

Germany, Italy, and Japan, and U.S. Patent No. 4,687,560, entitled "Method of Synthesizing a Plurality of Reactants and Producing Thin Films of Electro-Optically Active Transition Metal Oxides." The proposed license will be limited to the field of use of eyeglasses and lenses. The patents are owned by the United States of America, as represented by the Department of Energy (DOE).

DOE intends to grant the license, upon a final determination in accordance with 35 U.S.C. 209(c), unless within 60 days of this notice the Assistant General Counsel for Patents, Department of Energy, Washington, DC 20585, receives in writing any of the following, together with supporting documents:

(i) A statement from any person setting forth reasons why it would not be in the best interests of the United States to grant the proposed license; or

(ii) An application for a nonexclusive license to either of the inventions, in which applicant states that, in the field of use of eyeglasses or lenses, he already has brought either invention to practical application or is likely to bring either invention to practical application expeditiously.

**DATES:** Written comments or nonexclusive license applications are to be received at the address listed below no later than November 6, 1990.

**ADDRESSES:** Office of Assistant General Counsel for Patents, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585.

**FOR FURTHER INFORMATION:** Robert J. Marchick, Office of the Assistant General Counsel for Patents, U.S. Department of Energy, Forrestal Building, room 6F-067, 1000 Independence Avenue, Washington, DC 20585; telephone (202) 586-4792.

**SUPPLEMENTARY INFORMATION:** 35 U.S.C. 209(c) provides the Department with authority to grant exclusive or partially exclusive licenses in Department-owned inventions, where a determination can be made, among other things, that the desired practical application of the invention has not been achieved, or is not likely expeditiously to be achieved, under a nonexclusive license. The statute and implementing regulations (37 CFR part 404) require that the necessary determinations be made after public notice and opportunity for filing written objections.

The proposed license will be partially exclusive, subject to a license and other rights retained by the U.S. Government, and subject to a negotiated royalty. The Department will review all timely written responses to this notice, and will grant the license if, after expiration of the 60-day notice period, and after

consideration of written responses to this notice, a determination is made, in accordance with 35 U.S.C. 209(c), that the license grant is in the public interest.

Issued in Washington, DC, on August 29, 1990.

Stephen A. Wakefield,  
General Counsel.

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## Western Area Power Administration

### Record of Decision and Floodplain Statement of Findings for the Mead-Phoenix 500-Kilovolt Alternating Current/±500-Kilovolt Direct Current (DC) Transmission Line Project

**AGENCY:** Western Area Power Administration, DOE.

**ACTION:** Record of decision.

**SUMMARY:** The Department of Energy (DOE), Western Area Power Administration (Western), has made the decision to participate in the construction, operation, and maintenance of the Mead-Phoenix 500-kilovolt (kV) alternating current (AC)/±500-kV direct current (DC) Transmission Line Project.

Western, Salt River Project (SRP), Southern California Public Power Authority (SCPPA), and Modesto—Santa Clara—Redding (MSR) Public Power Agency (collectively referred to as the project sponsors) propose to construct a 500-kV AC-transmission line with the capability to be upgraded to ±500-kV DC when warranted by increased demand for transmission capacity. This transmission line will connect the Westwing Substation, located northwest of Phoenix, Arizona; through a new 500-kV AC substation near/or in Mead Substation, located 3 miles south of Boulder City, Nevada; with an expanded McCullough Substation or at a new McCullough II Substation in the immediate vicinity, located approximately 14 miles southwest of Boulder City, Nevada. This proposed AC project is a modification of the original Mead-Phoenix DC project (a ±500-kV DC project approved by the State of Arizona and the State of Nevada in 1985). A Federal environmental impact statement (EIS) was prepared for the Mead-Phoenix ±500-kV DC-transmission line, but the record of decision (ROD) was not filed pending the participants' election to proceed with the project. Western has prepared the ROD anticipating that the "election to proceed" will occur in 1990. Additionally, a State of Arizona Certificate of Environmental

Compatibility was approved November 26, 1985; a Clark County, Nevada, Special Use Permit was approved October 17, 1985; and a State of Nevada Public Utilities construction permit was approved November 12, 1985, for the Mead-Phoenix ±500-kV DC-transmission line. Appropriate steps have been taken by project sponsors to update these permits. To date the permits have been updated and approved by the appropriate State/County agencies.

Since 1988, load growth in the areas served by the proposed project has slowed. It now appears that a much longer time will elapse before the full transmission capacity provided by the DC project will be needed. Accordingly, it is now proposed to construct the Mead-Phoenix project as a 500-kV AC-transmission line with a capacity in the 1300 megawatt (MW) range and change its end points to two existing substations which have 500-kV AC capability. The two AC substations selected at each end of the project are the Westwing Substation, about 2 miles west of the previously proposed Eastwing DC terminal along the approved Mead-Phoenix route, and McCullough II Substation, about 13.5 miles southwest of Mead Substation connecting to another approved 500-kV AC-line known as the Mead-McCullough-Victorville-Adelanto route. As noted above, the line will stop at or go through a new intermediate 500-kV AC substation to be constructed at Mead before proceeding on to the McCullough II Substation.

The resulting transmission line will be operated at 500-kV AC on an interim basis, until the system need grows to the point that the cost of the AC/DC conversion equipment can be justified. At that time, two AC/DC terminals will be constructed at Mead and Eastwing and the existing transmission line will be operated as a DC-line at a higher capacity than could be achieved with the interim AC-transmission line.

The proposed project would serve the following purposes:

1. Help reduce dependence on oil and natural gas for electricity consumed in the SCPPA member and MSR service areas.
2. Furnish access by all project sponsors to the economy energy market.
3. Provide a path for sale of SRPs off-peak surplus capacity to California markets.
4. Provide a path for Western to sell economy energy and firm transmission from the Phoenix area to southern California.

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5. Help provide a link for movement of power and energy between the Pacific Northwest, the Desert Southwest, and Southern California.

6. Enhance system reliability.

7. Help meet the forecast need for power of SCPPA and MSR members by providing firm, long-term transmission capacity.

8. Provide out-of-basin support during Los Angeles' air quality Stage III episodes.

**FOR FURTHER INFORMATION CONTACT:**

Mr. Tom Hine, Area Manager, Boulder City Area Office, Western Area Power Administration, P.O. Box 200, Boulder City, Nevada 89005-0200, (702) 477-3200.

Mr. Chuck Saylor, Environmental Manager, Boulder City Area Office, Western Area Power Administration, P.O. Box 200, Boulder City, Nevada, 89005-0200, (702) 477-3244.

Mr. Gary Frey, Director, Division of Environmental Affairs, Western Area Power Administration, P.O. Box 3402, Golden, Colorado 80401-3392, (303) 231-1527.

**SUPPLEMENTARY INFORMATION:** The Department of Energy, Western Area Power Administration, has made the decision to participate in the construction, operation, and maintenance of the Mead-Phoenix 500-kV AC/ $\pm$ 500-kV DC-transmission line project.

Western's decision for the  $\pm$ 500-kV DC transmission line is based on the information contained in the draft and final EIS issued for the project (DOE/EIS-0107; D/1983, F/1986). In 1989-1990 Western prepared an environmental analysis to verify data contained in the EIS and determine if any changes in the project or changes in environmental conditions in the project area would affect any decisions reached in the EIS. The analysis was prepared pursuant to the Council on Environmental Quality regulations 1502.9, and completed in February 1990. Coordination was conducted with Federal and State agencies on the proposed changes to the project and on the environmental analysis. Responses from the agencies indicated they did not see any significant differences in impacts resulting from the proposed changes to the project. Based on the analysis, which showed no unexpected changes or significant impacts, DOE determined that a supplement to the EIS was not needed. This analysis is available for public review from the Division of Environmental Affairs, Western Area Power Administration, P.O. Box 3402, Golden, Colorado 80401.

Since the EIS was published, the U.S. Fish and Wildlife Service (FWS) made an emergency listing of the Mojave desert tortoise. The emergency listing on August 4, 1989, placed the tortoise on the endangered species list for 240 days. On April 2, 1990, the Mojave desert tortoise was listed as a threatened species. As a result of the listing, the project sponsors felt that surveys for the tortoise should be completed in appropriate areas of the project right-of-way (ROW). This survey indicated the presence of four (4) tortoises along the ROW in Nevada. Western has already begun informal consultation with FWS regarding endangered and threatened species in the project area and based on those discussions has identified several alternative mitigative measures which will minimize impacts to the threatened Mojave desert tortoise. These measures may include, but not necessarily be limited to (1) restrictions on construction activities during portions of the annual life cycle of the tortoise; (2) moving potentially impacted tortoises to nearby unimpacted areas; (3) conducting burrow surveys immediately prior to construction activities; and (4) having a tortoise biologist accompany construction crews in areas known to contain the threatened species. Based on these mitigative measures, Western concluded that the proposed action would not further endanger the Mojave desert tortoise. The Phoenix field office of the FWS has tentatively concurred with that conclusion, pending the formal section 7 consultation which will start with the submission of the biological assessment.

An issue identified in the EIS regarding the Wilderness Study Area (WSA) boundary at Burro Creek has been resolved with the BLM. Initially, the WSA boundary was set at the east edge of the existing Mead-Liberty 345-kV transmission line ROW which would have forced the subject line to cross over and then recross the Mead-Liberty line within a one-half mile area. The subject new line would be located on the same side as the WSA. Proposed draft legislation recommended to Congress that the WSA boundary should be set back one-fourth mile to the east which would resolve the problem.

The Mead-Phoenix project will be constructed along the project sponsors' preferred route as described in the final EIS (FEIS). This route is substantially the same as the environmentally preferred route with the exception of about 8 miles (see figure 3-9F, in the FEIS). There were no significant differences in the impacts between the environmentally preferred and the project sponsors' preferred routes.

All mitigation measures identified in the draft and FEIS as well as the environmental analysis will be adopted by Western and will be made part of the specifications for construction. Any unforeseen site-specific requirements will be coordinated with the appropriate Federal, State, and local agencies.

**Public Involvement**

An extensive public involvement program was implemented during project planning. This included newspaper notices, television spots, Federal Register notices, and a newsletter entitled "Power Update" was sent to approximately 350 interested agencies and individuals. Numerous agency meetings were held and several public information workshops were conducted during the project. (See the FEIS, section S-3f and chapter 2 in the draft EIS (DEIS), for a more detailed description). Chapter 1 in the FEIS describes the process followed for the public review of the DEIS. The issues raised by the public and the responses are addressed in tables 1-1 and 1-2. In fact, the FEIS must be used in conjunction with the DEIS. The FEIS contains only a summary, responses to public, and agency comments on the DEIS, and errata and changes to the DEIS.

**Description of the Proposed Action**

**1. Facilities**

As a result of systems investigations, the project sponsors propose the Mead to Phoenix  $\pm$ 500-kV DC-transmission line. This line would transmit power between the Mead area and the Phoenix area. The proposal includes a  $\pm$ 500-kV DC-transmission line, two substations and converter terminals, associated communication facilities, and ground electrodes. Power transfer capability would initially be rated at 1600 MW on a continual basis with an ultimate capability of transmitting 2200 MW.

As discussed above in the ROD and in the environmental analysis, the present 500-kV AC-transmission line interim project is for a Westwing-Mead-McCullough II 500-kV AC/ $\pm$ 500-kV DC-transmission line.

The 500-kV line from Westwing to Mead includes the series capacitors, all terminal facilities at Westwing including the 230-kV phase shifters and 500/230-kV transformers, a new 230-kV bay at Westwing and replacement of seven existing 230-kV circuit breakers at Westwing, and one-third of the Mead 500-kV switchyard.

The 500-kV line from Mead to McCullough II includes one-third of the

Mead 500-kV switchyard, single line termination at McCullough II, one-half of McCullough II common costs including the 500-kV ties to the McCullough 500-kV bus, and one-half of the static var compensator installed as part of the Mead-Phoenix and the Mead-Adelanto projects.

Mead Switchyard and 500/230-kV transformer: The 500/230-kV transformer(s) at Mead, one-third of the Mead 500-kV switchyard, 230-kV terminal facilities at Mead, and replacement of four existing 230-kV circuit breakers at Mead.

The design, construction, operation, and maintenance of the Mead-Phoenix 500-kV AC/ $\pm$ 500-kV DC-transmission line would meet or exceed the requirements of the National Electrical Safety Code, U.S. Department of Labor Occupational Safety and Health Standards, and the project sponsor's own requirements for maximum safety and protection of landowners and their property. Electrical characteristics of the proposed transmission facilities are shown in table 3-1 in the DEIS.

Towers for the proposed 500-kV transmission line would be free-standing lattice-type made of unpainted galvanized steel. Typical tower-to-tower spans are anticipated to be approximately 1,200 feet. Free-standing, square-based towers would be used along the entire route. Typical tower height would be 120 feet. A 200-foot ROW would be required for these towers. Four foundations for each tower would be required. Electrical conductors would provide the medium over which electrical energy for the project would flow.

## 2. Proposed Route

The route selected is the project sponsor's route which is similar to the environmentally preferred route (see figure 3-9F in the FEIS). This route would parallel existing transmission lines for 235 miles of its 243.5 mile distance. Starting at McCullough II Substation, the line would proceed northeast across Eldorado Valley over the dry lake area to Mead Substation. From Mead Substation, the route would parallel an existing 345-kV line, proceed southeast through Eldorado Valley, and enter the Lake Mead National Recreation Area where the route would traverse the Eldorado Mountains in southeastern Nevada, cross the Colorado River in Black Canyon and continue east into Mohave County, Arizona, crossing the Black Mountains, U.S. Highway 93 and Detrital Valley. The route would then proceed southeast across the White Hills, traverse the northern portion of Hualapai Valley

north of Red Lake, then generally parallel the Grand Wash Cliffs along the eastern side of Hualapai Valley before crossing U.S. Highway 66 just northeast of the Peacock Mountains. The route would parallel the east side of the Peacock Mountains, cross Interstate 40, and continue south through the Big Sandy River valley between the Hualapai and Aquarius mountains roughly paralleling U.S. Highway 93. The route would cross the Big Sandy River north of Wikieup and proceed southeast before crossing Burro Creek and entering Yavapai County. Continuing southeast, the route would cross the Santa Maria River, parallel a section of U.S. Highway 93 designated by the Arizona Highway Department as the Joshua Tree Parkway and pass west of the Date Creek Mountains. No longer paralleling U.S. Highway 93, the route would continue southeast, cross State Highway 71 and enter Maricopa County. From there, the route would continue southeast through Aguila Valley, cross U.S. Highway 60, pass through the Vulture Mountains and into the Hassayampa Plain before turning east (leaving the existing 345-kV transmission line), crossing the Hassayampa River and passing north of the White Tank Mountains (parallel to the Palo Verde-Westwing 500-kV transmission line). The route would cross U.S. Highway 93, Beardsley Canal and continue on to the Eastwing terminal site east of the Agua Fria River. The preferred route of the project sponsor is the same as the environmentally preferred route with the exception of links 64, 33 and 49/50. As shown on figure 3-9F in the FEIS, the project sponsor's preferred route deviates east on Link 21a, then turns south on Links 77 and 78 to the point where it intersects with the environmentally preferred route.

## 3. Western's Role in the Project

Western will obtain the ROW and will operate and maintain the line and facilities after construction by SRP.

## 4. Construction Practices

Construction of the transmission line and supporting facilities consists of several phases of work including, but not limited to, surveying, clearing, regrading the existing access roads with construction of some short new access spur roads, foundation installation, allocation of materials along the construction route, structure assembly and erection, conductor stringing, site restoration, and final cleanup. Additionally, there will be construction of four microwave communication sites.

All these activities are further described in the DEIS.

## 5. Operation and Maintenance Practices

The nominal voltage of the Mead to Phoenix transmission line would initially be 500-kV AC and later  $\pm$ 500-kV DC. There may be minor excursions of up to plus 5 percent above the nominal level depending upon load flow. Systems dispatchers in power control centers will direct the day-to-day line scheduling and equipment operation by supervisory control to operate, maintain, and protect the system. Circuit breakers will operate automatically in an emergency to ensure the safety of the system.

Safety is a primary concern in the design of the 500-kV AC/ $\pm$ 500-kV DC-transmission line. The transmission line would be protected at both ends with valve controls or circuit breakers. If conductor failure occurs, power would be automatically removed from the line. Lightning protection is provided by overhead groundwires along the line. Electrical equipment and fencing at the substation would be grounded. All fences and metal gates crossing or within the transmission line ROW would be grounded to prevent shock potential.

The 500-kV AC/ $\pm$ 500-kV DC-transmission line would be inspected on a regular basis by both land and air patrols. Maintenance would be performed as needed. Frequent access to the transmission lines for maintenance purposes is generally not necessary. When access is required for nonemergency maintenance and repairs, the project sponsors would adhere to the same precautions that were taken during the original construction. Crews would be instructed to protect crops, plants, wildlife and other resources of significance. The comfort and safety of any local residents would be provided for by limiting noise, dust, and movement of maintenance vehicles.

After the transmission line has been energized, land uses that are compatible with safety regulations would be permitted in and adjacent to the ROW. Existing land uses such as agriculture and grazing are generally permitted within the ROW. Compatible uses of the ROW on public lands would have to be approved by the appropriate agency. Incompatible land uses within the ROW include constructing buildings, drilling wells, and any use requiring changes in surface elevation that would affect Western's operation and maintenance activities.

Various techniques will be used within the ROW to control or eliminate

vegetation that could interfere with reliable service. The ROW will not be cleared; as much vegetation will be left as possible. Techniques include hand and mechanical cutting as well as selective application of approved herbicides. The management objective, type of vegetation present, adjacent land use and development, and impacts of the control technique will be considered in selecting the most appropriate method to use at each facility and along each ROW segment. Herbicides will not be used on Federally-owned lands, consistent with current Federal court restrictions, but may be used on other lands in cooperation with the landowners.

The electrical converter stations that are proposed at a later date in the life of the project may be manned and/or operated from a remote site. Electrical equipment would be operated from the converter building (see figure 3-4 in the DEIS). The substation equipment and facility layout would be designed to limit radio and television interference, audible noise, and magnetic and electrical fields to values indicated on table 3-3 in the DEIS. All terminals would be fenced, locked, and secured. Entry would be restricted to appropriate utility personnel.

Communication facilities associated with the proposed project would be unmanned and would operate automatically. The buildings would be fenced, locked, and secured. The maximum microwave transmitter power at each facility would be five watts.

#### *Alternatives Considered*

Five general alternatives were considered and evaluated by the project sponsors during the early planning of the proposed project to meet the need by providing additional power in their respective service areas. These alternatives were: (1) No Action, (2) Energy Conservation, (3) Alternative Generation Sources, (4) Alternative Transmission Technologies, and (5) The Original Proposed Project (the original  $\pm 500$ -kV DC-transmission line) with routing alternatives. Investigation of the alternatives described in the DEIS and FEIS led the project sponsors to the conclusion that the optimal means for supplying power to their service territories within the timeframe of the stated need, (given the economic, environmental, and state-of-the-art constraints of alternative actions) is to construct an overhead DC-transmission system between the Mead Substation in Nevada and the Phoenix metropolitan area.

#### *1. No Action*

The no action alternative for this project is interpreted to mean that there would be no additional transmission facilities beyond those that are already constructed or approved for construction by the sponsors of this project. The advantages of the no action alternative would be the preclusion of environmental impacts and costs associated with the construction and operation of a new transmission line.

The disadvantages of the no action alternative include the loss of potential project tax revenues in addition to positive environmental, socioeconomic, and electric service impacts that would result. Another disadvantage of the no action alternative would be that some of the project sponsors would probably increase generation from existing oil and gas-fired powerplant units in an effort to meet the forecasted need. Not only are oil and gas more expensive than coal, but their use is discouraged by Federal energy policy as stated in the Powerplant and Industrial Fuel Act of 1978. Increased generation would reduce reserve margins to unacceptable reliability standards. The project sponsors would also continue to expand their energy conservation efforts in an attempt to mitigate the no action alternative. Some significant disadvantages would result from the shortage in electrical supply if there was no action. Some of the project sponsors would not be able to diversify fuel sponsors and, accordingly, reduce their oil dependency. An interruption to the oil supply could seriously affect their service. Access to coal-based energy in Arizona and New Mexico would be precluded. Service may be interrupted more frequently for maintenance and emergency outages, and a moratorium on new hookups may become necessary. Such a situation could adversely affect residential, commercial, and industrial customers in terms of income, health, safety and general convenience.

#### *2. Energy Conservation*

Energy conservation has the advantage of reducing energy consumption with no documented adverse environmental impacts. However, factors such as high capital costs, cost-effectiveness and public acceptance may inhibit the implementation of some energy conservation programs. The project sponsors have developed and put into effect numerous energy conservation and load-management programs that have reduced energy consumption and system peak demand compared to earlier forecasts. Current demand

forecasts for the utilities incorporate anticipated energy savings and reduction in peak demand from conservation and load-management programs, and demonstrate that despite these efforts, a significant difference remains between projected demand and existing capacity.

#### *3. Alternative Generation Sources*

The project sponsors in California could meet their stated needs by adding generation capacity. However, because of the high capital costs, environmental regulations and lead time required to construct a new generating facility, new power could not be provided to users in a realistic time period.

#### *4. Alternative Transmission Technologies*

Other possible alternatives include the use of existing or other planned transmission systems or alternative technologies. Use of existing and planned lines is not considered feasible because at present, all lines are being utilized to capacity in the transmission systems from Arizona to southern Nevada and California. Future transmission lines now committed or under construction will have little, if any, uncommitted excess capacity.

Several options, both AC and DC, were evaluated as alternatives to a new  $\pm 500$ -kV DC-transmission line. AC alternatives included upgrading the capacity of the existing Mead-Liberty 345-kV line, upgrading the existing Mead-Liberty 345-kV line to 500-kV AC, and building a new 500-kV AC-transmission line parallel to the existing Mead-Liberty 345-kV line. The DC alternatives included converting the existing Mead-Liberty 345-kV line to a 250-kV, 300-kV, or 400-kV DC-line. None of the AC alternatives provide the required transfer capability between Mead and Eastwing while the DC alternatives were not economically competitive with a new  $\pm 500$ -kV DC-transmission line.

#### *5. The Original Proposed Project*

Major Project facilities would include the following:

- Approximately 240 miles of  $\pm 500$ -kV DC-transmission line;
- A substation and converter terminal at the existing Mead Substation site;
- A substation and converter terminal at the proposed Eastwing site on the east bank of the Agua Fria River north of Phoenix;
- Two ground electrodes, probably in Detrital Valley and northwest of the White Tank Mountains, Arizona;
- Communication facilities; and

- Access roads.

Power transfer capability would be initially rated at 1600 MW on a continual basis with an ultimate capability of transmitting 2200 MW. Project construction was planned to begin in 1987 and to be completed in 1991. Estimated capital cost for the project is \$500,000,000. The estimated life of the project is 35 years.

#### A. Alternative Terminals

The Mead Substation was the only DC terminal considered in Nevada. Five alternative terminal sites and associated ancillary transmission systems in the Phoenix area were evaluated utilizing regional data to determine environmental conflicts. As a result of these analyses, the Estella and Library Substation alternatives were eliminated because of greater potential conflicts with land use, visual, and cultural resources. The third station alternative was subsequently eliminated because of system engineering constraints and cost. The two remaining sites analyzed in detail were the Eastwing Terminal and the Westwing Substation.

#### B. Routine Alternatives

Regional environmental studies were conducted to identify a set of alternative corridors to be assessed in details. A literature search and agency contact program were implemented in order to collect the data necessary to assemble an inventory of the environmental resources within the regional study area. Following the completion of the resource inventory, an analysis was conducted to determine the sensitivity of each environmental resource to the introduction of the proposed transmission line. Approximately 1,500 miles of the most feasible routing alternatives or opportunities (primarily areas of least sensitivity or existing utility corridors) were identified. The project sponsors then reviewed these routing alternatives to determine apparent engineering or economic constraints. The review resulted in the elimination of about 300 miles. Aerial field review of the routing alternatives, conducted with the project sponsors, contracted environmental planners, and BLM personnel as participants, resulted in further elimination of the least feasible routing alternatives and refinement of the locations of those alternatives remaining in the study. As a result of this screening, approximately 840 miles of routing opportunities were addressed during the corridor-specific environmental studies and impact assessment.

#### Mitigation/Environmental Consequences

Environmental consequences from the present proposed action (a new 500-kV AC-transmission line which can be converted later to a  $\pm 500$ -kV DC-transmission line) and alternatives are the residual impacts derived through a process that first identified, and subsequently evaluated and integrated, initial (unmitigated) impacts and appropriate mitigating measures. The process involved:

- (1) Assessing impact based upon a comparison of the proposed project with the preproject environment;
- (2) Determining mitigation that would effectively avoid, effectively reduce or eliminate impacts; and
- (3) Identifying "residual" impacts, or impacts remaining after the application of mitigation measures to which the project sponsors had committed.

The impact assessment and mitigation planning process is described in more detail in the DEIS; therefore, reference should be made to figure 5-1 in the DEIS. The new AC-transmission line and associated impacts were discussed in the 1989 environmental analysis report. The potential residual impacts along the project sponsors' preferred route resulting from the COM of the proposed project are generally summarized in table S-IF in the FEIS. This table presents a quantitative analysis of impacts for the final project sponsors' preferred route. Route 3F. This table is an addendum to the DEIS table S-1 and can be used in conjunction to compare all final routing alternatives.

All practicable means to avoid or minimize environmental effects have been adopted for the preferred alternative. Western is committed to adopt the provisions of the generic, as well as site specific, mitigation measures. Some of the required mitigation will be coordinated through additional consultation with Federal and State agencies.

Residual impacts to biological resources are considered low to moderate given the predicted effectiveness of proposed mitigation measures. The preferred route would cross habitats of local desert tortoise populations, and would potentially disturb special-status riparian habitat (2.7 miles), State listed wildlife species, BLM listed sensitive plant and animal species, and Federal threatened and endangered plant and animal species.

Direct and long-term impact for land use include any impact that displaces, alters, or otherwise physically affects any existing development of a planned residential, commercial, industrial, or

institutional use or activity, utility line or a facility, communication facility or related activity, air facility or related activity; or affects official general or regional plans, policies, goals, or operations of communities or governmental agencies. As shown on table S-IF in the FEIS, no significant potential impacts were identified along the preferred route, and residual impacts are, therefore, low.

Residual visual impacts along the preferred route are considered low for the majority of the route where the Mead-Phoenix line would parallel existing transmission lines. Moderate impacts were assigned to 2.3 miles on Link 77 where the route deviates from existing transmission lines east of the Douglas Land Corporation property.

The socioeconomic impact analysis addressed potential positive and negative effects of construction workers' activities and expenditure and fiscal matters that would result from the construction of the proposed facilities. The maximum demand by construction workers for temporary accommodations could be met with existing facilities in each community and community services would be adequate. Potential indirect tax revenues that accrue to communities and taxing jurisdictions in the study area would be minimal during construction, but would be a beneficial impact of the proposed project. Increases in property tax revenues, during operation would be a significant long-term beneficial impact without requiring additional services.

Impacts to archaeological resources, which are nonrenewable, would be adverse and permanent. Impact levels were identified based on an evaluation of levels of sensitivity and access road requirements. Along the preferred route, significant potential impacts include 1.3 miles of high impact and 24.8 miles of moderate impact in areas exhibiting high to moderate resource sensitivity. Overall, the route is considered to have low to moderate residual impacts. Significant potential impacts of historic resources along the preferred route include 0.2 mile of high impact and 22.8 miles of moderate impact in very high and high/moderate sensitivity areas, respectively. Overall, impacts are low to moderate.

Along the preferred route, residual impacts would occur for approximately 6 miles and moderate impact for 2 miles to Native American sites associated with resource exploitation, rock art, cremation/burial, habitation, and historic events.

No significant potential impacts to air and earth resources or acoustical



characteristics were identified. Transmission lines are not major sources of air pollution. While some ozone and nitrous oxide might be expected to result from the operation of high-voltage line, tests have shown the amounts to be below the detectable limits of modern day instrumentation. Electrical, biological, health, and safety effects were addressed in the FEIS and found to be of no significant impact.

In general, impacts to paleontological resources are direct, adverse, and long-term. Along the final routing alternatives, paleontological resources would be crossed by Links, 1, 13, 14a, 14b, 17/58/18, 41, 43, 44, and 45/46/30. However, potential impacts in these areas are anticipated to be low with the exception of moderate initial impacts along Links 43 and 44. The project sponsors' commitment to modifying tower placement along Links 43 and 44 result in a predicted low residual impact. Because low impacts identified were throughout the entire study area, paleontological resources were not factored into the final route selection process.

In addition, the 1989 environmental analysis report indicates that land use along the certified project route is occurring as predicted in the original EIS. In those areas where residential development has occurred, visual impacts have increased accordingly. Biological resources have remained largely the same since the original assessments, with some changes in special status. Mitigation measures have been modified as needed to avoid or reduce the level of any new, potential effect on biological resources.

Based on the environmental analysis, conditions along the certified route have remained the same or development has occurred as anticipated in the original EIS. Therefore, it does not appear that the basis of the original route decision has changed in any significant manner since the route certification. This analysis included the change from a  $\pm 500$ -kV DC-transmission line to an interim 500-kV AC-transmission line.

#### Relationships With Other Projects

Related to the Mead-Phoenix Project is the proposed Mead/McCullough-Victorville/Adelanto Transmission Project, which could accommodate power transfer west into California. The Los Angeles Department of Water and Power (DWP), a member of SCPPA, and other project sponsors (some of the project sponsors of the Mead-Phoenix will not be a part of this project) propose to design, construct, operate, and maintain a 500-kV AC-transmission line from the Mead or McCullough

Substation near Boulder City, Nevada, to the Victorville or Adelanto Substation in California. An AC-line would have a nominal capacity of 1200 MW, and would begin at McCullough and terminate at either Adelanto or Victorville. A DC-line would have a nominal capacity of 2000 MW from Mead Substation to Adelanto Substation. A converter station and associated facilities would be required within or adjacent to Adelanto Substation. The BLM and DWP have prepared a combined DEIS/Environmental Impact Report for the proposed Mead-McCullough-Victorville/Adelanto Transmission Project. Therefore, the focus of the Mead-Phoenix EIS documents are for siting studies for the Mead-Phoenix 500-kV AC/ $\pm 500$ -kV DC-transmission line and directly related facilities.

#### Floodplains/Wetlands Statement of Findings

Along the final routing alternatives, moderate residual impacts to wetlands are anticipated at crossings of the Colorado River, the only true wetlands within the study corridors (Links 45/46/30, 41 and 44). The project sponsors have committed to spanning sensitive features, thus avoiding, to the extent possible, removal of riparian vegetation. Impacts to floodplains crossed by the alternative corridors are anticipated to be minimal because of project sponsors' mitigation commitment of spanning sensitive features. However, the potential for damage to towers from severe flooding does exist in areas where spanning may not be possible (e.g., the Hassayampa River). Where tower placement occurs in a floodplain, construction disturbance, potentially increasing erosion, and stream sedimentation will be minimal since the majority of the stream/river crosses are generally dry. In addition, the project sponsors have agreed to conduct a preconstruction survey to determine the most effective means of mitigation site-specific impacts. Further information regarding the location of floodplains and wetlands (displayed as riparian areas) is available in figures 4-2 and 4-4 in the DEIS and in Volume 2: Natural Environment Report.

As discussed in the paragraph above, the potential for avoiding most of the floodplains and wetlands during final siting and construction of the facilities is very high and is the preferred method of mitigating potential impacts. Avoidance of construction in all floodplains is not practicable; however, structures will be placed as far from the center of the floodplain as is possible to reduce potential for debris to collect near the

towers and for damage to the towers to be reduced. Alternatives to locating the facilities were analyzed during the environmental studies and further surveys/studies will be conducted just prior to construction. The proposed facilities will conform with all applicable State and local floodplain protection standards. Final mitigation measures will be made part of the COM Plan.

Issued at Golden, Colorado, August 21, 1990.

William H. Clagett,  
Administrator.

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#### Notice of Rate Order; Loveland Area Projects

**AGENCY:** Western Area Power Administration, DOE.

**ACTION:** Notice of rate order No. WAPA-47 for the proposed firm power and transmission service rates for the Loveland Area Projects.

**SUMMARY:** Notice is given of the confirmation and approval by the Deputy Secretary of the Department of Energy (DOE) of Rate Order No. WAPA-47 and Rate Schedules L-F2, L-T1, and L-T2, placing increased firm power and transmission service rates for the Loveland Area Projects (LAP) into effect on an interim basis. The rates will remain in effect on an interim basis until the Federal Energy Regulatory Commission (FERC) confirms, approves, and places them into effect on a final basis or until they are replaced by another rate.

The final Post-1989 General Power Marketing and Allocation Criteria; Pick-Sloan Missouri Basin Program-Western Division (Criteria) were published in the Federal Register on January 31, 1986 (51 FR 4012). The Criteria contractually integrated the resources of the Pick-Sloan Missouri Basin Program-Western Division (P-SMBP-WD) and the Fryingpan-Arkansas Project (Fry-Ark), both commonly referred to as the LAP, and called for the establishment of an initial rate for LAP power.

The fiscal year (FY) 1989 power repayment study (PRS) for the Pick-Sloan Missouri Basin Program (P-SMBP) and the FY 1989 PRS for Fry-Ark indicate that the existing rates do not yield sufficient revenue to satisfy the cost-recovery criteria through the study periods. The proposed P-SMBP-Eastern Division rate Schedules in Rate Order No. WAP-46, along with the P-SMBP-WD revenue requirements, will yield