DOE/EIS-0297

Griffith Energy Project

Final Environmental Impact Statement

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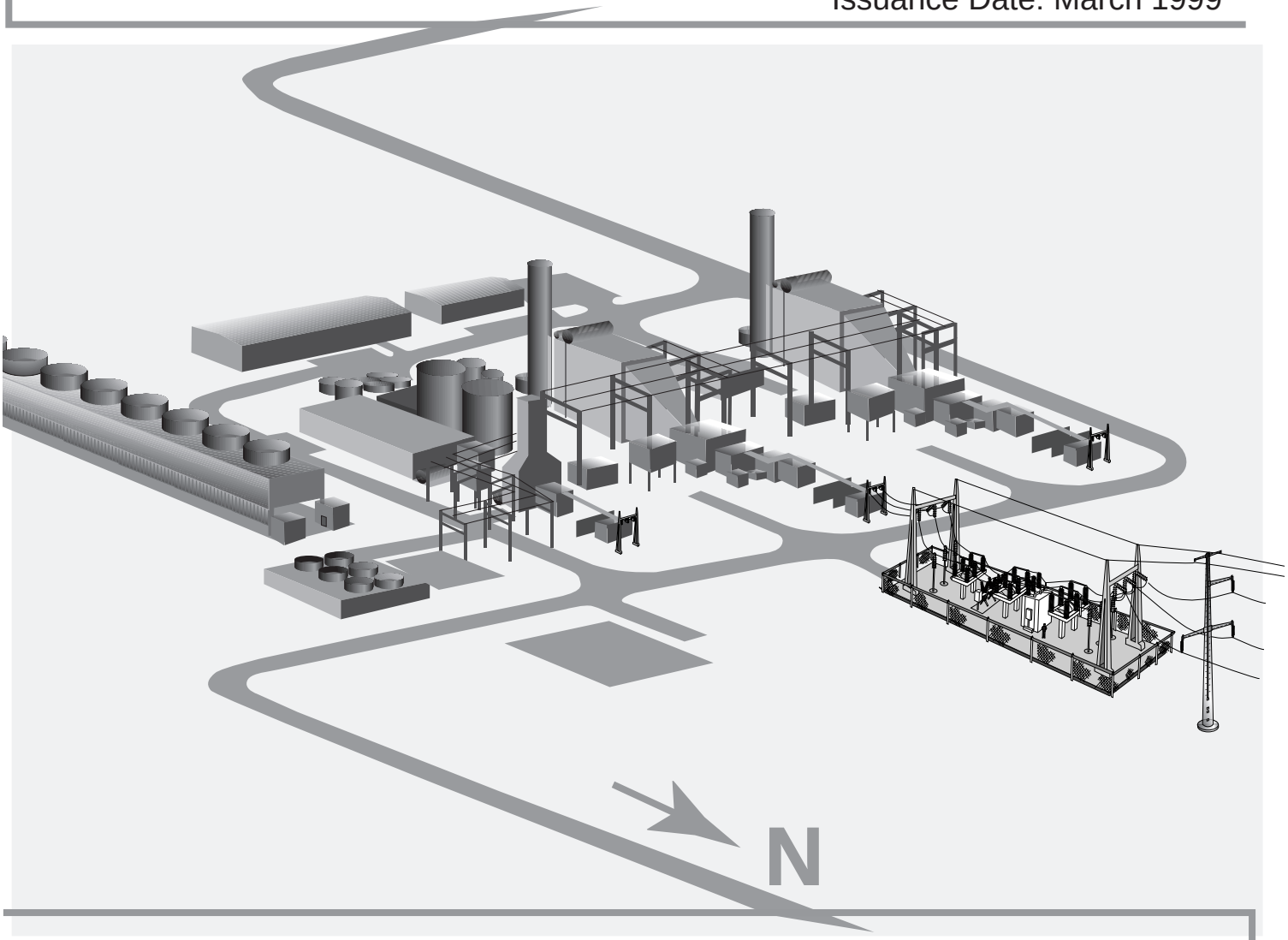

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Bureau of Land Mangement
Kingman Field Office
Cooperating Agency

Western
AREA POWER
ADMINISTRATION
Lead Agency

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COVER SHEET

Title: Griffith Energy Project Final Environmental Impact Statement

Lead Agency: U.S. Department of Energy, Western Area Power Administration

Cooperating Agency: U.S. Department of the Interior, Bureau of Land Management, Kingman Field Office

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ABSTRACT

Griffith Energy Limited Liability Corporation (Griffith) proposes to construct and operate the Griffith Energy Project (Project), a natural gas-fired, combined cycle power plant, on private lands south of Kingman, Ariz. The Project would be a “merchant plant” which means that it is not owned by a utility and there is currently no long-term commitment or obligation by any utility to purchase the capacity and energy generated by the power plant. Griffith applied to interconnect its proposed power plant with the Western Area Power Administration’s (Western) Pacific Northwest-Pacific Southwest Intertie and Parker-Davis transmission systems. Western, as a major transmission system owner, needs to provide access to its transmission system when it is requested by an eligible organization per existing policies, regulations and laws. The proposed interconnection would integrate the power generated by the Project into the regional transmission grid and would allow Griffith to supply its power to the competitive electric wholesale market. Based on the application, Western’s proposed action is to enter into an interconnection and construction agreement with Griffith for the requested interconnections. The proposed action includes the power plant, water wells and transmission line, natural gas pipelines, new electrical transmission lines and a substation, upgrade of an existing transmission line, and access road to the power plant. Construction of segments of the transmission lines and a proposed natural gas pipeline also require a grant of right-of-way across Federal lands administered by the Bureau of Land Management. Public comments on the Draft EIS are addressed in the Final EIS, including addenda and modifications made as a result of the comments and\or new information.

TABLE OF CONTENTS

LIST OF FIGURES

SUMMARY

Griffith Energy Limited Liability Corporation (Griffith) proposes to construct and operate the Griffith Energy Project (Project), a natural gas-fired, combined cycle power plant, on private lands south of Kingman, Ariz. The Project consists of a baseload 520-megawatt (MW) with peak firing capacity of 650 MW, natural gas-fired, combined cycle generating facility and on-site supporting infrastructure including an administration building, warehouse storage, auxiliary boiler, water treatment and storage facilities, cooling towers and gas conditioning equipment (collectively, the Plant). The Project includes proposed natural gas pipelines, a water supply well field and transmission pipeline and new access roads (see **Figure 1.1-1**).

Griffith applied to Western Area Power Administration (Western) to interconnect its proposed Plant with Western's Pacific Northwest-Pacific Southwest Intertie and Parker-Davis transmission systems. Western's proposed action is to provide transmission service and to integrate the power generated by the Project into the regional transmission grid. The interconnection would provide Griffith a path to the competitive electric wholesale market.

This EIS was prepared in accordance with Section 102(2) of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4332, Council of Environmental Quality regulations, and U.S. Department of Energy's (DOE) NEPA Implementing Procedures (10 CFR 1021). Western is the lead Federal Agency, as defined by 40 CFR 1501.5, and the Bureau of Land Management (BLM), Kingman Field Office, is a cooperating agency.

Both Western and the BLM will use the information in this EIS to support Federal decisions for this Project. Western will decide whether to enter into interconnection and construction agreements with Griffith, and the best way to interconnect the Project into the Western transmission system to provide the transmission service needed. BLM will decide whether or not to issue Right-of-Way Grants for the transmission lines and natural gas pipeline that would cross public lands administered by the agency.

PURPOSE AND NEED

Western must respond to Griffith's request for interconnections under rules requiring non-discriminatory access to eligible organizations planning to compete in the deregulated utility industry and Western's open transmission line tariff. BLM needs to respond to Griffith's and Western's requests for rights-of-way for new transmission lines and a pipeline to cross Federal lands managed by the BLM.

The purposes of this proposed action include:

- To provide sufficient transmission service and transmission capacity for the Griffith Energy Project without degrading service to existing customers.

- To meet the intent of the requirements of Federal Energy Regulatory Commission (FERC) Order No. 888 in providing transmission access to Griffith consistent with statutory objectives.

- To ensure area transmission reliability and voltage support criteria are maintained or improved.

- To cause the minimum adverse environmental effects, consistent with Federal land management policies.

- To ensure Western has sufficient transmission capacity to meet its contractual obligations.

PROPOSED ACTION AND ALTERNATIVES

The Plant and infrastructure would occupy less than 65 acres of a 160-acre site in the Mohave County Interstate 40 (I-40) Industrial Corridor south of Kingman. Griffith proposes to use an infrastructure system being developed for the I-40 Industrial Corridor, which includes water pipelines that would bring water from a well field, provided by Golden Valley County Improvement District #2 (GVID2) within three miles west of the Plant site. Water demand for the Project is projected at 3,300 gallons per minute based on an average annual flow rate. Also, underground gas pipelines would bring high-pressure gas to the generating facility from two natural gas transmission pipelines. Road development planned for the Industrial Corridor would also provide access to the Plant.

Other required facilities would include: 1) two natural gas supply lines; 2) two new 230-kilovolt (kV) electrical transmission lines; 3) a new 230/345-kV substation and associated access road; and 4) an upgrade of an existing 230-kV transmission line.

The proposed Plant, well field, water pipeline, and one gas pipeline would be located on private lands. The other components of the Project are located on private, state, and Federal lands managed by the BLM. The Plant site and associated facilities have been approved by the Arizona Corporation Commission’s Power Plant and Transmission Line Siting Committee through a formal application approval process. The proposed Griffith Plant would burn only natural gas, consuming an estimated 110 million cubic feet per day. The Project would develop interconnections with two potential gas suppliers: El Paso Natural Gas Company (EPNGC) and Transwestern Pipeline Company (TPC). EPNGC's pipeline is located approximately 4.5 miles east of the proposed Plant and TPC's line is approximately 2.5 miles north. These gas pipeline facilities would consist of a tap, meter station, flow control valve and a lateral pipeline to the Plant. Construction and operation of the pipeline across BLM lands would require a right-of-way on Federal lands.

The generator of each gas turbine set would be connected to the high-voltage switchyard via generator leads and a generator step-up transformer. A unit breaker would be provided in the switchyard to connect the unit to the grid.

PLANT SITE

While the power plant could be located anywhere in the region, Griffith Energy evaluated several sites and determined that siting the Project near Kingman and building the necessary transmission interconnections to export the generated power would provide a secondary benefit of increasing the reliability of the local electrical system. Also, using water from the Colorado River for the Griffith Energy Project at its current site was not considered viable. Sites closer to the Colorado River specifically would be closer to either the Grand Canyon or Lake Mead National Recreation Area. Therefore, no sites outside the vicinity of Kingman were considered.

Griffith Energy then looked for a site that met three primary criteria: 1) compatible zoning and nearby land uses, 2) sufficient distance from the Grand Canyon to minimize any potential haze impacts, and 3) proximity to gas, transmission, highway, rail, and water. The industrial areas in the vicinity of Kingman were evaluated, and the I-40 Industrial Corridor was proposed because it was the farthest from the Grand Canyon. The final site was proposed within this area.

NATURAL GAS LINES

An alternative route for the proposed natural gas supply pipeline between the Project site and the EPNGC transmission line has been proposed by the BLM. The proposed alternative route would traverse northeasterly across private and BLM lands until it intercepted an existing BLM road that it would follow to the interconnection with the EPNGC line. Most of the right-of-way would be returned to use as an improved road. Portions of the construction right-of-way not needed for the road would be reclaimed as specified by BLM.

An alternative route for the gas line to the TPC transmission line would travel due north from the Plant site either in the County Road ROW l/2 mile east of the western boundaries of Section 6, 31, 30, and 19, T20N, R17W, or near this ROW in a separate easement.

WATER SUPPLY

Groundwater from the Sacramento Valley Aquifer is the planned source of water for the Plant. The only other significant source of water in Mohave County with the capacity to supply the project requirements is the Colorado River, which is located some 30 miles to the west and 2,000 feet lower in elevation. At that distance and elevation, it is neither feasible nor economical to consider using water from the river.

The following table shows the amount of water used by various components of the plant.

Breakdown of Water Consumption by the Griffith Power Plant

	GPM	PERCENT
Steam Turbine Cooling	3,173	96.44
Cooling Tower Blowdown	38	1.16
Nonrecoverable losses	25	0.76

Demineralized water of the quality required by the plant would be generated from raw water using a reverse-osmosis system followed by a demineralizer unit. In addition to raw water, recycled water would also go through this system. The current plan is to recycle the water up to 12 times. Maximizing the number of times the water is recycled through the plant will minimize total water consumption. In addition to the proposed this proposed system, other alternatives for reducing water consumption were considered except open cycle cooling because the Plant is not located near a body of water. Closed cycle dry cooling was considered, but was dismissed because the need for added equipment would increase the total capital cost of the project.

A 25-acre, 10-foot-deep Brine Disposal Pond designed as a zero-discharge facility would handle discharge from the plant, along with storm water runoff from the Plant site. An Aquifer Protection Permit application submitted to ADEQ contained commitments to verify the integrity of the pond's liner both before operations and one year after operations begin. Routine groundwater monitoring is not proposed but would be conducted if a leak were detected. The brine pond, and the entire plant site, would be fenced off to control both human and wildlife surface access. The pond would be monitored for waterfowl use, and if problems are encountered, Griffith would develop mitigation in consultation with the Arizona Department of Fish and Game.

TRANSMISSION LINES

To interconnect the Plant with the regional electric transmission grid, Western would construct and operate two new 230-kV transmission lines between the Plant and two existing transmission lines, upgrade an existing Western 230-kV line, build a new substation and make modifications at the existing McConnico and Mead substations. The new lines would interconnect the Plant with Western's existing Davis-Prescott 230-kV line at the existing McConnico Substation (Segments A and D in **Figure 1.1-1**) and its existing Mead-Liberty 345-kV line at a new Peacock Substation (Segments A, B and C in **Figure 1.1-1**). The existing Davis-Prescott 230-kV line between Davis and the new substation would be upgraded (Segment Z in **Figure 1.1-1**) with new conductor and structures within some longer spans to provide additional conductor clearance. The transmission additions and upgrade would be funded by Griffith and owned and operated by Western.

Western is considering three alternate structures for the proposed new transmission lines. These are single-pole, self-supporting steel lattice and H-frame steel.

A temporary wooden pole, overhead 12.8-kV power line would be built to provide power for construction by connecting the Plant with an existing 69-kV power line located to the west. During operation, backup power for the Plant would be provided by the auxiliary transformers which would step down voltage from 230-kV to 5-kV for use within the Plant.

Because nearly all the proposed transmission interconnections involve the use of approved routes or parallel existing routes, alternatives more viable than those proposed are limited. Alternatives are:

- Two 230-kV lines north from the Griffith Plant to provide a loop to the Plant from the existing Davis-Prescott 230-kV line as an alternative to the proposed Griffith-McConnico 230-kV line. The two parallel lines would proceed due north for about six miles along the section line immediately west of the Project site (part of Segments A and E in **Figure 1.1-1**).

- Use of single shaft pole structures for the Griffith-Peacock 230-kV transmission line where it parallels the existing Davis-Prescott transmission line (Segment B and C, **Figure 1.1-1**).

Several transmission system alternatives were studied in addition to the proposed interconnection of the Mead-Liberty line to provide a path to a marketing hub. Due to high costs these alternatives are not viable for Griffith.

The alternative of building underground lines was also considered and rejected. A DOE publication reports that the cost of undergrounding a 230-kV transmission line would be roughly eight to 10 times the cost of constructing an overhead system of comparable capacity (DOE, 1982). Underground construction is generally used only at lower voltages, where the problems of heat dissipation are far less severe, or for distances of not more than a few miles in very intensively developed urban areas, extremely critical scenic areas, or areas where overhead lines would result in collisions that severely impact waterfowl.

Western's preferred alternative is the proposed transmission additions (two new transmission lines along Segments A and D, and A, B and C, respectively; the new Peacock Substation and the Davis-Prescott upgrade along Segment Z).

NO ACTION ALTERNATIVE

Three different scenarios were evaluated under the No Action Alternative:

- Scenario 1: Griffith Energy would build the same transmission lines and interconnections instead of Western.

- Scenario 2: Griffith would build the Plant and similar or slightly different transmission lines and interconnections, possibly in concert with another utility or government parties.

- Scenario 3: The Plant would not be built

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The Project area is located within the Basin and Range physiographic province which is characterized by north-south mountain ranges separated by desert plains (Thornbury, 1965). It includes private land, state lands and Federal lands administered by BLM, the Bureau of Reclamation, and the National Park Service. The following table summarizes environmental consequences of the proposed action and alternatives.

Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternatives
GEOLOGY/ MINERALS/ GEOLOGIC HAZARDS	**All Elements** Seismic risk is moderate; stable alluvial deposits. Minimal loss of sand/gravel resources. No active faults. **Transmission Lines** Minimal risk of rockfall and slope failure except for Black and Peacock Mountains, where potential is moderate. **Power Plant and Associated Facilities** Little impact on topography. Loss of 160 acres of sand and gravel resources. Natural gas consumption of 22 to 41 billion cubic feet per year. Low impact from mass wasting. Large earthquake could rupture brine disposal pond.	**Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action. **Scenario 3** No impact.	**Alternate Transmission Line** The same as those for Griffith-McConnico Line. **Alternate Gas Pipelines** Similar to the proposed action.
WATER RESOURCES	**Transmission Lines** *Surface Water Quantity* Increased runoff possible in disturbed areas, resulting in gullying. Minimal disturbance to floodplains. *Water Quality* Potential for increased sediment migration from auxiliary facilities associated with building or upgrading transmission lines lines. Potential contamination hazard caused by use of fuels, lubricants and other hazardous fluids.	**Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action. **Scenario 3** No impact. Other demands on the aquifer would still occur.	**Alternative Transmission Line** Similar to those for the proposed action. **Alternative Gas Pipelines** Similar to those for proposed pipeline route.

Affected Environment	Proposed Action	No Action	Alternatives
WATER RESOURCES (Continued)	**Power Plant and Associated Facilities** *Groundwater Quantity* Annual withdrawal of 3,064 to 5,323 acre feet of water from the Sacramento Valley Aquifer, lowering the water table at the wells by 109.5 feet over 40 years. Projected total withdrawal for 40 years is 78.736 acre-feet from Golden Valley plus 212,920 acre feet for Griffith, leaving 2,008,704 acre feet available. Adverse impact on total volume of water in the aquifer. *Groundwater Quality* No impact expected due to construction or operation. Potential contamination hazard from use and storage of fuel, lubricants and other fluids during construction and operation. *Surface Water Quantity* Plant designed as a zero-discharge facility. Minimal impact to drainage patterns. *Surface Water Quality* No significant impacts from construction or operation. Negligible sedimentation. Potential for soil erosion during clearing and grading for the gas and water pipeline. Brine disposal pond would exceed wildlife effluent dependent surface water standards for chronic and acute exposure to arsenic, barium, cadmium, chromium, copper, mercury, selenium, silver and zinc.		

Affected Environment	Proposed Action	No Action	Alternatives
WATER RESOURCES (Continued)	Potential contamination hazard from storage and use of fuels, lubricants and other fluids during construction and operation.		
AIR QUALITY	**Transmission Lines** Temporary and vehicle emissions from construction activities. **Power Plant and Associated Facilities** Best available technology would reduce NO_2 and CO to 4.5 and 17 parts per million, respectively. Effect on Grand Canyon regional haze: Visible range may be decreased by 4.7 percent 2.7 percent of the time based on worst-case scenario. Current modeling results show that the Griffith Project would not have significant effects on visibility at the Grand Canyon	**Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action. **Scenario 3** No impact.	**Alternative Transmission Line** Slightly higher construction-related dust and vehicle emissions than the proposed action due to more transmission towers. **Alternate Gas Pipelines** Same as proposed action.
SOILS	**Griffith-Peacock 230-kV Line** Increased potential for water erosion during construction but would be minimized by standard mitigation. **Griffith-McConnico 230-kV Line** Minimal risk of accelerated soil erosion.	**All Elements Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action.	**Alternative Transmission Line** Slightly more impact than the Proposed Action. **Alternate Gas Pipeline**s Longer routes would cause greater soil disturbance in the short term. Northern pipeline alternative would cause more new ground disturbance. Long-term disturbance similar to proposed action.

Affected Environment	Proposed Action	No Action	Alternatives
SOILS (Continued)	**Peacock-Davis 230-kV Upgrade** Increased short-term potential for accelerated water erosion of soil. Use of existing access would minimize impacts. **Power Plant and Associated Facilities** Increase in water and wind soil erosion possible. Removal of protective vegetation on gas and water pipeline rights-of-way could increase the possibility of erosion. Ground cover would take years to reestablish.	**Scenario 3** No impact.	
VEGETATION	**Griffith-Peacock 230-kV Line** Temporary loss of vegetation due to trampling and soil compaction. **Peacock Substation** Temporary loss of vegetation due to trampling and soil compaction during construction. Permanent loss of 10 acres of semidesert mixed grass-mixed scrub series vegetation due to placement of new access roads and substation equipment. **Griffith-McConnico 230-kV Line** Temporary loss of vegetation due to trampling and compaction. Minimal permanent loss of vegetation due to placement of new access roads, interconnects and conductor pulling sites. **Power Plant and Associated Facilities** Minimal loss of habitat compared to abundance of habitat in the area.	**All Elements Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action, but in a different location. **Scenario 3** No impact.	**Alternative Transmission Lines** Slightly more impact than the proposed action due to construction of additional towers. **Alternate Gas Pipelines** Temporary loss of desert scrub habitat. Northern pipeline alternative would disturb about 7 more acres.

Affected Environment	Proposed Action	No Action	Alternatives
WILDLIFE	**Transmission Lines** Temporary displacement of wildlife such as mule deer, bighorn sheep and predators. Displacement of songbirds to adjoining habitat. Potential loss of individual mice during construction. Potential loss of desert tortoise habitat from construction until disturbed areas are reclaimed. No increase in potential for collisions of waterfowl with conductors.	**All Elements Scenario 1** Similar impact to proposed action.	**Alternative Transmission Line** Similar impacts to the Griffith-McConnico transmission line, with 10 acres of habitat disturbed and 7.7 acres removed following construction.
	Griffith-Peacock 230-kV Line 40.3 acres temporarily disturbed. Long-term loss of 22.3 acres.	**Scenario 2** Similar impact to proposed action, but in different locations.	**Alternative Gas Pipeline**s Similar impacts as the proposed pipeline for the eastern pipeline. The northern alternative would have greater temporary impacts.
	Griffith-McConnico 230-kV Line 12 acres of short-term disturbance. Long-term loss of 12.7 acres for tower structures and access roads.	**Scenario 3** No impact.	
	Peacock-Davis 230-kV Upgrade Minor short-term impacts on bighorn sheep. 15.3 acres temporarily disturbed and 15.03 acres of wildlife habitat lost. No long-term impacts anticipated. Potential minimal impacts to mountain plover, rosy boa and Gila monster habitat.		

Affected Environment	Proposed Action	No Action	Alternatives
WILDLIFE (Continued)	**Power Plant and Associated Facilities** Loss of 65 acres of habitat would not affect the viability of any species. Chemical constituents of wastewater in brine pond may achieve acute or chronic toxic levels over the Plant's life, creating potential mortality of waterfowl and other birds. Low potential for presence of Gila monster and rosy boa. Potential impact on desert tortoise habitat.		
CULTURAL RESOURCES	**All Elements** Potential for damage to native plants traditionally used for food, medicine, epoxy, and basketry by the Hualapai. Potential fr dispersion and depletion of game in traditional Hualapai hunting areas. Potential to disturb access to traditional areas used for burials, pow-wows, ghost dances, and rituals. Potential to disturb natural features associated with important legends and creation stories. Potential to impact springs and traditional camping areas		
	Griffith-Peacock 230-kV Line Potential for the presence of prehistoric or historical resources range from low to moderate.	**All Elements Scenario 1** Similar impact to proposed action.	**Alternative Transmission Line** Similar potential to the Proposed Action.
	Griffith-McConnico 230-kV Line No significant cultural resource impacts anticipated.	**Scenario 2** Similar impact to proposed action, but in different locations.	**Alternate Gas Pipelines** No significant impacts predicted, but potential greater with the northern alternative

Affected Environment	Proposed Action	No Action	Alternatives
CULTURAL RESOURCES (Continued)	**Peacock-Davis 230-kV Upgrade** Likelihood of significant cultural resource impacts ranges from high to low along the transmission line. **Power Plant and Associated Facilities** No significant impacts to cultural properties anticipated.	**Scenario 3** No impact.	
LAND USE AND RECREATION	**Griffith-Peacock 230-kV Line** Designated a Rural Development Area, which permits light and heavy industrial uses. No significant impact to recreational use is anticipated.	**All Elements Scenario 1** Similar impact to proposed action.	**Alternative Transmission Line** Impacts to the Walnut Creek Estates Subdivision during construction. New right-of-way required for a portion of the line. No significant impact to recreational use is anticipated.
	Griffith-McConnico 230-kV Line Located within Rural Development Area and Urban Development Area, which permits light and heavy industrial uses. No significant impact to recreational use is anticipated.	**Scenario 2** Similar impact to proposed action, but would affect different ownerships and facilities.	**Alternate Gas Pipelines** Similar impacts for the proposed eastern alternative.
	Peacock-Davis 230-kV Upgrade Line runs through land designated as Rural, Urban and Suburban Development Areas. Section of line that passes through Lake Mead National Recreation Area would be within existing utilities corridor.	**Scenario 3** No impact.	

Affected Environment	Proposed Action	No Action	Alternatives
LAND USE AND RECREATION (Continued)	**Power Plant and Associated Facilities** No impacts on existing land zoning status. Facilities are located within the proposed I-40 Industrial Corridor. Temporary disruption of public access during construction. Minimal short- and long-term impacts on recreation.		
VISUAL RESOURCES	**Transmission Lines** Long-term impacts to the visual quality of the landscape from the addition of transmission structures.	**All Elements Scenario 1** Similar impact to proposed action.	**Alternative Transmission Lines** Transmission line visible from Walnut Creek Estates. Use of single pole shaft along existing line would not have significant impacts.
	Short-term impacts from construction activities. Minimal visual impacts from clearing vegetation along the transmission right-of-way. Parts of the line would be visible from single residences and from I-40.	**Scenario 2** Similar impact to proposed action, but in different locations.	**Alternative Gas Pipelines** Eastern: Less long- and short-term impact than proposed action because the alternate route follows an existing linear feature in the landscape. Northern: More short-term impact due to new ground disturbances.
	Power Plant and Associated Facilities Short-term impacts to landscape during construction. Long-term impacts from the addition of the Plant, access road and brine disposal pond, which would be visible from Interstate 40. Steam plume from the cooling tower would be visible from I-40, Oatman Road and residential subdivisions west of Kingman. Long-term impacts from gas pipeline would be visibility of new linear feature. Maximum standard visual range reduction based on two evaluation methods ranged from 4.7 to 3.5 percent. Significant SVR is defined at 5 percent or more.	**Scenario 3** No impact.	

Affected Environment	Proposed Action	No Action	Alternatives
SOCIOECONOMICS	**Transmission Lines** Minimal effects on the local economy. Temporary, short-term demands on local emergency services. **Power Plant and Associated Facilities** Employment impacts include short-term creation of 40-130 jobs during construction and long-term creation of 25 jobs for operation and maintenance. Most of the workforce is expected to be drawn from the local population. Revenues to the local economy over the first 20 years anticipated to exceed $50 million. Minimal potential demand for housing. Increased reliability of power in the area. Some potential impact to public services during construction. Minimal amounts of operational wastes anticipated. The utility industry is moving from development in response to load growth demands and toward development in response to market opportunities. The project could offset more expensive, less efficient generation.	**All Elements Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action. **Scenario 3** No impact.	**Alternative Transmission Line** Similar impacts to the Proposed Action. **Alternate Gas Pipeline** The same impacts as the proposed pipeline.
TRANSPORTATION	**Griffith-Peacock 230-kV Line** Existing access roads would be used. **Griffith-McConnico 230-kV Line** Existing access road would be used; some new access would be required.	**All Elements Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action, but could affect different transportation elements.	**Alternative Transmission Line** New access roads required in northern part. Route would cross Oatman Road. **Alternate Gas Pipelines** Eastern: Blading and earthwork associated with pipeline construction would likely improve existing road's surface. Northern: Same as proposed action.

Affected Environment	Proposed Action	No Action	Alternatives
TRANSPORTATION (Continued)	**Peacock-Davis 230-kV Upgrade** Existing access roads would be used and may require upgrading; spur roads may be built to conductor pull sites. **Power Plant and Associated Facilities** Traffic disruption on I-40 during construction. Construction of permanent access road to be maintained by the county.	**Scenario 3** No impact.	
NOISE	**Transmission Lines** Noise from construction equipment and vehicles during construction during daylight hours. **Power Plant and Associated Facilities** Noise levels of 85 dBA during construction from equipment and vehicles. Noise from plant quickly diminishes with distance from plant.	**All Elements Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action, but would affect different receptors. **Scenario 3** No impact.	**Alternative Transmission Line** Same impacts as for the Proposed Action. **Alternate Gas Pipelines** Same impacts as for the Proposed Action.
HEALTH AND SAFETY	**Transmission Lines** Minimal effects	**All Elements Scenario 1** Similar impact to proposed action.	**All Elements** Same health and safety impacts as for the proposed action.

Affected Environment	Proposed Action	No Action	Alternatives
HEALTH AND SAFETY (Continued)	**Power Plant and Associated Facilities** Potential for spills of hazardous materials during construction and operation, including aqueous ammonia, hydrazine, di/tri sodium phosphate, antiscalant, sodium sulfite, sulfuric acid, sodium hydroxide, scale inhibitor, sodium hypochlorite, magnesium chloride, line, soda ash, coagulant and coagulant aid, lubricating oils, hydraulic fluids, other hydrocarbons and battery acid. Hazardous and nonhazardous solid and liquid wastes to be produced.	**Scenario 2** Similar impact to proposed action. **Scenario 3** No impact.	
ENVIRONMENTAL JUSTICE	**Transmission Lines** The proposed lines would not have disproportionate effects on low-income and minority populations. **Power Plant and Associated Facilities** The proposed Plant would not have disproportionate effects on low-income and minority populations.	**All Elements Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action, but could differ depending on locations of facilities relative to minority populations. **Scenario 3** No impact.	**Alternative Transmission Line** The alternative would not have disproportionate effects on low-income and minority populations. **Alternate Gas Pipelines** The proposed alternatives would not have disproportionate effects on low-income and minority populations.

Affected Environment	Proposed Action	No Action	Alternatives
EMF	**Transmission Lines** *Corona Effects* Minimal audible noise from transmission lines. Potential for radio and television interference, particularly for the AM broadcast band. Minimal potential for disruption of other communication bands and cellular telephones. Insignificant incremental increases in ozone levels at ground level. *Field Effects--Short-term Exposure* Electric fields of 1.9V/m at the edge of the right-of-way nearest the line. Possibility of nuisance shocks from induced currents near the line. No steady-state current primary shocks possible from induced currents. Potential for secondary steady-state-current shocks from vehicles under the line at or below the secondary shock level, representing a nuisance rather than a hazard. Slight potential for spark discharge shocks. Potential for flashover if conductive objects are carried under lines. No neurobehavioral responses expected. No adverse impact expected from magnetically induced currents and voltages. *Field Effects--Long-term Exposure* Likelihood of long-term exposure very low.	**All Elements** **Scenario 1** Similar impact to proposed action. **Scenario 2** Similar impact to proposed action. **Scenario 3** No impact.	**Alternative Transmission Line** Impacts to the human and natural environment from the construction and junction at the two parallel 230-kV lines are anticipated to be similar to the effects described for the proposed Griffith-McConnico 230-kV line. Effects on the human environment may be greater due to the proximity at residences to the proposed routing of the transmission lines. Effects would be minimal due to distance of lines from residences. **Alternate Gas Pipelines** Potential EMF effects are the same as described for the power plant and associated facilities.

Affected Environment	Proposed Action	No Action	Alternatives
EMF (Continued)	**Power Plant and Associated Facilities** Minimal potential impacts to the human and natural environment.		

CONSULTATION AND COORDINATION

Scoping was the first step of the NEPA consultation process for the Griffith Energy Project. Scoping identified the range, or scope, of issues addressed in the environmental studies conducted for this EIS. A scoping meeting was held April 20, 1998, in Kingman. Western distributed a packet of information at the meeting, including the Project fact sheet, a comment sheet and other materials. In addition to the Public Scoping Meeting, an internal scoping meeting was held with BLM's Kingman Field Office on April 20, 1998.

A Notice of Intent to Prepare an EIS was issued by Western on March 23, 1998. It was published in the *Federal Register* April 3, 1998 (63 FR 16496). The Notice of Intent, along with a fact sheet and response sheet, was distributed March 31, 1998, to Federal, state and local agencies, organizations and individuals included on a mailing list developed for the Project. The Notice of Intent included an announcement of a public scoping meeting for the Project on April 20, 1998. Agencies with jurisdiction in the Project area or that would be directly affected by the proposed action were invited to participate in the EIS as cooperating agencies. The Kingman Field Office, BLM, asked to be a cooperating agency.

As a result of public notices and the scoping meeting, Western received 49 written comments. Of those, nearly half were from interested individuals. Comments included eight from Federal agencies, six from state agencies, six from businesses, three from local agencies and two from organizations. Comments were also received from an Indian community and a residential development company. Issues and concerns raised by commentors include:

- Air quality
- Need for the Project
- Alternative generation technology
- Visual effects
- Cultural resources
- Water consumption/recirculation
- Socioeconomic effects/taxes
- Wildlife
- Transmission line effects
- Natural gas
- General support

- Global warming
- Land use and values

Public review and comment of the Draft EIS occurred during a 45-day period and through a formal public hearing held in Kingman December 8, 1998. An open house proceeded the hearing to provide an opportunity for participants to view Project information displays and ask questions. A Federal hearing officer from Western will conducted the hearing, allowing individuals to formally provide comments on the Draft EIS. Comments were documented by a court reporter. All comments received from the Draft EIS review and public hearings were compiled, analyzed and summarized and ultimately responded to in the Final EIS.

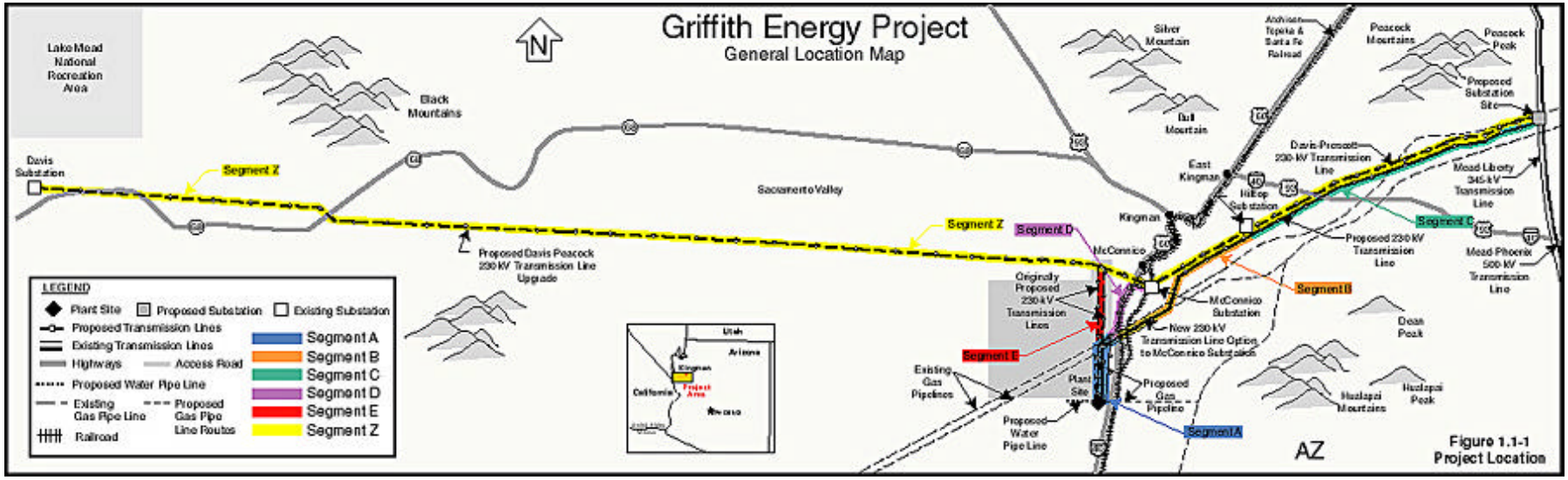

Figure 1.1-1
Project Location