis of health and safety evaluated potential effects to construction and maintenance workers and to the public from EMF exposure; construction, operation, and maintenance activities; and air quality impacts. The ROI for health and safety is the proposed transmission system ROW. Aviation safety is addressed in the land use and transportation sections.

4.12.2 Significance Criteria

The impact analysis for health and safety was based on the following significance criteria.

Would the Proposed Project:

- Result in a substantial increase in health and safety risks to area residents and the general public?
- Result in a substantial health and safety risk to construction and maintenance workers?
- Expose utility workers to EMF levels beyond the typical levels experienced by utility workers?
- Result in magnetic field levels at the edge of the ROW that are higher than recommended guidelines? (Note: Recommended guidelines vary as follows: 0.1 to 3.0 milligauss (mG) recommended by the National Academy of Sciences; 833 mG recommended by the International Commission on Non-Ionizing Radiation; and 1,000 mG recommended by the American Conference of Governmental Industrial Hygienist. Presently there are no United States Federal or State of Arizona standards for exposure to power-frequency (60-Hz) electric and magnetic fields)
- Result in exposure of persons to hazardous materials (e.g., from transport of materials to and from the Proposed Project)?

Thresholds of significance were determined by evaluating the expected impacts against the significance criteria for each of the alternatives.

4.12.3 Assessment of Impacts

Air quality impacts were analyzed in section 4.3. Based on the analysis of air quality, all of the predicted air quality impacts are below both the Federal National Ambient Air Quality Standards and Arizona's Ambient Air Quality Guidelines and Standards; therefore, no significant impacts on human health are expected as a result of the Proposed Project, and air impacts in relation to human health and safety are not further discussed.

4.12.3.1 EMF

EMF is composed of both electric and magnetic fields. Electric fields are produced by voltage (or electric charges). Electric fields increase in strength as the voltage increases and are measured in units of volts per meter (V/m). Magnetic fields result from the flow of load current in transmission line conductors or any electrical device. The magnetic field also increases in strength as the current increases and is measure in units of Gauss (G) or Tesla (T). The Gauss is the unit most commonly used in the United States and the Tesla is the internationally accepted scientific term; 1 T is equivalent to 10,000 G. Since a Gauss or Tesla are both very large fields and the majority of magnetic field exposure are significantly lower, values typically reported and measured are in milligauss (mG) (1/1,000 of a Gauss) and microtesla (μ T) (1/1,000,000 of a Tesla, equivalent to 10 mG). Both the electric and magnetic field decrease rapidly, or attenuate, with distance from the source. Values for the expected EMF strengths were calculated based on a load current of 373 amperes per circuit for 500-kV lines and 851 amperes per circuit for the

230-kV Alternative. For a set amount of power, the amperes are lower for a higher voltage transmission line because the amperes and voltage are inversely related to one another. Therefore, when given a set amount of power to “push” through the transmission line, a lower voltage would require a greater load current. Ambient levels of 60-Hertz (Hz) magnetic fields in residences and most workplaces are typically 0.01 to 0.3 microtesla (μT) (0.1 to 3.0 mG) (National Academy of Sciences Publication 1997).

Over the past 25-30 years, hundreds of studies have been performed to examine if power-frequency (60-Hz) electric and magnetic fields pose a potential human health risk. The majority of the scientific studies have been conducted in the following research fields: epidemiology, laboratory cellular research, and animal studies. In the United States and internationally, expert scientists from a variety of disciplines were assembled to review this very large body of research material and to assess the potential health risk. Major reviews of the existing research have concluded that the current body of scientific evidence does not show that exposure to power-frequency (60-Hz) electric and magnetic fields represent a human health hazard. Key considerations in these scientific findings have been the weakness of the epidemiological studies, inconsistent and inconclusive epidemiological findings, the inability of epidemiology to identify a dose-response relationship, little or no replication of observed results, and the lack of support from laboratory research. The laboratory studies that have examined exposure of cells, tissue cultures, and a variety of animal species to EMF have been essentially negative. Despite over 30 years of research, EMF exposure has not been proven to be a human health factor. Section 3.12 provides additional information on EMF research.

Applicants’ Proposed Action

The effects of 500-kV transmission lines are related to electric fields, magnetic fields, and corona. Electric and magnetic fields are associated with induced voltages and currents on conductive objects near transmission lines.

Electric Field Induction

Time varying electric fields cause voltages and/or currents to be induced (capacitive coupling) on otherwise un-energized conductive objects and electric circuits due to deposition of electrical charge on these objects. Induced voltage is a function of transmission line voltage, insulation between object and ground, mutual geometry, object dimensions, and height of conductors. Induced voltages are capable of producing short-circuit currents, which are equal to the current that would flow in a zero-impedance connection between the conductive object and ground.

An annoying or nuisance shock can occur when an object comes into contact with an energized ungrounded object. The shock is created by the release of electric charge from an ungrounded object with a build-up of electrical charge (i.e., large vehicles, structures with metal ungrounded roofs, fences that parallel the ROW). Transmission line electric fields can induce voltages and currents on conductive objects in the transmission line ROW. When a person comes into contact with these ungrounded conductive objects, a spark discharge may occur. The spark discharge can be felt by some people as a tingling sensation, vibrating sensation, or annoying or nuisance shock, but it is not dangerous.

Transmission line electric fields can also induce voltages and currents on people who are in the transmission line ROW. When the individual comes in contact with a grounded object, a short-circuit current will flow. This short-circuit current, or spark discharge, may be described as an annoying or nuisance shock and can be characterized as similar to a person walking on carpet during a dry weather period and building a negative voltage charge. Voltage build-up depends on the type of carpet and the shoes the person is wearing, but voltages of 4,000 to 8,000 volts have been measured in such instances. When the person comes in contact with a grounded object, for example, a light switch, a spark discharge occurs. A notable difference is that with the alternating current-induced voltages from transmission lines the spark discharge can be repetitive.

Electric field induction from 500-kV transmission lines (figures 4.12-1 and 4.12-2) is more significant than lower voltage lines. Current 500-kV design practices with proper ground clearance result in acceptable electric field values on and at the edge of the ROW that minimize electric field induction. In addition, properly grounding conductive objects on and at the edge of the ROW would reduce annoying and nuisance shocks and be in full compliance with applicable codes. With Western's engineering, design, and operating standards on 500-kV lines, proper grounding standards and practices would be implemented on the transmission line and conductive objects within, crossing, or parallel to the ROW. The purpose is to ensure the safety of the general public and to meet or exceed the provisions of the National Electrical safety Code (NESEC), latest edition.

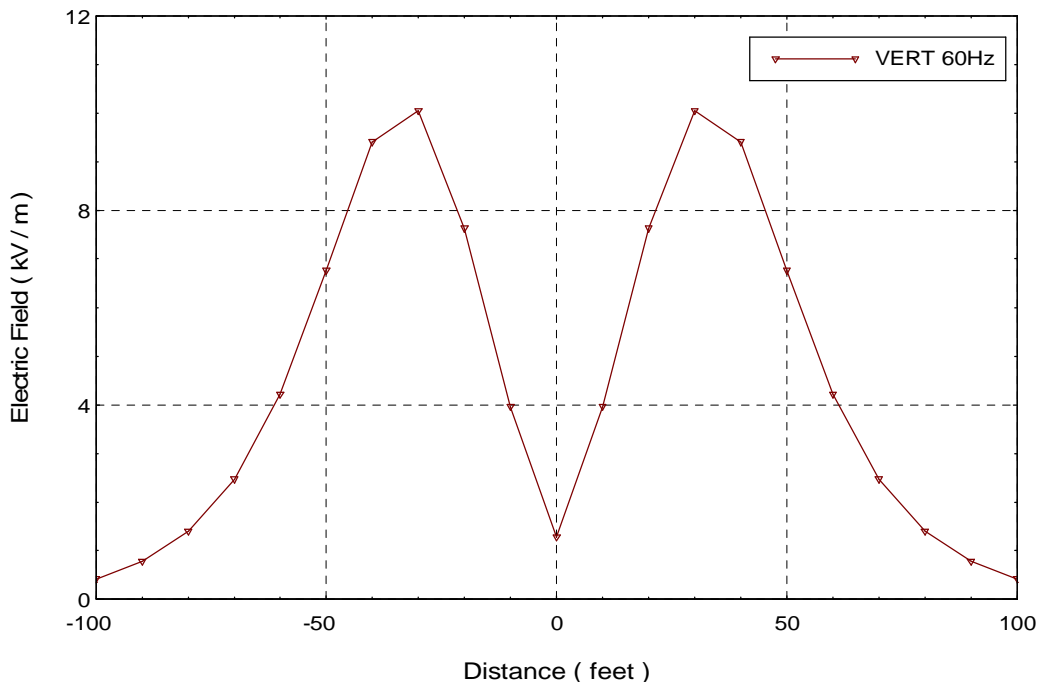


Figure 4.12-1. Double-circuit 500-kV Transmission Line Electric Field Profile, Both Circuits Active

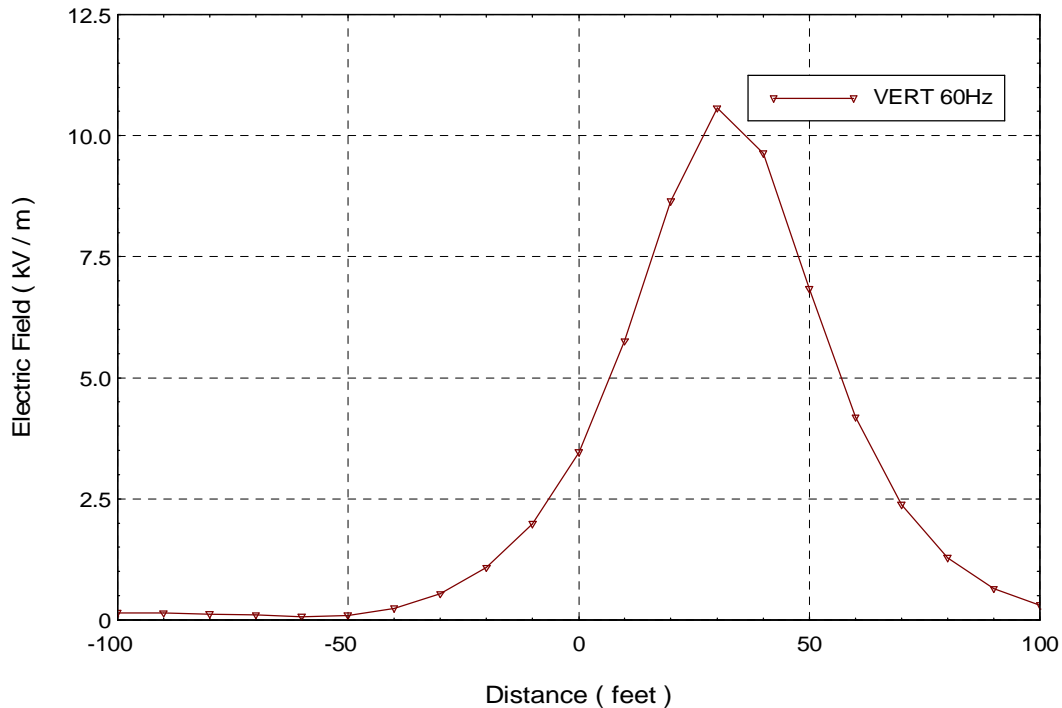


Figure 4.12-2. Double-circuit 500-kV Transmission Line Electric Field Profile, One Active Circuit

Magnetic Field Induction

Time varying magnetic fields cause voltages and/or currents to be induced (inductive coupling) on conductive objects that have a considerable length parallel to and in close proximity to the magnetic field source. The value of the voltage and/or currents would be at a maximum when the object is physically parallel to the proposed transmission line and at a minimum when the object is perpendicular to the transmission line. The magnitude of the induced voltage and/or current in the object is a function of the transmission line load current, the object's distance from the power line, mutual geometry, and height of transmission line conductors. Unlike electric fields, magnetic fields do not induce voltages on people that contribute to annoying or nuisance shocking.

To mitigate the impact of electric and magnetic fields from the proposed 500-kV transmission lines, Western would implement phase management techniques with the selection of proper phase arrangements that achieve electric and magnetic field reductions. This concept has a profound effect on reducing magnetic field levels at the edge of the ROW. With both 500-kV circuits energized (the normal mode of operation, figure 4.12-3), EMF at the edge of the ROW would be reduced by approximately 35 percent compared to a single energized circuit (figure 4.12-4). During periodic maintenance activities, one of the two circuits would be out of service for a short period of time; however, this would be less than 1 percent of the time, and the resulting EMF would still be comparable with other existing 500-kV lines.

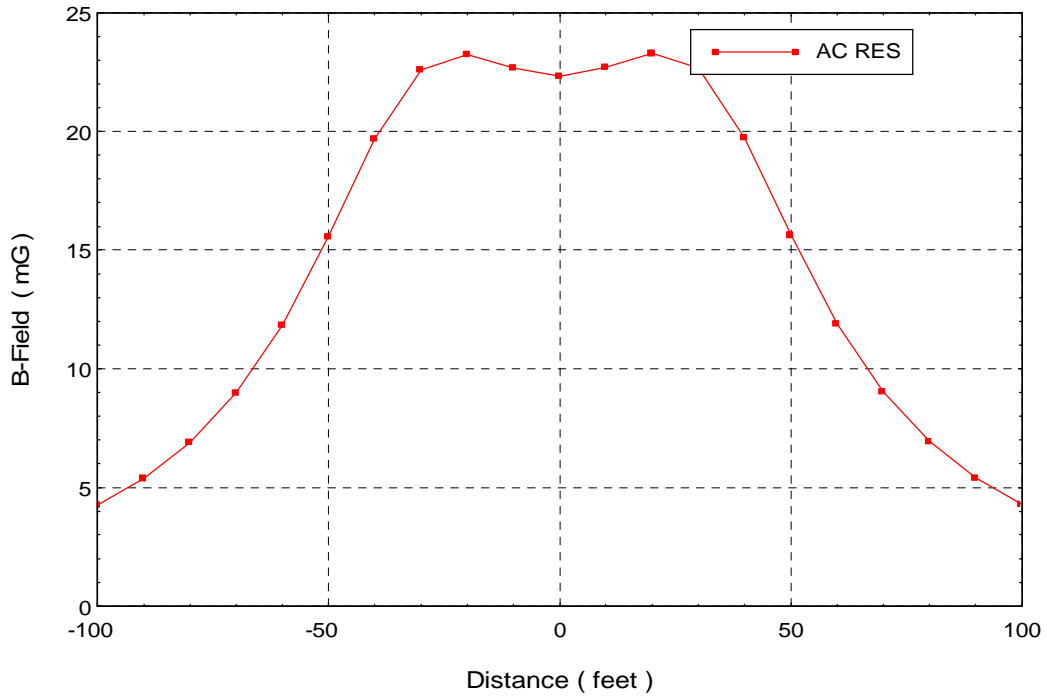


Figure 4.12-3. Double-circuit 500-kV Transmission Line Magnetic Field Profile, Both Circuits Active

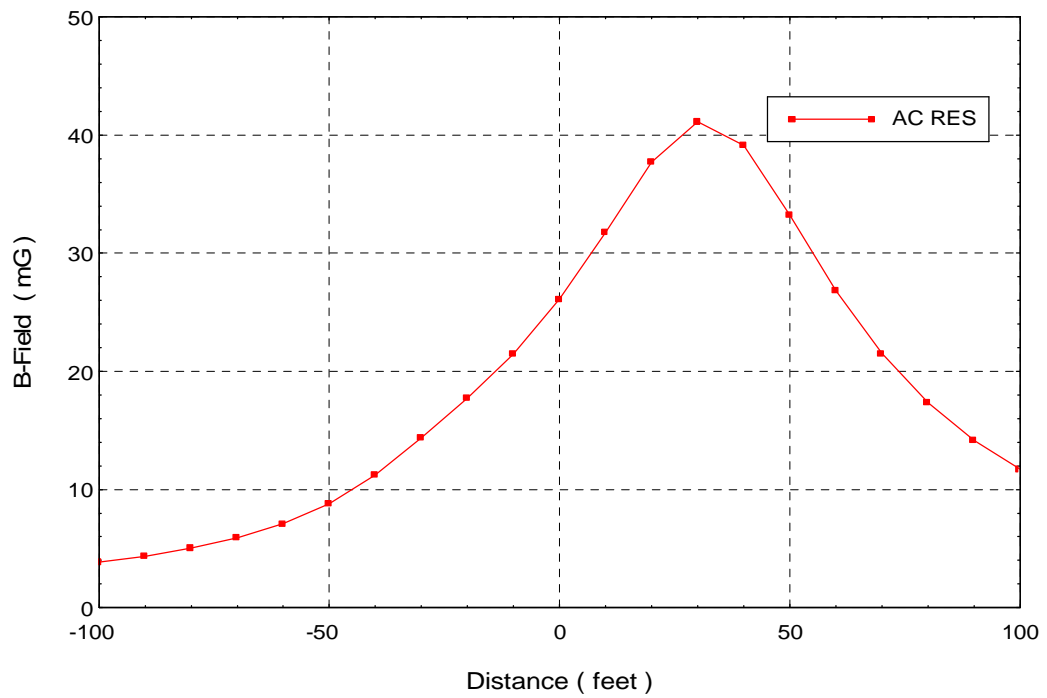


Figure 4.12-4. Double-circuit 500-kV Transmission Line Magnetic Field Profile, One Active Circuit

During normal operation, magnetic fields at the edge of the ROW would be well below the recommended guidelines of the International Commission on Non-Ionizing Radiation and the American Conference of Governmental Industrial Hygienist; however, the levels would be approximately 1 mG higher than the recommended National Academy of Sciences guidelines. During periodic maintenance activities, the magnetic field at the edge of the ROW would be slightly higher; however, this would be less than 1 percent of the time, and the resulting EMF would still be comparable with other existing 500-kV lines. The magnetic field level would fall below the National Academy of Sciences guidelines a short distance outside the ROW, and in any case no residences would be located at the very edge of the ROW. Impacts to health and safety from EMF would be less than significant.

Route Alternative

EMF for the Route Alternative would be similar to the Applicants' Proposed Action if the proposed transmission lines were constructed to 500-kV standards. EMF for the Route Alternative would be similar to the 230-kV Alternative if the proposed transmission lines were constructed to 230-kV standards. Impacts to health and safety from EMF would be less than significant.

230-kV Alternative

With the 230-kV Alternative the following impacts from electric and magnetic fields would be expected.

Electric Field Induction

Electric field induction effects are not generally associated with 230-kV transmission lines. At the edge of the ROW, the electric field associated with a 230-kV transmission line would be less than that associated with a 500-kV transmission line. Using line compaction and appropriate phasing with double-circuit configurations would reduce the electric field on and at the edge of ROW. Proper grounding practices and procedures should provide sufficient mitigation of nuisance or annoying shocking and no harmful effects would occur due to electric fields. Figures 4.12-5 and 4.12-6 illustrate electric field profiles for a double-circuit 230-kV transmission line.

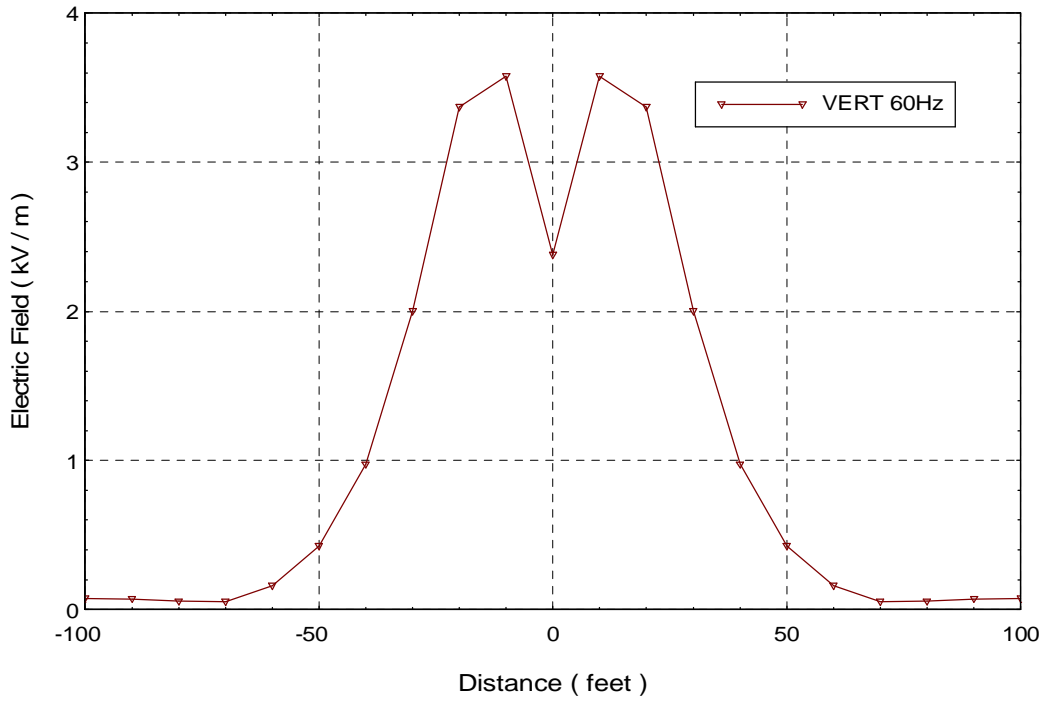


Figure 4.12-5. Double-circuit 230-kV Transmission Line Electric Field Profile, Both Circuits Active

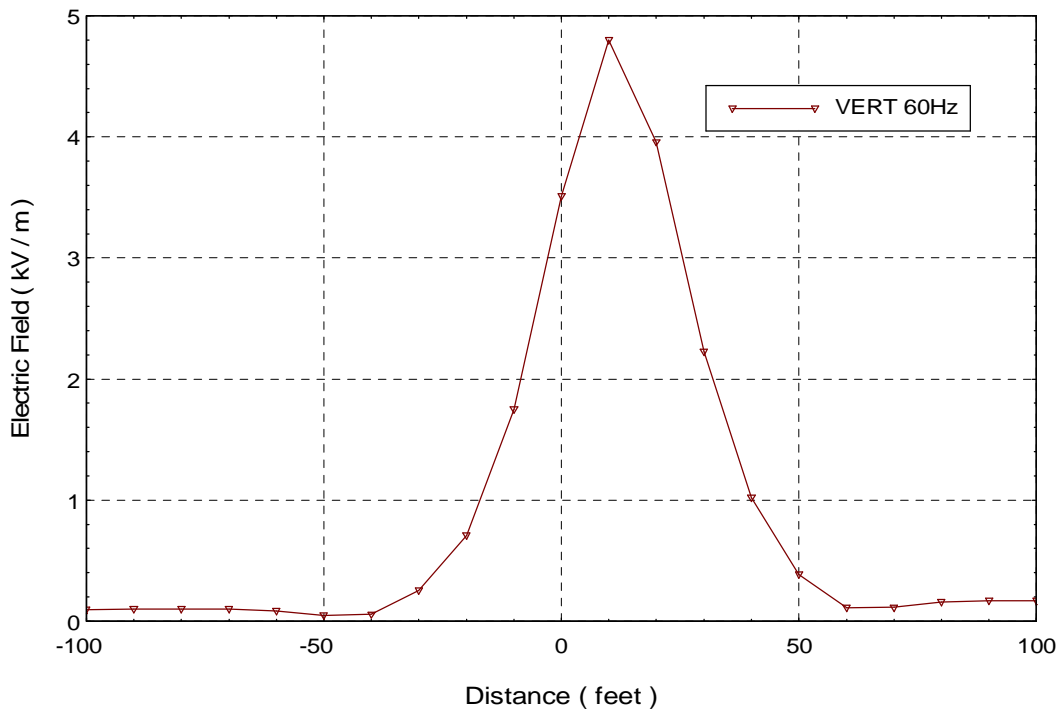


Figure 4.12-6. Double-circuit 230-kV Transmission Line Electric Field Profile, One Active Circuit

Magnetic Field Induction

The discussion of time varying magnetic fields in the Applicants' Proposed Action would also apply to the 230-kV Alternative. The expected magnetic field levels for the 230-kV Alternative figures (4.12-7 and 4.12-8) would be greater directly under the transmission line when compared to the 500-kV transmission lines, but the levels would be less at the edge of ROW when compared to the 500-kV lines (figures 4.12-3 and 4.12-4). Phase spacing for 230-kV transmission line construction standards is less than that for 500-kV, consequently, 230-kV electric and magnetic fields attenuate faster from the source when compared to 500-kV transmission lines.

To mitigate the impact of electric and magnetic fields from the proposed 230-kV transmission lines, Western would implement phase management techniques with the selection of proper phase arrangements that achieve electric and magnetic field reductions. With both 230-kV circuits energized (the normal mode of operation), EMF at the edge of the ROW would be reduced by approximately 70 percent compared to a single energized circuit. During periodic maintenance activities, one of the two circuits would be out of service for a short period of time; however, as with the 500-kV proposal, this would be less than 1 percent of the time.

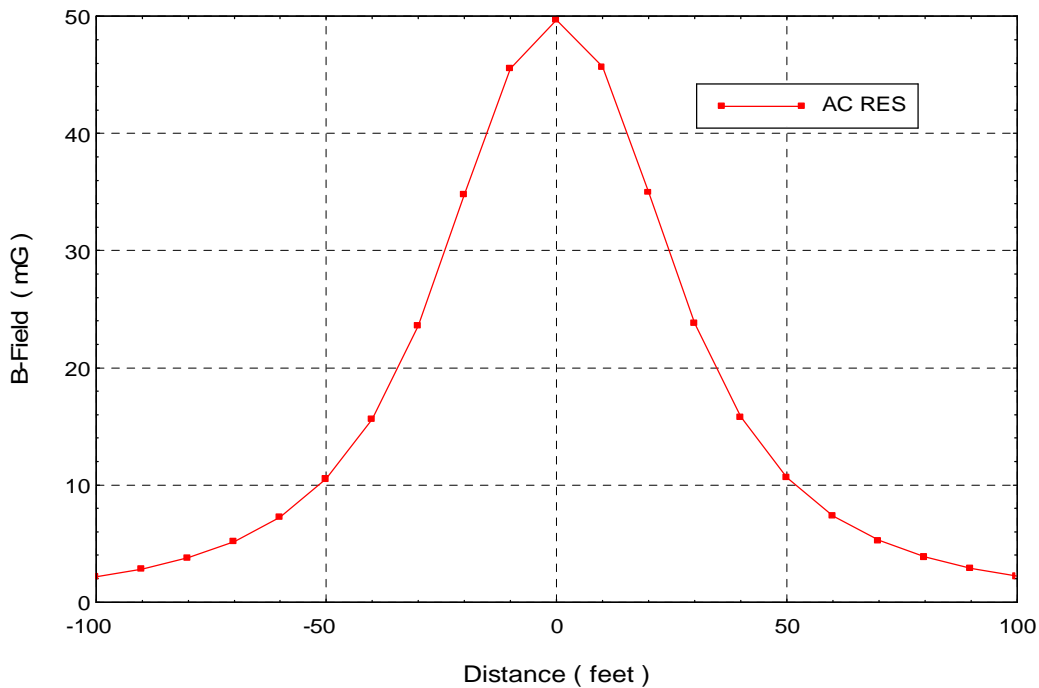


Figure 4.12-7. Double-circuit 230-kV Transmission Line Magnetic Field Profile, Both Circuits Active

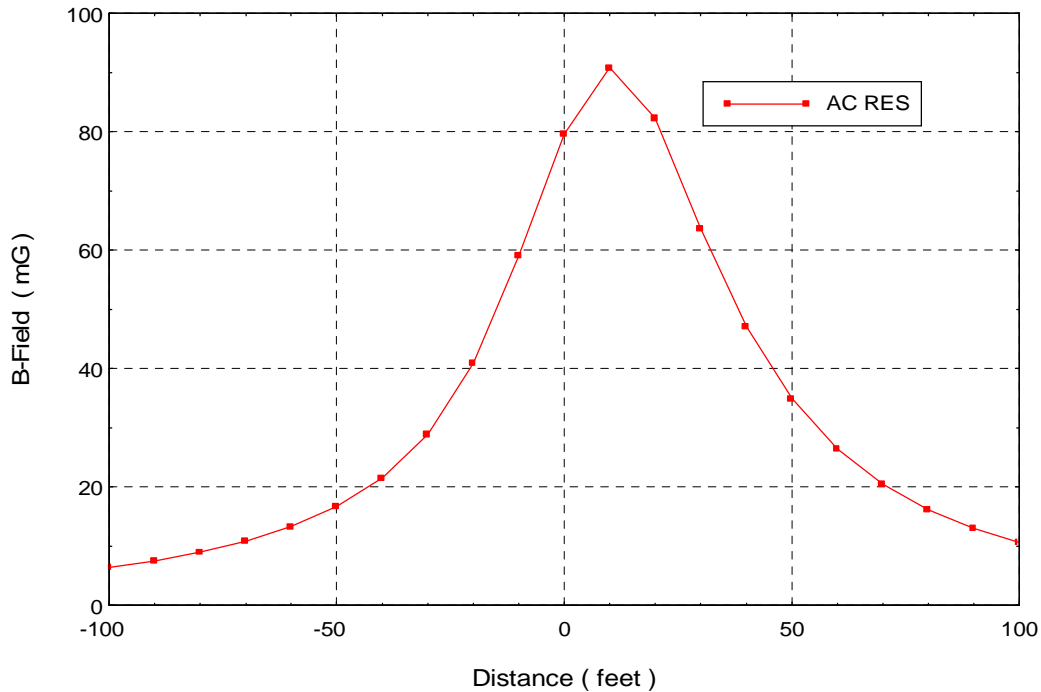


Figure 4.12-8. Double-circuit 230-kV Transmission Line Magnetic Field Profile, One Active Circuit

During normal operation, magnetic fields at the edge of the ROW would be well below the recommended guidelines of the International Commission on Non-Ionizing Radiation and the American Conference of Governmental Industrial Hygienist; however, the levels would be approximately 1 mG higher than the recommended National Academy of Sciences guidelines. The magnetic field level would fall below the National Academy of Sciences guidelines a short distance outside the ROW, and in any case no residences would be located at the very edge of the ROW. During periodic maintenance activities, the magnetic field at the edge of the ROW would be slightly higher; however, this would be less than 1 percent of the time, and the resulting EMF would still be comparable with other existing 230-kV lines. Impacts to health and safety from EMF would be less than significant.

4.12.3.2 Worker Health and Safety

Impacts to worker health and safety from construction, operation, and maintenance of the Proposed Project would be similar for the Applicants' Proposed Action, Route Alternative, and 230-kV Alternative.

Construction

Construction accident risks increase based on the length of the construction period and the number of construction workers for each component of the Proposed Project (section 2.2 for details). All applicable Occupational Safety and Health Administration (OSHA) and Arizona Department of Occupational Safety and Health (ADOSH) codes for health and safety would be followed for all identified and anticipated hazards to worker health and safety, providing for

basic standards of worker health and safety. Implementation and compliance with these codes and standards would be a contractual and legal responsibility of the party performing construction. In addition, utility safety standards and Western's Construction Standards would be implemented for all construction activities.

Potential health impacts to construction workers from the Proposed Project would include fugitive dust and noise typical of construction sites (sections 4.3 and 4.9). Construction workers could be exposed to airborne emissions from routine activities such as welding, soldering, grinding, painting, and cleaning operations. The potential noise impact to workers would include heavy equipment operation and activities. These exposures would be intermittent, but may be intense and would be evaluated at the time of construction. Workers would also be at risk for typical construction site injuries related to trips and falls, working at heights, and operating heavy equipment. Health and safety programs would be designed and carried out by the contractor performing construction to ensure compliance with OSHA and ADOSH codes, including requirements for hearing protection, personal protection equipment, chemical exposure limits, and safe work practices, to minimize potential adverse impacts to worker health and safety during construction. No hazardous wastes would be generated except for a small volume of rags contaminated with oil or grease. These rags will be collected in a separate container and transported off-site for disposal at an approved waste management facility.

The residual health and safety impacts of construction to workers, as mitigated through the measures included as part of the Proposed Project, would be less than significant because there would be no worker hazards beyond limits set by health and safety regulatory agencies, no elevated threat to human life and/or property, and little to no exposure to hazardous wastes.

Operation and Maintenance

Workers required for operation of the proposed transmission lines would generally conduct routine maintenance and inspections on transmission lines in the area. Work areas for maintenance and inspections would be finish-graded and free of surplus construction material and debris in accordance with the requirements of the landowner or land manager, thus mitigating the potential for typical workplace injuries such as trips, cuts, and bruises. There would be a potential for electric shock or electrocution when working around transmission lines and a potential for falls associated with working at heights. The likelihood of this would be very small because Western's and other standard safety practices (International Brotherhood of Electrical Workers, Western Electricity Coordinating Council, and OSHA) would be followed.

The electric and magnetic fields associated with the Applicants' Proposed Action (500-kV) or 230-kV Alternative would be comparable to other existing transmission lines of these voltages in Arizona and the United States. Presently there are no United States Federal or State of Arizona standards for exposure to power-frequency (60-Hz) electric and magnetic fields; however, EMF reductions would be achieved by implementing phase management concepts.

4.12.3.3 Public Health and Safety

Construction

Impacts to public health and safety from construction of the Proposed Project would be similar for the Applicants' Proposed Action, Route Alternative, and 230-kV Alternative.

For a discussion of general construction activities associated with the transmission system additions, refer to the construction discussion in section 4.12.3.2. Temporary fences would be placed wherever feasible to control public access to construction areas. In addition, construction equipment would be secured at night. Therefore, the potential for injury due to trespassing in construction areas would be minimal. No hazardous wastes would be generated except for a small volume of rags contaminated with oil or grease. These rags will be collected in a separate container and transported off-site for disposal at an approved waste management facility.

Operation and Maintenance

The potential hazard to the public from climbing poles would not be a major concern because steel monopole structures are generally not climbable.

Lightning strikes to transmission line structures cause a very small number of wildfires. Usually this is a potential problem in forested and grassland areas where the areas surrounding the structures have natural fuel to support a wildfire. The transmission lines would be designed with overhead ground wires and grounded structures to protect the system from lightning. The potential for vegetation and equipment fires would be reduced by the use of steel (versus wood) structures, proper grounding, ongoing routine equipment maintenance, and keeping structure sites clear of tall vegetation. Furthermore, lightning that would normally strike the ground would be shielded by the transmission line and the lightning would be grounded by the transmission line's overhead ground wires.

The public would be exposed to EMF effects only if they were in the immediate vicinity of the transmission lines. EMF exposure to the public would be temporary because any member of the public would only be near or under the transmission lines for a short period of time. In addition, EMF would be strongest directly beneath the transmission lines and would diminish rapidly with increased distance from the transmission lines, falling to low levels at the edge of the ROW.

The primary difference in EMF between the Applicants' Proposed Action and the 230-kV Alternative is that the electric field of the 500-kV transmission line on and at the edge of the ROW would be higher than that for the 230-kV lines. However, no health effects have been reported for electric fields.

The primary focus of health effects research has been on exposure to magnetic fields. The magnetic field levels of the 230-kV Alternative would be higher than 500-kV transmission lines directly under the transmission lines on the ROW during both normal and emergency operations; however, magnetic field levels at the edge of the 230-kV transmission line ROW would be similar when compared to magnetic fields for the 500-kV transmission line. The magnetic field

level would fall below the National Academy of Sciences guidelines a short distance outside the ROW, and in any case no residences would be located at the very edge of the ROW.

The residual health and safety impacts of construction and operation of the transmission system additions, as mitigated through the mitigation measures described in this section and included as part of the Proposed Project, would be less than significant because there would be no public hazards beyond limits set by health and safety regulatory agencies, no threat to human life and/or property, and little to no exposure of hazardous materials.

4.12.3.4 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built or operated. The potential for accidents associated with construction of the Proposed Project would not occur. Existing EMF levels and health and safety considerations from transmission lines in the area would continue.

4.12.4 Mitigation Measures

There would be no significant adverse impacts to health and safety; therefore, no additional mitigation is considered necessary or proposed.

5 CUMULATIVE IMPACTS

This chapter presents the cumulative impacts analysis based on the potential effects of the proposed San Luis Rio Colorado Project (Proposed Project) when added to impacts from other actions in the region. The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7). The regulations explain, “cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.”

5.1 Methodology

The cumulative impacts analysis focuses on the cumulative effects of past, present, and reasonably foreseeable future actions when added to the potential effects of the Proposed Project and identifies where the cumulative impacts may differ among the action alternatives (Applicants’ Proposed Action, Route Alternative, and 230-kV Alternative). Anticipated Proposed Project activities and resultant effects were described in chapters 1 through 4 of this draft environmental impact statement (DEIS). The region of influence (ROI) for the Proposed Project varies by resource, as described in Chapter 3, Affected Environment. Comments received during scoping included concerns about cumulative impacts of the Proposed Project with the Wellton-Mohawk Title Transfer, Area Service Highway (ASH), Arizona Public Service Company (APS) Palo Verde to North Gila transmission line, and Arizona Clean Fuels (ACF) pipeline and refinery. An additional comment regarded cumulative impacts to the flat-tailed horned lizard. These concerns are addressed in the cumulative impacts analysis.

Cumulative impacts were assessed by combining the anticipated Proposed Project activities with past development activities, present on-going activities, and other reasonably foreseeable future activities and projects. Although individual activities may not result in a significant impact, the combination of the activities at a given time or place could result in a significant impact. For example, to determine significance, if the impact to air quality from existing activities and the Proposed Project added to the anticipated impact to air quality from the proposed APS generating plants would cause air quality standards to be exceeded, a significant cumulative impact would occur.

5.2 Past and Present Actions

Past and present actions within the Proposed Project area include the 242 well field consisting of 21 existing water wells spaced 0.5 miles apart, 242 Lateral, other collector lines, a 34.5-kV transmission line, access roads, and attendant facilities; U.S. Border Patrol surveillance and monitoring of the United States-Mexico border; placement of concrete posts to prevent illegal vehicle crossing of the international border and an adjacent road for border-monitoring; the Barry M. Goldwater Range (BMGR) and ancillary facilities; Sonora, Gila, and North Gila substations and associated transmission and distribution lines; Interstate 8 and other improved

roads; off-highway vehicle use; communication towers near Interstate 8; conversion of desert to agriculture and residential development; and conversion of agricultural land to residential development. The primary ongoing influences in the Proposed Project area include increasing tourism and rapid population growth resulting in conversion of land uses from desert and agriculture to residential and commercial development, increasing demand for electrical and natural gas energy, increasing traffic congestion, declining air quality, and increasing demand for water.

5.3 Reasonably Foreseeable Future Actions

The following actions were identified as reasonably foreseeable and were included in the analysis of cumulative impacts: Wellton-Mohawk Title Transfer, Area Service Highway, Arizona Clean Fuels pipeline and refinery, APS Projects, Western Transmission System Upgrades, San Luis Port of Entry, and regional development.

The following actions were excluded from the cumulative impacts analysis for the stated reasons. Reclamation plans to install an additional 14 wells 1 mile north of the existing wells when additional pumping capacity is needed. However, the current pumping totals are substantially below the pumping capability of the existing well field and below the regulated limit; therefore, construction of additional wells is not anticipated in the reasonably foreseeable future and is not included in this analysis. The Union Pacific Railroad is conducting a study to identify potential rail alignments near the City of Yuma; however, the study is too early in the process for Union Pacific Railroad to disclose any details (Peterson 2006). Information for a new rail alignment is not available; therefore, a new rail alignment is not anticipated in the reasonably foreseeable future and is not included in this analysis.

5.3.1 Wellton-Mohawk Title Transfer

Federal decisions associated with the general transfer of title of the facilities of the Wellton-Mohawk Division of the Gila Project and lands in or adjacent to the Gila Project from the U.S. Bureau of Reclamation (Reclamation) to the Wellton-Mohawk Irrigation and Drainage District (WMIDD) are being addressed in the *Environmental Impact Statement for the Transfer of Title to Facilities, Works, and Lands of the Gila Project, Wellton-Mohawk Division to the Wellton-Mohawk Irrigation and Drainage District, Yuma County, Arizona* (Wellton-Mohawk Title Transfer), which was released by Reclamation as a DEIS for public review in August 2003.

The DEIS is currently being revised and is being used in the decision-making process under the Wellton-Mohawk Transfer Act of June 2000 (Public Law 106-221), where the Secretary of the Interior was authorized to transfer title to the Wellton-Mohawk Division of the Gila Project works, facilities, and certain Federally-owned lands from the United States. The WMIDD is a political subdivision of the State of Arizona constituted to own lands and facilities and to contract with Reclamation for diversion of Colorado River water for delivery to its landowners. Reclamation and the WMIDD signed a Memorandum of Agreement (MOA) in July 1998, amended May 11, 2001, which defines the methods and principles of this title transfer process (68 FR 52613). The Wellton-Mohawk Title Transfer involves lands located adjacent to and east of North Gila Substation. Depending on the route ultimately chosen, the Proposed Project may

cross a small portion of the title transfer lands on the approach to Gila Substation. The approach would depend in part on whether the proposed project were to be built at 500 kV or 230 kV, as the equipment would be placed in different locations in the North Gila Substation depending on the voltage.

5.3.2 Area Service Highway

The proposed ASH is a 23-mile, 4-lane highway that would link Interstate 8 at the Araby Road Interchange to Avenue E at County 23rd Street in San Luis, Arizona. The ASH corridor concept was developed in response to growing transportation needs in Yuma County and is part of the 1995-2015 County-wide Transportation Plan. The purpose of the ASH is to provide a high-speed, limited access highway from the United States-Mexico border at San Luis, Arizona to Interstate 8 (YMPO 2006b).

Coupled with a proposed new port of entry (section 5.3.6) at the United States-Mexico border at Avenue E, the ASH would constitute a major linkage to serve international trade. It would add roadway capacity in the border area to serve increased industrial activity on both sides of the border and serve as a commercial truck bypass route to divert truck traffic from the central business areas in San Luis, Somerton, and Yuma (YMPO 2006b).

On January 7, 1999, the Arizona Department of Transportation (ADOT) signed an Intergovernmental Agreement with the City of Yuma, Yuma County; the City of San Luis, Arizona; the Cocopah Indian Tribe; and the Town of Wellton, defining the cost allocation for the proposed ASH among the participating entities.

ADOT is preparing an environmental assessment for the proposed ASH. The document is in the final stages of preparation.

Portions of the Proposed Project would be co-located with the proposed ASH.

5.3.3 Arizona Clean Fuels Pipeline and Refinery

ACF has received approval from Mexico to build a pipeline from Mexico to Arizona and recently secured a commitment from a Canadian company to supply crude oil to the refinery. A location for the pipeline has not yet been identified; therefore the location of the pipeline is not included in this analysis. The proposed refinery would be built on 1,450 acres located approximately 40 miles east of Yuma. ADEQ issued a draft renewal of the air quality permit that was previously granted for the refinery, giving the company another 18 months to start construction (Yuma Sun 2006a).

5.3.4 APS Projects

Palo Verde Hub to North Gila 500-kV Transmission Line Project

APS “has plans to build a new 500-kilovolt transmission line between the Palo Verde Hub (the area around the Palo Verde Nuclear Generating Station) and the Yuma Area to accommodate unprecedented growth” (APS 2006a).

According to APS’ project fact sheet (APS 2006b):

According to the U.S. Census Bureau, 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 annual 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 system in the Yuma area will be ongoing in the next several years.

The proposed transmission line would be approximately 115 miles long; would originate at an interconnection point at the Palo Verde Hub near Phoenix, Arizona; and would primarily parallel the existing 500-kV Southwest Powerlink to an interconnection point at North Gila Substation (APS 2006a). The proposed transmission line would approach the north end of North Gila Substation and would be located north of the Proposed Project.

APS held informational meetings on the project in March 2006 and plans to file for a Certificate of Environmental Compatibility (CEC) with the Arizona Corporation Commission in the third quarter of 2006.

Two 48-MW Generating Plants

APS currently has an application before the Arizona Corporation Commission (ACC) and intends to build two new generating plants, capable of producing 48-MW each, by the summer of 2008. The generating plants would likely be located adjacent to the Yucca power plant (Yuma Sun 2006c). These additional facilities would be constructed to help serve the growing need for additional power in the Yuma area.

230-kV Transmission System Expansion in Yuma

APS plans to expand portions of the Yuma area transmission system to 230kV as identified in the 2003-2012 Ten-Year Plan (APS 2003) and in the Reliability Must-Run Analysis 2006-2015 (APS 2006c). These reports identified plans to connect a 230-kV transmission line between Gila

Bend and Yuma, construct a 500/230-kV transformer and a 230/69-kV transformer at North Gila Substation, construct a new 230-kV substation, and add additional 230-kV transmission in the Yuma area.

5.3.5 Western Transmission System Upgrade

Western Area Power Administration (Western) plans to upgrade its entire 161-kV transmission system, including associated substations, in the Yuma area to 230-kV. These upgrades are expected to start in 2007. However, when current components of the 161-kV transmission system fail, they are being replaced with 230-kV equipment (DOE 2005).

5.3.6 San Luis Port of Entry

Reclamation prepared the *San Luis, Arizona Commercial Port of Entry Project Environmental Assessment* (September 2000) to evaluate potential environmental impacts of transferring Federal lands under the jurisdiction of Reclamation to the Yuma Metropolitan Planning Organization (YMPO) for the subsequent use of the proposed port of entry facilities. Reclamation issued a Finding of No Significant Impact on July 31, 2000.

The following is taken directly from the *San Luis, Arizona Commercial Port of Entry Project Environmental Assessment* (Reclamation 2000) regarding the project description.

... [the project] would create a new commercial port of entry on a 339-acre parcel located 5 miles east of the existing facility. The purpose of the project is to provide more direct access to major transportation routes between the United States and Mexico and to provide higher levels of service to users of the port of entry. New inspection facilities, administrative buildings, and access roadways would be built. The project would require three phases of construction spread out over a period of at least 10 years to allow for proper expansion to meet demands as they alter with time. First, a new facility, including an administrative building, parking lot, access roadway, support facilities, inspection facilities, impoundment areas, and hazardous waste holding areas would be built near the International Cattle Crossing near San Luis, Arizona. The U.S. primary inspection system would include electronic inspection systems and other computerized processing systems to decrease waiting times. New vehicle inspection facilities would be built to provide higher quality inspections and increased safety. Adequate land would be available for expansion of these facilities. Phase II would close the existing commercial port of entry and would relocate any useable furnishings, fixtures, and equipment to the new port of entry. Once this transition of equipment has occurred, the existing port of entry would be reused for non-commercial port of entry uses. Phase III would not occur until at least ten years after Phase I is completed. This final phase would expand the new facility as demand requires. At the same time, new facilities would be built on the Mexico side of the border to accommodate the same expansion needs.

The Greater Yuma Port Authority is an organization made up of Yuma County, the City of Somerton, the City of San Luis, and the Cocopah Indian Tribe and is responsible for establishing the San Luis East Commercial border crossing (YMPO 2006c). In the United States, the

proposed port of entry would be located 6 miles west of the Proposed Project. A related facility would be built adjacent to the proposed port of entry on the Mexican side of the international border; this facility would be located in the San Luis Rio Colorado Industrial Park.

5.3.7 Regional Development

The Yuma area population is rapidly growing as identified in section 3.10. The corridor along Interstate 8, roughly bordered by the Gila Mountains on the west, downtown Yuma on the east, U.S. Highway 95 on the north, and the BMGR on the south, is experiencing rapid development as a result of the population growth. Proposed development within this corridor includes an elementary school, high school, commercial development, and varying densities of residential development.

5.4 Cumulative Impact Analysis

The potential cumulative effects of the Proposed Project were evaluated for both the construction (anticipated to be 12 months) and post-construction (operation) periods of the Proposed Project. As identified in chapter 4, the Proposed Project's impacts to soils, water, transportation, noise, and socioeconomics are anticipated to be minimal and primarily occur during construction thereby minimizing the cumulative impacts resulting from the Proposed Project; therefore, these resources will not be further evaluated for cumulative impacts.

5.4.1 Air Quality

No significant cumulative impacts are expected to air quality in the Proposed Project area. The Wellton-Mohawk Title Transfer would have no direct impact on air quality. Construction of Western's transmission system upgrades, APS' transmission line and generating plants, ACF's pipeline and refinery, regional development, the port of entry, and ASH would result in fugitive dust emissions during construction that would have a temporary impact on local air quality. Following construction, regional development could reduce impacts on air quality by landscaping and paving areas of loose soils that would otherwise add to fugitive dust during times of naturally occurring high-wind events. All of these activities would be subject to various air quality regulations requiring dust abatement measures.

The new port of entry coupled with the ASH would alleviate traffic congestion and wait times for vehicles at the existing port of entry. Development of the new port of entry would reduce air emissions in the region by reducing the wait time of vehicles at the existing port of entry (Reclamation 2000). The ACF refinery would contribute to additional emissions in the region, but those emissions would be unlikely to travel west of the Gila Mountains. The U.S. Environmental Protection Agency's (EPA's) Prevention of Significant Deterioration (PSD) increments would apply to the refinery and mitigation measures identified in the Arizona Department of Environmental Quality's (ADEQ's) air permit for the refinery would prevent significant deterioration of air quality. No significant cumulative impacts are anticipated as a result of the Proposed Project.

5.4.2 Biological Resources

The impact analysis (section 4.4) identified that impacts to biological resources from the Proposed Project would be less than significant by implementing mitigation measures incorporated into the Proposed Project.

In the past, biological resources have been impacted by the construction of Interstate 8 and local roads; Sonora, Gila, and North Gila substations and associated transmission and distribution lines; conversion of desert to agriculture, residential, and commercial development; and border monitoring activities. Native vegetation has been lost, and wildlife has been displaced as a result of loss of habitat from these activities. There is currently an ongoing loss of biological resources due to the rapid population growth in the area which causes conversions for housing and supporting infrastructure. These conversions result in a loss of habitat for native plants, wildlife, and special status species.

Comments received during scoping identified concern regarding cumulative impacts to the flat-tailed horned lizard. Past, present, and reasonably foreseeable future actions within the Flat-tailed Horned Lizard Management Area (FTHL MA) include the 242 Well Field and associated facilities, existing transmission line, border monitoring activities, illegal vehicular border crossings, the BMGR, and proposed ASH. The Flat-tailed Horned Lizard Rangewide Management Strategy (FTHL Interagency Coordinating Committee 2003) was developed to identify methods for protecting the flat-tailed horned lizard and provides guidance for projects occurring within the FTHL MA.

The Wellton-Mohawk Title Transfer, APS' transmission line, regional development adjacent to Interstate 8, and ACF's pipeline and refinery would not result in impacts to the flat-tailed horned lizard because they are not located near habitat for the species. The current project to place concrete vehicle barrier posts along the border should greatly reduce illegal off-road vehicle traffic from Mexico across the FTHL MA, and the associated negative impacts to the species. The new port of entry and proposed ASH would be located on the boundary of the FTHL MA. The Route Alternative was identified in part to create less disturbance than the Applicants' Proposed Action within the FTHL MA (table 5.4-1).

Table 5.4-1. Disturbance within Flat-tailed Horned Lizard Management Area (FTHL MA)

	Transmission Support Structure Disturbance within FTHL MA (acres)	New Access Roads within FTHL MA (miles)
Applicants' Proposed Action	0.15	4.4
Route Alternative	0.15	2.8
Applicants' Proposed Action with 230-kV Alternative	0.07	4.4
Route Alternative with 230-kV Alternative	0.07	2.8

The majority of the FTHL MA is located on the BMGR, which would not be developed in the reasonably foreseeable future. If the guidance presented in the Flat-tailed Horned Lizard Rangewide Management Strategy is followed, cumulative impacts of reasonably foreseeable

future actions with the Proposed Project would result in less than significant impacts to the flat-tailed horned lizard.

5.4.3 Cultural Resources

Cumulative impacts to cultural resources, such as prehistoric properties, historic properties, and cultural landscapes, cannot be determined until a 100-percent Class III Survey is completed. Cumulative impacts to cultural resources are difficult to assess as impacts depend on where sites are located with respect to development activities. However, state and Federal projects would require surveys and mitigation of impacts, whereas sites on private lands are not afforded the same legal protection and could be lost. Western's preferred form of mitigation is to avoid any identified sites. A Programmatic Agreement is being developed between Western, State Historic Preservation Office, affected Federal agencies, Applicants, and all interested Native American Tribes. Compliance with the Programmatic Agreement provisions would ensure that section 106 requirements are met.

5.4.4 Land Use

As identified in sections 3.6 and 4.6, several regional development activities are currently being constructed and are proposed in the Proposed Project area. The City of Yuma proposed the East Yuma Freeway to be located adjacent to the south side of the A Canal and east of the proposed ASH. In addition to varying densities of residential development, a large master-planned community (Ocotillo) is under construction within the area between Avenue 6E and Avenue 8E and between the northern boundary of the BMGR and A Canal. Additional reasonably foreseeable future activities include an elementary school, high school, and commercial development (section 5.3.7) and the proposed ASH. The rapid growth of the Yuma area will continue to drive development, which will be subject to city or county planning and zoning regulations.

The Wellton-Mohawk Title Transfer would not directly affect land use in the area. Western's transmission system upgrades would not affect land use because the upgrades would occur within the ROW. It is assumed that APS' proposed transmission line would interconnect the north end of North Gila Substation, would be constructed within the existing substation boundary, and, therefore, would not impact land use. APS' proposed generating plants and transmission system expansion would be subject to City of Yuma and Yuma County zoning regulations and planning documents; therefore, these activities should not result in significant impacts to land use. This additional electricity generation and transmission within the area is needed to address the growing population and maintain transmission system stability.

The pipeline location has not yet been determined, and as such impacts to land use cannot be determined. The ACF refinery would represent a change in land use; land would change from an open undeveloped area to a complex industrial site with associated impacts on visual resources, air quality, noise, etc. which would cause potential impact to land uses in the vicinity. However, the refinery would be located approximately 40 miles to the east of the Proposed Project and would not cumulatively add to land use impacts within the Proposed Project area.

Regional development, the new port of entry, and the proposed ASH are in part the result of the growing population trend as described in section 3.10. All of these activities would convert primarily undeveloped desert into land uses needed to accommodate the growing population. The growth pattern of the local area is not expected to change as a result of the Proposed Project. Past, present, and reasonably foreseeable future activities have affected land use in the Yuma area; however, the Proposed Project has low levels of land use impact associated with it, and would result in a negligible contribution to the impact of overall development in the Yuma area.

5.4.5 Visual Resources

No significant impacts to visual resources are expected as a result of the Proposed Project. Photo simulations of the proposed transmission lines illustrate that the proposed alternatives would result in an apparent addition to the existing landscape, but a less than significant one. However, the Route Alternative and 230-kV Alternative would have less impact than the Applicants' Proposed Action. The Wellton-Mohawk Title Transfer would not have a cumulative impact on visual resources. The ACF pipeline and refinery and the new port of entry would not be visible within the Proposed Project area and, therefore, would not result in significant impacts when cumulatively added to impacts from the Proposed Project.

Portions of Western's transmission system upgrades are proposed within the landscape of the Proposed Project; however, the upgrades would involve existing facilities and would not substantially alter the existing landscape. APS' proposed transmission line would be located north of the Proposed Project area and would parallel an existing transmission line of the same size. Neither of these projects would result in significant impacts when cumulatively added to the Proposed Project.

Regional development and the ASH would cumulatively add to visual impacts near the northern boundary of the BMGR because of the sensitivity of viewers within this area. The Route Alternative would be located farther from the area of sensitive viewers and would parallel the proposed ASH along the northern boundary of the BMGR compared with the Applicants' Proposed Action. The 230-kV Alternative would use shorter, less massive structures than the Applicants' Proposed Action. Use of the Route Alternative and 230-kV Alternative would diminish the appearance of the proposed transmission line within the landscape compared with the Applicants' Proposed Action. The overall visual character of the existing landscape would substantially change with the construction of the ASH because the majority of the alignment would occur in a relatively natural, undeveloped area (ADOT 2005) with higher viewer sensitivity; therefore, the cumulative impact to visual resources in this area would be significant.

5.4.6 Environmental Justice

Minority and low-income populations do not exist in sufficient densities to warrant their designation as minority or low-income populations under the CEQ criteria; therefore, there would be no cumulative impacts to environmental justice under those criteria as a result of the Proposed Project. In addition, future projects would not have environmental justice impacts under those criteria unless the population characteristics change. Cumulative impacts to cultural resources and landscape issues are addressed in section 5.4.3.

5.4.7 Health and Safety

Worker health and safety impacts from the construction, operation, and maintenance of the Proposed Project would be related to typical work-related injuries and fugitive dust. All construction, operation, and maintenance activities would have little to no impact because risks to worker and public health and safety would be minimized through facility design, safe work practices, and continuous maintenance in compliance with Occupational Health and Safety Administration's (OSHA's) and State of Arizona regulations. Potential health and safety impacts from construction, operation, and maintenance of reasonably foreseeable actions would be similar, but those activities would occur at different locations and times than the Proposed Project.

No Federal regulations have been established specifying environmental limits on the strengths of electric and magnetic fields (EMFs) from electric transmission lines. Section 4.12 gives example EMF exposures of double-circuit 500-kV and double-circuit 230-kV transmission lines. During normal operation, magnetic fields at the edge of the ROW would be well below the recommended guidelines of the International Commission on Non-Ionizing Radiation (833 milligauss [mG]) and the American Conference of Governmental Industrial Hygienist (1,000 mG); however, the levels would be approximately 1 mG higher than the recommended National Academy of Sciences guidelines (0.1 to 3.0 mG). The magnetic field level would fall below the National Academy of Sciences guidelines a short distance outside the ROW. During periodic maintenance activities, the magnetic field at the edge of the ROW would be slightly higher; however, this would be less than 1 percent of the time, and the resulting EMF would still be comparable with other existing transmission lines of similar voltage. While extensive research has been conducted to determine if exposure to electric or magnetic fields may cause or promote adverse health effects, the National Institute of Environmental Health Sciences (NIEHS) concluded that "the scientific evidence suggesting that extremely low frequency (ELF)-EMF exposures pose any health risk is weak" and that "the probability that EMF exposure is truly a health hazard is currently small" (NIEHS 1999). Based on this assessment, and the fact that no occupied buildings would be right on the edge of the ROW, no long-term cumulative human health impacts are expected to occur.

6 UNAVOIDABLE ADVERSE IMPACTS

Construction, operation, and maintenance of the Proposed Project would result in some unavoidable adverse impacts within the United States. Unavoidable impacts are those that would occur after implementing all of the mitigation measures. Unavoidable adverse impacts would occur to land use and biological resources and could occur to cultural resources as described below. The Proposed Project would have a less than significant impact on the other resource areas as identified in chapter 4.

The area occupied by the footings or anchors for support structures would result in removing a minor amount of agricultural lands from production and is an unavoidable impact. If transmission is consolidated across the Gila Valley, this use of farmland would be offset by removing existing structures within the same agricultural areas and the ability of that land to go back into agricultural production. The existing structures are smaller but more frequently placed than the proposed structures, and have two poles in the ground instead of one, which removes considerably more land from production than a single pole.

The City of Yuma passed a resolution in March 2006 opposing a 500-kV transmission line along the proposed ASH and East Yuma Freeway. The East Yuma Freeway was proposed to be located adjacent to the south side of the A Canal and east of the proposed ASH. The proposed transmission line would conflict with the City of Yuma's resolution and would result in an unavoidable significant impact on the city's land planning policy. A large master-planned community (Ocotillo) is under construction within the area of the resolution between the northern boundary of the BMGR and the A Canal. The developer of the master-planned community identified placement of the proposed transmission line adjacent to the south side of the A Canal as the least impactful location for a transmission line through the community. In addition, this route provides the greatest potential for joint use of ROW with other linear facilities including the A Canal, Gila-Sonora Transmission Line, and proposed ASH.

The Applicants' Proposed Action would be located in an area of engineering constraint at the intersection of County 19th and Avenue 4E. U.S. Marine Corps personnel requested that a transmission line constructed near this intersection be reduced in height because of proximity to a flight landing pattern on the Barry M. Goldwater Range (BMGR). However, as part of the proposed ASH, there is a proposed overpass at County 19th that would require transmission support structures to be built higher to meet safety clearance requirements at this intersection. At the intersection of County 19th and Avenue 4E, building the support structures taller would impact aviation, and building them shorter would impact health and safety. Constructing the Applicants' Proposed Action would, therefore, result in significant unavoidable adverse impacts to land use. The Route Alternative would not be located near the intersection of County 19th and Avenue 4E; therefore, the Route Alternative would not result in significant adverse land use impacts at this intersection.

The Applicants' Proposed Action would result in condemning houses currently under construction adjacent to the south side of the A Canal between Avenue 6E and Avenue 6½E because the houses are being constructed immediately adjacent to the existing transmission line

ROW. This would constitute a significant adverse impact. The Route Alternative would not be located adjacent to the south side of the A Canal between Avenue 6E and Avenue 6½E; therefore, the Route Alternative would not result in the condemnation of houses in this area, and would avoid these significant impacts.

The Proposed Project would originate at a point on the United States-Mexico border that is within the Flat-tailed Horned Lizard Management Area (FTHL MA). Routing a transmission line between this point on the border and Gila Substation would unavoidably require crossing the FTHL MA and creating ground disturbance within this area. The Route Alternative provides the most direct route across the FTHL MA and would parallel an existing access road and transmission line within this area, minimizing the amount of new access to structures that would be required, and therefore impacts to habitat within the FTHL MA.

Unavoidable adverse impact to cultural resources, such as prehistoric properties, historic properties, and cultural landscapes, cannot be determined until a 100-percent Class III Survey is completed. A Programmatic Agreement is being developed among Western, State Historic Preservation Office, affected Federal agencies, Applicants, and all interested Native American Tribes. Compliance with the Programmatic Agreement provisions would ensure that section 106 requirements are met. Western's preferred form of mitigation is avoidance of any identified sites. Site avoidance is practicable in most cases because the proposed transmission line would have only four to five structures per mile, and there is sufficient flexibility in routing access to each structure.

7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

This section describes the irreversible and irretrievable commitments of resources associated with implementing the Proposed Project within the United States. A commitment of resources is irreversible when primary or secondary impacts limit the future options for a resource. An irretrievable commitment refers to the lost production or use of a resource that would cause the resource to be unavailable for use by future generations. Examples of these types of resources include nonrenewable resources, such as minerals and cultural resources, and renewable resources that would be unavailable for the use of future generations such as loss of production, harvest, or habitat.

Constructing, operating, and maintaining the proposed transmission lines would require committing land, soil, and vegetation to place transmission support structures, new access roads and spurs, and substations modifications. While it is possible that these structures could be removed and the natural landscape restored, it is unlikely in the foreseeable future; therefore, these structures would constitute an irretrievable commitment of land. The proposed alternatives would require the use of similar amounts of land, soil, and vegetation.

Constructing the footings or anchors for support structures would result in removing a minor amount of agricultural lands from production and is considered an irreversible and irretrievable commitment of farmland. If transmission is consolidated across the Gila Valley, this use of land would be offset by removing existing structures within the same agricultural areas and the ability of that land to go back into agricultural production. The existing structures are smaller but more frequently placed than the proposed structures, and have two poles instead of one, which removes considerably more land from production than a single pole.

The areas occupied by the footings or anchors for support structures, access roads, and substation modifications would be irreversibly removed from natural habitat. Habitat for the flat-tailed horned lizard would be lost from placing transmission support structures and access roads; however, implementation of mitigation measures would make it unlikely that individual lizards would be destroyed (section 4.4). The Route Alternative would result in less disturbance to flat-tailed horned lizard habitat than the Applicants' Proposed Action (sections 4.4) because it would use more existing access roads and require less new access to structures.

Cultural resources are nonrenewable resources. Irreversible and irretrievable commitments of cultural resources, such as prehistoric properties, historic properties, and cultural landscapes, cannot be determined until a 100-percent Class III Survey is completed. A Programmatic Agreement is being developed among Western, State Historic Preservation Office, affected Federal agencies, Applicants, and all interested Native American Tribes. Western's preferred form of mitigation is to avoid any identified sites. Compliance with the Programmatic Agreement provisions would ensure that section 106 requirements are met.

Construction of the proposed transmission system additions would require an irretrievable and irreversible commitment of building materials and fuel for construction equipment. Materials used for constructing the transmission support structures and concrete for their anchors are

ultimately recyclable but would remain an irreversible commitment of resources for the life of the Proposed Project. The Proposed Project would require an irreversible commitment of sand and gravel resources extracted from local sources to make the concrete footings for monopoles. Assuming transmission is consolidated with the proposed transmission line and a 69-kV circuit is underbuilt on the support structures, the Applicants' Proposed Action would require approximately 149 structures, whereas the Route Alternative would require approximately 151 structures. Small quantities of fossil fuels would be irretrievably consumed during the construction and maintenance of the transmission system additions. The consumption of fuel would be of relatively short duration and would not constitute a long-term drain on local resources.

8 SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

This section discusses the Proposed Project's short-term use of the local environment and the maintenance and enhancement of long-term productivity. "Short-term" is considered the life of the project, and "long-term" is anything beyond the life of the project. The impacts and use of resources associated with the Proposed Project are described in Chapter 4.

For most of the Proposed Project, the alternatives are located adjacent to existing and proposed linear features (e.g., roads, canals, and electric transmission lines) within areas that are previously disturbed. This would allow proposed facilities to share rights-of-way and existing access roads with other existing and proposed facilities, and reduce overall impacts. The proposed transmission system additions are expected to be in place for long-term use to move electricity throughout the region and may be replaced or upgraded in the future to continue to provide electricity as other regional transmission system changes occur.

Although the alternatives do not require a major amount of land to be taken out of production, losses of terrestrial plants, animals, and habitats from natural productivity to accommodate the proposed facilities and temporary disturbances during construction are possible. Land-clearing and construction activities, including personnel and equipment moving about an area, would disperse wildlife and temporarily eliminate habitats. Short-term disturbances of previously undisturbed biological habitats from constructing the transmission line and other structures could cause long-term reductions in the biological productivity of an area because biological communities in arid regions tend to recover very slowly from disturbances. Effects of long-term occupancy by the proposed transmission line include negative effects of encounters between humans and wildlife such as mortality from maintenance vehicles; however, maintenance activities are anticipated to occur infrequently, on the order of annually.

The proposed alternatives would result in removing a small amount of agricultural lands from long-term production. If transmission is consolidated across the Gila Valley, this use of land would be offset by removing existing structures within the same agricultural areas and the ability of that land to go back into agricultural production. The existing structures are smaller but more frequently placed than the proposed structures, and have two poles instead of one, which removes considerably more land from production than a single pole.

Use, productivity, and resource commitment related to cultural resources, such as prehistoric properties, historic properties, and cultural landscapes, cannot be determined until a 100-percent Class III Survey is completed. Western's preferred form of mitigation is to avoid any identified sites. A Programmatic Agreement is being developed among Western, State Historic Preservation Office, affected Federal agencies, Applicants, and all interested Native American Tribes. Compliance with the Programmatic Agreement provisions would ensure that section 106 requirements are met.

Improved electricity reliability to the Yuma region would be expected to contribute to long-term socioeconomic benefits, including business development and regional growth.

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9 AGENCIES AND PERSONS CONTACTED/CONSULTED

The Department of Energy, as the lead Federal agency, has consulted with Federal, State, and local agencies and Native American groups regarding the potential alternatives for the proposed San Luis Rio Colorado Project. The following is a list of contacts that were made during preparation of this draft environmental impact statement (DEIS).

Federal Agencies

Department of Homeland Security – United States Border Patrol, Yuma Sector
Federal Aviation Administration – Western-Pacific Region
Federal Emergency Management Agency
International Boundary and Water Commission
Marine Corps Air Station – Yuma, Arizona
U.S. Bureau of Land Management – Yuma Field Office
U.S. Bureau of Reclamation – Yuma Area Office
U.S. Department of Agriculture – Natural Resources Conservation Services
U.S. Department of the Navy
U.S. Fish and Wildlife Service – Arizona Ecological Services Field Office
U.S. Geological Survey

State and Local Agencies

Arizona Department of Transportation – Yuma District Office
Arizona Game and Fish Department
Arizona Public Service Company (APS)
Arizona State Historic Preservation Office
City of Yuma – Department of Community Development
City of San Luis – Community Development
North Gila Irrigation District
Yuma County Chamber of Commerce
Yuma County – Department of Development Services
Yuma County Water Users' Association
Yuma Irrigation District
Yuma Mesa Irrigation and Drainage District

Native American Tribes and Communities

Ak-Chin Indian Community	Hualapai Tribe
Campo Band of Mission Indians	Kaibab Band of Paiute Indians
Chemehuevi Indian Tribe	Navajo Nation
Cocopah Indian Tribe	Pascua Yaqui Tribe
Colorado River Indian Tribes	Salt River Pima-Maricopa Indian Community
Fort McDowell Yavapai Nation	San Carlos Apache Tribe
Fort Mojave Indian Tribe	Tohono O'odham Nation
Fort Yuma Quechan Tribe	Tonto Apache Tribe
Gila River Indian Community	Viejas Band of Mission Indians
Hia-Ced O'odham Alliance	Yavapai-Apache Nation
Hopi Tribe	Yavapai-Prescott Indian Tribe

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10 LIST OF PREPARERS

The San Luis Rio Colorado Draft Environmental Impact Statement was prepared under the supervision of Western Area Power Administration. The individuals who contributed to the preparation of this document are listed below, accompanied by their organization, education, years of experience, and project role.

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11 DISCLOSURE STATEMENT



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Organizational Conflict of Interest Representation Statement

I hereby certify as a representative ARCADIS that, to the best of my knowledge and belief, no facts exist relevant to any past, present or currently planned interest or activity (financial, contractual, personal, organizational or otherwise) that relate to the proposed work; and bear on whether I, or ARCADIS has a possible conflict of interest with respect to (1) being able to render impartial, technically sound, and objective assistance or advice; or (2) being given an unfair competitive advantage.

A handwritten signature in black ink, appearing to read 'R. Schroeder', written over a horizontal line.

Randy Schroeder, Sr. Vice President

A handwritten date '2/21/06' written in black ink.

Date

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12 LIST OF GOVERNMENT AGENCIES, ORGANIZATIONS, AND INDIVIDUALS TO RECEIVE THE EIS

Federal Agencies

Department of Defense

Army Yuma Proving Ground

Marine Corps Air Station Yuma

Department of Energy

Office of Electricity Delivery and Energy Reliability

Western Area Power Administration

Desert Southwest Region

Corporate Services Office

Department of Homeland Security

U.S. Customs and Border Protection

Department of the Interior

Bureau of Indian Affairs – Fort Yuma Agency

Bureau of Land Management

Yuma Field Office

Arizona State Office

Bureau of Reclamation – Yuma Area Office

Fish and Wildlife Service – Ecological Services Office (Phoenix)

Department of Transportation

Federal Aviation Administration

Environmental Protection Agency

Office of Federal Activities

Office of Environmental Review

Region 9

Federal Energy Regulatory Commission

International Boundary and Water Commission

El Paso

Yuma

State and Local Agencies

Arizona Department of Environmental Quality

Arizona Department of Transportation – Yuma District Office

Arizona Game and Fish Department

Arizona Public Service Company (APS)

Arizona State Historic Preservation Office

Arizona State Land Department

City of Yuma – Department of Community Development

City of San Luis – Community Development

Salt River Project (SRP)

Yuma County Chamber of Commerce

Yuma County – Department of Development Services

Yuma Mesa Irrigation and Drainage District

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Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Fort Yuma-Quechan Tribe
Gila River Indian Community
Hopi Tribe
Hualapai Tribe
Kaibab Band of Paiute Indians
Navajo Nation
Pascua Yaqui Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Tohono O'odham Nation
Tonto Apache Tribe
Viejas Band of Mission Indians
Yavapai-Apache Nation
Yavapai-Prescott Indian Tribe

Public Officials

Janet Napolitano, Governor of Arizona
State Representative Amanda Aguirre
State Representative Russell Jones
State Senator Robert Cannell
U.S. Representative Raul Grijalva
U.S. Senator Jon Kyl
U.S. Senator John McCain

Individuals and Organizations

Border Ecology Project
Foresight Wind Energy
North Branch Resources, LLC
University of Utah

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14 GLOSSARY

This chapter contains a glossary of words used in this environmental impact statement (EIS).

Acre-foot: The volume of water that will cover an area of 1 acre to a depth of 1 foot (326,000 gallons, 0.5 second foot days, 1,233.5 cubic meters).

Advisory Council on Historic Preservation: A 19-member body appointed to advise the President and Congress in the coordination of actions by Federal agencies on matters relating to historic preservation.

Aesthetics: Referring to the perception of beauty.

Affected environment: Existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action.

Air dispersion modeling: a mathematical simulation, usually computer-generated, of how gases, vapors, or particles disperse into the air.

Air pollutant: Generally, an airborne substance that could, in high enough concentrations, harm living things or cause damage to materials. From a regulatory perspective, an air pollutant is a substance for which emissions or atmospheric concentrations are regulated or for which maximum guideline levels have been established due to potential harmful effects on human health and welfare.

Air Quality Standards: The level of pollutants prescribed by regulation that may not be exceeded during a specified time in a defined area.

Alluvial deposits: Deposits of earth, sand, gravel, and other materials carried by moving surface water deposited at points of weak water flow.

Ambient air: Any unconfined portion of the atmosphere; open air, surrounding air. That portion of the atmosphere, external to buildings, to which the general public has access.

Amperes: Measure of the flow of electric current; source of a magnetic field.

Antiquities Act of 1906: Protects all historic and prehistoric sites on Federal lands and prohibits excavation or destruction of such antiquities unless a permit is obtained.

Applicant: Generadora del Desierto S.A. de C.V. and North Branch Resources, LLC.

Aquifer: A body of rock or sediment in a formation, group of formations, or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

Archaeological sites (resources): Any location where humans have altered the terrain or discarded artifacts during either prehistoric or historic times.

Archaeology: A scientific approach to the study of human ecology, cultural history, and cultural process.

Area of potential effects: The area of potential direct effect to cultural resources within which a systematic cultural resource inventory is required.

Artifact: An object produced or shaped by human workmanship of archaeological or historical interest.

Atmospheric dispersion: The process of air pollutants being dispersed into the atmosphere. This occurs by the wind that carries the pollutants away from their source and by turbulent air motion that results from solar heating of the Earth's surface and air movement over rough terrain and surfaces.

Attainment area: An area which the U.S. Environmental Protection Agency (EPA) has designated as being in compliance with one or more of the National Ambient Air Quality Standards (NAAQS) for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. Any area may be in attainment for some pollutants but not for others.

Auxiliary transformer: A backup transformer.

Background noise: The total acoustical and electrical noise from all sources in a measurement system that may interfere with the production, transmission, time averaging, measurement, or recording of an acoustical signal.

Blackout: Lack of illumination (and other uses of electricity) due to an electrical power failure.

Bounding: A credible upper limit to consequences or impacts.

Breaker: A switching device that is capable of closing or interrupting an electrical circuit under over-load or short-circuit conditions as well as under normal load conditions.

Brownout: A reduction or cutback in electrical power especially as a result of a shortage.

Bus: A set of two or more electrical conductors that serve as common connections between load circuits and each of the phases (in alternating current systems) of the source of electric power.

Candidate species: A species of plant or animal for which there is sufficient information to indicate biological vulnerability and threat, and for which proposing to list as "threatened" or "endangered" is or may be appropriate.

Capability: The maximum load that a generator, turbine, transmission circuit, apparatus, station, or system can supply under specified conditions for a given time interval, without exceeding approved limits of temperature and stress.

Capacity: The load for which a generator, turbine, transformer, transmission circuit, apparatus, station, or system is rated. Capacity is also used synonymously with capability.

Carbon monoxide (CO): A colorless, odorless gas that is toxic if breathed in high concentrations over a period of time. It is formed as the product of the incomplete combustion of hydrocarbons (fuel).

Class I, II, and III Areas: Area classifications, defined by the Clean Air Act, for which there are established limits to the annual amount of air pollution increase. Class I areas include international parks and certain national parks and wilderness areas; allowable increases in air pollution are very limited. Air pollution increases in Class II areas are less limited, and are least limited in Class III areas. Areas not designated as Class I start out as Class II and may be reclassified up or down by the state, subject to Federal requirements.

Clean Air Act (CAA): (42 U.S.C. 7401 et seq.) Establishes (1) national air quality criteria and control techniques (section 7408); (2) NAAQS (section 7409); (3) state implementation plan requirements (section 4710); (4) Federal performance standards for stationary sources (section 4711); (5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (section 7412); (6) applicability of CAA to Federal facilities (section 7418), i.e., Federal agency must comply with Federal, state, and local requirements respecting control and abatement of air pollution, including permit and other procedural requirements, to the same extent as any person; (7) Federal new motor vehicle emission standards (section 7521); (8) regulations for fuel (section 7545); (9) aircraft emission standards (section 7571).

Clean Water Act (CWA): (33 U.S.C. 1251 et seq.) Restores and maintains the chemical, physical, and biological integrity of the nation's waters.

Code of Federal Regulations (CFR): All Federal regulations in force are published in codified form in the *Code of Federal Regulations*.

Combined-Cycle Generation Facility: The combination of a gas turbine and a steam turbine in an electric generation plant. The waste heat from the gas turbine provides the heat energy for the steam turbine.

Combustion turbine: Turbine operating on fuels that are capable of converting heat energy into electrical energy.

Combustion Turbine Generator (CTG): Turbine generator where inlet air would be compressed as it flows through the stages of the compressors, where it would then enter the combustion chambers.

Community (biotic): All plants and animals occupying a specific area under relatively similar conditions.

Compressor: A machine, especially a pump, for compressing air, gas, etc.

Conservation: A reduction in electric power consumption as a result of increases in the efficiency of energy use, production, or distribution.

Corona effect: Electrical breakdown of air into charged particles. It is caused by the electric field at the surface of conductors.

Council on Environmental Quality (CEQ): Established by the National Environmental Policy Act (NEPA), the CEQ consists of three members appointed by the President. A CEQ regulation (Title 40 CFR 1500-1508, as of July 1, 1986) describes the process for implementing NEPA, including preparation of environmental assessments and environmental impacts statements, and the timing and extent of public participation.

Criteria pollutants: An air pollutant that is regulated by the NAAQS. The EPA must describe the characteristics and potential health and welfare effects that form the basis for setting or revising the standard for each regulated pollutant. Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter.

Critical habitat: Defined in the Endangered Species Act of 1973 as “specific areas within the geographical area occupied by [an endangered or threatened] species..., essential to the conservation of the species and which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species... that are essential for the conservation of the species.”

Cultural resources: Districts, sites, structures, and objects and evidence of some importance to a culture, a subculture, or a community for scientific, traditional, religious, and other reasons. These resources and relevant environmental data are important for describing and reconstructing past lifeways, for interpreting human behavior, and for predicting future courses of cultural development.

Cumulative impact: The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Customer: Any entity or entities purchasing power from the power generator or distributor provider.

Decibel (dB): A unit for expressing the relative intensity of sounds on a logarithmic scale from 0 for the average least perceptible sound to about 130 for the average level at which sound causes pain to humans. For traffic and industrial noise measurements, the A-weighted decibel (dBA), a frequency-weighted noise unit, is widely used. The A-weighted decibel scale corresponds approximately to the frequency response of the human ear and thus correlates well with loudness.

Demand: The rate at which energy is used at a given instant or averaged over a designated period of time.

Demineralizer: A device that removes minerals from raw water so that water can be utilized in industrial processes.

Deposition: In geology, the laying down of potential rock-forming materials; sedimentation. In atmospheric transport, the settling out on ground and building surfaces of atmospheric aerosols and particles (“dry deposition”) or their removal from the air to the ground by precipitation (“wet deposition” or “rainout”).

Desert Southwest Customer Service Regional Office: A regional office of Western Area Power Administration located in Phoenix, Arizona. This office is responsible for the region that includes the Proposed Project area.

Drawdown: The height difference between the natural water level in a formation and the reduced water level in the formation caused by the withdrawal of ground water.

Drinking water standards: The prescribed level of constituents or characteristics in a drinking water supply that cannot be exceeded legally.

Ecology: A branch of science dealing with the interrelationships of living organisms with one another and with their nonliving environment.

Ecosystem: Living organisms and their non-living (abiotic) environment functioning together as a community.

Effects (impacts): As used in NEPA documentation, the terms effects and impacts are synonymous. Effects can be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Elevation: Height in feet above sea level.

Eligibility: The criteria of significance in American history, architecture, archeology, engineering, and culture. The criteria require integrity and association with lives or events, distinctiveness for any of a variety of reasons, or importance because of information the property does or could hold.

Eligible cultural resource: A cultural resource that has been evaluated and reviewed by an agency and the State Historic Preservation Officer and recommended as eligible for inclusion in the National Register of Historic Places, based on the criteria of significance.

Emissions: Pollution discharged into the atmosphere from smoke stacks, other vents, and surface areas of commercial or industrial facilities, residential chimneys, and vehicle exhausts.

Emission Standards: Requirements established by a state, local government, or the EPA Administrator that limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis.

Endangered species: Plants or animals that are in danger of extinction through all or a significant portion of their ranges and that have been listed as endangered by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the procedures outlined in the Endangered Species Act and its implementing regulations (50 CFR 424). *Note: Some states also list species as endangered.*

Endangered Species Act of 1973: (16 U.S.C. 1531 et seq.) Provides for listing and protection of animal and plant species identified as in danger, or likely to be in danger, or extinction throughout all or a significant portion of their range. Section 7 places strict requirements on Federal agencies to protect listed species.

Environmental Impact Statement (EIS): The detailed written statement that is required by section 102(2)(C) of NEPA for a proposed major Federal action significantly affecting the quality of the human environment. A Department Of Energy (DOE) EIS is prepared in accordance with applicable requirements of the CEQ NEPA regulations in 40 CFR Parts 1500-1508, and the U.S. Department of Energy (DOE) NEPA regulations in 10 CFR Part 1021.

Environmental Justice: Identification of potential disproportionately high and adverse impacts on low-income and/or minority populations that may result from proposed Federal actions (required by Executive Order 12898).

Energy: That which does or is capable of doing work. It is measured in terms of the work it is capable of doing; electric energy is usually measured in kilowatt-hours.

Environmental Portfolio Standard: An ACC provision stating that any load serving entity shall derive a percentage of its total retail energy sold from new solar resources or environmentally friendly renewable electricity technologies, whether that energy is purchased or generated by the seller.

Ephemeral stream: A stream or river that flows only after a period of heavy precipitation.

Erosion: Wearing away of soil and rock by weathering and the actions of surface water, wind, and underground water.

Ethnographic: Information about cultural beliefs and practices.

Executive Order 12898: Issued by the President on February 11, 1994, this Executive Order requires Federal agencies to develop implementation strategies, identify low-income and minority populations that may be disproportionately impacted by proposed Federal actions, and solicit the participation of low-income and minority populations.

“F” type: Frame type combustion turbine generator.

Facility: The power generating components of the natural gas-fired, simple cycle peaking power plant.

Fault: A fracture or a zone of fractures within a rock formation along which vertical, horizontal, or transverse slippage has occurred. A normal fault occurs when the hanging wall has been depressed in relation to the footwall. A reverse fault occurs when the hanging wall has been raised in relation to the footwall.

Federal Energy Regulatory Commission (FERC): An agency within DOE that regulates interstate transfers of electrical energy, certificates for natural gas pipelines, resource development, and other energy actions.

Field effect: Induced currents and voltages as well as related effects that might occur as a result of electric and magnetic fields at ground level.

Floodplain: The lowlands adjoining inland and coastal waters and relatively flat areas, including at a minimum that area inundated by a 1-percent or greater chance flood in any given year. The base floodplain is defined as the 100-year (1.0 percent) floodplain. The critical action floodplain is defined as the 500-year (0.2 percent) floodplain.

Formation: In geology, the primary unit of formal stratigraphic mapping or description. Most formations possess certain distinctive features.

Generating unit: The combination of a generator and step-up transformer.

Generation: The act or process of producing electricity from other forms of energy.

Generator: A machine that converts mechanical energy into electrical energy.

Ground water: Water within the earth that supplies wells and springs.

Hazardous Air Pollutants: Air pollutants that are not covered by ambient air quality standards, but that may present a threat of adverse human health effects or adverse environmental effects.

Hazardous waste: A category of waste regulated under the Resource Conservation and Recovery Act (RCRA). To be considered hazardous, a waste must be a solid waste under RCRA and must exhibit at least one of four characteristics described in 40 CFR 261.20 through 40 CFR 261.24 (i.e., ignitability, corrosivity, reactivity, or toxicity) or be specifically listed by the Environmental Protection Agency in 40 CFR 261.31 through 40 CFR 261.33.

Heat Recovery Steam Generators (HRSG): A device that is coupled to a combustion turbine to produce high temperature steam for electrical generation.

Historic properties: Properties of national, state, or local significance in American history, architecture, archaeology, engineering, or culture, and worthy of preservation.

Hydraulic conductivity: A coefficient describing the rate at which water can move through a permeable medium.

Hydric soils: Soils containing considerable moisture.

Hydrophytic vegetation: Vegetation adapted to an aquatic or very wet environment

Impacts (effects): An assessment of the meaning of changes in all attributes being studied for a given resource; an aggregation of all the positive and negative effects, usually measured using a qualitative and nominally subjective technique. In this EIS, as well as in the CEQ regulations, the word impact is used synonymously with the word effect.

Indirect impacts: Impacts resulting from an action that are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Infrastructure: The basic installations and facilities (e.g., roads, schools, power plants, transportation, communication systems) on which the continuance and growth of a community or state are based.

Intaglio: A design or figure incised beneath the surface of hard stone.

Interested parties: Those groups or individuals that are interested, for whatever reason, in the project and its progress. Interested parties include but are not limited to private individuals, public agencies, organizations, customers, and potential customers.

Invertebrate: Animals characterized by not having a backbone or spinal column, including a wide variety of organisms such as insects, spiders, worms, clams, crayfish, etc.

Irrigation District: An irrigation district typically provides irrigation water for agricultural use by diverting water from a river or stream, and drainage services by re-capturing used irrigation water.

Kilovolt (kV): The electrical unit of power that equals 1,000 volts.

Lithic: A stone artifact that has been modified or altered by human hands.

Load: The amount of electric power required at a given point on a system.

Loam: A rich, permeable soil composed of a mixture of clay, silt, sand, and organic matter.

Low-income population: A population that is classified by the U.S. Bureau of the Census as having an aggregated mean income level for a family of four that correlates to \$13,359, adjusted through the poverty index using a standard of living percentage change where applicable, and whose composition is at least 25 percent of the total population of a defined area or jurisdiction.

Major source: Any stationary source or group of stationary sources in which all of the pollutant emitting activities at such source emit, or have the potential to emit, 100 or more tons per year of any regulated air pollutants.

Mammal: Animals in the class Mammalia that are distinguished by having self regulating body temperature, hair, and in females, milk-producing mammary glands to feed their young.

Mechanical Draft Cooling Towers: Used for the condensers to reject heat. Additional cooling water would be used to cool auxiliary equipment as required and dissipate the heat from the inlet chilling system.

Megawatt (MW): The electrical unit of power that equals 1 million watts or 1 thousand kilowatts.

Meteorology: The science dealing with the dynamics of the atmosphere and its phenomena, especially relating to weather.

Mineral: Naturally occurring inorganic element or compound.

Minority Population: A population that is classified by the U.S. Bureau of the Census as African American, Hispanic American, Asian and Pacific American, American Indian, Eskimo, Aleut, and other non-White persons, whose composition is at least 25 percent of the total population of a defined area or jurisdiction.

Mitigation: The alleviation of adverse impacts on environmental resources by avoidance through project redesign or project relocation, by protection, or by adequate scientific study.

National Ambient Air Quality Standards (NAAQS): Standards defining the highest allowable levels of certain pollutants in the ambient air. Because the EPA must establish the criteria for setting these standards, the regulated pollutants are called criteria pollutants.

National Emissions Standards for Hazardous Air Pollutants (NESHAP): Emissions standards set by the EPA for air pollutants which are not covered by NAAQS and which may, at sufficiently high levels, cause increased fatalities, irreversible health effects, or incapacitating illness.

National Environmental Policy Act: This Act (42 U.S.C. 4341, passed by Congress in 1975) established a national policy designed to encourage consideration of the influences of human activities (e.g., population growth, high-density urbanization, industrial development) on the natural environment. NEPA also established the CEQ. NEPA procedures require that environmental information be made available to the public before decisions are made. Information contained in NEPA documents must focus on the relevant issues in order to facilitate the decision-making process.

National Historic Preservation Act: (NHPA): (16 U.S.C. 470) Provides for an expanded National Register of Historic Places (NRHP) to register districts, sites, buildings, structures, and objects significant to American history, architecture, archaeology, and culture. Section 106 requires that the President's Advisory Council on Historic Preservation be afforded an opportunity to comment on any undertaking that adversely affects properties listed in the NRHP.

National Pollutant Discharge Elimination System (NPDES) Permit: Federal regulation (40 CFR Parts 122 and 125) that requires permits for the discharge of pollutants from any point source into the waters of the United States regulated through the Clean Water Act, as amended.

National Register of Historic Places (NRHP): A list maintained by the Secretary of the Interior of districts, sites, buildings, structures, and objects of prehistoric or historic local, state, or National significance. The list is expanded as authorized by section 2(b) of the Historic Sites Act of 1935 (16 U.S.C. 462) and section 101(a)(1)(A) of the National Historic Preservation Act of 1966, as amended.

Native American: A tribe, people, or culture that is indigenous to the United States.

Native vegetation: Plant life that occurs naturally in an area without agricultural or cultivation efforts. It does not include species that have been introduced from other geographical areas and have been naturalized.

Noise: Unwanted or undesirable sound, usually characterized as being so loud as to interfere with, or be inappropriate to, normal activities such as communication, sleep, study or recreation (*see also background noise*).

Non-attainment: An area shown by monitored data or modeling to exceed National Ambient Air Quality Standards for a particular air pollutant.

Non-attainment area: An area that the EPA has designated as not meeting (that is, not being in attainment of) one or more of the NAAQS for criteria pollutants. An area may be in attainment for some pollutants, but not others.

Obligate species: Plant species that almost always occur in wetlands (i.e., greater than 99 percent of the time).

Off-peak: Power that is generated during low-demand periods of the day, typically evenings and to a lesser extent, weekends. There is less demand for power during these times, thus more power is available in the marketplace at a lower cost.

On-peak: Power that is generated during high-demand periods of the day, typically mornings and evenings. Power generated during this time is generally more expensive because baseload power plants are fully operational and excess power in the marketplace is relatively scarce.

Open Access Transmission Service Tariff (Tariff): A document (typically filed with a regulatory body) that sets forth the rates, terms, and conditions under which an interested entity can receive transmission service from an electric utility. Western's Tariff filed with FERC requires Western to offer its transmission lines for delivery of electricity when capacity is available.

Ozone: A molecule of three oxygen atoms bound together. In the stratosphere, ozone protects the earth from the sun's ultraviolet rays but in the lower levels of the atmosphere, ozone is considered an air pollutant.

Paleontology: The study of fossils.

Particulate matter (PM), PM₁₀, and PM_{2.5}: Any finely divided solid or liquid material, other than uncombined water. A subscript denotes the upper limit of the diameter of particles included. Thus, PM₁₀ includes only those particles equal to or less than 10 micrometers (0.0004 inch) in diameter; PM_{2.5} includes only those particles equal to or less than 2.5 micrometers (0.0001 inch) in diameter.

Peak capacity: The maximum capacity of a system to meet loads.

Peak demand: The highest demand for power during a stated period of time.

Permeability: The ability of rock or soil to transmit a fluid.

pH: A measure of the relative acidity or alkalinity of a solution, expressed on scale from 0 to 14, with the neutral point at 7.0. Acid solutions have pH values lower than 7.0, and basic (i.e. alkaline) solutions have pH values higher than 7.0. Because pH is the negative logarithm of the hydrogen ion (H⁺) concentration, each unit increase in pH value expresses a change of state of 10 times the preceding state. Thus, pH 5 is 10 times more acidic than pH 6, and pH 9 is 10 times more alkaline than pH 8.

Physiography: The science of the surface of the earth and the interrelations of air, water, and land.

Plume: Visible or measurable discharges of a contaminant from a given point or area of origin into the environment.

Prehistoric: Of, relating to, or existing in times before written history. Prehistoric cultural resources are those that precede written records of the human cultures that produced them.

Prevention of Significant Deterioration (PSD): Regulations established to prevent significant deterioration of air quality in areas that already meet NAAQS. Among other provisions, cumulative increases in sulfur dioxide, nitrogen dioxide, and PM₁₀ levels after specified baseline dates must not exceed specified maximum allowable amounts.

Prime farmland: Soil types with a combination of characteristics that make the soils particularly productive for agriculture.

Raptor: Birds of prey including various types of hawks, falcons, eagles, vultures, and owls.

Record of Decision (ROD): A concise public document that records a Federal agency's decision(s) concerning a proposed action for which the agency has prepared, or cooperated in the preparation of an EIS. The ROD is prepared in accordance with the requirements of the CEQ NEPA regulations (40 CFR 1505.2).

Region of Influence (ROI): The geographical region that would be expected to be affected in some way by a proposed action and alternatives.

Reliability: The ability of the power system to provide customers uninterrupted electric service. Includes generation, transmission, and distribution reliability.

Reliably must run (RMR): Condition in which a local area transmission grid may not operate reliably solely because of insufficient generation in service within the local area. Generating units may be designated as RMR to run during certain conditions to maintain reliable service to customers.

Right-of-way (ROW): An easement for a certain purpose over the land of another use, such as a strip of land used for a transmission line, roadway, or pipeline.

Riparian: Of or pertaining to the bank of a river, stream, lake, or other water bodies.

Runoff: The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and may eventually enter streams.

Scoping: An early, open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

Section 106 Process: A National Historic Preservation Act (16 U.S.C. §470 et seq.) review process used to identify, evaluate, and protect cultural resources eligible for nomination to the NRHP that may be affected by Federal actions or undertakings.

Sediment: Material deposited by wind or water.

Sedimentation: The process of deposition of sediment, especially by mechanical means from a state of suspension in water.

Seismic: Pertaining to any earth vibration, especially an earthquake.

Sensitive species: Those plants and animals for which population viability is a concern, as shown by a significant current or predicted downward trend in populations or density and significant or predicted downward trend in habitat capability.

Socioeconomics: The social and economic condition in the study area.

Solid waste: In general, solid wastes are non-liquid, non-soluble discarded materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes include sewage sludge, agricultural refuse, demolition wastes, and mining residues.

Special-status species: Those species that have been identified as endangered, threatened, proposed, state species of special concern, or state protected.

State Historic Preservation Officer (SHPO): The official within each state, authorized by the state at the request of the Secretary of the Interior, to act as liaison for purposes of implementing the National Historic Preservation Act.

Steam Turbine Generator and Condenser (STG): A device that uses high pressure steam to drive a generator to produce electricity.

Step-up transformer: Transformer in which the energy transfer is from a low- to a high-voltage winding or windings. (Winding means one or more turns of wire forming a continuous coil for a transformer, relay, rotating machine, or other electric device.)

Substation: Facility with transformers where voltage on transmission lines change from one level to another.

Surface water: All bodies of water on the surface of the earth and open to the atmosphere, such as rivers, lakes, reservoirs, ponds, seas, and estuaries.

Switchyard: Facility with circuit breakers and automatic switches to turn power on and off on different transmission lines.

Tap: To tie a substation into an existing transmission line through a connection.

Threatened species: Plant and wildlife species likely to become endangered in the foreseeable future.

Traditional Cultural Property/Use Area: Areas of significance to the beliefs, customs, and practices of a community of people that have been passed down through generations.

Transformer: A device for transferring energy from one circuit to another in an alternating current system. Its most frequent use in power systems is for changing voltage levels.

Transmission line: The structures, insulators, conductors and other equipment used to transfer electrical power from one point to another.

U.S. Environmental Protection Agency (EPA): The independent Federal agency, established in 1970, that regulates Federal environmental matters and oversees the implementation of Federal environmental laws.

Unconformably: A geologic term describing where there was a time gap between the rock layers where deposition did not occur, or was laid down and then eroded prior to the formation of the younger layers of rock.

Vertebrate: Animals that are members of the subphylum Vertebrata, including the fishes, amphibians, reptiles, birds, and mammals, all of which are characterized by having a segmented bony or cartilaginous spinal column.

Volatile Organic Compounds (VOCs): A broad range of organic compounds, often halogenated, that vaporize at typically background or relatively low temperatures.

Volt: The unit of voltage or potential difference. It is the electromotive force which, if steadily applied to a circuit having a resistance of one ohm, will produce a current of one ampere.

Voltage: Potential for an electric charge to do work; source of an electric field.

Western Area Power Administration: A power marketing agency of the DOE that was established on December 21, 1977, pursuant to Section 302 of the DOE Organization Act, Public Law 95-961.

Wetland: Land or areas exhibiting hydric soil concentrations, saturated or inundated soil during some portion of the year, and plant species tolerant of such conditions.

Wind rose: A circular diagram showing, for a specific location, the percentage of the time the wind is from each compass direction. It may also show the frequency of different wind speeds for each compass direction.

Withdrawn Lands: United States Government lands that were originally acquired by the Federal government (e.g. Louisiana purchase) and were subsequently set aside for a specific purpose (e.g. national park, national forest, Bureau of Reclamation project).

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APPENDIX A

**SLRC POWER CENTER
DESCRIPTION AND PERMITS**

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SLRC Power Center Description

The San Luis Rio Colorado (SLRC) Power Center description is provided to present a complete picture of the Applicants' proposal and to assess potential impacts in the United States from its construction and operation. The EIS does not address alternatives to the SLRC Power Center or its location, as that part of the Proposed Project would be located in Mexico and is not subject to the National Environmental Policy Act (NEPA). A list of permits and approvals obtained for the SLRC Power Center and a full description of SLRC Power Center components is provided in this Appendix A.

The proposed 500-kV transmission line would originate inside Mexico, at the SLRC Power Center. Generadora del Desierto, S.A de C.V. (GDD) plans to construct and operate the SLRC Power Center, a new 550-megawatt (MW) nominal (605-MW peak) natural gas-fired, combined-cycle power generating facility located approximately 3 miles east of San Luis Rio Colorado, State of Sonora, Mexico, and about 1 mile south of the international border. While this facility is not subject to United States regulatory requirements, the potential environmental impacts within the United States that would result from the construction and operation of the SLRC Power Center are evaluated as part of the impacts analysis. GDD has committed to construct the SLRC Power Center to comply with applicable United States environmental standards in addition to those of Mexico's Instituto Nacional de Ecología. The planned generating facility would be equipped with advanced air emissions control technology, including Dry Low Nitrogen Oxide (NO_x) (DLN) Combustion System technology, a Selective Catalytic Reduction (SCR) system for oxides of nitrogen, and catalytic oxidizers for carbon monoxide (CO) emissions control. The proposed generating facility would use a wet-dry cooling system to reduce the consumptive use of water as compared with an all wet cooling system. GDD would sell off-peak power inside Mexico to the association of maquiladoras (fabrication or assembly plants in the North American Free Trade Agreement zone) of San Luis Rio Colorado and to the Comisión Federal de Electricidad (CFE). On-peak generation would be sold on the United States market. The Applicants' would construct an approximately 1-mile-long transmission line between the SLRC Power Center and the Point of Change of Ownership near the United States-Mexico international border. The Applicants' have committed to voluntarily conduct cultural resources surveys on the proposed SLRC Power Center site and transmission line ROW prior to construction activities; these surveys would be conducted separately from the EIS process, and the survey report would be available to interested tribes.

The SLRC Power Center would be built with a two-on-one or a two-on-two design and utilize two advanced technology combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), one or two steam turbine generators (STGs), condenser(s), transformer(s), cooling towers, evaporative cooling of inlet air, duct burners, and all necessary ancillary equipment. The SLRC Power Center would also use tanks, sedimentation/evaporative ponds, an emergency fire pump, and associated buildings.

The SLRC Power Center is designed for base load operations nominally rated at 550 MW, with peaking capacity of approximately 605 MW via duct burner operation. Part load operations would be maintained above the minimum operation of the CTGs so that the facility would maintain compliance with all air permit requirements. The CTGs would be "F" Type or

equivalent advanced technology CTGs with DLN Combustion Systems. “F Type” (frame-type) turbines are designed specifically for power generation, as opposed to using a modified aircraft turbine. The facility would incorporate SCR and a CO catalyst and use state-of-the-art combustion control technologies to minimize emissions.

Fuel Systems

High-pressure natural gas would be supplied to the SLRC Power Center from a proposed natural gas supply pipeline. The Applicants have secured the ROW for the pipeline and received approval for transmission of the natural gas supply. The natural gas supply pipeline would be approximately 24 miles long and would be located entirely within Mexico. The pipeline would interconnect to the Baja Norte pipeline located west of San Luis Rio Colorado, Sonora, Mexico. From the interconnection point, the pipeline would head south toward the wastewater treatment plant. Near the wastewater treatment plant, the pipeline would generally head east, then northeast and interconnect to the gas metering station on the SLRC Power Center site. From the metering station, gas would be piped to the gas conditioning skids. The gas conditioning skids would filter particulates and moisture contained in the gas. Pressure reduction and control valves would be used to regulate gas pressure to the CTGs and HRSG duct burner system. A fuel gas preheater would be used to increase the reliability and performance of the CTGs. Ownership of the natural gas supply pipeline has not yet been determined. If the Applicants would own the pipeline, they would voluntarily conduct cultural resources surveys on the ROW prior to construction.

Combustion Turbine Generator

The SLRC Power Center would utilize two advanced technology CTGs. Each “F” type CTG would use state-of-the-art technology to generate approximately 175 MW with emissions minimized by application of a DLN Combustion System. The turbine would be housed in an enclosed metal building to protect the unit from the elements and to provide for optimal noise reduction. A water/air-cooled generator would be supplied for each of the CTGs.

Air Intake System

The air intake system would provide filtered air to the CTGs and would be mounted before each CTG. The intake system would be equipped with an air filtration system to clean particulates from the air. Silencers would be installed to reduce the noise emissions of the gas turbine compressor inlet. The inlet air system would include an evaporative cooling system to humidify and cool the combustion air to enhance CTG performance and output at the high local ambient air temperatures.

Exhaust Gas System

The high-temperature turbine exhaust gas from each CTG would be directed through its respective HRSG to capture the exhaust heat energy and recover it for generating steam for combined-cycle operation.

Heat Recovery Steam Generators

The HRSGs would be of an outdoor, freestanding design with an integral exhaust stack approximately 160 feet tall. The HRSG would use a natural circulation system to generate steam in high-pressure, intermediate-pressure, and low-pressure sections, which would be designed and arranged to receive feed water at specified inlet conditions and deliver superheated steam at the STG supply conditions. The major components of the HRSG are the pressure parts from the economizer inlet to the superheated outlet, associated structural supports, casings, insulation, valves, equipment, and platforms to access the top and sides of the HRSG. The HRSG would be equipped with systems to reduce CO and NO_x emissions to satisfy air quality standards. The HRSG would also be equipped with duct burners to increase steam production to the STGs and increase the total output of the SLRC Power Center when economically justified.

Steam Turbine Generator and Condenser

One or two STGs would be rated at approximately 255 MW or 130 MW, respectively. Each STG exhausts steam into a surface condenser and an air-cooled condenser within a Parallel Condensing System (PCS). The surface condenser would be equipped with steam distribution headers and condensate sprays to allow the bypass of steam into the condenser during STG startup and to allow the CTG to operate if the STG trips. The STG would be fitted with stop and control valves for the high-pressure steam admission and are factory assembled and shipped in sections for convenient field assembly. The proposed design and size of the STG would support increased output during peak operations. An enclosed hydrogen (H₂) cooled generator would be supplied for each of the STGs.

Cooling System

A PCS was selected for use in the SLRC Power Center. The PCS is the combination of two proven systems: the wet tower system and the air-cooled condenser. With the PCS, exhaust steam from the STG is separated into two streams. One stream flows to a surface condenser while the other is directed to an air-cooled condenser. Condensate produced in each condenser section is collected in a common hotwell. The steam distribution and resulting water consumption is controlled by the distribution of heat rejection load between each condenser section.

In the dry and wet sections of the PCS, heat is rejected through a phase change of the turbine exhaust steam to condensate. In the wet section, the surface condenser transfers the heat of condensation through a series of tubes to cooling water traversing inside these tubes. The cooling water then transfers the heat by evaporation to the atmosphere in the cooling tower. In the dry section, fans blow air over a radiator system to transfer the heat of condensation via convective heat transfer. Steam from the turbine exhausts via a manifold system to a series of tubes making up the radiator and condenses the steam inside these tubes.

The PCS is a self-regulating system, and the distribution of heat rejection load (and ultimately the water lost to evaporation) between the wet and dry systems is controlled by changing the airflow to each sub-system. During operation, when best performance and plant efficiency is

required, the wet sub-system would be operated with maximum fan and cooling capacity. Under this mode of operation, the dry sub-system would provide any additional necessary heat rejection capability and operate below its design capacity. The wet sub-system would be the primary method of cooling because during high ambient temperatures the dry sub-system would be less efficient, require a much larger unit, and be more expensive compared with the wet sub-system. By using the wet sub-system during higher ambient temperatures, the SLRC Power Center would generate electricity at a lower cost per kilowatt-hour. At times of the year or day when the ambient temperature is cooler, or the plant is operating at reduced load, heat rejection load would be shifted to the dry sub-system. When the system is shifted to the dry sub-system, fan capacity on the wet sub-system would be decreased, fan capacity on the dry sub-system increased, less evaporative cooling would result, and convective cooling would increase. In this way, consumptive water is decreased compared with an all-wet system. The PCS would be specified and designed so that the dry sub-system has sufficient condensing capacity that in the course of a year's anticipated operation, the water use would be reduced by a minimum of 15 percent or more when compared with an all-wet system.

Water Systems

Water for the SLRC Power Center's use, including the cooling water, would be provided by the wastewater treatment plant owned by the San Luis Rio Colorado municipality. Potable water would be supplied from a well to be located on the site, which is owned by GDD. GDD has signed contracts with Organismo Operador Municipal de Agua Potable Alcantarillado y Saneamiento de San Luis Rio Colorado (OOMAPA, the company that operates the water supply and the wastewater treatment plant for San Luis Rio Colorado) to receive treated water from the wastewater treatment plant and to return effluent to the wastewater treatment plant. Comisión Nacional del Agua (CNA, the Mexican Secretary of Water) has granted 6,336 gallons per minute of water from the wastewater treatment plant to GDD for the next 30 years. The wastewater treatment plant would receive and treat all the effluent water from the SLRC Power Center. Pending further analysis, the SLRC Power Center may be equipped with the capability to pre-treat effluent returning to the wastewater treatment plant. The municipality of San Luis Rio Colorado would build and own a pipeline from the wastewater treatment plant to the SLRC Power Center, and a wastewater return line to the wastewater treatment plant, a distance of approximately 9 miles each way.

Condensate System - Steam exhausted from the STG would be condensed in the PCS. This condensate would be pumped back to the HRSGs. During steam bypass operation, condensate would be sprayed in the condenser hood in order to control the temperature and protect the STG.

Cooling Water System - Cooling water for the condenser would reject heat using a mechanical draft-cooling tower and an air-cooled condenser and would be supplied primarily from the wastewater treatment plant. In addition, cooling water would be used to cool auxiliary equipment as required. Additional water would be available from a well located on the property. GDD has a permit issued by CNA to use 300 gallons per minute of water from the well.

Demineralized Water Systems - Demineralized water of the required quality would be generated by the demineralized water system utilizing a reverse-osmosis system followed by a mixed-bed

demineralizer unit. The output of this unit would go to one storage tank with a capacity of 700,000 gallons of demineralized and process water. A distribution system would be installed to distribute demineralized water to various uses, including boiler make-up and other closed-loop systems.

Wastewater Systems - All of the effluent would be sent back to the municipal wastewater treatment plant and treated. The effluent pipelines would be approximately 9 miles long and would parallel the gas pipelines between the wastewater treatment plant and the SLRC Power Center. Ultimately, the water returned from the SLRC Power Center would be used for farming and irrigation. The SLRC Power Center would be designed to minimize consumption and reuse wastewater to the maximum extent practicable.

A potable water treatment system would be incorporated in the SLRC Power Center to provide drinking water and demineralized water as needed. The water would come from the on-site well. A small potable water storage tank would be incorporated into the SLRC Power Center design.

Instrumentation and Control

The SLRC Power Center would use a digital process control system designed for power plants. The control interface would be located in a control/administration/electrical services building located on the SLRC Power Center site. The system would be based on a hierarchical structure and programmable control system to achieve maximum safety, availability, reliability, and efficiency.

Switchyard and Electrical Plant

Each CTG and STG would be connected to its own breaker. Each breaker would be connected to a step-up transformer to bring the voltage to the high-voltage substation level. The high-voltage substation would be connected to a 230/500-kV transformer for transportation of electricity to the United States. The transmission lines from the transformer would then be connected to substation additions to be developed at the Gila Substation and the North Gila Substation. In addition, the high-voltage substation would be connected to the CFE transmission system. This line would interconnect with the existing CFE Ruis Cortinez Substation located approximately 1.2 miles southwest of the site. Connection of the high-voltage substation to CFE at 230 kV would be used to bring auxiliary power to the SLRC Power Center. The proposed transmission lines could be used to export small amounts of electricity from the United States to the SLRC Power Center for the purpose of initial startup and restarting the facility in the event of a plant shutdown (this is known as “black start”) and during maintenance activities.

Communications

Communications for relaying would be done via fiber optics from the SLRC Substation to Gila Substation and from the SLRC Substation to the Ruis Cortinez Substation. Local telephone use capability would be installed in the SLRC Substation and would support the SLRC Power Center. Communications for remote controlling of the SLRC Power Center substation breakers

would be via fiber optics from the SLRC Substation to the control/administration/electrical services building.

Hazardous Materials and Emergency Management

An Emergency Plan and a Spill Prevention, Control, Countermeasure and Emergency Response Plan for the SLRC Power Center are being developed by the Applicants. The Applicants are also preparing a Security Plan that provides general security measures to be taken during construction and operation of the SLRC Power Center.

The San Luis Rio Colorado, Sonora, Fire Department would provide fire and hazardous materials support for the SLRC Power Center. The fire department would provide the Applicants a written commitment to serve the SLRC Power Center as a contracted service.

Power Marketing

The Applicants, as a privately held company, would independently market their power and enter into power contracts with willing buyers. The Western Area Power Administration (Western) would have no role in, or control over, the Applicants' power marketing activities. It is expected that the Applicants and Western would sign a Standard Large Generator Interconnection Agreement after the ongoing Large Generator Interconnection Procedures process is completed. The ownership, operation, maintenance, and replacement rights and responsibilities of the parties would be delineated in an Appendix to that agreement. As a part of that agreement, Western would be expected to agree to construct, own, operate, and maintain the power transmission facilities located in the United States at the Applicants' expense. However, the majority of transmission capacity rights on the lines would be held by North Branch Holding, LLC.

List of Mexican Permits and Approvals

Generadora del Desierto S.A de C.V. has obtained several of the permits and approvals necessary to construct the San Luis Rio Colorado Project components in Mexico. The following list identifies permits and approvals that have been received:

- Title of a land, clean and free (250 acres)
- Commercial appraisal of 25 million by Colliers International Real Estate
- Inalienable land title from the Reforma Agraria.
- Letter of support from the Governor of the State of Sonora
- Permit for industrial use of the land issued by ICRESON
- Construction permits in place issued by the municipality of San Luis Rio Colorado
- Water contract for receiving 200 liters per second from the Organismo Operador de Municipal de Agua Potable Alcantarillado y Saneamiento de San Luis Rio Colorado (OOMAPA) water treatment plant and contract with OOMAPAS to receive effluent water from the power plant for treatment
- Water authorization from Comisión Nacional del Agua (CNA) to use this effluent water, and authorization to open a well with a capacity of 17 liters per second on the power plant site
- Agreement with the CTM (important Mexican union of workers) workers to have a soft Union approved and possibility to use USA union workers
- Import permits for the necessary equipments approved under NAFTA Regulations
- Permit to transport the equipment from Mexicali to San Luis Rio Colorado approved by SCT
- Permit to create a facility Security Department approved by the municipality of SLRC
- The permits to obtain the NAFTA visa for the employees approved by NAFTA and SRE
- A contract to be connected to CFE (3 MW) for the construction time is approved
- CRE permit number G42/E/793 – DGE 0359 to build the plant, export energy to USA
- CRE permit to import energy and gas from USA
- Generadora del Desierto S.A de C.V. is registered in SRE under Mexican law, Permit No. 2601,565 - Expedient 200226001439 - Folio 6Y010OZ2 - R.F.C. GDE20618GT2 aa a Maquiladora industry
- An application for gas transmission approved by Gasoducto Bajanorte, S. de R L de C.V., a company who belong to Sempra Energy de Mexico, S.A de C.V.
- Registration in CANACINTRA and in the Chamber of Commerce in San Luis Rio Colorado

The following list identifies permits and approvals that are in process:

- SEMARNAP permit approved using the same norms and regulation from EPA, the “Manifiesto de Impacto” from SEMARNAP is in process
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APPENDIX B

**BIOLOGICAL RESOURCES
INFORMATION**

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Table 1. Noxious Weeds of Arizona.

Scientific name	Common name
<i>Acroptilon repens</i> (L.) DC.	Russian knapweed
<i>Aegilops cylindrica</i> Host.	Jointed goatgrass
<i>Alhagi pseudalhagi</i> (Bieb.) Desv.	Camelthorn
<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Alligator weed
<i>Cardaria chalepensis</i> (L.) Hand-Muzz	Lens podded hoary cress
<i>Cardaria draba</i> (L.) Desv.	Globed-podded hoary cress (Whitetop)
<i>Cardaria pubescens</i> (C.A. Mey) Jarmolenko	Hairy whitetop
<i>Carduus acanthoides</i> L.	Plumeless thistle
<i>Cenchrus echinatus</i> L.	Southern sandbur
<i>Cenchrus incertus</i> M.A. Curtis	Field sandbur
<i>Centaurea calcitrapa</i> L.	Purple starthistle
<i>Centaurea diffusa</i> L.	Diffuse knapweed
<i>Centaurea iberica</i> Trev. ex Spreng.	Iberian starthistle
<i>Centaurea maculosa</i> L.	Spotted knapweed
<i>Centaurea solstitialis</i> L.	Yellow starthistle (St. Barnaby's thistle)
<i>Centaurea squarrosa</i> Willd.	Squarrose knapweed
<i>Centaurea sulphurea</i> L.	Sicilian starthistle
<i>Chondrilla juncea</i> L.	Rush skeletonweed
<i>Cirsium arvense</i> L. Scop.	Canada thistle
<i>Convolvulus arvensis</i> L.	Field bindweed
<i>Coronopus squamatus</i> (Forsk.) Ascherson	Creeping wartcress (Coronopus)
<i>Cucumis melo</i> L. var. <i>Dudaim</i> Naudin	Dudaim melon (Queen Anne's melon)
<i>Cuscuta</i> spp.	Dodder
<i>Drymaria arenarioides</i> H.B.K.	Alfombrilla (Lightningweed)
<i>Eichhornia azurea</i> (SW) Kunth.	Anchored water hyacinth
<i>Eichhornia crassipes</i> (Mart.) Solms	Floating water hyacinth
<i>Elytrigia repens</i> (L.) Nevski	Quackgrass
<i>Euphorbia esula</i> L.	Leafy spurge
<i>Halogeton glomeratus</i> (M. Bieb.) C.A. Mey	Halogeton
<i>Helianthus ciliaris</i> DC.	Texas blueweed
<i>Hydrilla verticillata</i> Royale	Hydrilla (Florida-elodea)
<i>Ipomoea triloba</i> L.	Three-lobed morning glory
<i>Isatis tinctoria</i> L.	Dyers woad
<i>Linaria genistifolia</i> var. <i>dalmatica</i>	Dalmation toadflax
<i>Lythrum salicaria</i> L.	Purple loosestrife
<i>Medicago polymorpha</i> L.	Burclover
<i>Nassella trichotoma</i> (Nees.) Hack.	Serrated tussock
<i>Onopordum acanthium</i> L.	Scotch thistle
<i>Orobanche ramosa</i> L.	Branched broomrape
<i>Panicum repens</i> L.	Torpedo grass
<i>Peganum harmala</i> L.	African rue (Syrian rue)
<i>Pennisetum ciliare</i> (L.) Link	buffelgrass
<i>Portulaca oleracea</i> L.	Common purslane
<i>Rorippa austriaca</i> (Crantz.) Bess.	Austrian fieldcress

Table 1. Noxious Weeds of Arizona.

Scientific name	Common name
<i>Salvinia molesta</i>	Giant salvinia
<i>Senecio jacobaea</i> L.	Tansy ragwort
<i>Solanum carolinense</i> L.	Carolina horsenettle
<i>Solanum viarum</i> Dunal	Tropical soda apple
<i>Sonchus arvensis</i> L.	Perennial sowthistle
<i>Stipa brachychaeta</i> Godr.	Puna grass
<i>Striga</i> spp.	Witchweed
<i>Trapa natans</i> L.	Water-chestnut
<i>Tribulus terrestris</i> L.	Puncturevine
<i>Cenchrus echinatus</i> L.	Southern sandbur
<i>Cenchrus incertus</i> M.A. Curtis	Field sandbur
<i>Convolvulus arvensis</i> L.	Field bindweed
<i>Eichhornia crassipes</i> (Mart.) Solms	Floating water hyacinth
<i>Medicago polymorpha</i> L.	Burclover
<i>Pennisetum ciliare</i> (L.) Link	buffelgrass
<i>Portulaca oleracea</i> L.	Common purslane
<i>Salvinia molesta</i>	Giant Salvinia
<i>Tribulus terrestris</i> L.	Puncturevine.
<i>Acroptilon repens</i> (L.) DC.	Russian knapweed
<i>Aegilops cylindrica</i> Host.	Jointed goatgrass
<i>Alhagi pseudalhagi</i> (Bieb.) Desv.	Camelthorn
<i>Cardaria draba</i> (L.) Desv.	Globed-podded hoary cress (Whitetop)
<i>Centaurea diffusa</i> L.	Diffuse knapweed
<i>Centaurea maculosa</i> L.	Spotted knapweed
<i>Centaurea solstitialis</i> L.	Yellow starthistle (St. Barnaby's thistle)
<i>Cuscuta</i> spp.	Dodder
<i>Eichhornia crassipes</i> (Mart.) Solms	Floating water hyacinth
<i>Elytrigia repens</i> (L.) Nevski	Quackgrass
<i>Euryops sunbcarnosus</i> subsp. <i>Vulgaris</i>	Sweet resinbush
<i>Halogeton glomeratus</i> (M. Bieb.) C.A. Mey	Halogeton
<i>Helianthus ciliaris</i> DC.	Texas blueweed
<i>Ipomoea triloba</i> L.	Three-lobed morning glory
<i>Linaria genistifolia</i> var. <i>dalmatica</i>	Dalmation toadflax
<i>Onopordum acanthium</i> L.	Scotch thistle

Source:

Table 2. Common Species Occurring in Sonoran Desertscrub and Riparian Scrublands¹.

Scientific Name	Common Name	Ecosystem
Mammals		
<i>Ammospermophilus harrisi</i>	Harris' ground squirrel	Sonoran Desertscrub
<i>A. leucurus</i>	White-tailed antelope ground squirrel	Sonoran Desertscrub
<i>Antilocarpa americana sonorensis</i>	Sonoran pronghorn	Sonoran Desertscrub
<i>Bassariscus astutus</i>	Ring-tailed cat	Sonoran Desertscrub
<i>Canis latrans</i>	Coyote	Sonoran Desertscrub
<i>Castor canadensis</i>	Beaver	Riparian scrublands
<i>Dicotyles tajacu</i>	Javelina	Sonoran Desertscrub
<i>Dipodomys deserti</i>	Desert kangaroo rat	Sonoran Desertscrub
<i>D. merriami</i>	Merriam's kangaroo rat	Sonoran Desertscrub
<i>D. peninsularis peninsularis</i>	Vizcaino desert kangaroo rat	Sonoran Desertscrub
<i>Equus asinus</i>	Feral burro	Sonoran Desertscrub
<i>Lepus californicus</i>	Black-tailed jackrabbit	Sonoran Desertscrub
<i>Macrotis californicus</i>	California leaf-nosed bat	Sonoran Desertscrub
<i>Myotis californicus</i>	California myotis	Sonoran Desertscrub
<i>Neotoma ambigua</i>	White-throated woodrat	Sonoran Desertscrub
<i>Odocoileus hemionus crooki</i>	Desert mule deer	Sonoran Desertscrub
<i>Perognathus amplus</i>	Arizona pocket mouse	Sonoran Desertscrub
<i>P. baileyi</i>	Bailey's pocket mouse	Sonoran Desertscrub
<i>P. formosus</i>	Long-tailed pocket mouse	Sonoran Desertscrub
<i>P. penicillatus</i>	Desert pocket mouse	Sonoran Desertscrub, Riparian scrublands
<i>Peromyscus eremicus</i>	Cactus mouse	Sonoran Desertscrub
<i>P. eremicus eremicus</i>	Arizona cactus mouse	Sonoran Desertscrub
<i>P. leucopus</i>	White-footed mouse	Riparian scrublands
<i>Procyon lotor</i>	Raccoon	Riparian scrublands
<i>Sigmodon hispidus</i>	Hispid cotton rat	Riparian scrublands
<i>Spermophilus tereticaudus</i>	Round-tailed ground squirrel	Sonoran Desertscrub
<i>Sylvilagus auduboni</i>	Desert cottontail	Sonoran Desertscrub
<i>Urocyon cinereoargenteus</i>	Gray fox	Sonoran Desertscrub
<i>Vulpes macrotus</i>	Kit fox	Sonoran Desertscrub
Birds		
<i>Amphispiza bilineata</i>	Black-chinned sparrow	Sonoran Desertscrub
<i>Athene cucularia</i>	Burrowing owl	Sonoran Desertscrub
<i>Auriparus flaviceps</i>	Verdin	Sonoran Desertscrub, Riparian Scrublands
<i>Calypte costae</i>	Costa's hummingbird	Sonoran Desertscrub
<i>Campylorhynchus brunneicapillus</i>	Cactus wren	Sonoran Desertscrub
<i>Cardinalis sinuatus</i>	Pyrrhuloxia	Sonoran Desertscrub
<i>Chordeiles acutipennis</i>	Lesser nighthawk	Sonoran Desertscrub

Table 2. Common Species Occurring in Sonoran Desertscrub and Riparian Scrublands¹.

Scientific Name	Common Name	Ecosystem
<i>Geo coccyx californicus</i>	Roadrunner	Sonoran Desertscrub
<i>Lophortyx californicus</i>	California quail	Sonoran Desertscrub
<i>L. gambeli</i>	Gambel quail	Sonoran Desertscrub
<i>L. douglassii</i>	Elegant quail	Sonoran Desertscrub
<i>Melanerpes uropygialis</i>	Gila woodpecker	Sonoran Desertscrub
<i>Micrathene whitneyi</i>	Elf owl	Sonoran Desertscrub
<i>Myiarchus tyrannulus</i>	Wied's crested flycatcher	Sonoran Desertscrub
<i>Parabuteo unicinctus</i>	Harris' hawk	Sonoran Desertscrub
<i>Phainopepla nitens</i>	Phainopepla	Sonoran Desertscrub, Riparian Scrublands
<i>Picoides scalaris</i>	Ladder-backed woodpecker	Sonoran Desertscrub
<i>Polioptila melanura</i>	Black-tailed gnatcatcher	Sonoran Desertscrub, Riparian Scrublands
<i>Sayornis nigricans</i>	Black phoebe	Riparian Scrublands
<i>Scardafella inca</i>	Inca dove	Sonoran Desertscrub
<i>Toxostoma bendirei</i>	Bendire's thrasher	Sonoran Desertscrub
<i>T. curvirostra</i>	Curve-billed thrasher	Sonoran Desertscrub
<i>T. dorsale</i>	Crissal thrasher	Riparian Scrublands
<i>T. lecontei</i>	LeConte's thrasher	Sonoran Desertscrub
<i>Vermivora luciae</i>	Lucy's warbler	Riparian Scrublands
<i>Zenaida asiatica</i>	White-winged dove	Sonoran Desertscrub
<i>Z. macroura</i>	Mourning dove	Sonoran Desertscrub
Reptiles and Amphibians		
<i>Arizona elegans</i>	Glossy snake	Sonoran Desertscrub
<i>A. elegans eburnata</i>	Desert glossy snake	Sonoran Desertscrub
<i>A. elegans noctivaga</i>	Arizona glossy snake	Sonoran Desertscrub
<i>Bufo punctatus</i>	Red-spotted toad	Riparian Scrublands
<i>B. retiformis</i>	Sonoran green toad	Sonoran Desertscrub
<i>B. woodhousi</i>	Woodhouse's toad	Riparian Scrublands
<i>Callisaurus draconoides</i>	Zebratail lizard	Sonoran Desertscrub
<i>Chilomeniscus cinctus</i>	Banded sand snake	Sonoran Desertscrub
<i>Chionactis occipitalis</i>	Western shovelnose snake	Sonoran Desertscrub
<i>Chrysemys scripta</i>	Pond slider	Riparian Scrublands
<i>Cnemidophorus hyperythrus</i>	Orangethroat lizard	Sonoran Desertscrub
<i>C. tigris gracilis</i>	Southern whiptail	Sonoran Desertscrub
<i>C. tigris multiscutatus</i>	Coastal whiptail	Sonoran Desertscrub
<i>C. tigris tigris</i>	Western whiptail	Sonoran Desertscrub
<i>Coleonyx variegatus</i>	Banded gecko	Sonoran Desertscrub
<i>Crotalus atrox</i>	Western diamondback rattlesnake	Sonoran Desertscrub
<i>C. cerastes</i>	Sidewinder	Sonoran Desertscrub
<i>C. ruber</i>	Red diamond rattlesnake	Sonoran Desertscrub

Table 2. Common Species Occurring in Sonoran Desertscrub and Riparian Scrublands¹.

Scientific Name	Common Name	Ecosystem
<i>C. scutulatus</i>	Mojave rattlesnake	Sonoran Desertscrub
<i>C. tigris</i>	Tiger rattlesnake	Sonoran Desertscrub
<i>Dipsosaurus dorsalis</i>	Desert iguana	Sonoran Desertscrub
<i>Gopherus agassizi</i>	Desert tortoise	Sonoran Desertscrub
<i>Heloderma suspectum</i>	Gila monster	Sonoran Desertscrub
<i>H. suspectum suspectum</i>	Reticulated gila monster	Sonoran Desertscrub
<i>Lichanuraa trivirgata</i>	Rosy boa	Sonoran Desertscrub
<i>Micruroides euryxanthus</i>	Arizona coral snake	Sonoran Desertscrub
<i>Phrynosoma m'calli</i>	Flat-tailed horned lizard	Sonoran Desertscrub
<i>P. platyrhinos calidiartum</i>	Southern desert horned lizard	Sonoran Desertscrub
<i>P. solare</i>	Regal horned lizard	Sonoran Desertscrub
<i>Phyllorhynchus decurtatus</i>	Spotted leaf-nose snake	Sonoran Desertscrub
<i>Salvadora hexalepis</i>	Western pachnose snake	Sonoran Desertscrub
<i>Sauromalus obesus</i>	Chuckwalla	Sonoran Desertscrub
<i>Scaphiopus hammondi</i>	Western spadefoot	Riparian Scrublands
<i>Sceloporus magister</i>	Desert spiny lizard	Sonoran Desertscrub
<i>Sonora semiannulata</i>	Western ground snake	Sonoran Desertscrub
<i>Uta stansburiana</i>	Side-blotched lizard	Riparian Scrublands
<i>Uma notata</i>	Fringe-toed lizard	Sonoran Desertscrub
<i>Urosaurus graciosus</i>	Brush lizard	Sonoran Desertscrub
<i>U. microscutatus</i>	Smallscaled lizard	Sonoran Desertscrub
<i>U. ornatus</i>	Tree lizard	Sonoran Desertscrub

¹ Turner and Brown 1994.

Table 3. Species Observed During March 2006 Field Visit.	
Common Name	Scientific Name
Plants	
Creseotebush	<i>Larea tridentata</i>
Triangle leaf bursage	<i>Ambrosia deltoidea</i>
Dye weed	<i>Psorothamnus emoryi</i>
Sahara mustard	<i>Brassica tournefortii</i>
Ironwood	<i>Olneya tesota</i>
Fremont cottonwood	<i>Populus fremontii</i>
Gooding willow	<i>Salix gooddingii</i>
Salt cedar	<i>Tamarisk ramosissima</i>
Mesquite	<i>Prosopis spp.</i>
Birds	
Mourning dove	<i>Zenaida macroura</i>
Great-tailed grackele	<i>Quiscalus mexicanus</i>
Turkey vulture	<i>Cathartes aura</i>
Cattle egret	<i>Bubulcus ibis</i>
White-throated swift	<i>Aeronautes saxatalis</i>
Western kingbird	<i>Tyrannus verticalis</i>
Northern harrier	<i>Circus cyaneus</i>
Western burrowing owl	<i>Athene cunicularia</i>
Mammals	
Ground squirrel	<i>unknown</i>
Black-tailed jackrabbit	<i>Lepus californicus</i>

Table 4. Threatened, Endangered, Proposed, and Candidate and Special Status Species Potentially Present in Yuma County.

<i>Scientific Name</i>	Common Name	Habitat	Status
Birds			
<i>Ardea alba</i>	Great egret	Riparian areas, agriculture fields, and canals	WSC
<i>Athene cunicularia hypugaea</i>	Western burrowing owl	Desert scrub	S
<i>Coccyzus americanus</i>	Yellow-billed cuckoo	Riparian, gallery cottonwoods	Candidate, WSC
<i>Egretta thula</i>	Snowy egret	Riparian areas, agriculture fields, and canals	WSC
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	Riparian areas with dense vegetation	Endangered, WSC
<i>Glaucidium brasilianum cactorum</i>	Cactus ferruginous pygmy-owl	Desert scrub and desert washes	WSC
<i>Haliaeetus leucocephalus</i>	Bald eagle	Nests and forages near rivers, reservoirs, and streams	Threatened, WSC
<i>Ixobrychus exilis</i>	Least bittern	Riparian areas with emergent vegetation	WSC
<i>Lanius ludovicianus</i>	Loggerhead shrike	Desert scrub and grasslands	S
<i>Latterallus jamaicensis coturniculus</i>	California black rail	Riparian areas with emergent vegetation	S, WSC
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Riparian areas	Endangered
<i>Rallus longirostris yumanensis</i>	Yuma clapper rail	Riparian areas with emergent vegetation	Endangered, WSC
Invertebrates			
<i>Oliarces clara</i>	Cheese-weed moth lacewing	Creosotebush scrub	S
<i>Hesperopsis graciellae</i>	MacNeill sooty wing skipper	Colorado and Gila River riparian areas	S
Fish			
<i>Catostomus latipinnis</i>	Flannelmouth sucker	Colorado River	S
<i>Xyrauchen texanus</i>	Razor back sucker	Slow backwaters in rivers and lakes	Endangered
Mammals			
<i>Antilocapra americana sonoriensis</i>	Sonoran pronghorn	Sonoran desert	Endangered, WSC
<i>Euderma maculatum</i>	Spotted bat	Desert scrub and riparian	S, WSC
<i>Idionycteris phyllotis</i>	Allen's (Mexican) big-eared bat	Mountainous areas in Mojave Desert	S
<i>Lasiurus xanthinus</i>	Western yellow bat	Desert scrub, feed on cacti flowers	WSC
<i>Macrotus californicus</i>	California leaf-nosed Bat	Desert scrub	S, WSC
<i>Myotis ciliolabrum</i>	Small-footed myotis	Desert scrub	S
<i>Myotis lucifugus occultus</i>	Arizona Myotis	Desert scrub, forests, mountains	S
<i>Myotis thysanodes</i>	Fringed myotis	Desert scrub, grasslands	S
<i>Myotis velifer</i>	Cave myotis	Wide-spread	S

Table 4. Threatened, Endangered, Proposed, and Candidate and Special Status Species Potentially Present in Yuma County.

<i>Scientific Name</i>	Common Name	Habitat	Status
<i>Nyctinomops femerosaccus</i>	Pocketed free-tailed bat	Cliffs and rocky outcrops	S
Plants			
<i>Allium parishii</i>	Parish wild onion	Desert mountains	S, Salvage Restricted
<i>Berberis harrisoniana</i>	Kofa Mt barberry	Kofa Mountains	S
<i>Helianthus niveus</i> ssp. <i>tephrodes</i>	Dune sunflower	Sand dunes	SC
<i>Pholisma sonora</i>	Sand food	Windblown sandy flats	S, Highly Safeguarded
<i>Rhus kearneyi</i> ssp. <i>kearneyi</i>	Kearney sumac	Desert mountains	S
<i>Stephanomeria schottii</i>	Schott wire-lettuce	Sand dunes	S
<i>Triteleopsis palmeri</i>	Blue sand lily	Sand dunes	S, Salvage Restricted
Reptiles			
<i>Charina trivirgata</i>	Rosy boa	Rocky outcrops, flats, washes	S
<i>Phrynosoma mcallii</i>	Flat-tailed horned lizard	Sandy flats and windblown areas in Sonoran desert scrubSonoran	Proposed, S, WSC
<i>Sauromalus obesus</i>	Chuckwalla	Rocky slopes and cliffs	S
<i>Uma rufopunctata</i>	Yuman desert fringe-toed lizard	Sand dunes	S, WSC

Source: AGFD (2006); USFWS (2006); Wong (2006)
 S = Bureau of Land Management Sensitive species
 WSC = Arizona Game and Fish Department Wildlife of Special Concern
 SC = U.S. Fish and Wildlife Service Species of Concern

APPENDIX C

**SCOPING MEETING
INFORMATION**

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The proposed San Luis Rio Colorado Project

YUMA COUNTY, ARIZONA

What is the San Luis Rio Colorado Project?

Generadora del Desierto S.A. de C.V. is building a new 550-Megawatt nominal (605-MW peaking) natural gas-fired, combined cycle power generating facility located approximately 3 miles east of San Luis Rio Colorado, Sonora, Mexico, and about one mile south of the international border.

The applicant wants to sell electricity in both Mexico and the United States and is applying to DOE for a Presidential permit to construct two 500,000-volt electric transmission lines across the United States border from Mexico. North Branch Resources, LLC, a partner in the proposed project, is applying to interconnect with Western's transmission system in the Yuma area.

The applicants are each wholly owned subsidiaries of North Branch Holding, LLC. GDD proposes to construct, own, operate and maintain the power plant in Mexico and the short section of transmission line located in Mexico. The applicants propose that Western construct, own, operate and maintain the double-circuited 500-kV transmission components in the United States, at the applicants' expense.

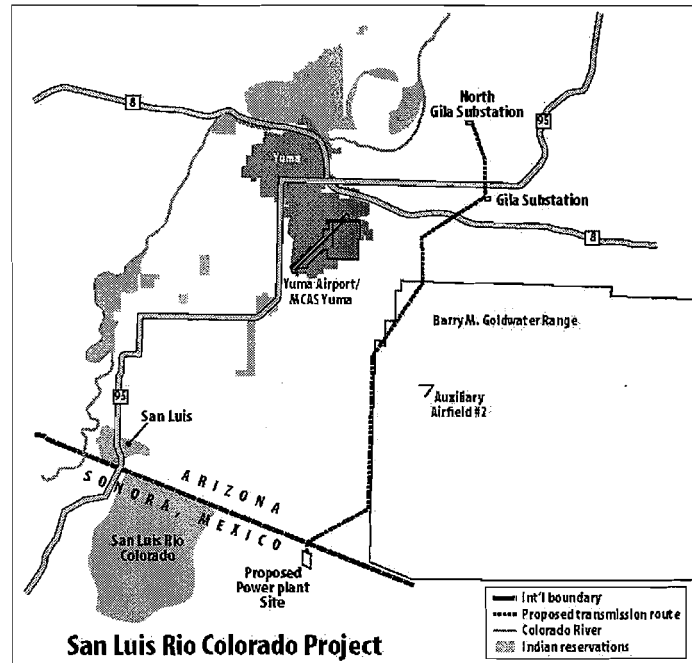
In response to the interconnection request to Western, the transmission line would interconnect with Western's transmission system through a 500/161-kV expansion at Gila Substation, located east of Yuma. Under the proposal, Western would construct, own, operate and maintain the 500-kV transmission line between a Point of Change of Ownership near the international border and the Gila Substation, the 500/161-kV expansion at Gila Substation, and the 500-kV transmission line between Gila Substation and Arizona Public Service Company's North Gila Substation. In that case, Western would become a co-applicant on the Presidential permit application.

Why are DOE and Western involved in this project?

Interconnection request

Federal Energy Regulatory Commission Orders No. 888 and 888-A require all public utilities owning or controlling interstate transmission facilities to offer non-discriminatory open access transmission services. Through these Orders, FERC addressed the need to encourage lower electricity rates by facilitating the development of competitive wholesale electric power markets through the prevention of unduly discriminatory practices in providing transmission services.

To be consistent with these orders, Western published a Final Open Access Transmission Service Tariff in the *Federal Register* on Jan. 6, 1998. Western filed an amendment to the Tariff with FERC on Jan. 25, 2005, to adopt Large Generator Interconnection rules that substantially conform with those published by



FERC. Western's amended Tariff requires Western to respond to an application as presented by an applicant. Section 211 of the Federal Power Act requires that transmission services be provided upon application if transmission capacity is available.

In compliance with FERC's rules, Western has committed to accommodating new transmission capacity constructed by an applicant. NBR requested an interconnection to the Federal transmission system under Western's Tariff. Western must determine whether to grant or deny the interconnection while considering effects of the proposed project on existing customers, the environment, system reliability, and any system modifications needed to accommodate the interconnection. If the interconnection request is granted and the proposed project proceeds, Western would construct, own, operate and maintain any required modifications to its own transmission system within the United States at the expense of NBR.

Because the proposed project would integrate a major new source of generation into Western's transmission system, Western has determined that an EIS is required under DOE's NEPA Implementing Procedures, 10 CFR part 1021, Subpart D, Appendix D, class of action D6.

Presidential Permit request

GDD has applied to DOE for a Presidential permit to construct two 500-kV electric transmission lines across the United States border from Mexico. Executive Order 10485, as amended by Executive Order 12038, requires that a Presidential permit be

issued before electric transmission facilities may be constructed, operated, maintained, or connected at the U.S. international border. The Executive Order provides that a Presidential permit may be issued after a finding that the proposed project is consistent with the public interest and after concurrence by the U.S. Departments of State and Defense.

In determining consistency with the public interest, DOE considers the environmental impacts of the proposed project under NEPA, determines the project's impact on electric reliability (including whether the proposed project would adversely affect the operation of the United States electric power supply system under normal and contingency conditions), and any other factors that DOE may also consider relevant to the public interest. Issuance of a Presidential permit indicates that there is no Federal objection to the project, but does not mandate that the project be completed.

What decisions will be made?

Western will use the EIS, along with other factors, to determine whether to approve its participation in the facility. DOE will make a separate decision to approve the presidential permit request. Western will contact other Federal, state, local, and tribal agencies during the scoping period to solicit their input and participation in the EIS process.

What project activities are planned outside the United States?

Inside Mexico, GDD plans to construct and operate a new 550-Megawatt (MW) nominal (605-MW peaking) natural gas-fired, combined cycle power generating facility located approximately 3 miles east of San Luis Rio Colorado, Sonora, Mexico, and about 1 mile south of the international border.

While this facility is not subject to the United States' regulatory requirements, DOE will evaluate impacts within the United States from its operation as part of its impact analysis. GDD plans to construct the power generating facility to comply with applicable United States environmental standards in addition to those of Mexico's Instituto Nacional de Ecología.

The planned generating facility would be equipped with advanced air emissions control technology, including low-NOx combustion technology and a selective catalytic reduction system for oxides of nitrogen, and catalytic oxidizers for carbon monoxide emissions control. The generating facility's primary source of water would be treated effluent from the San Luis Rio Colorado water treatment plant, and GDD would construct a pipeline system connecting the two facilities. A natural gas pipeline approximately six miles long would be constructed from the generating facility to an existing main gas line.

What will the EIS address?

In the EIS, DOE will examine public health and safety effects and environmental impacts within the United States from the proposed transmission facilities and from the associated Mexico generating facility. The EIS will be prepared under the requirements of the Council on Environmental Quality's National Environmental Policy Act Implementing Regulations (40 CFR parts 1500-1508) and DOE's NEPA Implementing Procedures (10 CFR part 1021).

Because the project involves action in a floodplain, the EIS will include a floodplain assessment and floodplain statement of findings following DOE regulations for compliance with floodplain and wetlands environmental review (10 CFR part 1022). Tribal governments and Federal, state, and local agencies with special expertise or jurisdiction over the proposed project are being invited to become cooperating agencies on the EIS.

Potential environmental issues within the United States that DOE has tentatively identified for analysis include:

- Impacts on protected, threatened, endangered, or sensitive species of animals or plants or their critical habitats (including flat-tailed horned lizard and Peirson's milk-vetch)
- Impacts on other biological resources
- Impacts on land use, recreation, and transportation (including agriculture, urban development and the planned Area Service Highway)
- Impacts on floodplains and wetlands
- Impacts on cultural or historic resources and tribal values
- Impacts on human health and safety (including military, civilian, and agricultural aviation safety)

- Impacts on air, soil, and water resources (including air quality, groundwater consumption, and quality)
- Visual impacts
- Socioeconomic impacts and disproportionately high and adverse impacts to minority and low-income populations.

This list is not intended to be all-inclusive or to imply any pre-determination of impacts, and DOE invites interested parties to suggest specific issues within these general categories, or other issues not included above, to be considered in the EIS. Since the EIS would be prepared in compliance with U.S. law, it will only address impacts that would accrue in the United States.

NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from approved actions by that sovereign nation. Executive Order 12114 (January 4, 1979) requires Federal agencies to prepare an analysis of significant impacts from a Federal action in certain defined circumstances and exempts agencies from preparing analyses in others. The Order does not require Federal agencies to evaluate impacts outside the United States when the foreign nation is participating with the United States or is otherwise involved in the action.

Here, the Mexican Government has been involved in evaluating the environmental impacts associated with the generating facility in Mexico and has issued permits authorizing the construction and operation of the generating facility and ancillary facilities, including water use. An overview of the permitting of the generating facility and associated environmental impacts analysis that was performed by the Mexican government will be included in the Draft EIS.

GDD plans to sell off-peak power inside Mexico to the association of maquiladoras (fabrication or assembly plants in the North American Free Trade Agreement zone) of San Luis Rio Colorado and also to the Comision Federal de Electricidad, Mexico's national electric utility. GDD would construct, own, operate and maintain a section of transmission line in Mexico to a point to be determined (Point of Change of Ownership).

What does Western need from you?

Western needs members of the public, tribes and Federal, state, local, and tribal agencies to identify issues and concerns to help us refine the preliminary alternatives and issues and to eliminate from detailed study those alternatives and environmental issues that are not feasible or pertinent. All comments received will be considered and used to shape the EIS process. Because the project involves action in a floodplain, the EIS will address floodplain and wetlands impacts per DOE regulations for compliance with floodplain and wetlands environmental review.

Can I comment if I can't attend a scoping meeting?

You can also send us a letter, listing your concerns, issues or questions, or call the Western contact below. If we do not hear otherwise from you, we'll keep your name on the project's mailing list for future EIS-related announcements.

Western needs your input by mid March to help us define the scope for the EIS.

You may also provide comments on the proposed project throughout the EIS process. Send your comments to: Mr. John Holt, Environment Manager, Desert Southwest Customer Service Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, fax: 602-605-2630, e-mail: holt@wapa.gov.

What other alternatives will be considered?

DOE will consider any additional reasonable alternatives that result from comments received in response to the scoping process. To be considered reasonable, alternatives would need to meet the applicants' and Western's purpose and need, and be technically feasible and economically viable. DOE will also consider reasonable alternatives that may be identified later in the EIS process.

The EIS will also consider the environmental impacts of the "No Action" alternative. Under the No Action alternative, the EIS will analyze the impacts associated with not approving an interconnection agreement and not issuing a Presidential permit.

Will there be other opportunities to provide comments?

DOE anticipates the EIS process will take about 14 to 16 months and will include the public information and scoping meetings; consultation and involvement with appropriate Federal, state, and local agencies, and tribal governments; public review and hearing(s) on the published Draft EIS; a published Final EIS; and publication of a Record of Decision.

After analyzing public concerns and possible impacts from the proposed project, Western in consultation with the cooperating agencies, will issue a Draft EIS. You will have 45 days to review this report and provide comments on it. Western expects the Draft EIS will be available for review in the fall of 2006.

Western will host a public hearing to receive comments on the Draft EIS during the review period. Western will then review these comments before preparing a Final EIS. You will have another 30 days to review the final EIS. Western expects to issue the Final EIS in early 2007. Western and DOE will then make individual decisions on whether to move forward with their actions related to the proposed project. Agency decisions on the proposed facility are expected soon after. If approved, construction would follow the agencies' decisions.

When and where will scoping meetings be held?

Scoping meetings will be held at the Yuma Civic and Convention Center, 1440 West Desert Hills Drive in Yuma, AZ on Feb. 28, and at the San Luis High School, 1250 North 8th Avenue in San Luis, AZ on March 1, 2006. The facilities are wheelchair accessible, and a Spanish-speaking representative will be present.

Meeting times are:

- Feb. 28, 9 a.m. to 4 p.m. and 6 to 9 p.m., in Yuma
- March 1, 9 a.m. to 4 p.m. and 6 to 9 p.m., in San Luis

The scoping meetings will be structured as informal open houses. They will provide interested parties the opportunity to view proposed project and EIS process information, ask questions, and make comments. DOE and cooperating agency representatives will be available to answer questions and provide additional information to attendees.

How can I learn more?

Call or write Mark Wieringa, NEPA Document Manager, Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213, phone: 720-962-7448, fax: 720-962-7263, e-mail: wieringa@wapa.gov.

For project information in Spanish, contact Ms. Enoe Marcum, Environmental Specialist, Desert Southwest Customer Service Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, phone: 602-605-2422, fax: 602-605-2414, e-mail: marcum@wapa.gov.

For information on the Presidential permit process, contact Mrs. Ellen Russell, Office of Electricity Delivery and Energy Reliability (OE-20), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-0350, phone: 202-586-9624, fax: 202-586-5860, e-mail: ellen.russell@hq.doe.gov.

What proposed action and alternatives are being considered?

Western is evaluating the environmental impacts of a proposed project to interconnect with its transmission system in the Yuma, Arizona, area. Western received a request from Generalodoro del Desierto S.A. de C.V. and North Branch Resources, LLC, who plan to build a power plant just across the international border in Sonora, Mexico that would interconnect with Western's Gila Substation and Arizona Public Service's North Gila Substation.

Western considers the 500-kV transmission facilities south of Gila Substation, the Proposed Point of Interconnection, to be interconnection facilities for the sole use of the applicants, while the path between Gila Substation and North Gila Substation is a network upgrade benefiting the integrated transmission system.

The interconnection facilities will consist of the interconnection customer's interconnection facilities, owned by GDD, and transmission provider's interconnection facilities, owned by Western. GDD has received an authorization from Comision Reguladora de Energia, Mexico's energy regulatory commission, to export electric energy to the United States and GDD proposes to deliver on-peak electrical power into the United States in the vicinity of Yuma, Arizona.

The total length of the 500-kV transmission system within the United States would be approximately 25 miles; 20 miles from the

international border to Gila Substation and 5 miles from Gila Substation to North Gila Substation. To reduce the height, the double-circuit 500-kV transmission line may be constructed as two separate single-circuit transmission lines for a short distance near the U.S. Marine Corps Auxiliary Airfield No. 2 landing pattern.

The applicants proposed a route for the 500-kV transmission line that crosses the border immediately north of the proposed power generation facility and then turns northeast to the boundary of the Barry M. Goldwater Range. The route then proceeds north along the boundary of the Range and parallels the proposed Area Service Highway and Western's existing Sonora 69-kV transmission line.

Near the northwest corner of the Range, the proposed route heads north to the Yuma Mesa Irrigation District canal and levee, then turns generally northeastward, paralleling the canal, levee, levee road and Western's 69-kV line into Gila Substation. Leaving Gila Substation, the proposed route parallels the existing three transmission lines to the north, crossing the South Gila Valley, then turns northwest and into Arizona Public Service's North Gila Substation, still paralleling the existing transmission lines. DOE will evaluate opportunities to consolidate existing transmission lines with the proposed new line.



U.S. Department of Energy
Western Area Power Administration
P.O. Box 281213
Lakewood, CO 80228-8213

HECHOS SOBRE la propuesta del Proyecto San Luis Río Colorado EN EL CONDADO DE YUMA, ARIZONA

¿Qué es el proyecto de San Luis Río Colorado?

Generadora del Desierto S.A. de C.V. (GDD) está construyendo una planta generadora de electricidad de ciclo combinado a base de gas natural con una potencia nominal de 550 Megawatts (potencia máxima, 605 MW) localizada aproximadamente a 3 kilómetros al este de San Luis Río Colorado, en Sonora, México y una milla al sur de la frontera internacional.

La parte solicitante desea vender electricidad en México y en los Estados Unidos y está pidiendo al DOE (Departamento de Energía, por sus siglas en inglés) un permiso presidencial para construir dos líneas de transmisión de energía eléctrica de 500,000 voltios a través de la frontera de los Estados Unidos saliendo desde México. North Branch Resources, LLC (NBR, por sus siglas en inglés) socio en el proyecto propuesto está solicitando la interconexión con el sistema de transmisión de energía eléctrica de Western en el área de Yuma.

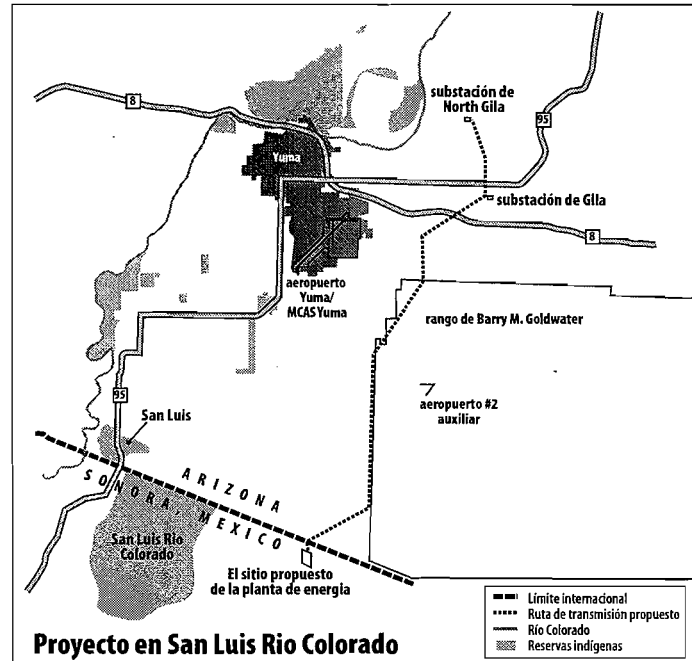
Las partes solicitantes son filiales en propiedad absoluta de North Branch Holding, LLC. GDD propone construir, ser propietaria, operar y mantener la planta generadora en México y la corta sección de la línea de transmisión localizada en México. Los solicitantes proponen que Western construya, sea propietaria, opere y mantenga los componentes de transmisión de energía eléctrica de doble circuito de 500 kilovoltios en los Estados Unidos, a expensas de los solicitantes.

Como respuesta a la solicitud de interconexión presentada a Western, la línea de transmisión se interconectaría con el sistema de transmisión de Western a través de una expansión de 500/161 kilovoltios en la subestación de Gila, localizada al este de Yuma. Bajo esta propuesta, Western podría construir, ser propietaria, operar y mantener la línea de transmisión de energía eléctrica de 500 kilovoltios entre un punto de cambio de propiedad cerca de la frontera internacional y la subestación Gila, la expansión de 500/161 kV en la subestación Gila y la línea de transmisión de 500 kV entre la subestación Gila y la subestación Gila Norte de la compañía Arizona Public Service Co. En ese caso, Western podría convertirse en co-solicitante para el permiso presidencial.

¿Por qué participan en este proyecto DOE y Western?

Solicitud de interconexión

Los decretos No. 888 y 888-A de la Comisión Federal Reguladora de Energía (FERC, por sus siglas en inglés) estipulan que todos los proveedores de servicios públicos que sean propietarios o controlen plantas de transmisión de energía eléctrica interestatal deben ofrecer servicios de transmisión no discriminatorios con acceso ilimitado. A través de estos Decretos, la FERC trata la necesidad de fomentar tasas menores de electricidad facilitando el desarrollo de mercados competitivos mayoristas de corriente eléctrica a través de la pre-



vención de prácticas discriminatorias indebidas al proporcionar los servicios de transmisión de energía eléctrica.

Para ser consistentes con estos decretos, Western publicó una tarifa final de servicio de transmisión con acceso ilimitado en el Registro Federal del 6 de Junio de 1998, y después presentó una enmienda a la tarifa con la FERC el 25 de enero de 2005, para adoptar las reglas de interconexión de generadores grandes que substancialmente concuerden con las publicadas por la FERC. La tarifa modificada de Western estipula que Western debe responder a la solicitud conforme la presente el solicitante. La sección 211 de la Ley Federal de Energía pide que los servicios de transmisión de energía eléctrica sean proporcionados haciendo una solicitud si se dispone de la capacidad de transmisión.

Para cumplir con las reglas de la FERC, Western se ha comprometido a ajustar una nueva capacidad de la transmisión construida por el solicitante. NBR solicitó una interconexión con el sistema de transmisión federal bajo la tarifa de Western. Western debe determinar si concede o deniega la interconexión poniendo en consideración los efectos que tenga el proyecto propuesto en los clientes actuales, el medio ambiente, la confiabilidad del sistema y cualquier otra modificación que necesite hacerse para adaptar la interconexión. Si se concede la interconexión solicitada y procede el proyecto propuesto, Western construiría, sería propietaria, operaría y mantendría cualquier modificación que requiera su propio sistema de transmisión dentro de los Estados Unidos, a expensas de NBR.

Ya que el proyecto propuesto integraría una importante fuente

nueva de generación eléctrica en el sistema de transmisión de la empresa Western, ésta ha determinado que se requerirá una Declaración de Impacto Ambiental (EIS, por sus siglas en inglés) bajo los Procedimientos de Implementación de la Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) de DOE, CFR 10 en su parte 1021, Subparte D, Apéndice D, clase de acción D6.

Solicitud del permiso presidencial

GDD ha solicitado a DOE un permiso presidencial para construir dos líneas de transmisión de energía eléctrica de 500 kV a través de la frontera de los Estados Unidos desde México. El Decreto Ejecutivo 10485 según modificación por el decreto ejecutivo 12038, exige que se emita un permiso presidencial antes de construir, operar, mantener o conectar una planta de transmisión de energía eléctrica en la frontera internacional de los Estados Unidos. El decreto ejecutivo establece que se puede emitir un permiso presidencial después de encontrar que el proyecto propuesto es consistente con el interés del público y después de la concurrencia del Departamento de Estado y Defensa de los EE.UU.

Para que el DOE determine si hay consistencia con los intereses del público, toma en consideración los impactos ambientales del proyecto propuesto bajo la NEPA, determina el impacto del proyecto en la confiabilidad del suministro de energía (incluyendo si el proyecto propuesto afectaría en forma adversa la operación del sistema de suministro de corriente eléctrica en los Estados Unidos bajo condiciones normales y de contingencia), y otros factores que el DOE pueda considerar como relevantes al interés público. La emisión del permiso presidencial indica que no hay objeción federal al proyecto, pero no obliga a que el proyecto se complete.

¿Qué decisiones se tomarán?

Western usará la EIS junto con otros factores para determinar si aprueba su participación en la planta. DOE tomará una decisión separada para aprobar la solicitud del permiso presidencial. Western contactará a otras entidades federales, estatales, locales y tribales durante el periodo de evaluación preliminar pidiendo su opinión y participación en el proceso de la EIS.

¿Qué asuntos tratará la EIS?

En la EIS, DOE revisará los efectos en la seguridad y salud pública y los impactos ambientales dentro de los Estados Unidos de las instalaciones propuestas para la transmisión de energía y de la planta generadora en México. La EIS se preparará siguiendo los requisitos de los Reglamentos Nacionales de Implementación de la Ley de Política Ambiental del Consejo sobre la Calidad Ambiental (CFR 40, en sus partes 1500 a 1508) y los Procedimientos de Implementación de la NEPA de DOE (CFR 10 en su parte 1021).

Ya que el proyecto involucra acciones en un terreno aluvial, la EIS incluirá una evaluación del terreno y declaración de los hechos siguiendo los reglamentos de DOE para cumplir con la revisión ambiental de terrenos aluviales y pantanosos (CFR 10, parte 1022). Los gobiernos tribales y las dependencias federales, estatales y locales con experiencia o jurisdicción especial sobre el proyecto propuesto han sido invitados para actuar como dependencias cooperativas en la EIS.

Los aspectos potenciales ambientales dentro de los Estados Unidos que el DOE ha identificado tentativamente para analizar son:

- Impactos sobre especies de animales o plantas que están protegidas, amenazadas, en peligro o sensibles o sus habitats críticos (incluyendo el lagarto con cuernos de cola plana y el astrágalo de Peirson)
- Impactos en otros recursos biológicos
- Impactos en el uso del suelo, recreación y transporte (incluyendo la agricultura, desarrollo urbano y la carretera para servicios del área propuesta)
- Impactos en terrenos aluviales y pantanosos
- Impactos en recursos culturales o históricos y valores tribales.
- Impactos en la salud y seguridad humana (incluyendo la seguridad en la aviación militar, civil y agrícola).

- Impactos en los recursos del aire, suelo y agua (incluyendo la calidad del agua, el consumo y calidad de aguas freáticas)
- Impactos visuales
- Impactos socioeconómicos e impactos desproporcionalmente altos y adversos para las minorías y población de bajos ingresos.

Esta lista no pretende ser totalmente inclusiva ni implica ninguna predeterminación de impactos; DOE invita a las partes interesadas para que sugieran aspectos específicos dentro de estas categorías generales u otros puntos no incluidos anteriormente para que se consideren en la EIS. Ya que la EIS se preparará de conformidad con las leyes estadounidenses, sólo tratará los impactos que se acrecentarían en los Estados Unidos.

La NEPA no requiere un análisis de los impactos ambientales que ocurren en otra nación soberana que resultan de las acciones aprobadas por la misma. El decreto ejecutivo 12114 (enero 4, 1979) exige que las dependencias federales preparen un análisis de los impactos significativos derivados de una acción federal en ciertas circunstancias definidas y que exente a las agencias de la preparación del análisis en otras circunstancias. El decreto no pide que las agencias federales evalúen los impactos fuera de los Estados Unidos cuando otro país está participando con los Estados Unidos o de alguna forma está involucrado en la acción.

Aquí, el gobierno mexicano ha estado involucrado en la evaluación de los impactos ambientales asociados con la planta generadora de electricidad en México y ha emitido permisos que autorizan la construcción y operación de la planta e instalaciones auxiliares, incluyendo el uso del agua. En la EIS preliminar se incluirán las generalidades del permiso para una planta generadora de electricidad y el análisis de los impactos ambientales asociados que fueron realizados por el gobierno de México.

¿Qué actividades del proyecto están planeadas para realizarse fuera de los Estados Unidos?

En México, GGD planea construir y operar una nueva planta generadora de electricidad de ciclo combinado a base de gas natural con una potencia nominal de 550 Megawatts (potencia máxima, 605 MW) localizada aproximadamente a 3 millas al este de San Luis Río Colorado, en Sonora, México y una milla al sur de la frontera internacional.

Considerando que esta planta no está sujeta a los requisitos de regulación de los Estados Unidos, DOE evaluará los impactos en los Estados Unidos derivados de su operación como parte de su análisis de impacto ambiental. GDD planea construir la planta generadora de electricidad para cumplir con los estándares ambientales que se aplican a los Estados Unidos además de los correspondientes al Instituto Nacional de Ecología de México.

La planta generadora de electricidad que se planea estaría equipada con tecnología avanzada en el control de emisiones, incluyendo la tecnología de combustión baja en óxidos de nitrógeno (NOx) y un sistema de reducción catalítico selectivo para estos óxidos y oxidantes catalíticos para el control de las emisiones de monóxido de carbono. La fuente primaria de agua de la planta sería agua tratada que sale de la planta de tratamiento de aguas de San Luis Río Colorado, y GDD construiría el sistema de tuberías que conectan las dos plantas. Se construiría un gasoducto para gas natural de aproximadamente seis millas de longitud desde la planta generadora de energía eléctrica hasta la línea principal de gas existente.

GDD planea vender energía eléctrica en horas de menor demanda en México a la asociación de maquiladoras (plantas de fabricación o ensamble en la zona del Tratado de Libre Comercio de Norteamérica) de San Luis Río Colorado y también a la Comisión Federal de Electricidad, empresa mexicana que provee de servicio eléctrico al país. GDD construiría, sería propietaria, operaría y mantendría una sección de la línea de transmisión de energía eléctrica en México hasta un punto por determinar (punto de cambio de propiedad).

¿Qué necesita Western de usted?

Western necesita miembros del público, tribus y dependencias federales, estatales, locales y tribales para identificar aspectos e inquietudes que nos ayuden a refinar las alternativas y puntos preliminares y eliminar a partir de un estudio detallado, aquellas alternativas y aspectos ambientales que no son factibles o pertinentes. Todos los comentarios que recibamos serán tomados en cuenta y usados para diseñar el proceso de la EIS.

Ya que el proyecto involucra acciones en terreno aluvial, la EIS tratará los impactos en terrenos aluviales y pantanosos según los reglamentos de DOE para el cumplimiento con la revisión ambiental para terrenos aluviales y pantanosos.

¿Puedo hacer comentarios si no puedo asistir a la reunión de evaluación preliminar?

Usted podrá enviarnos una carta, indicando sus inquietudes, asuntos o preguntas, o bien llamando al contacto de Western indicado abajo. Si usted no especifica lo contrario, conservaremos su

nombre en la lista de direcciones del proyecto para futuros anuncios relacionados con la EIS.

Western necesita su opinión para mediados de marzo para ayudarnos a definir el alcance de la EIS. También puede darnos sus comentarios sobre el proyecto propuesto durante el proceso de la EIS. Envíe sus comentarios a: Mr. John Holt, Environmental Manager, Desert Southwest Customer Service Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, fax: 602-352-2630, e-mail: hotl@wapa.gov.

¿Cuándo y dónde se realizarán las reuniones de evaluación preliminar?

Se realizarán en el Centro Cívico y de Convenciones de Yuma, 1440 West Desert Hills Drive en Yuma, AZ el 28 de febrero y en la escuela San Luis High School, 1250 North 8th Avenue en San Luis, AZ el 1° de marzo de 2006. Las instalaciones tienen acceso para sillas de ruedas y habrá un representante que habla español.

La reunión será el:

■ 28 de febrero de 9 a.m. a 4 p.m. y de 6 a 9 p.m. en Yuma

■ 1° de marzo de 9 a.m. a 4 p.m. y de 6 a 9 p.m. en San Luis

Las reuniones de evaluación previa se estructurarán como reuniones informativas informales dando a las partes interesadas la oportunidad de ver el proyecto propuesto y la información del proceso de la EIS, así como hacer preguntas y comentarios. DOE y los representantes de las dependencias cooperativas podrán contestar las preguntas de los asistentes proporcionándoles también información adicional.

¿Qué otras alternativas se considerarán?

DOE considerará cualquier alternativa razonable adicional que resulte de los comentarios que reciba en respuesta al proceso de evaluación preliminar. Para que las alternativas sean consideradas razonables tendrán que cumplir con el propósito y necesidades de Western y de los solicitantes, y ser técnicamente factibles y económicamente viables. DOE también considerará como alternativas razonables aquellas que puedan identificarse posteriormente en el proceso de la EIS.

La EIS también considerará los impactos ambientales de la alternativa de "No Acción". Bajo la alternativa de No Acción, la EIS analizará los impactos asociados con la desaprobación del acuerdo de interconexión y la no emisión del permiso presidencial.

¿Habrá otras oportunidades para hacer comentarios?

DOE anticipa que el proceso de la EIS tomará aproximadamente de 14 a 16 meses e incluirá la información del público y las reuniones de evaluación preliminar; la consulta y participación con las dependencias federales, estatales y locales adecuadas, y los gobiernos tribales; revisiones y audiencias públicas sobre la EIS preliminar que se publique; la publicación de la EIS final y de un registro de la decisión.

Después de analizar las inquietudes del público y los posibles impactos del proyecto propuesto, Western en cooperación con las dependencias, emitirá una EIS preliminar. Tendrá 45 días para revisar el informe y darnos sus comentarios. Western espera que la EIS preliminar esté disponible para su revisión en el otoño de 2006.

Western ofrecerá una audiencia pública para recibir los comentarios sobre la EIS preliminar durante el periodo de revisión y posteriormente revisará los comentarios antes de preparar la EIS final. Tendrá otros 30 días para revisar la EIS final. Western espera emitir la EIS final a principios de 2007. Posteriormente Western y el DOE harán decisiones individuales para avanzar con las acciones relacionadas con el proyecto propuesto. Las decisiones de las dependencias sobre la planta propuesta se esperan inmediatamente después. En caso de aprobarse, la construcción se ajustará a las decisiones de las dependencias.

¿Cómo puedo tener más información?

Llame o escriba a Mark Wieringa, NEPA Document Manager, Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213, teléfono: 720-962-7448, fax: 720-962-7263, e-mail: wieringa@wapa.gov.

Para información sobre el proyecto en español, contacte a Enoe Marcum, Environmental Specialist, Desert Southwest Customer Service Region, Western Area Power Administration, P.O. Box, 6457, Phoenix, AZ 85005, teléfono: 602-605-2422, fax: 602-605-2414, e-mail: marcum@wapa.gov.

Para información sobre el proceso para obtener el permiso presidencial, contacte a la Sra. Ellen Russell, Office of Electricity Delivery and Energy Reliability (OE-20), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-0350, teléfono: 202-586-9624, fax: 202-586-5860, e-mail: ellen.russell@hq.doe.gov.

¿Qué acciones y alternativas propuestas se están considerando?

Western está evaluando los impactos ambientales de un proyecto que propone interconectarse con su sistema de transmisión de energía eléctrica en el área de Yuma, Arizona. Western recibió una solicitud de Generadora del Desierto S. A. de C.V. y de North Branch Resources, LLC, quienes planean construir una planta generadora de energía eléctrica a través de la frontera internacional en Sonora, México que se interconectaría con la subestación Gila de Western y con la subestación Gila Norte de Arizona Public Service.

Western considera las instalaciones de transmisión de energía eléctrica de 500 kV al sur de la subestación Gila, el punto propuesto de interconexión, como las instalaciones de interconexión para uso único de los solicitantes, mientras que el tramo entre la subestación Gila y la subestación Gila Norte se considera una mejora de la red que beneficia al sistema integral de transmisión.

Las instalaciones de interconexión consistirán de las instalaciones de interconexión del cliente, propiedad de GDD, y las instalaciones de interconexión del proveedor, propiedad de Western. GDD ha recibido la autorización de la Comisión Reguladora de Energía, comisión reguladora de energía en México, para exportar energía eléctrica a los Estados Unidos y propone transmitirla durante las horas de máxima demanda a los Estados Unidos en la vecindad de Yuma, Arizona.

La longitud total del sistema de transmisión de energía eléctrica de 500 kV dentro de los Estados Unidos sería aproximada-

mente de 25 millas; 20 millas a partir de la frontera internacional hasta la subestación Gila y 5 millas de la subestación Gila hasta la subestación Gila Norte. Para reducir la altura, la línea de transmisión de doble circuito de 500 kV podrá construirse como dos líneas de transmisión separadas de circuito único para una distancia corta cerca del patrón de aterrizaje de la Infantería de Marina de los Estados Unidos, Aeródromo Auxiliar No. 2.

Los solicitantes propusieron una ruta para la línea de transmisión de 500 kV que cruce la frontera inmediatamente al norte de la planta generadora de electricidad propuesta y luego gire al noreste hacia los límites del Campo Barry M Goldwater. La ruta luego prosigue al norte a lo largo de los límites del campo y corre paralela a la carretera para servicios del área propuesta y a la línea de transmisión existente de 69 kV de Western en Sonora.

Cerca de la esquina noroeste del campo, la ruta propuesta sigue al norte hacia el canal y dique del Distrito de Irrigación de la Meseta de Yuma y luego gira generalmente hacia el noreste, paralelo al canal, al dique, al camino del dique y a la línea de 69 kV de Western llegando a la subestación Gila. Al salir de la subestación Gila, la ruta propuesta va paralela a las tres líneas de transmisión existentes hacia el norte, cruzando el valle sur de Gila, luego gira al noroeste y entra a la subestación Gila Norte de Arizona Public Service, todavía paralela a las líneas de transmisión existentes. DOE evaluará las oportunidades para consolidar las líneas de transmisión existentes con la nueva línea propuesta.



SECOND NOTICE

February 2006

The proposed San Luis Rio Colorado Project

YUMA COUNTY, ARIZONA

We need your ideas!

Western Area Power Administration will be holding scoping meetings for the proposed San Luis Rio Colorado Project.

Please join us to learn more about this proposed project and share your ideas.

Initial scoping meetings:

February 28, 9 a.m. to 4 p.m. and 6 to 9 p.m.
Yuma Civic and Convention Center
1440 West Desert Hills Drive
Yuma, Arizona

March 1, 9 a.m. to 4 p.m. and 6 to 9 p.m.
San Luis High School
1250 North 8th Avenue
San Luis, Arizona

Additional scoping meetings:

March 9, 1 to 4 p.m. and 5 to 8 p.m.
Yuma Civic and Convention Center
1440 West Desert Hills Drive
Yuma, Arizona

March 10, 1 to 4 p.m. and 5 to 8 p.m.
Fernando Padilla Community Center
800 East Juan Sanchez Boulevard
San Luis, Arizona

SEGUNDA NOTICIA

Febrero 2006

la propuesta del Proyecto San Luis Río Colorado

EN EL CONDADO DE YUMA, ARIZONA

¡Necesitamos su opinion!

Western Area Power Administration realizara reuniones para determinar el impacto del proyecto San Luis Rio Colorado en esta zona.

Por favor asista a estas reuniones y comparta sus ideas con nosotros.

Dias y lugar en el que se realizar las reuniones:

Febrero 28 de las 9 de la mañana a las 4 de la tarde
y de las 6 a las 9 de la noche
En el Centro Civico de Convenciones de Yuma
1440 West Desert Hills Drive
Yuma, Arizona

Marzo 1 de las 9 de la mañana a las 4 de la tarde
y de las 6 a las 9 de la noche
En el High School de San Luis
1250 North 8th Avenue
San Luis, Arizona

Se realizaran reuniones adicionales en:

Marzo 9 de la 1 a las 4 de la tarde
y de las 5 a las 8 de la noche
En el Centro Civico de Convenciones de Yuma
1440 West Desert Hills Drive
Yuma, Arizona

Marzo 10 de la 1 a las cuatro de la tarde
y de la 5 a las 8 de noche
En el Fernando Padilla Community Center
800 East Juan Sanchez Boulevard
San Luis, Arizona



U.S. Department of Energy A7400
 Western Area Power Administration
 P.O. Box 281213
 Lakewood, CO 80228-8213

groups; other interested parties; affected landowners; Native American tribes; libraries, and newspapers; and the Commission's official service list for this proceeding. A comment period will be allotted for review if the EA is published. We will consider all comments on the EA before we make our recommendations to the Commission.

To ensure your comments are considered, please carefully follow the instructions in the public participation section.

Public Participation

You can make a difference by providing us with your specific comments or concerns about the proposal. By becoming a commentator, your concerns will be addressed in the EA and considered by the Commission. You should focus on the potential environmental effects of the proposal, alternatives to the proposal (including alternative locations), and measures to avoid or lessen environmental impact. The more specific your comments, the more useful they will be. Please carefully follow these instructions to ensure that your comments are received in time and properly recorded:

- Send an original and two copies of your letter to: Magalie R. Salas, Secretary, Federal Energy Regulatory Commission, 888 First St. NE.; Room 1A, Washington, DC 20426;
- Label one copy of the comments for the attention of the Gas Branch 1, DG2E; and
- Reference Docket No. PF06-2-000 on the original and both copies.
- Mail your comments so that they will be received in Washington, DC on or before March 17, 2006.

The Commission encourages electronic filing of comments. See Title 18 Code of Federal Regulations (CFR) 385.2001(a)(1)(iii) and the instructions on the Commission's internet website at <http://www.ferc.gov> under the "eFiling" link and the link to the user's Guide. Prepare your submission in the same manner as you would if filing on paper and save it to a file on your hard drive. Before you can file comments you will need to create an account by clicking on "Login to File" and then "New User Account." You will be asked to select the type of filing you are making. This filing is considered a "Comment on Filing."

When Transco submits its application for authorization to construct and operate the Potomac Expansion Project, the Commission will publish a Notice of Application in the Federal Register and will establish a deadline for interested persons to intervene in the proceeding.

Because the Commission's Pre-Filing Process occurs before an application to begin a proceeding is officially filed, petitions to intervene during this process are premature and will not be accepted by the Commission.

Environmental Mailing List

If you received this notice, you are on the environmental mailing list for the Potomac Expansion Project and will continue to receive project updates including the EA. If you want your contact information corrected or you do not want to remain on our mailing list, please return the Correct or Remove From Mailing List Form included as Appendix B.

To reduce printing and mailing costs, the EA may be issued in both CD-ROM and hard copy formats. The FERC strongly encourages the use of the CD-ROM format in its publication of documents. If you wish to receive a paper copy of the EA instead of a CD-ROM, you must indicate that choice on the return postcard (Appendix B).

Availability of Additional Information

Additional information about the project is available from the Commission's Office of External Affairs at 1-866-208 FERC or on the FERC Internet Web site (<http://www.ferc.gov>) using the "eLibrary" link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (*i.e.*, PF06-2). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rule makings.

In addition, the FERC now offers a free service called eSubscription that allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. To register for this service, go to <http://www.ferc.gov/esubscribenow.htm>.

Magalie R. Salas,
Secretary.

[FR Doc. E6-1857 Filed 2-9-06; 8:45 am]

BILLING CODE 6717-01-P

DEPARTMENT OF ENERGY

Western Area Power Administration

San Luis Rio Colorado Project, Yuma County, AZ

AGENCY: Western Area Power Administration, DOE.

ACTION: Notice of intent to prepare an Environmental Impact Statement and to conduct public scoping meetings; notice of floodplain and wetlands involvement.

SUMMARY: The Department of Energy's (DOE) Western Area Power Administration (Western) and Office of Electricity Delivery and Energy Reliability (OE) intend to conduct public scoping meetings and to prepare an environmental impact statement (EIS) on a proposal to construct new international transmission facilities and to connect those facilities with Western's transmission system at its Gila Substation east of Yuma, Arizona. The EIS will be prepared in compliance with the National Environmental Policy Act (NEPA) and applicable regulations, including DOE NEPA implementing regulations.

The EIS is being prepared in response to Generadora del Desierto S.A. de C.V. (GDD) applying to DOE for a Presidential permit to construct two 500,000-volt (500-kilovolt (kV)) electric transmission lines across the United States border from Mexico, and North Branch Resources, LLC (NBR) applying to interconnect with Western's transmission system. With this Notice of Intent, DOE invites public participation in the EIS scoping process and solicits public comments to help establish the scope and content of the EIS. Because the project involves action in a floodplain, the EIS will address floodplain and wetlands impacts per DOE regulations for compliance with floodplain and wetlands environmental review.

DATES: DOE invites interested agencies, tribes, organizations, and members of the public to submit comments or suggestions to assist in identifying significant environmental issues and in determining the appropriate scope of the EIS. The public scoping period starts with the publication of this notice in the **Federal Register** and will continue until March 13, 2006.

Public scoping meetings are set for:

1. February 28, 2006, 9 a.m. to 4 p.m. in Yuma, Arizona.
2. February 28, 2006, 6 to 9 p.m. in Yuma, Arizona.
3. March 1, 2006, 9 a.m. to 4 p.m. in San Luis, Arizona.

4. March 1, 2006, 6 to 9 p.m., in San Luis, Arizona.

ADDRESSES: Written comments or suggestions on the scope of the EIS should be addressed to Mr. John Holt, Environmental Manager, Desert Southwest Customer Service Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, facsimile (602) 605-2630, e-mail holt@wapa.gov.

Scoping meetings will be held at the Yuma Civic and Convention Center, 1440 West Desert Hills Drive in Yuma, AZ on February 28, and at the San Luis High School, 1250 North 8th Avenue in San Luis, AZ on March 1, 2006. The facilities are wheelchair accessible, and a Spanish-speaking representative will be present.

FOR FURTHER INFORMATION CONTACT: For information on the proposed project and interconnection with Western's transmission system, or to receive a copy of the Draft EIS when it is issued, contact Mr. Mark Wieringa, NEPA Document Manager, Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213, telephone (800) 336-7288, facsimile (720) 962-7263, e-mail wieringa@wapa.gov.

For information on the Presidential permit process, contact Mrs. Ellen Russell, Office of Electricity Delivery and Energy Reliability (OE-20), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585-0350, telephone (202) 586-9624, facsimile (202) 586-5860, e-mail ellen.russell@hq.doe.gov.

For general information on the DOE's NEPA review process, contact Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (EH-42), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585-0119, telephone (202) 586-4600 or (800) 472-2756; facsimile (202) 586-7031.

SUPPLEMENTARY INFORMATION:

Background and Need for Agency Action

Western Interconnection Project

Federal Energy Regulatory Commission (FERC) Order Nos. 888 and 888-A require all public utilities owning or controlling interstate transmission facilities to offer non-discriminatory open access transmission services. Through these Orders, FERC addressed the need to encourage lower electricity rates by facilitating the development of competitive wholesale electric power markets through the prevention of unduly discriminatory practices in providing transmission services.

In order to be consistent with FERC Order Nos. 888 and 888-A, Western published its Notice of Final Open Access Transmission Service Tariff (Tariff) in the **Federal Register** on January 6, 1998. Western filed an amendment to the Tariff with FERC on January 25, 2005, to adopt Large Generator Interconnection (LGI) rules that substantially conform with those published in FERC Order Nos. 2003, 2003-A and 2003-B. Western's amended Tariff requires Western to respond to an application as presented by an applicant. Section 211 of the Federal Power Act requires that transmission services be provided upon application if transmission capacity is available.

In compliance with the FERC LGI rules, Western has committed to accommodating new transmission capacity constructed by an applicant. NBR has requested an interconnection to the Federal transmission system under Western's Tariff. Western must determine whether to grant or deny the interconnection while considering effects of the proposed project on existing customers, the environment, system reliability, and any system modifications needed to accommodate the interconnection. If the interconnection request is granted and the proposed project proceeds, Western would construct, own, operate, and maintain any required modifications to its own transmission system within the United States at the expense of NBR.

Because the proposed project would integrate a major new source of generation into Western's transmission system, Western has determined that an EIS is required under DOE's NEPA Implementing Procedures, 10 CFR part 1021, Subpart D, Appendix D, class of action D6.

DOE Presidential Permit

GDD has applied to DOE for a Presidential permit to construct two 500-kV electric transmission lines across the United States border from Mexico. Executive Order 10485, as amended by Executive Order 12038, requires that a Presidential permit be issued before electric transmission facilities may be constructed, operated, maintained, or connected at the U.S. international border. The Executive Order provides that a Presidential permit may be issued after a finding that the proposed project is consistent with the public interest and after concurrence by the U.S. Departments of State and Defense. The implementing regulations are published at 10 CFR 205.320-205.329.

In determining consistency with the public interest, DOE considers the environmental impacts of the proposed project under NEPA, determines the project's impact on electric reliability (including whether the proposed project would adversely affect the operation of the United States electric power supply system under normal and contingency conditions), and any other factors that DOE may also consider relevant to the public interest. Issuance of a Presidential permit indicates that there is no Federal objection to the project, but does not mandate that the project be completed.

Proposed Action and Alternatives

The Applicants are each wholly owned subsidiaries of North Branch Holding, LLC. GDD proposes to construct, own, operate, and maintain the power plant in Mexico and the short section of transmission line located in Mexico. The Applicants propose that Western construct, own, operate, and maintain the double-circuited 500-kV transmission components in the United States, at the Applicants' expense. In response to the interconnection request to Western, the transmission line would interconnect with Western's transmission system through a 500/161-kV expansion at Gila Substation, located east of Yuma. Under the proposal, Western would construct, own, operate, and maintain the 500-kV transmission line between a Point of Change of Ownership near the international border and the Gila Substation, the 500/161-kV expansion at Gila Substation, and the 500-kV transmission line between Gila Substation and Arizona Public Service Company's (APS) North Gila Substation. In that case, Western would become a co-applicant on the Presidential permit application.

Western considers the 500-kV transmission facilities south of Gila Substation, the Proposed Point of Interconnection, to be Interconnection Facilities for the sole use of the Applicants, while the path between Gila Substation and North Gila Substation is a Network Upgrade benefiting the integrated transmission system. The Interconnection Facilities will consist of the Interconnection Customer's Interconnection Facilities, owned by GDD, and Transmission Provider's Interconnection Facilities, owned by Western. GDD has received an authorization from Comision Reguladora de Energia (CRE), Mexico's energy regulatory commission, to export electric energy to the United States and GDD proposes to deliver on-peak electrical power into the United States in the vicinity of Yuma, Arizona.

The total length of the 500-kV transmission system within the United States would be approximately 25 miles; 20 miles from the international border to Gila Substation and 5 miles from Gila Substation to North Gila Substation. To reduce the height, the double-circuit 500-kV transmission line may be constructed as two separate single-circuit transmission lines for a short distance near the U.S. Marine Corps Auxiliary Airfield No. 2 landing pattern. The Applicants have proposed a route for the 500-kV transmission line that crosses the border immediately north of the proposed power generation facility and then turns northeast to the boundary of the Barry M. Goldwater Range (Range). The route then proceeds north along the boundary of the Range and parallels the proposed Area Service Highway and Western's existing Sonora 69-kV transmission line. Near the northwest corner of the Range, the proposed route heads north to the Yuma Mesa Irrigation District canal and levee, then turns generally northeastward, paralleling the canal, levee, levee road, and Western's 69-kV line into Gila Substation. Leaving Gila Substation, the proposed route parallels the existing three transmission lines to the north, crossing the South Gila Valley, then turns northwest and into APS's North Gila Substation, still paralleling the existing transmission lines. DOE will evaluate opportunities to consolidate existing transmission lines with the proposed new line.

DOE will consider any additional reasonable alternatives that result from comments received in response to the scoping process described in this notice. To be considered reasonable, alternatives would need to meet the Applicants' and Western's purpose and need, and be technically feasible and economically viable. DOE will also consider reasonable alternatives that may be identified later in the EIS process.

The EIS will also consider the environmental impacts of the "No Action" alternative. Under the No Action alternative, the EIS will analyze the impacts associated with not approving an interconnection agreement and not issuing a Presidential permit.

Activities Outside the United States

Inside Mexico, GDD plans to construct and operate a new 550-Megawatt (MW) nominal (605-MW peaking) natural gas-fired, combined cycle power generating facility located approximately 3 miles east of San Luis Rio Colorado, State of Sonora, Mexico, and about 1 mile south of the international border. While this facility

is not subject to the United States' regulatory requirements, DOE will evaluate impacts within the United States from its operation as part of its impact analysis. GDD plans to construct the power generating facility to comply with applicable United States environmental standards in addition to those of Mexico's Instituto Nacional de Ecología. The planned generating facility would be equipped with advanced air emissions control technology, including low-NO_x combustion technology and a selective catalytic reduction system for oxides of nitrogen, and catalytic oxidizers for carbon monoxide emissions control. The generating facility's primary source of water would be treated effluent from the San Luis Rio Colorado water treatment plant, and GDD would construct a pipeline system connecting the two facilities. A natural gas pipeline approximately 6 miles long would be constructed from the generating facility to an existing main gas line. GDD plans to sell off-peak power inside Mexico to the association of maquiladoras (fabrication or assembly plants in the North American Free Trade Agreement zone) of San Luis Rio Colorado and also to the Comisión Federal de Electricidad, Mexico's national electric utility. GDD would construct, own, operate, and maintain a section of transmission line in Mexico to a point to be determined (Point of Change of Ownership).

Identification of Environmental Issues

In the EIS, DOE will examine public health and safety effects and environmental impacts within the United States from the proposed transmission facilities and from the associated Mexico generating facility. The EIS will be prepared under the requirements of the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR parts 1500–1508) and DOE's NEPA Implementing Procedures (10 CFR part 1021). Because the project involves action in a floodplain, the EIS will include a floodplain assessment and floodplain statement of findings following DOE regulations for compliance with floodplain and wetlands environmental review (10 CFR part 1022). Tribal governments and Federal, state, and local agencies with special expertise or jurisdiction over the proposed project are being invited to become cooperating agencies on the EIS.

This notice is to inform agencies and the public of the proposed project and solicit comments and suggestions for consideration in the preparation of the EIS. To help the public frame its comments, this notice contains a list of

potential environmental issues within the United States that DOE has tentatively identified for analysis. These issues include:

- (1) Impacts on protected, threatened, endangered, or sensitive species of animals or plants or their critical habitats (including flat-tailed horned lizard and Peirson's milk-vetch);
- (2) Impacts on other biological resources;
- (3) Impacts on land use, recreation, and transportation (including agriculture, urban development and the planned Area Service Highway);
- (4) Impacts on floodplains and wetlands;
- (5) Impacts on cultural or historic resources and tribal values;
- (6) Impacts on human health and safety (including military, civilian, and agricultural aviation safety);
- (7) Impacts on air, soil, and water resources (including air quality, groundwater consumption, and quality);
- (8) Visual impacts; and
- (9) Socioeconomic impacts and disproportionately high and adverse impacts to minority and low-income populations.

This list is not intended to be all-inclusive or to imply any predetermination of impacts, and DOE invites interested parties to suggest specific issues within these general categories, or other issues not included above, to be considered in the EIS. Since the EIS would be prepared in compliance with U.S. law, it will only address impacts that would accrue in the United States. NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from approved actions by that sovereign nation. Executive Order 12114 (January 4, 1979) requires Federal agencies to prepare an analysis of significant impacts from a Federal action in certain defined circumstances and exempts agencies from preparing analyses in others. The Order does not require Federal agencies to evaluate impacts outside the United States when the foreign nation is participating with the United States or is otherwise involved in the action. Here, the Mexican Government has been involved in evaluating the environmental impacts associated with the generating facility in Mexico and has issued permits authorizing the construction and operation of the generating facility and ancillary facilities, including water use. An overview of the permitting of the generating facility and associated environmental impacts analysis that was performed by the Mexican

Government will be included in the Draft EIS.

Scoping Process

Interested parties are invited to participate in the scoping process, both to refine the preliminary alternatives and environmental issues to be analyzed in depth, and to eliminate from detailed study those alternatives and environmental issues that are not feasible or pertinent. All comments received will be considered and used to shape the EIS process.

Public EIS scoping meetings will be held at the location, date, and times indicated above under the **DATES** and **ADDRESSES** sections. The scoping meetings will be structured as informal open houses. They will provide interested parties the opportunity to view proposed project and EIS process information, ask questions, and make comments. DOE and cooperating agency representatives will be available to answer questions and provide additional information to attendees.

DOE invites those entities with jurisdiction by law or special expertise with respect to environmental issues to be cooperating agencies on the EIS, as defined at 40 CFR 1501.6. Such entities may also make a request to DOE to be a cooperating agency. Designated cooperating agencies have certain responsibilities to support the NEPA process, as specified at 40 CFR 1501.6(b).

Persons submitting comments during the scoping process will receive copies of the Draft EIS. Persons who do not wish to submit comments or suggestions at this time, but who would like to receive a copy of the Draft EIS for review and comment when it is issued, should notify Mr. Mark Wieringa at the address provided above. The Draft EIS in printed form or electronic form on a compact disc will be made available to the public upon request.

Draft EIS Schedule and Availability

DOE anticipates the EIS process will take about 14 to 16 months and will include the public information and scoping meetings; consultation and involvement with appropriate Federal, state, and local agencies, and tribal governments; public review and hearing(s) on the published Draft EIS; a published Final EIS; and publication of a Record of Decision (ROD).

The public will be provided an opportunity to review the Draft EIS and a hearing on the published Draft EIS is expected to be conducted in the third quarter of calendar year 2006. A notice of the location of these public hearings

will be provided in the **Federal Register** and local media at a later date.

A published final EIS, a waiting period, and publication of a ROD are anticipated in early calendar year 2007.

Dated: February 2, 2006.

Michael S. Hacsckaylo,

Administrator.

[FR Doc. E6-1914 Filed 2-9-06; 8:45 am]

BILLING CODE 6450-01-P

ENVIRONMENTAL PROTECTION AGENCY

[FRL-8030-9]

Proposed Settlement Agreement, Clean Air Act Citizen Suit

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Proposed Settlement Agreement; Request for Public Comment.

SUMMARY: In accordance with section 113(g) of the Clean Air Act, as amended ("Act"), 42 U.S.C. 7413(g), notice is hereby given of a proposed settlement agreement, to address a petition for writ of mandamus filed by Sierra Club in the U.S. Court of Appeals for the District of Columbia Circuit: *In re Sierra Club*, No. 05-1045 (DC Cir.). On February 15, 2005, Petitioner filed a petition asking the Court to issue a writ of mandamus directing EPA to complete remand proceedings ordered by the United States Court of Appeals for the D.C. Circuit in *Sierra Club v. EPA*, 167 F.3d 658 (DC Cir. 1999) for EPA's maximum achievable control technology ("MACT") determinations for new and existing hospital, medical and infectious waste incinerators ("HMIWI"). Under the terms of the proposed settlement agreement, no later than one year after this agreement is executed, the Administrator shall sign a notice of proposed rulemaking which responds to the remand order and no later than two years after this agreement is executed, the Administrator shall sign a notice of final rulemaking which responds to the remand order.

DATES: Written comments on the proposed settlement agree must be received by March 13, 2006.

ADDRESSES: Submit your comments, identified by Docket ID number EPA-HQ-OGC-2006-0104, online at <http://www.regulations.gov> (EPA's preferred method); by e-mail to oei.docket@epa.gov; mailed to EPA Docket Center, Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Ave., NW.,

Washington, DC 20460-0001; or by hand delivery or courier to EPA Docket Center, EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC, between 8:30 a.m. and 4:30 p.m. Monday through Friday, excluding legal holidays. Comments on a disk or CD-ROM should be formatted in Wordperfect or ASCII file, avoiding the use of special characters and any form of encryption, and may be mailed to the mailing address above.

FOR FURTHER INFORMATION CONTACT:

Michael Thrift, Air and Radiation Law Office (2344A), Office of General Counsel, U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460; telephone: (202) 564-5596; fax number (202) 564-5603; e-mail address: thrift.mike@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Additional Information About the Proposed Settlement Agreement

EPA promulgated regulations on September 15, 1997 to establish MACT standards for HMIWI. 62 FR 48347. These regulations were challenged, and on April 12, 1999, the United States Court of Appeals for the District of Columbia Circuit remanded EPA's MACT determinations for new and existing HMIWI regulations to EPA. *Sierra Club v. EPA*, 167 F.3d 658 (DC Cir 1999).

The settlement agreement provides, among other things, that: (1) One year after the execution of this settlement agreement, EPA shall sign for publication in the **Federal Register** a notice of proposed rulemaking setting forth its proposed response to the Court's remand order in *Sierra Club v. EPA*; (2) following a period of at least 30 days for public comment on the proposed rulemaking, two years after the execution of this settlement agreement, EPA shall sign for publication in the **Federal Register** a notice of final rulemaking; and (3) no later than 15 days after the Administrator signs the final rulemaking and transmits it to the Office of the Federal Register for publication the petitioner will dismiss the petition for writ of mandamus.

For a period of thirty (30) days following the date of publication of this notice, the Agency will receive written comments relating to the proposed settlement agreement from persons who were not named as parties or interveners to the litigation in question. EPA or the Department of Justice may withdraw or withhold consent to the proposed settlement agreement if the comments disclose facts or considerations that indicate that such consent is

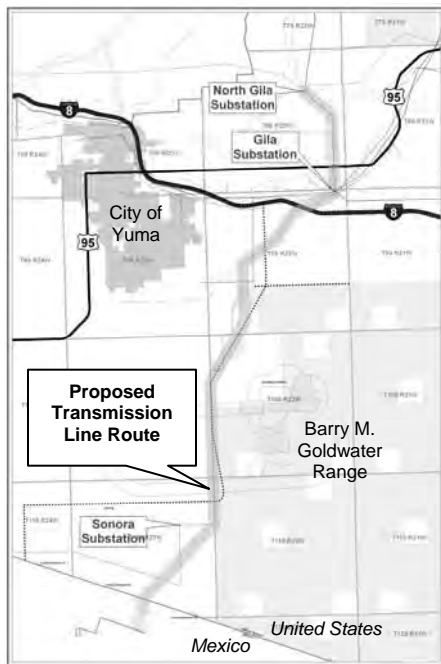
SLRC POWER CENTER PROJECT

WINTER OF 2006 INFORMATION SHEET

PROJECT DESCRIPTION

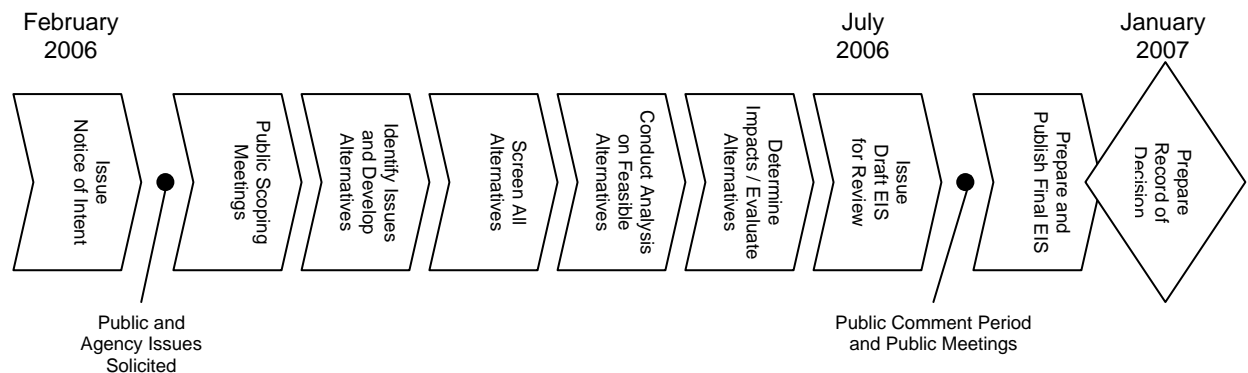
Generadora del Desierto, S.A de C.V. (GDD) and North Branch Resources, L.L.C. (NBR) are the Applicants for the San Luis Rio Colorado (SLRC) Power Center Project. GDD has applied to the Department of Energy (DOE) for a Presidential permit to construct a double-circuit 500,000-volt (500-kilovolt (kV)) transmission line across the United States border with Mexico. NBR has applied to interconnect with Western Area Power Administration's (Western) transmission system. The proposed transmission line of the SLRC Power Center would originate at a new natural gas-fired, combined cycle power generating facility to be constructed near San Luis Rio Colorado, Sonora, Mexico, connect to Western's Gila Substation, and terminate at Arizona Public Service Company's (APS) North Gila Substation.

PROJECT LOCATION



The Applicants have proposed a route for a 500-kV transmission line that crosses the border immediately north of the proposed power generation facility and then turns northeast to the boundary of the Barry M. Goldwater Range (Range). The proposed route then proceeds north along the boundary of the Range and paralleling the proposed Area Service Highway and Western's existing Sonora 69-kV transmission line. Near the northwest corner of the Range, the proposed route heads north to the canal, then turns generally northeastward, paralleling the canal, canal road, and Western's 69-kV line into Gila Substation. Leaving Gila Substation, the proposed route parallels the existing transmission lines to the north, crossing the South Gila Valley, then turning northwest and into APS's North Gila Substation, still paralleling the existing transmission lines.

ENVIRONMENTAL IMPACT STATEMENT (EIS) STEPS AND PROPOSED TIMELINE



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Please fold in thirds, staple, and affix postage.

Affix
Postage

Mr. John Holt, Environmental Manager
Western Area Power Administration
P.O. Box 6457
Phoenix, AZ 85005-6457

Out of scope issues raised, too

A number of other issues and concerns were also raised during the scoping process for the proposed San Luis Rio Colorado Project, but for a variety of reasons they will not be addressed in the project EIS. These issues and a brief explanation of why they are "out of scope" are listed here:

Air quality

- How can the Federal government ensure compliance with the "promised" air quality standard?
 - An overview of the generating facility's permitting requirements and the associated environmental impact analysis performed by the Mexican government will be included as an appendix to the EIS. Emissions data will be reviewed and used to determine impacts within the United States.

Cultural resources

- Impacts to cultural resources in Mexico
 - Action on Mexican land is outside U.S. jurisdiction and will not be addressed in the EIS.

Generation plant

- What is the potential for Mexico cutting off power to the United States?
 - DOE will perform an electric reliability study to ensure the existing U.S. power supply system would remain operational upon a sudden loss of power, regardless of the outage cause.

- Concern about a generation facility in Mexico
 - Action on Mexican land is outside U.S. jurisdiction and will not be addressed in the EIS.
- Consider a solar component, photovoltaic, as part of the portfolio
 - The Federal action to be evaluated in the EIS is not what kind of power plant to build, but rather for Western to determine whether to grant an interconnection request and for DOE to determine whether to grant a Presidential permit.
- A Mexican plant site does not provide benefits to Yuma
 - The Federal action to be evaluated in the EIS is not whether to build the generating plant, but rather for Western to determine whether to grant an interconnection request and for DOE to determine whether to grant a Presidential permit. Arizona Public Service could contract to purchase power from the proposed project for local use. The applicant could construct the San Luis Rio Colorado Power Center and supply power only within Mexico.

How can I learn more?

Call or write:

John Holt, Environment Manager,
Desert Southwest Region,
Western Area Power Administration,
P.O. Box 6457 Phoenix, AZ 85005,
phone: 602-605-2592,
fax: 602-605-2414,
e-mail: holt@wapa.gov.



San Luis Rio Colorado Project

June 2006

Range of issues raised during project scoping

Normal, open-house scoping meetings were held in Yuma, Ariz., on Feb. 28 and March 9 and in San Luis, Ariz., on March 1 and 10, 2006, on the San Luis Rio Colorado Project, a proposal to interconnect a new 550-MW, natural gas-fired power plant near San Luis Rio Colorado, Sonora, Mexico, with the high-voltage transmission system near Yuma, Ariz.

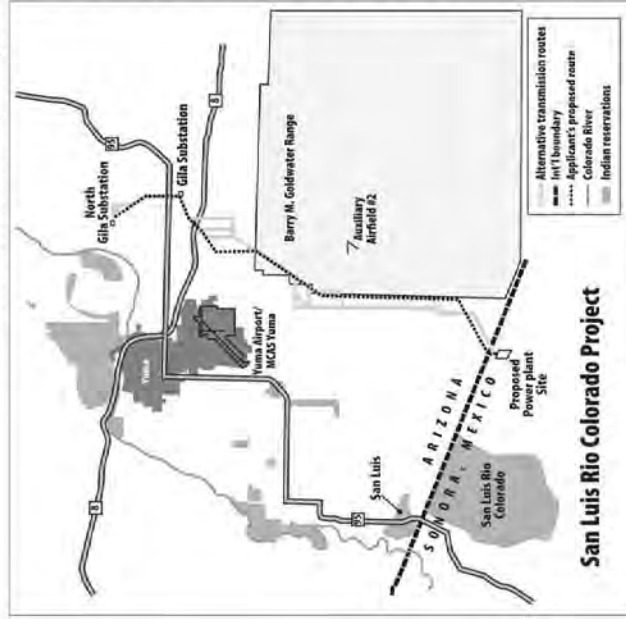
Western Area Power

Administration and the U.S. Department of Energy are preparing an environmental impact statement on the proposed project to comply with the National Environmental Policy Act. The scoping meetings provided interested parties the opportunity to view proposed project and information about the planned EIS process, ask questions and make comments. Western, DOE and cooperating agency representatives were available to answer questions and provide additional information to attendees.

Western has the lead for the EIS and has responsibility to approve or deny the interconnection request. DOE's Office of Electricity Delivery and Energy Reliability has the lead for approving or disapproving

the Presidential permit. Both organizations will use the same EIS in their separate decision processes.

Scoping raised a number of concerns and potential issues that will be addressed in the EIS. Preliminary consideration of these comments also helped to identify several additional transmission line routing alternatives. Topics and issues raised during scoping included:



San Luis Rio Colorado Project

Agriculture

- Pest control compromises because of the structure height, resulting in reduced crop yields
- Food safety because the line will attract larger bird populations
- Increases to ground preparation and cultivation costs due to structures

Air quality

- Air quality impacts on the city and county of Yuma
- Impacts to human health from particulate matter smaller than 10 microns

Aviation safety

- Impact of the proposed project on future development of the existing Rolle Airstrip
- Impacts to military aviation operations on the Barry M. Goldwater Range
- Impacts to flight safety at Marine Corps Air Station—Yuma's Auxiliary Airport

Cost

- Interest in the commercial costs and rates for the power and energy from this proposed project

Cumulative impacts

- Impacts to Wellton-Mohawk Title Transfer lands near North Gila Substation
- Relationship of this project to Arizona Public Service's proposal for the Palo Verde-North Gila Transmission Project and cumulative impacts, including growth-inducing impacts or the need to expand North Gila Substation
- Cumulative impacts related to the Area Service Highway proposal and the Arizona Clean Fuels pipeline and refinery proposal
- Cumulative impacts to the flat-tailed horned lizard

Environmental process

- Concern that the National Environmental Policy Act compliance process does not apply to activities that occur in Mexico
- Interest in understanding how the analysis is being conducted

Health and safety

- Impacts of the proposed project on radio, television, cell phones and satellite dishes
- Impacts to human health from electric and magnetic fields
- Potential for cancer caused by high-voltage transmission lines
- Electromagnetic interference with existing Marine Corps operations, particularly at Cannon Air Defense Complex

Land use

- Compatibility of the proposed project in a one-mile buffer zone along the Goldwater Range
- Impacts to population along the transmission line alignment, including residential development between the Goldwater Range and Gila Substation
- Impacts to use at the Goldwater Range
- Impacts to existing live-fire small arms and demilitation ranges
- Impacts to a planned road in the vicinity of the A Canal
- Impacts to future development and land use plans as outlined in Yuma's General Plan, the city and county Joint Land Use Plan and the County 2010 Comprehensive Plan

Paleontology

- Impacts to paleontological resources

Power marketing

- Western's role, if any, in marketing the power from Mexico to Yuma area residents
- If not Western, who will market the power from Mexico?

Power supply

- Source of natural gas
- Interest in a full discussion and assessment of electric power needs and supply within the EIS purpose and need section

Project description

- Replacement of both lines between Gila and North Gila substations
- Need for the Gila to North Gila line
- Scope of the proposed project—transmission lines or generating facility?
- Potential for transmission of electricity into Mexico

Safety

- Concern about the potential for increased risk of electric shock
- Need for transmission lines crossing roads to have orange bell markers

Threatened, endangered and special status species

- Impacts to the flat-tailed horned lizard management area from the proposed project route
- Concern that the flat-tailed horned lizard should be treated as a listed species
- Concern that route alternatives should avoid the flat-tailed horned lizard management area
- Concern that route alternatives should avoid big-horn sheep habitat in the Gila Mountains
- Propose evaluating impacts to the Sonoran population of the desert tortoise from the proposed project
- Impacts to rare plants within five miles of the proposed project including sand food, Schott's wire lettuce and Pierson's milkvetch
- Recommend obtaining species lists from Arizona Game and Fish Department, U.S. Fish and Wildlife Service and the U.S. Bureau of Land Management

Transmission line route and configuration

- Yuma Proving Grounds accepts the proposed transmission line route
- City of Yuma opposes the proposed route
- Recommend the use of 3E as a north-south corridor because 4E is too sandy for equipment; soil is more compact on 3E
- Recommend the line from Gila Substation move east to the mountains

- Propose evaluating alternate routes that cross the international border immediately north of the proposed generation facility, turn northeast to the Goldwater range boundary, proceed north paralleling County 4E to the intersection of East County 14th ½ then turn northeast paralleling A Canal where the line would resume the currently proposed route
- Request a 230-kV alternative be considered
- Recommend routing transmission line through barren, unusable land and avoiding developed areas
- Concerns about a utility corridor adjacent to the proposed Area Service Highway; an overpass is required at County 19th
- Consider a Fortuna Wash alignment
- Recommend avoiding high-value land north of the Goldwater Range; state lands are not a favorable location for power lines; don't disproportionately place lines on state land
- Route transmission lines along gas lines for the generating facility

- Avoid the A Canal; use the Area Service Highway alignment and move east along the MCAS boundary
- Consider an alternative around development at North Gila Substation
- Consider a 230-kV alternative that would tie into the existing Sonora Substation
- Recommend the existing ASH to A Canal alignment because it would have the least impact to the Ocotillo Master Plan

Visual

- Impacts to intrusions on views of the Goldwater Range and Gila Mountains from private property
- Propose evaluating impact of using single pole structures instead of lattice steel towers to reduce physical footprint and visual impact

Water

- Request a letter for Comisión Nacional del Agua and the Mexican International Boundary and Water Commission verifying the approved legal use of water for the generating facility

DOE will also consider reasonable alternatives that may be identified later in the EIS process.

Several alternative routes were identified in the scoping comments received and from a routing analysis and Western field investigations. In general, these routes can be characterized as refinements to the applicants' original proposed route. They address engineering constraints, take advantage of routing opportunities and reduce various identified environmental impacts. These alternatives are shown on the map on page 1.

The EIS will also consider the environmental impacts of the "No Action" alternative. Under the No Action alternative, the EIS will analyze the impacts associated with not approving an interconnection agreement and not issuing a Presidential permit.

Will there be other opportunities to provide comments?

DOE anticipates the EIS process will take about 14 to 16 months and will include the public information and scoping meetings; consultation and involvement with appropriate Federal, state, and local agencies, and tribal governments; public review and hearing(s) on the pub-

lished Draft EIS; a published Final EIS; and publication of a Record of Decision.

After analyzing public concerns and possible impacts from the proposed project, Western in consultation with the cooperating agencies, will issue a Draft EIS. You will have 45 days to review this document and provide comments on it and the proposed project. Western expects the Draft EIS will be available for review in the fall of 2006.

Western will host a public hearing to receive comments on the Draft EIS during the review period. You may make oral comments on the proposed project at the hearing, submit written comments there or provide written or e-mail comments during the 45-day comment period.

Western will then review these comments before preparing a Final EIS. You will have another 30 days to review the final EIS. Western expects to issue the Final EIS in early 2007. Western and DOE will then make individual decisions on whether to move forward with their actions related to the proposed project. If approved, construction would follow the agencies' decisions.

How can I learn more?

Call or write:

John Holt, Environment Manager, Desert Southwest Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, phone: 602-605-2592, fax: 602-605-2414, e-mail: holt@wapa.gov.

Mark Wieringa, NEPA Document Manager, Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213, phone: 720-962-7448, fax: 720-962-7263, e-mail: wieringa@wapa.gov.

For project information in Spanish, contact Ms.

Enoe Marcum, Environmental Specialist, Desert Southwest Customer Service Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, phone: 602-605-2422, fax: 602-605-2414, e-mail: marcum@wapa.gov.

For information on the Presidential permit process, contact Mrs. Ellen Russell, Office of Electricity Delivery and Energy Reliability (OE-20), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-0350, phone: 202-586-9624, fax: 202-586-5860, e-mail: ellen.russell@hq.doe.gov.



San Luis Rio Colorado FAQs

What is the San Luis Rio Colorado Project?

Generadora del Desierto S.A. de C.V. is proposing to build a new 550-Megawatt nominal (605-MW peaking) natural gas-fired, combined cycle power generating facility to be located approximately 3 miles east of San Luis Rio Colorado, Sonora, Mexico, and about one mile south of the international border.

The applicant wants to sell electricity in both Mexico and the United States and has applied to DOE for a Presidential permit to construct two 500,000-volt electric transmission lines across the United States border from Mexico. North Branch Resources, LLC, a partner in the proposed project, has applied to interconnect with Western's transmission system in the Yuma area.

The applicants are each wholly owned subsidiaries of North Branch Holding, LLC. GDD proposes to construct, own, operate and maintain the power plant in Mexico and the short section of transmission line located in Mexico. The applicants propose that Western construct, own, operate and maintain the double-circuited 500-kV transmission components in the United States, at the applicants' expense. Western is favorably considering this proposal.

In response to the interconnection request to Western, the transmission line would interconnect with Western's transmission system through a 500/161-kV expansion at Gila Substation, located east of Yuma.

Under the proposal, Western would construct, own, operate and maintain the 500-kV transmission line between a Point of Change of Ownership near the international border and the Gila Substation, the 500/161-kV expansion at Gila Substation, and the 500-kV transmission line between Gila Substation and Arizona Public Service Company's North Gila Substation. In that case, Western would become a co-applicant on the Presidential permit application.

Although the applicants have proposed a 500-kV project, Western is also evaluating a 230-kV double circuit option in the EIS.

Why are DOE and Western involved in this project?

Interconnection request

Federal Energy Regulatory Commission Orders No. 888 and 888-A require all public utilities owning or controlling interstate transmission facilities to offer non-discriminatory open access transmission services. Through these Orders, FERC addressed the need to encourage lower electricity rates by facilitating the development of competitive wholesale electric power markets through the prevention of unduly discriminatory practices in providing transmission services.

To be consistent with these orders, Western published a Final Open Access Transmission Service Tariff in the Federal Register on Jan. 6, 1998. Western filed an amendment to the Tariff with FERC on Jan. 25, 2005, to adopt Large Generator Interconnection rules that substantially conform with those published by FERC. Western's amended Tariff requires Western to respond to an application as presented by an applicant. Section 211 of the Federal Power Act requires that transmission services be provided upon application if transmission capacity is available.

In compliance with FERC's rules, Western committed to accommodating new transmission capacity constructed by an applicant. NBR requested an interconnection to the Federal transmission system under Western's Tariff. Western must determine whether to grant or deny the interconnection while considering effects of the proposed project on existing customers, the environment, system reliability, and any system modifications needed to accommodate the interconnection. If the interconnection request is granted and the proposed project proceeds, one option is for Western to construct, own, operate and maintain any required modifications to its own transmission system within the United States at the expense of NBR. Decisions on Western's role in this project will be made after the environmental impact statement is completed.

Because the proposed project would integrate a major new source of generation into Western's trans-

mission system. Western determined that an EIS is required under DOE's NEPA Implementing Procedures, 10 CFR part 1021, Subpart D, Appendix D, class of action D6.

Presidential Permit request

GDD has applied to DOE for a Presidential permit to construct two 500-kV electric transmission lines across the United States border from Mexico. Executive Order 10485, as amended by Executive Order 12038, requires that a Presidential permit be issued before electric transmission facilities may be constructed, operated, maintained, or connected at the U.S. international border. The Executive Order provides that a Presidential permit may be issued after a finding that the proposed project is consistent with the public interest and after concurrence by the U.S. Departments of State and Defense.

In determining consistency with the public interest, DOE considers the environmental impacts of the proposed project under NEPA, determines the project's impact on electric reliability (including whether the proposed project would adversely affect the operation of the United States electric power supply system under normal and contingency conditions), and any other factors that DOE may also consider relevant to the public interest. Issuance of a Presidential permit indicates that there is no Federal objection to the project, but does not mandate that the project be completed.

Can I still comment now that the scoping period has ended?

You may provide comments on the proposed project throughout the EIS process. Send your comments to: Mr. John Holt, Environment Manager, Desert Southwest Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005; fax: 602-605-2414, e-mail: holt@wapa.gov.

What will the EIS address?

In the EIS, DOE will examine public health and safety effects and environmental impacts within the United States from the proposed transmission facilities and from the associated Mexico generating facility. The EIS will be prepared under the requirements of the Council on Environmental Quality's National Environmental

Policy Act Implementing Regulations (40 CFR parts 1500-1508) and DOE's NEPA Implementing Procedures (10 CFR part 1021).

Because the project involves action in a floodplain, the EIS will include a floodplain assessment and floodplain statement of findings following DOE regulations for compliance with floodplain and wetlands environmental review (10 CFR part 1022). Tribal governments and Federal, state, and local agencies with special expertise or jurisdiction over the proposed project are being invited to become cooperating agencies on the EIS.

Since the EIS would be prepared in compliance with U.S. law, it will only address impacts that would occur in the United States.

NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from approved actions by that sovereign nation. Executive Order 12114 (January 4, 1979) requires Federal agencies to prepare an analysis of significant impacts from a Federal action in certain defined circumstances and exempts agencies from preparing analyses in others. The Order does not require Federal agencies to evaluate impacts outside the United States when the foreign nation is participating with the United States or is otherwise involved in the action.

Here, the Mexican Government has been involved in evaluating the environmental impacts associated with the generating facility in Mexico and has issued permits authorizing the construction and operation of the generating facility and ancillary facilities, including water use. An overview of the permitting of the generating facility and associated environmental impacts analysis that was performed by the Mexican government will be included in the Draft EIS.

What project activities are planned outside the United States?

Inside Mexico, GDD plans to construct and operate a new 550-Megawatt (MW) nominal (605-MW peak) natural gas-fired, combined cycle power generating facility located approximately 3 miles east of San Luis Rio Colorado, Sonora, Mexico, and about 1 mile south of the international border.

While this facility is not subject to the United States' regulatory requirements, DOE will evaluate impacts

within the United States from its operation as part of its impact analysis. GDD plans to construct the power generating facility to comply with applicable United States environmental standards in addition to those of Mexico's Instituto Nacional de Ecología.

The planned generating facility would be equipped with advanced air emissions control technology, including low-NOx combustion technology and a selective catalytic reduction system for oxides of nitrogen, and catalytic oxidizers for carbon monoxide emissions control. The powerplant would also use wet/dry parallel cooling to reduce water consumption.

The generating facility's primary source of water would be treated effluent from the San Luis Rio Colorado water treatment plant, and GDD would construct a pipeline system connecting the two facilities. A natural gas pipeline approximately 24 miles long would be constructed from the generating facility to an existing main gas line.

GDD plans to sell off-peak power inside Mexico to the association of maquiladoras (fabrication or assembly plants in the North American Free Trade Agreement zone) of San Luis Rio Colorado and also to the Comisión Federal de Electricidad, Mexico's national electric utility. GDD would construct, own, operate and maintain a section of transmission line in Mexico to a point near the international border (Point of Change of Ownership).

What proposed action and alternatives are being considered?

Western is evaluating the environmental impacts of a proposed project to interconnect with its transmission system in the Yuma, Ariz., area. Western received a request from Generalador del Desierto S.A. de C.V. and North Branch Resources, LLC, who plan to build a power plant just across the international border in Sonora, Mexico that would interconnect with Western's Gila Substation and Arizona Public Service's North Gila Substation.

Western considers the 500-kV transmission facilities south of Gila Substation, the Proposed Point of Interconnection, to be interconnection facilities for the sole use of the applicants, while the path between Gila Substation and North Gila Substation is a network up-

grade benefiting the integrated transmission system.

GDD has received an authorization from Comisión Reguladora de Energía, Mexico's energy regulatory commission, to export electric energy to the United States and GDD proposes to deliver on-peak electrical power into the United States, in the vicinity of Yuma.

The total length of the 500-kV transmission system within the United States would be approximately 25 miles; 20 miles from the international border to Gila Substation and 5 miles from Gila Substation to North Gila Substation. To reduce the height, the double-circuit 500-kV transmission line may be constructed as two separate single-circuit transmission lines for a short distance near the U.S. Marine Corps Auxiliary Airfield No. 2 landing pattern. The project may also be constructed as a double-circuit 230-kV transmission line.

The applicants proposed a route for the 500-kV transmission line that crosses the border immediately north of the proposed power generation facility and then turns northeast to the boundary of the Barry M. Goldwater Range. The route then proceeds north along the boundary of the Range and parallels the proposed Area Service Highway and Western's existing Sonora 69-kV transmission line.

Near the northwest corner of the Range, the proposed route heads north to the Yuma Mesa Irrigation District canal and levee, then turns generally north-eastward, paralleling the canal, levee, levee road and Western's 69-kV line into Gila Substation. Leaving Gila Substation, the proposed route parallels the existing three transmission lines to the north, crossing the South Gila Valley, then turns northwest and into Arizona Public Service's North Gila Substation, still paralleling the existing transmission lines. DOE will evaluate opportunities to consolidate existing transmission lines with the proposed new line.

What other alternatives will be considered in the EIS?

Western and DOE will consider any additional reasonable alternatives that result from comments received in response to the scoping process. To be considered reasonable, alternatives would need to meet the applicants' and Western's purpose and need, and be technically feasible and economically viable. Western and

Cuestiones fuera de alcance mencionadas también

Se mencionaron también otras cuestiones e inquietudes durante el proceso de evaluación del alcance del proyecto propuesto en San Luis Río Colorado, pero por diferentes razones no se abordarán en la declaración sobre el impacto ambiental del proyecto. A continuación se enumeran estas cuestiones y una breve explicación de la razón por las que "escapan al alcance":

Calidad del aire

- ¿Cómo puede el gobierno federal garantizar el cumplimiento de la norma de calidad del aire "prometedora"?
 - Como apéndice a la declaración sobre el impacto ambiental se adjuntará una descripción general realizada por el gobierno mexicano de los requisitos habilitantes para la planta generadora de energía eléctrica y el impacto ambiental relacionado. Se analizarán los datos sobre emisiones y se emplearán en la determinación de los efectos en los Estados Unidos.

Recursos culturales

- Incidencias en los recursos culturales en México.
 - La acción en las tierras mexicanas escapa a la jurisdicción de los Estados Unidos y no se abordará en la declaración sobre el impacto ambiental.

Planta generadora de energía eléctrica

- ¿Qué posibilidad existe de que México interrumpa el suministro de energía a los Estados Unidos?
 - El Departamento de Energía realizará un análisis de fiabilidad a fin de garantizar que el sistema actual de abastecimiento de energía de los Estados Unidos seguirá funcionando ante una pérdida repentina de energía, independientemente de la causa de la interrupción del servicio.

- Inquietud sobre una planta para la generación de energía eléctrica en México.
 - La acción en las tierras mexicanas escapa a la jurisdicción de los Estados Unidos y no se abordará en la declaración sobre el impacto ambiental.

- Considerar un componente solar, fotovoltaico, como parte de la cartera

- La medida a nivel federal que se evaluará en la declaración sobre el impacto ambiental no es el tipo de central de energía que se construya, sino que Western determine si aceptará una solicitud de interconexión y que el Departamento de Energía establezca si concederá un permiso presidencial.

- La ubicación de la planta en México no beneficia a Yuma.
 - La medida a nivel federal que se evaluará en la declaración sobre el impacto ambiental no es si se construirá una planta de producción de energía eléctrica, sino que Western determine si aceptará una solicitud de interconexión y que el Departamento de Energía establezca si concederá un permiso presidencial. El Servicio Público de Arizona podría celebrar un contrato para adquirir energía del proyecto propuesto para uso local. El solicitante podría construir la Central generadora de energía eléctrica San Luis Río Colorado y abastecer energía sólo dentro de México.

¿Cómo puedo obtener información adicional?

Lláme o escriba a:

John Holt, Environment Manager,
Desert Southwest Region,
Western Area Power Administration,
P.O. Box 6457, Phoenix, AZ 85005,
teléfono: 602-605-2592,
fax: 602-605-2414,
correo electrónico: holt@wapa.gov.

Actualización sobre la evaluación del alcance del proyecto.



Proyecto en San Luis Río Colorado

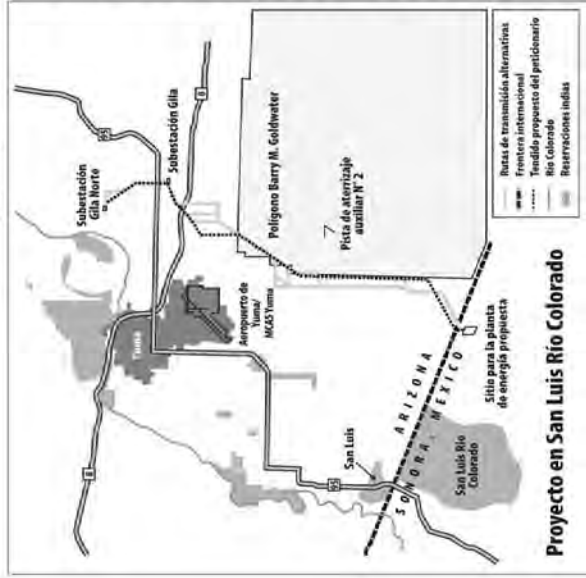
Junio de 2006

Gama de temas mencionados durante la evaluación del alcance del proyecto

El 28 de febrero y el 9 de marzo, en Yuma, Arizona, y el 1 y 10 de marzo de 2006 en San Luis, Arizona se celebraron reuniones informales y abiertas a todos para evaluar el alcance del proyecto en San Luis Río Colorado, una propuesta para interconectar una nueva planta eléctrica a gas natural cerca del San Luis Río Colorado, Sonora, México, con el sistema de transmisión de alto voltaje cerca de Yuma, Arizona.

La Administración de Energía de la Zona Western y el Departamento de Energía de los Estados Unidos están preparando una declaración sobre el impacto ambiental en conexión con el proyecto propuesto a fin de cumplir con la Ley nacional sobre políticas del medio ambiente. Las reuniones para la evaluación del alcance suministraron a las partes interesadas la oportunidad de visualizar el proyecto propuesto y la información sobre el proceso planificado de declaración sobre el impacto ambiental, formular preguntas y realizar comentarios. Los representantes de Western, el Departamento de Energía y el organismo de cooperación se pusieron a disposición para responder a preguntas y suministrar información adicional a los asistentes.

Western encabezó la declaración sobre el impacto ambiental y es responsable por la aprobación o la denegación de la solicitud de interconexión. La



Proyecto en San Luis Río Colorado

Oficina de Suministro de Electricidad y Fiabilidad de la Energía del Departamento de Energía dirige la aprobación o la desaprobarción del permiso presidencial. Ambas organizaciones utilizarán la misma declaración sobre el impacto ambiental en procesos decisivos separados.

La evaluación del alcance del proyecto dio lugar a varias preocupaciones y problemas posibles que se abordarán en la declaración. Con la consideración preliminar de estos comentarios se ayudó también a identificar varias otras alternativas al tendido de las líneas de transmisión. Los temas y los problemas mencionados durante la evaluación del alcance del proyecto comprendieron:

Rutas de transmisión alternativas
Frontera internacional
Tendido propuesto del partisionario
Río Colorado
Reservaciones indias

Proyecto en San Luis Río Colorado



Proyecto en San Luis Río Colorado
P.O. Box 281213
Lakewood, CO 80228-8213

Agricultura

- Arréglos en el ámbito de la lucha contra las plagas a la luz de la altura de las estructuras, con lo cual se reduce el rendimiento de las cosechas.
- La seguridad de los alimentos dado que la línea atraerá poblaciones de pájaros más grandes
- Aumentos de los costos de preparación del suelo y cultivo debido a las estructuras

Calidad del aire

- La calidad del aire repercute en la ciudad y el condado de Yuma
- Consecuencias para la salud humana de las partículas menores de 10 micrones

Seguridad de la aviación

- Efecto del proyecto propuesto en el desarrollo futuro de la actual pista de aterrizaje Rolle
- Incidencias para las operaciones de aviación militar en el Polígono Barry M. Goldwater
- Efectos en la seguridad de los vuelos en la Estación Aérea de los Infantes de Marina, el aeropuerto auxiliar de Yuma

Costo

- Interés en los costos comerciales y los aranceles para la potencia y energía a raíz de este proyecto propuesto

Efectos acumulados

- Consecuencias en las tierras con transferencias de título de Wellton-Mohawk cerca de la subestación Gila Norte
- Relación de este proyecto con la propuesta del Servicio Público de Arizona para el Proyecto de Transmisión en Palo Verde-Gila Norte y efectos acumulativos, como los efectos que inducen la expansión o la necesidad de ampliar la subestación Gila Norte.
- Efectos acumulados en relación con la propuesta para la construcción de una carretera de servicio del área, y la propuesta en torno al ducto y la refinería para combustibles no contaminantes de Arizona
- Efectos acumulados para la iguana cornuda de cola privada

Proceso medioambiental

- Preocupación porque el proceso de cumplimiento de la Ley nacional sobre políticas del medio ambiente no se aplique a las actividades que tienen lugar en México
- Interés en entender la manera en que se está realizando el análisis

Salud y seguridad

- Las incidencias del proyecto propuesto en la radio, la televisión, los teléfonos celulares y los platos satelitales
- Efectos de los campos eléctricos y magnéticos en la salud humana
- Posibilidad de padecer cáncer a raíz de las líneas de transmisión de alto voltaje
- Interferencia electromagnética con las operaciones actuales de los Infantes de Marina, en especial en el Complejo Cannon para la Defensa Aérea

Uso de la tierra

- Compatibilidad del proyecto propuesto en una zona de separación de una milla a lo largo del Polígono Goldwater
- Efectos en la población a lo largo del trazado de las líneas de transmisión, incluida la urbanización residencial entre el Polígono Goldwater y la subestación Gila.
- Consecuencias para el uso del Polígono Goldwater
- Efectos en los polígonos actuales para armas ligeras con municiones reales y demolición
- Repercusión en una carretera planificada en proximidades del Canal A
- Efectos en los planes futuros de urbanización y uso de tierras según se esbozan en el Plan general de Yuma, el Plan para el uso conjunto de tierras de la ciudad y el condado y el Plan integral del condado para 2010

Paleontología

- Repercusiones en los recursos paleontológicos

Comercialización de la energía

- La función de Western, si desempeña tal función, en la comercialización de la energía de México para los residentes de la zona de Yuma
- Si no es Western, ¿quién comercializará la energía desde México?

Abastecimiento de energía

- Fuente de gas natural
- Interés en la discusión y evaluación plenas de las necesidades y el abastecimiento de energía eléctrica bajo la sección del propósito y las necesidades de la declaración sobre el impacto ambiental

Descripción del proyecto

- Reemplazo de ambas líneas entre las subestaciones Gila y Gila Norte
- Necesidad de la línea de Gila a Gila Norte
- Alcance del proyecto propuesto: ¿líneas de transmisión o establecimiento generador?
- Posibilidad de transmisión de energía a México

Seguridad

- Inquietud sobre la posibilidad de que aumenten los riesgos de descargas eléctricas
- Necesidad de que las líneas de transmisión que cruzan carreteras tengan marcadores de color naranja

Especies en peligro, amenazadas y en situación especial

- Efectos de la ruta propuesta para el proyecto en la zona protegida de la iguana cornuda de cola plana
- Preocupación para que la iguana cornuda de cola plana se considere una especie incluida en una lista
- Inquietud en el sentido que las alternativas de rutas deban evitar la zona de protección de la iguana cornuda de cola plana
- Interés para que las alternativas de rutas eviten el hábitat del borrego cimarrón en las montañas de Gila
- Propuesta para evaluar los efectos del proyecto propuesto en la población de Sonora de tortugas del desierto
- Consecuencias para las plantas exóticas en el radio de cinco millas del proyecto propuesto, entre ellas *sand food*, *Schoth's wire lettuce* y *milkvetch de Pierson*
- Recomendación para obtener listas de especies del Departamento de Arizona de Caza y Pesca, el Servicio de Protección de Peces y Vida Silvestre de Estados Unidos y la Oficina de Ordenación de Tierras de los Estados Unidos

Tendido y configuración de las líneas de transmisión

- Yuma Proving Grounds acepta el tendido propuesto de las líneas de transmisión
- La ciudad de Yuma se opone al tendido propuesto
- Recomendación para usar 3E como el corredor en dirección norte a sur porque 4E es demasiado arenoso para los equipos; el suelo es más compacto en 3E
- Recomendar el traslado al este de las montañas de la línea desde la subestación Gila

- Proponer la evaluación de rutas alternativas que crucen la frontera internacional inmediatamente al norte del establecimiento propuesto para generación, viren al noreste hacia el límite del Polígono Goldwater; continen hacia el norte paralelamente a 4E del condado hasta la intersección de 14^o ½ al este del condado, luego giren al noreste paralelamente al Canal A donde la línea retoma la ruta propuesta en la actualidad
- Solicitud para que se considere una opción para 230 kV
- Recomendación para el tendido de la línea de transmisión por terrenos áridos, inutilizables, sin pasar por zonas urbanizadas
- Inquietudes sobre un corredor para servicios generales junto a la carretera de servicio del área propuesta; se necesita un paso elevado en el condado 19^o
- Considerar la alineación en Fortuna Wash
- Recomendar que se eviten los terrenos valiosos al norte del Polígono Goldwater; los terrenos del estado no son una ubicación favorable para las líneas de alto voltaje; no colocar desproporcionadamente líneas sobre los terrenos del estado
- Tender las líneas de transmisión a lo largo de los gasoductos para el establecimiento de generación
- Evitar el Canal A; usar la alineación de la carretera de servicio del área y pasar al este a lo largo de la frontera de MCAS
- Considerar una alternativa en torno a la urbanización en la subestación Gila Norte
- Considerar una opción para 230 kV que se vincularía con la subestación actual en Sonora
- Recomendar la alineación existente de ASH al Canal A porque surtiría el menor efecto en el Plan Maestro de Ocotillo.

Visual

- Los efectos de intrusiones a las vistas del Polígono Goldwater y las montañas Gila desde la propiedad privada
- Proponer la evaluación de la incidencia de usar estructuras de postes únicos en lugar de torres de acero en malla para reducir las huellas físicas y el impacto visual

Agua

- Solicitar una carta para la Comisión Nacional del Agua y la Comisión Internacional de Límites y Aguas de México en la que se controle el uso legal aprobado de agua para la planta de producción de energía eléctrica

zonables, deberán satisfacer el propósito y la necesidad de los solicitantes y de Western y ser técnicamente factibles y económicamente viables. Western y el Departamento de Energía considerarán también alternativas razonables que puedan identificarse más adelante en el proceso de declaración sobre el impacto ambiental.

Se identificarán varias rutas alternativas en los comentarios recibidos sobre el alcance del proyecto y en un análisis del tendido e investigaciones en el terreno de Western. En términos generales, estos tendidos son perfeccionamientos de las propuestas originales de los peticionarios. Solucionan limitaciones de ingeniería, aprovechan las oportunidades para el tendido y reducen varios impactos ambientales identificados. Estas alternativas se muestran en el mapa de la página 1.

En la declaración sobre el impacto ambiental también se considerarán las repercusiones para el medio ambiente de la opción de no hacer nada. Según esta última opción, en la declaración sobre el impacto ambiental se analizarán las incidencias de la resolución de no aprobar un acuerdo de interconexión y no emitir un permiso presidencial.

¿Habrá más oportunidades para presentar comentarios?

El Departamento de Energía prevé que el proceso para la declaración sobre el impacto ambiental llevará entre 14 y 16 meses e incluirá información del público y reuniones para evaluar el alcance del proyecto, consultas y participación de

organismos federales, estatales y locales así como gobiernos tribales; revisión del público y audiencias en relación con el proyecto de declaración sobre el impacto ambiental publicado, una declaración final publicada y la publicación de un acta de la decisión.

Después de analizar las inquietudes del público y las repercusiones posibles del proyecto propuesto, Western, en consulta con los organismos cooperadores, emitirá un proyecto de declaración sobre el medio ambiente. Usted tendrá 45 días para revisar este documento y presentar comentarios sobre el documento y el proyecto propuesto. Western espera publicar el proyecto de declaración para revisión en el otoño de 2006.

Western celebrará una audiencia pública para recibir comentarios sobre el proyecto de declaración durante el período para revisión. Podrá formular comentarios verbales sobre el proyecto propuesto en la audiencia, presentarlos por escrito o entregarlos por escrito o correo electrónico durante el período de 45 días para la presentación de comentarios.

Western revisará entonces estos comentarios antes de preparar una declaración final sobre el impacto ambiental. Usted contará con otros 30 días para revisar la declaración final. Western prevé publicar el documento final a principios de 2007. Western y el Departamento de Energía tomarán decisiones individuales sobre la continuidad de las medidas que conciernen al proyecto. Si se aprueba, a las decisiones de los organismos seguirá la construcción.

¿Cómo puedo obtener información adicional?

Llame o escriba a:

John Holt, Environment Manager, Desert Southwest Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, teléfono: 602-605-2592, fax: 602-605-2414, correo electrónico: holt@wapa.gov.

Mark Wieringa, NEPA Document Manager, Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213, teléfono: 720-962-7448, fax: 720-962-7263, correo electrónico: wieringa@wapa.gov.

Si desea información sobre el proyecto en español, comuníquese con Ms. Enoe Marcum, Environmental Specialist, Desert Southwest Customer Service Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ 85005, teléfono: 602-605-2422, fax: 602-605-2414, correo electrónico: marcum@wapa.gov.

Si desea información sobre el proceso para la solicitud de permisos presidenciales, comuníquese con Mrs. Ellen Russell, Office of Electricity Delivery and Energy Reliability (OE-20), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-0350, teléfono: 202-586-9624, fax: 202-586-5860, correo electrónico: ellen.russell@hq.doe.gov.



Preguntas frecuentes sobre San Luis Río Colorado

¿Qué es el Proyecto en San Luis Río Colorado?

Generadora del Desierto S.A., de C.V., propone construir una planta de producción de energía eléctrica nueva de ciclo combinado a gas natural con una capacidad de 550 megavatios nominales (con un pico de 605 MW) ubicada prácticamente 3 millas al este de San Luis Río Colorado, Sonora, México, y casi una milla al sur de la frontera internacional.

El peticionario desea comercializar electricidad en México y los Estados Unidos y ha presentado una solicitud ante el Departamento de Energía para obtener un permiso presidencial que le permita construir dos líneas de transmisión eléctrica de 500,000 voltios en la frontera entre Estados Unidos y México. North Branch Resources, LLC, uno de los socios en el proyecto propuesto, ha solicitado interconectar al sistema de transmisión de Western en la zona de Yuma.

Los solicitantes son filiales de propiedad absoluta de North Branch Holding, LLC. GDD propone construir, ser propietaria, operar y mantener la planta productora de energía eléctrica en México y la sección corta de la línea de transmisión ubicada en México. Los solicitantes proponen que Western construya, sea propietaria, opere y mantenga los componentes de transmisión de 500 kV y doble circuito en los Estados Unidos, por cuenta de los solicitantes. Western está considerando favorablemente esta propuesta.

En respuesta a la solicitud de interconexión a Western, la línea de transmisión se interconectaría con el sistema de transmisión de Western a través de una expansión de 500/161 kV en la subestación Gila, ubicada al este de Yuma. De conformidad con la propuesta, Western construiría, sería propietaria, operaría y mantendría la línea de transmisión de 500 kV entre un punto de cambio de titularidad cerca de la frontera internacional y la subestación Gila, la ampliación de 500/161 kV en la subestación Gila, y la línea de transmisión de 500 kV entre la subestación Gila y la subestación Gila Norte de la Empresa de Servicio Público de Arizona. En ese caso, Western sería uno de los candidatos conjuntos en la solicitud para el permiso presidencial.

Si bien los solicitantes han propuesto un proyecto de 500 kV, Western está evaluando también una opción con circuito doble de 230 kV en la declaración sobre el impacto ambiental.

¿Por qué participan en este proyecto el Departamento de Energía y Western?

Solicitud de interconexión

En las órdenes de la Comisión Federal Reguladora de Energía N° 888 y 888-A se establece que las empresas de servicios públicos que sean propietarias o que controlen plantas de transmisión interestatal deben ofrecer servicios de transmisión con acceso abierto no discriminatorio.

En estas órdenes, la Comisión Federal abordó la necesidad de proporcionar tasas más bajas para el servicio eléctrico mediante la facilitación de mercados competitivos para la comercialización mayorista de la energía eléctrica a través de la prevención de prácticas incorrectamente discriminatorias en la prestación de servicios de transmisión.

A fin de ser congruentes con estas órdenes, el 6 de enero de 1998, Western publicó en el *Registro Federal* una tarifa final para el servicio de transmisión con acceso abierto. El 25 de enero de 2005, Western presentó ante la Comisión una reforma a la tarifa a fin de adoptar reglas para la interconexión con generadores grandes que fueran conformes sustancialmente a las publicadas por la Comisión. Con la tarifa reformada de Western se estipula que esta empresa debe responder a una solicitud según fue presentada por el peticionario. En la sección 211 de la Ley federal de energía se establece el suministro de servicios de transmisión cuando se solicite si se cuenta con la capacidad de transmisión.

En cumplimiento de las reglas de la Comisión Federal Reguladora de Energía, Western está comprometida a dar cabida a la nueva capacidad de transmisión construida por un solicitante. NBR solicitó una interconexión al sistema de transmisión federal en virtud de la tarifa de Western. Western debe determinar si concederá o denegará la interconexión, a la luz de los efectos que el proyecto propuesto tendrá en los clientes existentes, el medio ambiente, la fiabilidad del sistema y toda modificación al sistema necesaria para permitir la interconexión. Si se acepta la solicitud de interconexión y se sigue adelante con el proyecto propuesto, una opción es que Western construya, sea propietaria, opere y mantenga las modificaciones solicitadas a su propio sistema de transmisión dentro de los Estados Unidos a expensas de NBR. Las decisiones sobre la función de Western en este proyecto se tomarán después de que se finalice la declaración sobre el impacto ambiental.

Dado que el proyecto propuesto integrará una fuente nueva importante de generación al sistema de transmisión

de Western. Western determinó la necesidad de una declaración sobre el impacto ambiental de conformidad con los Procedimientos para la aplicación de la Ley nacional sobre políticas del medio ambiente del Departamento de Energía, 10 CFR parte 1021, subparte D, apéndice D, tipo de acción D6.

Solicitud del permiso presidencial

GDD ha solicitado al Departamento de Energía un permiso presidencial para construir dos líneas de transmisión eléctrica de 500 kV en la frontera entre Estados Unidos y México. En el decreto del ejecutivo 10485, según los reformatorios del decreto del ejecutivo 12038, se establece la emisión de un permiso presidencial antes de que puedan construirse, operarse, mantenerse o conectarse plantas de transmisión de energía eléctrica en la frontera internacional de los Estados Unidos. En el decreto del ejecutivo se dispone que se podrá emitir un permiso presidencial después de determinar la congruencia del proyecto propuesto con el interés del público y después del asentimiento de los Departamentos de Estado y Defensa de los Estados Unidos.

A fin de determinar la congruencia con el interés del público, el Departamento de Energía considera los efectos medioambientales del proyecto propuesto de conformidad con la Ley nacional sobre políticas del medio ambiente, determina la repercusión del proyecto en la fiabilidad eléctrica (como si el proyecto propuesto repercutirá adversamente en la operación del sistema de abastecimiento de energía eléctrica de los Estados Unidos en condiciones normales e imprevistas) y todo otro factor que el Departamento de Energía considere pertinente al interés del público. La emisión de un permiso presidencial indica que no hay objeciones federales al proyecto pero no obliga a la realización del mismo.

¿Puedo presentar comentarios ahora que el período de evaluación del alcance del proyecto ha concluido?

Puede suministrar comentarios sobre el proyecto propuesto durante el proceso de declaración sobre el impacto ambiental. Envíe sus comentarios a: Mr. John Holt, Environment Manager, Desert Southwest Region, Western Area Power Administration, P.O. Box 6457, Phoenix, AZ. 85005, fax: 602-605-2414; correo electrónico: holt@wapa.gov.

¿Qué se abordará en la declaración sobre el impacto ambiental?

En la declaración sobre el impacto ambiental, el Departamento de Energía analizará los efectos en la salud y la seguridad del público y las repercusiones medioambientales dentro de los Estados Unidos de las plantas de

transmisión propuestas y de la planta productora de energía eléctrica relacionada de México. La declaración se preparará conforme a los requisitos del Reglamento de aplicación de la Ley nacional sobre políticas del medio ambiente del Consejo sobre Calidad Ambiental (40 CFR partes 1500-1508) y los Procedimientos de aplicación de la Ley nacional sobre políticas del medio ambiente del Departamento de Energía (10 CFR parte 1021).

Dado que en el proyecto se establecen acciones en una llanura aluvial, la declaración sobre el impacto ambiental incluirá una evaluación de la llanura aluvial y una exposición de los resultados según los reglamentos del Departamento de Energía para cumplimiento de la revisión ambiental de llanuras aluviales y zonas pantanosas (10 CFR parte 1022). Se invita a los gobiernos tribales y a los organismos federales, estatales y locales con experiencia especial o competencia en el proyecto propuesto a actuar como organismos cooperadores en la declaración sobre el impacto ambiental.

Dado que la declaración sobre el impacto ambiental se preparará en cumplimiento de la ley estadounidense, sólo abordará los efectos en los Estados Unidos.

En la Ley nacional sobre políticas del medio ambiente no se estipula la necesidad de realizar un análisis de las repercusiones ambientales que se manifestarán en otra nación soberana a raíz de medidas aprobadas por esa nación soberana. En el decreto del ejecutivo 12114 (4 de enero de 1979) se estipula que los organismos federales preparen un análisis de los efectos importantes de una medida federal en ciertas circunstancias definidas y exime a los organismos de la preparación de análisis en otras circunstancias. En el decreto no se estipula que los organismos federales deban evaluar las incidencias fuera de los Estados Unidos cuando una nación extranjera participa con los Estados Unidos o, de alguna otra manera, en la medida.

En este caso, el Gobierno de México ha participado en la evaluación de las repercusiones ambientales asociadas con la planta productora de energía eléctrica en México y ha emitido permisos por los que autoriza la construcción y la operación de la planta productora de energía y de las instalaciones auxiliares, tal como las instalaciones para uso de agua. El proyecto de declaración sobre el impacto ambiental incluirá una descripción general del permiso para la planta productora de energía y un análisis relacionado de las repercusiones para el medio ambiente que fue realizado por el Gobierno de México.

¿Qué actividades del proyecto se planean fuera de los Estados Unidos?

Dentro de México, GDD prevé construir y operar una planta de producción de energía eléctrica nueva de ciclo

combinado a gas natural con una capacidad de 550 megavatios (MW) nominales (con un pico de 605 MW) ubicada prácticamente 3 millas al este de San Luis Río Colorado, Sonora, México, y casi una milla al sur de la frontera internacional.

Si bien la planta no está sujeta a las estipulaciones regulatorias de los Estados Unidos, el Departamento de Energía evaluará las repercusiones dentro de los Estados Unidos de su funcionamiento como parte del análisis de los efectos. GDD prevé construir la planta productora de energía eléctrica según las normas de medio ambiente aplicables de los Estados Unidos además de las normas del Instituto Nacional de Ecología de México.

La instalación generatriz prevista contará con tecnología avanzada para el control de las emisiones atmosféricas, tal como tecnología para combustión de cantidades bajas de NOx y un sistema selectivo para la reducción catalítica de óxidos de nitrógeno así como oxidantes catalíticos para el control de las emisiones de monóxido de carbono. La planta también usará enfriamiento húmedo y seco paralelo con el propósito de reducir el consumo de agua.

La fuente primaria de agua de la instalación productora de energía será efluente tratado de la planta de tratamiento de aguas de San Luis Río Colorado y GDD construirá un sistema de ductos para conectar ambas instalaciones. Se construirá un ducto de gas natural de casi 24 millas de largo desde la planta productora de energía eléctrica hasta el gasoducto principal actual.

GDD prevé comercializar energía de carga base dentro de México a la asociación de maquiladoras (fabricación o plantas de montaje en la zona del Tratado de Libre Comercio de América del Norte) de San Luis Río Colorado y también a la Comisión Federal de Electricidad, la empresa nacional de electricidad de México. GDD construirá, será propietaria, operará y mantendrá una sección de la línea de transmisión en México hasta un punto cerca de la frontera internacional (punto de cambio de titularidad).

¿Qué medidas y alternativas propuestas se están considerando?

Western está evaluando los efectos en el medio ambiente de un proyecto propuesto para interconectar con el sistema de transmisión en la zona de Yuma, Arizona. Western recibió una solicitud de Generadora del Desierto S.A., de C.V. y North Branch Resources, LLC, que planean construir una planta de energía eléctrica del otro lado de la frontera internacional en Sonora, México, que se interconectará con la subestación Gila, propiedad de Western, y la subestación Gila Norte del Servicio Público de Arizona.

Western considera que la planta de transmisión con ca-

pacidad para 500 kV al sur de la subestación Gila, el punto propuesto de interconexión, será la planta de interconexión para uso exclusivo de los solicitantes, mientras que el tramo entre la subestación Gila y la subestación Gila Norte es una mejora de la red que beneficia a todo el sistema integrado de transmisión.

GDD ha sido autorizada por la Comisión Reguladora de Energía de México para exportar energía eléctrica a los Estados Unidos y la empresa propone suministrar energía eléctrica máxima a los Estados Unidos, en proximidades de Yuma.

La extensión total del sistema de transmisión con capacidad para 500 kV dentro de los Estados Unidos será prácticamente 25 millas; 20 millas a partir del límite internacional hasta la subestación Gila y 5 millas desde la subestación Gila hasta la subestación Gila Norte. A fin de reducir la altura, la línea de transmisión de 500 kV y doble circuito podrá construirse como dos líneas de transmisión separadas de circuito simple en un tramo corto cerca del patrón de aterrizaje de la pista No.2 auxiliar de los Niños de Marina de los Estados Unidos. El proyecto puede construirse también como una línea de transmisión para 230 kV de doble circuito.

Los solicitantes propusieron un tendido de la línea de transmisión para 500 kV que cruza la frontera inmediatamente al norte de la planta productora de energía eléctrica propuesta y luego gira al noreste hacia el límite del Polígono Barry M. Goldwater. El tendido luego sigue hacia el norte a lo largo del límite del polígono y paralelo a la carretera de servicio de área propuesta y la actual línea de transmisión para 69 kV en Sonora propiedad de Western.

Cerca del extremo noreste del polígono, la ruta propuesta se dirige al norte al canal y el dique del Distrito de Riego de Yuma Mesa, luego gira en general en dirección noreste, de manera paralela con el canal, el dique, el camino del dique y la línea para 69 kV de Western hacia la subestación Gila. Al salir de la subestación Gila, el tendido propuesto es paralelo a las tres líneas de transmisión actuales en el norte, cruza el valle de Gila Sur, luego gira hacia el noroeste y hacia la subestación Gila Norte del Servicio Público de Arizona, todavía de manera paralela a las líneas de transmisión actuales. El Departamento de Energía evaluará las oportunidades para consolidar las líneas de transmisión actuales con la línea nueva propuesta.

¿Qué otras alternativas se considerarán en la declaración sobre el impacto ambiental?

Western y el Departamento de Energía considerarán toda otra alternativa razonable que se presente en los comentarios recibidos en respuesta al proceso de evaluación del alcance del proyecto. A fin de que las alternativas se consideren ra-