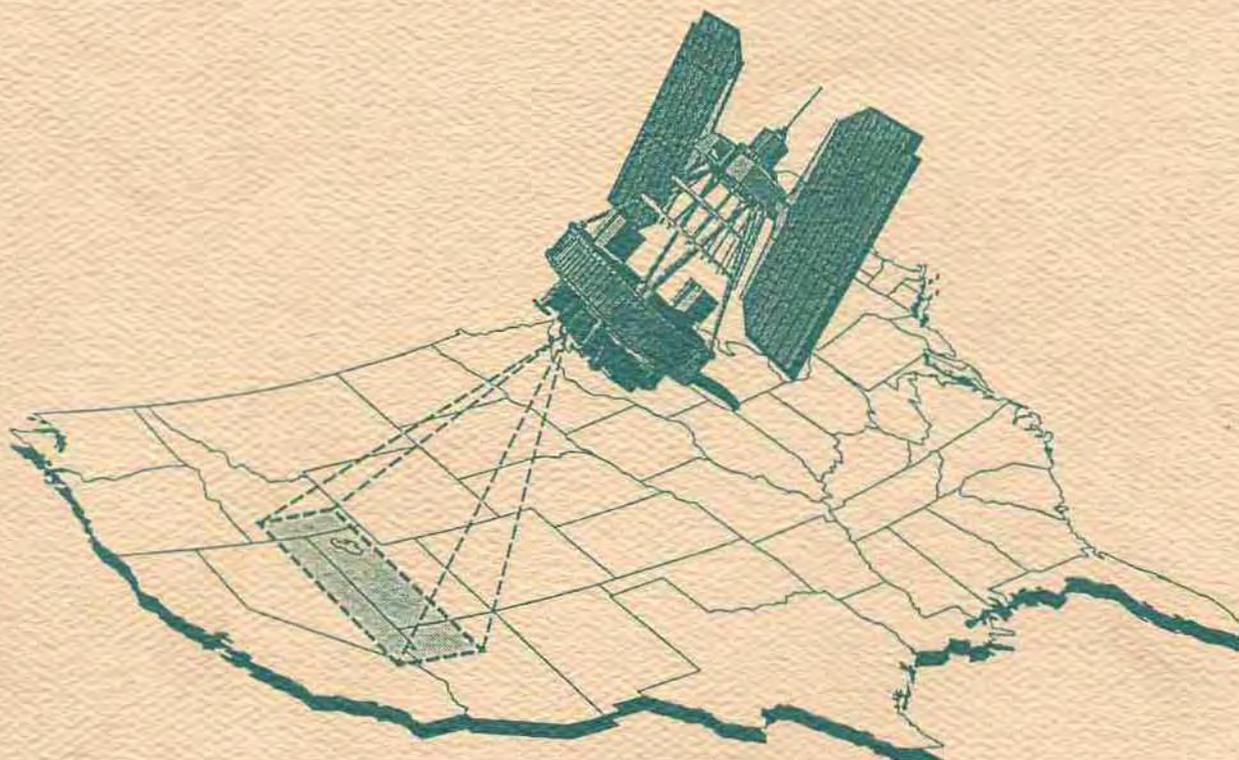

SOUTHWEST INTERTIE PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT and PROPOSED PLAN AMENDMENT



Prepared by the:

U.S. Department of the Interior
Bureau of Land Management
Burley, Shoshone, and Boise District Offices, Idaho
Elko, Fly, and Las Vegas District Offices, Nevada
Richfield District Office, Utah



In Cooperation with:

U.S. Department of Agriculture
Forest Service
Intermountain Region, R-4

U.S. Department of Interior
National Park Service
Pacific Northwest, Rocky Mountain,
and Western Regions

U.S. Department of Interior
Bureau of Indian Affairs
Cedar City, Utah

U.S. Department of Interior
Bureau of Reclamation
Pacific Northwest, Upper Colorado
and Lower Colorado Regions

July 1993



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Burley District Office
Route 3, Box 1
Burley, Idaho 83318

July 16, 1993

Dear Reviewer:

Enclosed is the Southwest Intertie Project (SWIP) Final Environmental Impact Statement/Proposed Plan Amendment (FEIS/PPA) on the proposed Idaho Power Company 500kV Transmission Line, the SWIP. This document is in abbreviated format and is to be used in conjunction with the SWIP Draft Environmental Impact Statement and Draft Plan Amendment (DEIS/DPA). The SWIP DEIS/DPA was distributed to the public in June 1992. Chapter 1 of the SWIP FEIS/PPA addresses the Proposed Plan, Chapter 2 reviews Public Participation, Chapter 3 contains Modifications and Additional Studies, Chapter 4 lists errata and corrections to the SWIP DEIS/DPA, and Chapter 5 contains public comments and responses. The SWIP FEIS/PPA has been prepared considering comments received on the SWIP DEIS/DPA.

Please note that there are two minor changes to the Agency Preferred Route made in this document in response to public comments on the SWIP DEIS/DPA. The first was made to mitigate potential visual and land use impacts to future land developments in the vicinity of Oasis, Nevada (refer to page 3-36 of this document). The Agency Preferred Alternative in the Oasis area was changed to Links 221 and 223 (refer to Figure 1-1 in Chapter 1 of this document). This routing would also better utilize a BLM designated utility corridor. The second change was made in the Sacramento Pass area to mitigate potential visual impacts to travelers to Great Basin National Park and avoid crossing private lands near Baker, Nevada (refer to page 3-39 of this document). The Agency Preferred Alternative in the Baker area was changed to Links 464, 466, 468, 471, and 473 (refer to Figure 1-1 in Chapter 1 of this document).

This document addresses Idaho Power Company's proposed right-of-way application to construct an approximately 520-mile 500kV transmission line from Midpoint Substation near Shoshone, Idaho to a proposed substation northeast of Las Vegas, Nevada, referred to as the Dry Lake Substation site. This segment of the SWIP is referred to as the Midpoint to Dry Lake segment. It also addresses the proposed right-of-way to construct an approximately 160-mile 500kV transmission line from a proposed substation in the Ely, Nevada area to a substation near Delta, Utah. This segment of the SWIP is referred to as the Ely to Delta segment. The proposed right-of-way would also include a series compensation station near Wells, Nevada, a series compensation station in the Delamar Valley in southeastern Nevada, and 13 new microwave communication facilities on the Midpoint to Dry Lake segment.

This document contains the Bureau of Land Management's (BLM) proposal to select a preferred alternative for the Midpoint to Dry Lake segment and an alternative for the Ely to Delta segment. The Agency Preferred Alternative for the Midpoint to Dry Lake segment is a combination of Routes A and G which would cross approximately 406 miles of the BLM lands, 0.5 miles of lands administered by the Bureau of Reclamation, 83.1 miles of private lands, and 5.2 miles of state lands. The Agency Preferred Alternative for the Ely to Delta segment is the 230kV Corridor Route which

would cross 197.4 miles of the BLM lands and 9.0 miles of lands administered by the Humboldt National Forest.

The National Park Service does not agree with the Agency Preferred Alternative for the Ely to Delta segment because of visual impacts to Great Basin National Park and to visitors driving to the park. None of the alternatives cross National Park Service lands, and the 230kV Corridor Route is approximately two miles from the northern boundary of the park and approximately six miles from Wheeler Peak. The 230kV Corridor Route was also moved another mile north (i.e., away from the park) in the Sacramento Pass area as referred to above.

The Agency Preferred Alternative is to allow equipment additions to the Midpoint Substation, one proposed substation near Ely, Nevada, a proposed substation in the Dry Lake Valley in southern Nevada, and a proposed substation near Delta, Utah. The specific substation site in the Dry Lake area will depend on the routing decision for the Marketplace-Allen Transmission Project (MAT) proposed by the Nevada Power Company (refer to page 2-52 of the SWIP DEIS/DPA). Series compensation stations would also be needed about halfway between the two northern substation sites northeast of Wells, Nevada and in the Delamar Valley in southern Nevada to increase the electrical performance of the transmission system. The series compensation station near Wells, Nevada may be expanded in the future to accommodate switching equipment (i.e., substation).

The Agency Preferred Alternative also proposes to construct microwave communication facilities sites at Hansen Butte, Cottonwood (in Idaho), and Ellen D, Six Mile, Rocky Point, Spruce Mountain, Long Valley, Copper, Cave Mountain, Mount Wilson, Highland Peak, Beaver Dam Mountain, and Glendale (in Nevada).

The decision to implement the selected alternative will be made on National Forest lands by the Regional Forester, by the Bureau of Reclamation on Bureau of Reclamation lands, and on the BLM land by the Idaho, Nevada, and Utah State Directors. This preferred alternative was selected by the BLM, Forest Service, and Bureau of Reclamation as a result of public comments and concerns on the SWIP DEIS/DPA released July 1992.

The SWIP decision document would serve as a plan amendment to Resource Management Plans (RMP) and Management Framework Plans (MFP) where the Agency Preferred Alternative would be outside a designated utility corridor in three of the BLM Districts crossed (refer to Figure 1-2 in Chapter 1 of this document). The Humboldt National Forest Land and Resource Management Plan and Great Basin National Park General Management Plan would not be amended. The Bureau of Reclamation does not have a land use plan to be amended. The BLM RMPs and MFPs, now in effect, that may be amended are as follows:

Utah

- House Range Management Plan (Richfield District) - no plan amendment proposed
- Warm Springs Management Plan (Fillmore District) - no plan amendment proposed

Idaho

- Twin Falls Management Framework Plan (Burley District) - no plan amendment proposed
- Monument Resource Management Plan (Shoshone District) - no plan amendment proposed

Nevada

- Wells Resource Management Plan (Elko District) - plan amendment proposed
- Schell Management Framework Plan (Ely District) - plan amendment proposed
- Egan Resource Management Plan (Ely District) - plan amendment proposed
- Caliente Management Framework Plan (Las Vegas District) - plan amendment proposed
- Stateline Management Framework Plan (Las Vegas District) - plan amendment proposed

The portion of the proposed plan amendment affecting the BLM administered lands may be protested in accordance with 43 CFR 1610.5-2. Protests must be postmarked no later than August 17th, 1993. The protests must be in writing, and sent to:

Director, BLM (760)
Department of Interior
1848 C Street NW
Washington, DC 20240

Protests must contain: (1) name, mailing address, telephone number and interest of the person filing the protest, (2) a statement of the issue(s) being protested, (3) a statement of the part(s) of the plan being protested, (4) a copy of all documents addressing the issue(s) that were submitted during the planning process by the protesting party, or an indication of the date the issue or issues were discussed for the record, (5) a concise statement explaining why the proposed plan is believed to be wrong.

At the end of the protest period, the BLM portion of the proposed plan, excluding any portion under protest, shall become final. Approval shall be withheld on any portion of the plan until final action has been completed on such protest. The BLM approval process and the final plan for the BLM is expected to be published with the Record of Decision in the late summer or fall 1993.

The Bureau of Reclamation will issue a separate decision document. The 30 day review period ends August 17th 1993. Written comments may be submitted to:

John Keys, Regional Director
Bureau of Reclamation, Pacific Northwest Regional Office
1150 N. Curtis Road
Boise, ID 83706

The Forest Service decision on the National Forest portion of the proposed plan is subject to administrative review (appeal) in accordance with the provisions of the Forest Service Appeal Regulations set forth in 36 CFR 217. Any appeal of the Forest Service decision must include the information required by 36 CFR 217.9 (content of a notice of appeal), including the reasons for the appeal. Two (2) copies of the Notice of Appeal must be made in writing and submitted within 45 days of the date of publication of the decision to the Regional Forester:

Gray F. Reynolds, Regional Forester
Intermountain Region (R-4), USDA Forest Service
Federal Building, 324 25th Street
Ogden, Utah 84401

A BLM protest, or Forest Service or Bureau of Reclamation appeal must be filed separately if the reviewer wishes to direct concerns on lands administered by the BLM, Forest Service, or Bureau of Reclamation. Those people not wishing to protest or appeal but wishing to comment may send comments to Bureau of Land Management, Burley District Office at the address below. All comments received will be considered in the preparation of the BLM Record of Decision.

A copy of the SWIP FEIS/PPA will be sent to all persons, organizations, or agencies who received the SWIP DEIS/DPA, or to anyone requesting a copy. Please address requests for copies of the SWIP FEIS/PPA to:

Karl Simonson
Bureau of Land Management
Burley District Office
Route 3, Box 1
Burley, Idaho 83318

Sincerely,


Gerald L. Quinn
District Manager

COVER SHEET
Southwest Intertie Project
Final Environmental Impact Statement/Proposed Plan Amendment

() Draft
(X) Final

(X) Administrative
() Legislative

Lead Agency

U.S. Department of Interior
Bureau of Land Management

EIS/PA Contact

Comments on this FEIS/PPA
should be directed to:
Karl Simonson
Bureau of Land Management
Burley District Office
Route 3, Box 1
Burley, Idaho 83318

Cooperating Agencies

U.S. Department of Agriculture
Forest Service

Copies of the FEIS/PPA have been sent
to and comments requested from:
Refer to Appendix B

U.S. Department of Interior
Bureau of Reclamation

U.S. Department of Interior
National Park Service

**Date FEIS/PPA Mailed to
the Public:**
July 6, 1993

U.S. Department of Interior
Bureau of Indian Affairs

**Date by Which Comments, Protests Must
Be Received or Postmarked By:**
August 17, 1993

Abstract

The Southwest Intertie Project (SWIP) is a proposed 500kV electrical transmission line system between the Midpoint Substation near Shoshone, Idaho and a proposed substation in Dry Lake Valley, northeast of Las Vegas, Nevada (referred to as the *Midpoint to Dry Lake segment*), and between a proposed substation in the Ely, Nevada area and a proposed substation near Delta, Utah (referred to as the *Ely to Delta segment*). Idaho Power Company proposes to construct, operate, and maintain a 500kV transmission line on the requested right-of-way grant for the Midpoint to Dry Lake segment and requests that the Bureau of Land Management (BLM) assign the right-of-way for the Ely to Delta segment to the Los Angeles Department of Water and Power (LADWP). The LADWP proposes to construct, operate, and maintain a 500kV transmission line on the Ely to Delta segment on behalf of the participants of the Utah-Nevada Transmission Project (UNTP).

Equipment additions are proposed to the existing Midpoint Substation near Shoshone, Idaho. New substations are proposed near Ely and Las Vegas in Nevada, and near Delta in Utah. Series compensation stations are proposed midway between Midpoint Substation in Idaho and the proposed substation near Ely, Nevada, and in the Delamar Valley between the Ely area and the Dry Lake Valley. New microwave communication facilities are also proposed on the Midpoint to Dry Lake segment.

The Midpoint to Dry Lake segment of the SWIP would increase the ability to conduct northwest-southwest power exchanges, would increase the capacity and reliability of the interconnected electrical grid in the western U.S., and would enhance competition and economic efficiency of the regional power market. This segment of the SWIP would establish an "open marketplace" for power transfers in the Las Vegas area. Because of the increased capacity to share regional resources, an additional benefit would be deferring new generation facilities and diversifying fuel resources. The Ely to Delta segment of the SWIP would increase the reliability between the existing transmission systems in the Delta area and the planned north-south SWIP system and create a bi-directional transfer path between the Pacific Northwest and intermountain regions and between the intermountain region and southern Nevada.

Alternatives considered for the SWIP include the No-Action, energy conservation, alternative generating sources, alternative transmission systems, alternative transmission technologies, and the proposed action which includes nine routing alternatives on the Midpoint to Dry Lake segment, plus the agency and utility preferred routes, which have slight variations, and four (4) routing alternatives on the Ely to Delta segment:

Midpoint to Dry Lake Segment Routing Alternatives

- Route A - 345kV*-Thousand Springs-Goshute Valley-Steptoe-Egan Range-Dry Lake Route
- Route B - 345kV*-Trout Creek-Wendover-Steptoe-Antone Pass-Dry Lake Route
- Route C - 345kV*-Trout Creek-Goshute Valley-Steptoe-Egan Range-Dry Lake Route
- Route D - 345kV*-Wells-Steptoe-Egan Range-Dry Lake Route
- Route E - 345kV*-Thousand Springs-Wendover-Steptoe-Egan Range-Dry Lake Route
- Route F - Hagerman-Trout Creek-Goshute Valley-Egan Range-Dry Lake Route
- Route G - 345kV*-Cottonwood Creek-Thousand Springs-Goshute Valley-Steptoe-Egan Range-Dry Lake Route
- Utility Preferred Route
- Agency Preferred Route

(* - 345kV refers to the routing alternative being parallel to the Midpoint to Valmy 345kV transmission line)

Ely to Delta Segment Routing Alternatives

- Direct Route
- Cutoff Route
- 230kV Corridor Route (Agency and Utility Preferred)
- Southern Route

This SWIP Final Environmental Impact Statement/Proposed Plan Amendment (FEIS/PPA) assesses the environmental consequences of the federal approval for the project. Impacts of the proposed action would result from the access roads, tower sites, and staging areas required to construct the transmission line and related facilities. Impacts are expected to soils, vegetation, wildlife, cultural resources, scenic resources, and land uses. Electric and magnetic field effects have also been studied for this project.

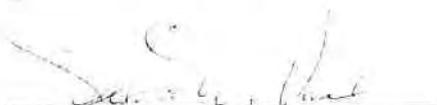
Because this document is in an abbreviated format, please refer to the SWIP Draft Environmental Impact Statement/Draft Plan Amendment (DEIS/DPA) as a reference for this SWIP FEIS/PPA.

Corrections to the SWIP DEIS/DPA are made in Chapter 4 of this document. Additional studies are found in Chapter 3.

The Agency Preferred Alternative for the Midpoint to Dry Lake segment is identified in this document as a combination of Route A and G (as described in the SWIP DEIS/DPA). The Agency Preferred Alternative for the Ely to Delta segment is the 230kV Corridor Route (as described in the SWIP DEIS/DPA).

The Agency Preferred Alternative is to allow equipment additions to the Midpoint Substation, one proposed substation near Ely, Nevada, a proposed substation in the Dry Lake Valley in southern Nevada, and a proposed substation near Delta, Utah. The specific substation site in the Dry Lake area will depend on the routing decision for the Marketplace-Allen Transmission Project (MAT) proposed by the Nevada Power Company (refer to page 2-52 of the SWIP DEIS/DPA). Series compensation stations would also be needed about halfway between the two northern substation sites northeast of Wells, Nevada and in the Delamar Valley in southern Nevada to increase the electrical performance of the transmission system. The series compensation station near Wells, Nevada may be expanded in the future to accommodate switching equipment (i.e., substation).

The Agency Preferred Alternative would also construct microwave communication facilities at Hansen Butte, Cottonwood (in Idaho), and Ellen D, Six Mile, Rocky Point, Spruce Mountain, Long Valley, Copper, Cave Mountain, Mount Wilson, Highland Peak, Beaver Dam Mountain, and Glendale (in Nevada).



Idaho State Director
Bureau of Land Management



Date

SUMMARY

SUMMARY

Southwest Intertie Project

The Southwest Intertie Project (SWIP) is a proposed inter-regional transmission system consisting of two single-circuit 500 kilovolt (kV) alternating current (AC) transmission line segments (nearly 700 miles in total length), associated proposed substation facilities, intermediate series compensation stations, and microwave communication facilities. The transmission line segments are referred to as the Midpoint to Dry Lake segment and the Ely to Delta segment. The Ely to Delta segment was also referred to as the Crosstie in the SWIP Draft Environmental Impact Statement/Draft Plan Amendment (DEIS/DPA).

The Idaho Power Company (IPCo) proposes to construct, operate, and maintain the approximately 520 mile Midpoint to Dry Lake segment from the existing Midpoint Substation near Shoshone, Idaho interconnecting to a proposed substation in the Ely, Nevada area, and continuing south to a proposed substation site in the Dry Lake Valley northeast of Las Vegas, Nevada. The estimated capacity rating of this segment is 1200 Megawatts (MW). From the Ely, Nevada area the nearly 160 mile Ely to Delta segment is proposed to connect from a proposed substation in the Ely area east to a proposed substation near Delta, Utah. The estimated capacity rating of this segment is 1100 MW.

In 1988 the IPCo applied for a right-of-way grant to construct and operate a transmission interconnection from their 500kV Midpoint Substation near Shoshone, Idaho to a proposed substation site in the Delta, Utah area. In the Delta area, the IPCo was proposing to interconnect with and obtain transmission capacity on the Utah-Nevada Transmission Project (UNTP), a proposed 500kV transmission line from Delta to a proposed substation site located approximately 13 miles southwest of Boulder City, Nevada. The UNTP proposal also included the line segment between Ely and Delta, which was proposed to be developed as a second Phase. The UNTP participants include utilities in Utah, Nevada, and California.

In early 1990, the IPCo determined that the UNTP would be fully subscribed and would not be able to provide the transmission capacity for the SWIP to the proposed substation near Boulder City, Nevada. The IPCo decided that the SWIP would have to be extended south from the Ely area in order to meet the purpose and need for the SWIP project to interconnect in the Las Vegas area. In June 1990 the SWIP studies were expanded to include routes from the Ely, Nevada area to a proposed substation site northeast of Las Vegas in the Dry Lake Valley.

The SWIP Ely to Delta segment was originally a joint SWIP and UNTP Phase II transmission line segment. When the SWIP right-of-way application to the Bureau of Land Management (BLM) was amended in June 1990, the IPCo's need for the Ely to Delta segment changed. However, the Ely to Delta segment remains an important part of the UNTP and the need for it remains unchanged.

The lead federal agency for the SWIP, the BLM, recommended that this transmission segment be retained in the SWIP EIS/PA process. This nearly 160-mile transmission line segment would extend east from the vicinity of Ely, Nevada to near Delta, Utah. The right-of-way for this segment would be granted to the IPCo, who would request that the BLM assign it to the Los Angeles Department of Water and Power (LADWP). The LADWP would, on behalf of the UNTP participants,

construct, operate, and maintain this portion of the line and the proposed substation near the Intermountain Generating Station near Delta, Utah.

The SWIP Midpoint to Dry Lake segment would be constructed using the following tower types:

- V-guyed (or other guyed) steel lattice or self-supporting steel lattice
- steel pole H-frame in agricultural areas
- self-supporting steel lattice at specific intervals for lateral support

The towers for the Midpoint to Dry Lake segment could range from 90-160 feet in height, but would average 120-130 feet. This segment of the project would require a proposed substation near Ely, Nevada, a proposed substation in Dry Lake Valley in southern Nevada, and equipment additions to the existing Midpoint Substation. Series compensation stations would also be needed about halfway between the two northern substation sites northeast of Wells, Nevada, and in the Delamar Valley in southern Nevada to increase the electrical performance of the transmission system. The series compensation station near Wells, Nevada may be expanded in the future to accommodate switching equipment (i.e., substation). A proposed microwave communication system to operate the system would also be required between Midpoint Substation and the proposed substation at Dry Lake. In addition, a fiber optic ground wire may be installed instead of conventional ground wires to serve the needs of commercial communications companies. If installed, access to the fiber optic system would only be allowed upon completion of all environmental permitting activities (e.g., the National Environmental Policy Act) and right-of-way acquisition.

The towers for the Ely to Delta segment could range from 90-160 feet in height, but would average 120-130 feet. The Ely to Delta segment would require a new substation near Delta, Utah. Tower types between Ely to Delta would be constructed using:

- self-supporting steel lattice structures
- steel pole H-Frame for visual mitigation and agricultural areas

An existing microwave communication system between Ely, Nevada, and Delta, Utah would be used with only minor upgrades.

The Agency Preferred Alternative is to grant the IPCo a 200-foot right-of-way across approximately 700 miles of lands administered by the BLM, the Forest Service (FS), and the Bureau of Reclamation. Idaho Power would obtain easements for the portion of the route crossing private lands. This route is a combination of Routes A and G, for the Midpoint to Dry Lake segment of the SWIP and the 230kV Corridor Route for the Ely to Delta segment of the SWIP (refer to Figure 1-1 for a map of the Proposed Plan and to the Alternative Routes map in the Map Volume accompanying the SWIP DEIS/DPA). The Agency Preferred Alternative also includes five proposed substation or series compensation sites and the 13 sites for microwave communication facilities. The Proposed Plan Amendment is to designate a utility corridor along the Agency Preferred Alternative to accommodate the SWIP 500kV transmission line where this route deviates from agency designated and planning corridors.

Purpose and Need

Electrical utilities have a responsibility to provide adequate supplies of reliable and economical electricity to all classes of customers. State and federal regulatory agencies review the proposed actions of utilities to assure electrical customers the lowest possible costs. Utilities focus on least cost planning, which considers conservation equally with new generation options, to provide reliable electrical service at the lowest reasonable infrastructure cost.

The purpose of the SWIP is to meet the goals of least cost planning, to increase transmission capacity and reliability, and to allow for the sharing of the electrical supplies between the regions of the West. The increase in transmission capacity and reliability would benefit electrical consumers by keeping their costs as low as possible in a future electrical market with high demands for conservation, environmental awareness, and cost consciousness.

The need for increased power exchanges in the western United States is particularly evident between the Northwest and the Southwest. Two main avenues of transmission now being used are the Pacific Interties in the West and various smaller lines around the east side of the Great Salt Lake. These major paths are presently unable to accommodate the full need for electric power transfers between the northern and southern portions of the western transmission system. Electrical demand and consumption in the Desert Southwest are greatest in the summer, as opposed to the Pacific Northwest, where they are greatest in the winter. This seasonal diversity between these western regions has been identified to be approximately 3000 MW. This seasonal diversity can be captured by increasing the transmission capacity between the regions of the West.

The proposed addition of the SWIP to the regional power grid is being considered to allow the Northwest, the Southwest, and the Intermountain regions of the country to take advantage of the various load pattern diversities, including variations in electrical demand and supply within the region. It would create an additional bi-directional transfer path between the Pacific Northwest and the Intermountain regions of the West. Currently, these areas are interconnected only by lower voltage transmission lines with limited electric load-carrying capability. It would also create an additional bi-directional transfer path between the Intermountain area and the Southwest including southern Nevada, an area that is rapidly growing and is in need of additional energy and capacity resources to serve its native load.

The proposed addition of the SWIP would provide regional economic benefits by capturing current and future efficiencies within the electric power system of the western United States. It would enable the regions' utilities to realize these efficiencies by interconnecting the systems of the Northwest and Southwest with firm transmission access via the SWIP's proposed "open marketplace" concept. Open access across the SWIP would facilitate creative energy transactions which, driven by the forces of the open market, would take economic advantage of the load and resource diversities between the regions. Transactions on the SWIP would allow interconnected utilities to better use existing internal transmission capacity. These transactions would benefit the wheeling utility by creating revenues that can be applied against its internal system costs, including seasonal exchanges, resource coordination, nonfirm sales and purchases, firm sales and purchases, and reserve sharing. The SWIP would also provide other benefits including improved system reliability and environmental enhancements.

The SWIP would allow utilities in the Northwest and the Southwest to add capacity and reliability to the western electrical system at an economical price. Specifically, the SWIP would fulfill the major needs as outlined below:

Seasonal Exchanges

Seasonal exchanges provide benefits by taking advantage of the load pattern diversities between regions. By directly interconnecting and exchanging power between the winter peaking Northwest and the summer peaking Southwest, both regions would benefit from increased operating efficiencies of existing resources. Seasonal exchange transactions could reduce operating expenses through fuel diversity, as well as reduce capital cost expenditures by deferring costly new generating resources.

The SWIP would allow the Northwest, the Southwest, and the Intermountain areas to take advantage of the various load pattern diversities including variations in electrical demand and supply within the region. The Ely to Delta segment would create an additional bi-directional transfer path between the Northwest and the Intermountain regions of the West. Currently, these areas are interconnected only by lower voltage transmission lines with limited electric load-carrying capability. It would also create an additional bi-directional transfer path between the Intermountain area and the Southwest including southern Nevada. This is an area that is rapidly growing and is in need of additional energy and capacity resources to serve its native load.

Resource Coordination

The SWIP would enable regional resources with diverse generating characteristics to operate jointly in a manner that increases overall operating efficiencies. For example, the Northwest could use the surplus peaking capacity and storage capability of its hydro system in conjunction with the base loaded thermal resources of the Southwest, thus increasing load-carrying capability as well as reducing production costs. Resource coordination agreements, like seasonal exchanges, benefit the utilities by both reducing operating expenses and potentially deferring new generating resources.

Nonfirm Sales and Purchases

Nonfirm sales and purchases provide benefits by lowering the total power production expenses of the parties involved. Nonfirm or economy transactions accomplish this by taking advantage of the diversity in incremental production costs between generating resources, such as displacing oil resources with coal resources or displacing coal with hydro. The purchasing party benefits from lower production expenses than it would have otherwise incurred, while the selling party benefits from the revenues received that are in excess of its incremental production costs. Nonfirm transactions are generally short-term in nature, ranging from the next hour to several months, since incremental costs are very sensitive to the uncertainty of future load requirements, generating unit availability, and fuel costs or availability, such as spot gas prices or winter snow pack.

Firm Sales and Purchases

Firm agreements tend to be longer in term and place a higher level of obligation on both parties. As such, they are included in the utility's long-term planning process. The economic benefits derived from firm sales and purchases are therefore somewhat broader than those of the nonfirm market. Firm transactions benefit the purchaser by deferring large capital outlays associated with the acquisition of a new generating resource. They benefit the seller by sharing the output and the fixed costs of an existing resource until such time as the seller can fully utilize the resource.

Reserve Sharing

Reserve margin is generating capacity that must be available to respond to emergency conditions. Additional transmission capacity between the Northwest and Southwest would enhance the utilities' abilities to meet these reserve margin requirements by using the load and resource diversities that exist between regions. Thus, reserve sharing would benefit the utilities by optimizing the existing and future regional resources in meeting reserve margins.

Refer to Chapter 3 of this document for an expanded Purpose and Need statement and to the Purpose and Need in Chapter 1 of the SWIP DEIS/DPA.

Scoping and Project-Related Studies

Scoping Process

As required by the National Environmental Policy Act (NEPA) of 1969, the BLM, the FS, the Bureau of Reclamation, the Bureau of Indian Affairs, and the National Park Service completed numerous scoping activities. Scoping is an information-gathering process open to the public early in a project, to identify the range or scope of issues to address, in the ensuing environmental studies. Scoping served to identify significant issues to be analyzed, determine the scope with which they were to be treated in the DEIS/DPA, and eliminate issues and alternatives from detailed study where appropriate. Information from the agencies and the public received during scoping provided the basis for identifying alternative routes and developing the work plan for environmental baseline, impact assessment, and mitigation planning for the project.

Scoping activities included:

- reviewing previous studies of transmission projects in the area
- completing a regional siting study, including resource sensitivity analyses, agency contacts, and public scoping meetings
- identifying project issues
- identifying alternative transmission line routes

A Notice of Intent to prepare a DEIS/DPA for a transmission line project between Midpoint Substation, Ely, Nevada, and Delta, Utah, was published in the Federal Register on March 3, 1989 (Vol. 54, No. 41). Public scoping meetings were held during March 1989 in the following locations:

- Twin Falls, Idaho
- Wells, Nevada
- Ely, Nevada
- Delta, Utah

In April 1990, the project was expanded to include a route from the Ely, Nevada area to the Dry Lake Valley area in southern Nevada. A Notice of Intent to expand the scope of the SWIP DEIS/DPA and to tier from the White Pine Power Project EIS was published in the Federal Register on June 4, 1990. Three additional public scoping meetings were held in Las Vegas, Ely, and Caliente, Nevada during June 1990. A public information meeting was held in Moapa, Nevada during December 1990 to discuss the ongoing studies in southern Nevada.

Corridor Studies

Alternative transmission line routes were identified based on previous studies, the regional siting study, and public and agency input. Subsequently the environment was inventoried and the data were compiled along all final alternative routes. This baseline was then used in assessing project-related impacts.

Six public workshops were held in January and April 1991 in the same locations as the scoping meetings to report the results of the environmental studies, present the preliminary alternatives, and gain public input regarding the acceptability of those alternatives.

Alternatives Including The Agency Preferred Alternative

Six general alternatives were evaluated by the IPCo to meet its system needs:

- energy conservation and load management
- new generation sources
- alternative transmission systems
- alternative transmission technologies
- proposed action
- no action

The first four of these alternatives were eliminated from further consideration because they did not meet the system requirements or the stated purpose and need (refer to Chapter 2 of the DEIS/DPA).

The IPCo has developed and implemented numerous energy conservation and load management programs. Conservation, although effective in reducing energy use, cannot be considered an alternative action that would meet the stated need for the project.

The IPCo evaluated many alternative generation sources, including hydroelectric, thermal, solar, wind, cogeneration, solid waste, combustion turbine, fluidized bed, and nuclear fusion. Because these alternatives would not meet the goal of deferring new generation, providing for seasonal exchanges, diversifying fuel resources, and the other stated purposes of the project, this action was eliminated as an alternative.

The IPCo evaluated the feasibility of increasing power purchases from other utilities and wheeling power over the existing transmission system. This alternative is not considered viable because the present system is operated at capacity.

Alternative transmission technologies (e.g., voltages other than the proposed 500kV, direct current [DC] instead of alternating current [AC], underground construction, microwave, laser, super conductors, etc.) were evaluated. However, these technologies were not considered to be viable alternatives due to their substantially higher costs, increased environmental impacts, and/or technological infeasibility.

Advantages of the No-Action alternative would include preclusion of environmental impacts within the project study area and elimination of financial costs associated with construction and operation of a 500kV transmission line. The disadvantages would include environmental, socioeconomic, and electrical service impacts that would result due to other mitigating actions taken to ensure adequate and affordable energy supplies within the western electrical system.

Agency Preferred Alternative

The Agency Preferred Alternative is to allow the IPCo to construct, operate, and maintain a single-circuit, overhead 500kV transmission line between the existing Midpoint Substation near Shoshone, Idaho and a proposed substation site in the Dry Lake Valley northeast of Las Vegas, Nevada. A second transmission line segment, the Ely to Delta segment, would also connect about midway along the Midpoint to Dry Lake segment, near Ely, Nevada east to a proposed substation near Delta, Utah. Tower types on the Midpoint to Dry Lake segment would be constructed using V-guyed and self-supporting steel lattice structures, and steel pole H-Frame towers in agricultural areas. Tower types on the Ely to Delta segment would be constructed using self-supporting steel lattice structures and steel pole H-Frame for visual mitigation and in agricultural areas. The average span between towers would be approximately 1500 feet.

The Agency Preferred Alternative is to allow equipment additions to the Midpoint Substation, one proposed substation near Ely, Nevada, a proposed substation in the Dry Lake Valley in southern Nevada, and a proposed substation near Delta, Utah. Series compensation stations would also be needed about halfway between the two northern substation sites northeast of Wells, Nevada and in the Delamar Valley in southern Nevada to increase the electrical performance of the transmission system. The series compensation station near Wells, Nevada may be expanded in the future to accommodate switching equipment (i.e., substation).

A new microwave communication system to operate the system would also be required on the Midpoint to Dry Lake segment. Of the 13 microwave communication sites only two are currently undeveloped. These undeveloped sites would be developed without constructing new roads or power facilities. Helicopters would be used to construct and maintain them. Solar panels would

power the five sites with no existing power facilities. The following microwave communication sites are identified on Figure 1-1:

- Hansen Butte developed site, power supply exists
- Cottonwood undeveloped site, install solar power system
- Ellen D developed site, install solar power system
- Six Mile 1/2 mile from developed site, install solar power system
- Rocky Point developed site, power supply exists
- Spruce Mountain developed site, install solar power system
- Long Valley undeveloped site, install solar power system
- Copper developed site, power supply exists
- Cave Mountain developed site, power supply exists
- Mount Wilson developed site, power supply exists
- Highland Peak developed site, power supply exists
- Beaver Dam Mountain developed site, power supply exists
- Glendale developed site, power supply exists

An existing microwave communication system would be used on the transmission line system between Ely, Nevada, and Delta, Utah.

The Midpoint to Dry Lake segment is scheduled to begin construction in 1995 and placed into commercial operation by late 1997. The Ely to Delta segment is scheduled to begin construction in 1996 and placed into operation by late 1998.

The proposed substation in the Dry Lake area would be the southern terminus of the SWIP. In 1990 the BLM asked the IPCo to help coordinate the transmission needs of utility companies with new transmission facilities planned in southern Nevada, particularly those needing transmission access to the McCullough Substation area located south of Boulder City, Nevada. The regional utilities developed a corridor concept which would maximize the capacity of the corridor while minimizing environmental impacts. Subsequent discussions with the Nevada Power Company (NPC) and other utilities resulted in the Marketplace-Allen Transmission Project (MAT), which is planned to be proposed to the Nevada Public Utility Commission in July 1993 by NPC. This approximately 53 mile project would connect the proposed SWIP substation in the Dry Lake area to a proposed marketplace substation in the McCullough Substation area. Two high capacity 500kV transmission lines would connect the two substations of the "open marketplace". The combined capacity of over 3000 megawatts would allow utilities to interconnect at either substation and conduct transactions.

Although the MAT would be operated by NPC, several other regional utilities would likely be participants in the project. The MAT would provide a major electrical transmission path through the constricted Las Vegas area. This project would also provide capacity for NPC's internal system needs. The combined capacity rating of over 3000 MW would be possible because of the relatively short distance between the two proposed marketplace substations. The high capacity of this system would allow the planned transmission lines to connect on either end, while minimizing the number of lines through this sensitive area. The MAT is proposed to be in service in 1997.

Routing Alternatives

Final routing alternatives for the proposed line were determined through a process of documentation and elimination of alternatives with serious constraints. Alternative routes were eliminated for a number of reasons, including environmental conflicts, public and agency opposition, and system planning/performance criteria.

For routing options remaining, detailed environmental studies were conducted to form the basis for comparing those alternatives. Approximately 2000 miles of alternative routes were studied in detail. To select routing preferences, the environmental consequences of each route were summarized based on impact assessment results, environmental resource preferences, and agency and public comments. A network of routes was organized into two major routing alternatives:

- the north-south system from Midpoint Substation south to the Dry Lake Valley (the Midpoint to Dry Lake segment)
- the east-west system from Ely, Nevada to Delta, Utah (the Ely to Delta segment)

Each of these contained several routing options. The final routing alternatives are as follows:

Midpoint to Dry Lake Segment

- **Route A** - 345kV*-Thousand Springs-Goshute Valley-Steptoe-Egan Range-Dry Lake Alternative
- **Route B** - 345kV*-Trout Creek-Wendover-Steptoe-Antone Pass-Dry Lake Alternative
- **Route C** - 345kV*-Trout Creek-Goshute Valley-Steptoe-Egan Range-Dry Lake Alternative
- **Route D** - 345kV*-Wells-Steptoe-Egan Range-Dry Lake Alternative
- **Route E** - 345kV*-Thousand Springs-Wendover-Steptoe-Egan Range-Dry Lake Alternative
- **Route F** - Hagerman-Trout Creek-Goshute Valley-Egan Range-Dry Lake Alternative
- **Route G** - 345kV*-Cottonwood Creek-Thousand Springs-Goshute Valley-Steptoe-Egan Range-Dry Lake Alternative
- **Utility Preferred Alternative** - 345kV*-Cottonwood Creek-Thousand Springs-Goshute Valley-Steptoe-Egan Range-Dry Lake Alternative
- **Agency Preferred Alternative** - 345kV*-Cottonwood Creek-Thousand Springs-Goshute Valley-Steptoe-Egan Range-Dry Lake Alternative

(* - 345kV refers to the SWIP alternative being parallel to the Midpoint to Valmy 345kV transmission line)

Ely to Delta Segment

- **Delta Direct Route**
- **Cutoff Route**
- **230kV Corridor Route (Agency Preferred Alternative and Utility Preferred alternative)**
- **Southern Route**

Affected Environment

The climate of eastern Nevada, southern Idaho, and western Utah is influenced largely by location, regional weather systems, and topographic orientation. The climate throughout much of this area is characterized by hot, dry summers followed by cold, dry winters. Surface winds are channeled through valleys between generally north-south trending mountain ranges. Winds flow predominately in northeasterly or southwesterly directions. Annual precipitation depends largely on elevation. Precipitation occurs primarily in the form of snow at higher elevations during the winter months. The snows maintain high water tables and provide groundwater recharge. Some additional precipitation occurs from thunderstorms produced by daytime heating of air masses in valleys.

Northern segments of the SWIP, within southern Idaho and northeastern Nevada, are in the Snake River Plain section of the Columbia Plateau physiographic province. This section is a vast, relatively flat plain and young lava plateau, which is deeply dissected by the canyons of the Snake River and Salmon Falls Creek, the dominant landscape features within this area. Irrigated agricultural lands, this area's main land use, are found clustered north and south along the Snake River.

To the south, on the Snake River Plain, agricultural areas extend to bordering foothills and mountains in a transitional landscape between the Basin and Range and Columbia Plateau province. This transitional landscape includes foothills, plateaus, mesas, and buttes formed of eroded lava and sedimentary rock layers.

The majority of northeastern and southern Nevada and western Utah, falls within the Basin and Range physiographic provinces. Topographically, this landscape is distinguished by isolated, roughly parallel mountain ranges separated by closed (undrained) desert basins or playas. The mountain ranges often run 50 to 75 miles in length and are generally north-south trending. Surrounding the base of the mountains and extending into the basins, there are often distinctive alluvial areas.

Portions of western Utah also include a transition zone of the Basin and Range province into what is locally referred to as the "West Desert" landscape. This landscape includes portions of the Sevier Desert and Sevier Lake. The topography within this area is extremely flat and includes large playas or mud flat areas, that exhibit little landform diversity. Again, these areas are divided by rugged, rocky mountain ranges.

Earth resource features that have a high sensitivity are landslide hazard areas, areas of high paleontological sensitivity, soils with either a high wind erosion or high water erosion hazard, areas of active mining, perennial streams and lakes, springs, and wetland areas. Significant

paleontological resources are found at the Hagerman Fossil Beds National Monument near Hagerman, Idaho.

Twelve vegetative communities have been identified in the SWIP study corridors, including shadscale, greasewood, samphire-iodine bush, Great Basin sagebrush, Mojave desertscrub, grassland, wetlands, riparian areas, piñon-juniper, alpine tundra, limber/bristlecone pine, and quaking aspen. These vegetation types support a large variety of mammals, birds, amphibians, and reptiles.

Approximately 560 species of vertebrates are likely to occur, over the course of a year in habitats traversed by the alternative routes.

Seventy species of fish are known to occur within aquatic habitats within the study corridors. Native and introduced game fish are present in warm and cold water lakes, ponds, and reservoirs, and in perennial streams and rivers. Others inhabit hot and cold springs and marshes. Approximately 31 percent of the fish fauna occupying waters within the study corridors are introduced.

Fifteen species of amphibians are expected to occur in aquatic, riparian, and wetland habitats in the study corridors. Sixty-two species of reptiles potentially occur in terrestrial habitats within study corridors.

A total of 111 species of mammals are expected to occur within habitats traversed by alternative routes. Small mammals including rodents, lagomorphs (rabbits and hares), bats, and shrews are the most numerous, although not readily observed. Nearly half of the mammals that may occur within the study corridors are rodents (51 species). Large mammals include 19 species of carnivores (e.g., lynx, wolverine, etc.) and five species of native ungulates (e.g., antelope, mule deer, bighorn sheep).

Free roaming horses (*Equus caballus*) and burros (*E. asinus*) occur on public lands in the study corridors. These animals are descendants of horses and burros that escaped from man or were turned out onto the open range.

In recent years, dramatic declines in tortoise population numbers have been observed throughout much of its range, including southern Nevada. A number of factors have contributed to the observed decline, including loss of habitat to development, degradation of habitat from livestock grazing, disease, predation on juveniles by ravens attracted to areas where human refuse accumulates, illegal collection, and off-road vehicle use. The Mojave population of the desert tortoise was formally listed as a federally threatened species by the United States Department of Interior Fish and Wildlife Service in April 1990. Concern has been expressed for the maintenance of viable populations in Clark County, Nevada, and especially the Las Vegas Valley where rapid commercial and residential development is occurring.

Declines in sage grouse numbers are largely associated with destruction of sagebrush habitat. Conversion of sagebrush to agricultural lands, and attempts to convert sagebrush areas to grassland for livestock grazing are a few of the human developments contributing to the decrease in grouse numbers.

The majority of the lands crossed by the alternative routes are used for cattle grazing and are classified as rangeland. Other significant uses within the study corridors include agriculture, mining, airports and airstrips, utilities, commercial, governmental and other industrial facilities. Residences near urban areas and in remote locations, both occupied and unoccupied are located within the study

corridors. Principal urban areas or residential concentrations in or near the study corridors include the following:

- Hagerman, Eden, and Hansen in Idaho
- Wells, Ely, Currie, Jackpot, Oasis, Baker, and McGill in Nevada
- Delta, Eskdale, and Hinckley in Utah

Several alternative routes in Utah and Nevada could potentially affect military aircraft operations at Hill Air Force Base in Utah and Nellis Air Force Base in southern Nevada.

Approximately half of the lands crossed by the study corridors in Idaho fall into the category of agriculture. The high-desert lands of the Snake River Valley are fertile and productive when irrigated. Many of the lands crossed in Idaho are classified as prime or important farmland by the Soil Conservation Service.

Dispersed recreation occurs throughout these areas in Nevada, Idaho, and Utah. Developed campsites and recreation areas are usually located along perennial streams or reservoirs. Great Basin National Park, near Baker, Nevada is passed by several of the alternative Ely to Delta segment routes. Several wilderness study areas (WSAs) inventoried within the study corridors include portions of Salmon Falls Creek WSA in Idaho and 14 WSAs in Nevada including South Pequop, Bluebell, Goshute Peak, Goshute Canyon, Marble Canyon, Mount Grafton, Fortification Range, Delamar Mountains, Evergreen, Meadow Valley Mountains, Fish and Wildlife 1, 2 & 3, and Arrow Canyon. WSAs within Utah include Howell Peak, King Top, Notch Peak, Fish Springs, Wah Wah Mountains, and Swasey Mountain.

Cultural resources are historic and traditional cultural properties that reflect our nation's heritage. Federal regulations define such historic properties to include prehistoric and historic sites, buildings, structures, districts, and objects included in, or eligible for inclusion in the National Register of Historic Places, as well as artifacts, records, and remains related to such properties. These regions of Nevada, Idaho, and Utah have been occupied for thousands of years. This section briefly summarizes what is known about this long history of human use of the region. More details are provided in this document and in the technical reports (Rogge 1991).

Prehistory - The project area overlaps portions of two culture areas, the Great Basin and the Colorado Plateau, but the vast majority of the project area is within the "cultural," if not the geographic, Great Basin. The extreme southern portion is along the western margin of the Colorado Plateau. Within the study area three prehistoric cultural stages, Paleo-Indian, Archaic, and Formative are represented and local phases or variations within each stage have been defined.

Ethnohistory - During the ethnohistoric era, these regions of Nevada, Idaho, and Utah were occupied by the Northern Shoshone, Bannock, Western Shoshone, Pahvant Ute, and Southern Paiute. Generally speaking, the Northern Shoshone and Bannock inhabited the study corridors in southern Idaho. The Western Shoshone ranged through eastern Nevada and northwestern Utah. The central portion of Utah was occupied by the Pahvant Ute while the Southern Paiute inhabited southwestern Utah and southern Nevada.

History - After the arrival of Europeans in the New World, portions of the study corridors were claimed by Spain, Great Britain, France, Mexico, and Canada, as well as the United States. The earliest European exploration was led by Escalante who skirted the eastern margin of the study area in Utah. After the famous Lewis and Clark Expedition to the Pacific Coast in 1804-1806, fur

trappers and mountain men were lured to the Rocky Mountains until the decline of fur trading in about 1840.

Environmental Consequences

The consequences, or impacts, to the environment caused by implementing the SWIP were assessed by considering the existing condition of the environment and the effects of the activities of the SWIP (construction, operation, and maintenance) on the environment. The "initial" impacts were evaluated to determine if mitigation measures would be effective in lessening the impacts. Those impacts remaining after mitigation measures were applied are referred to as "residual" impacts. Many of the identified impacts would be considered to be adverse, direct, and long-term. Some impacts (e.g., visual, cultural, and biological impacts) would be considered adverse, indirect, and long-term.

The principal type of impacts associated with earth resources is the potential for increased erosion hazards, although some short-term soil compaction impacts could occur in agricultural areas and some stream sedimentation could also occur at the crossings of perennial streams.

Typical impacts to biological resources include effects on threatened, endangered, or protected species, rare or unique vegetation types, migration corridors for wildlife, areas of low revegetation potential, or highly productive wildlife habitat. The impacts would generally be associated with the removal of vegetation and habitat cause by construction and operation activities, and from human activity from more access into remote areas. The presence of the transmission towers would increase the potential for long-term predation of sage grouse by golden eagles on adult and immature birds. Adding towers also would provide roost/hunting sites for ravens and magpies, thus increasing the long-term potential for predation on grouse nests.

Land use impacts include those that would displace, alter, or otherwise physically affect any existing or planned residential, commercial, or industrial use or activity, any agricultural use, or any recreational, preservation, educational, or scientific facility or use. Few land use impacts would occur from the construction of the SWIP, although the impacts that would occur would be long-term.

Potential socioeconomic effects could include construction-period impacts to area communities, social and economic impacts along the selected route, and fiscal impacts within local jurisdictions. These effects could be both adverse and beneficial.

Visual impacts would be considered adverse, indirect, and long-term. They include effects to the quality of any scenic resource, the view from any residential or other sensitive land use or travel route, or the view from any recreation, preservation, education, or scientific facility. Potential visual impacts to existing and proposed sensitive viewpoints for Great Basin National Park are a concern. Other visual impacts would be generally associated with residential concentrations or dispersed homes, scenic roads and highways, and recreation viewpoints, including wilderness areas and WSAs.

Direct, adverse physical impacts could occur to cultural resources during construction, while indirect impacts could result after construction due to increased erosion or increased public access to sites

along the transmission line right-of-way. Adverse visual effects may occur to sites with high aesthetic or interpretive values.

Potential electrical, biological, health and safety effects from the Agency Preferred Alternatives were assessed. These include corona effects, electric and magnetic field effects, and public safety.

The Stateline Resource Area is currently preparing a Resource Management Plan (RMP) which would designate utility corridors. The RMP corridor studies and the SWIP EIS studies have been coordinated, and the preferred alternatives are similar. The Federal Land Policy and Management Act of 1976 mandates to the extent practical that the BLM consolidate future utility projects within the corridor that is established.

Public Issues and Management Concerns

Need for Project - The public and agencies expressed a concern about the need for the project.

Maximize Use of Public Lands - One of the major public comments was utilizing public lands for routing the transmission line since the line would offer no direct benefit to private landowners and would also interfere with agricultural operations.

Visual Impacts - The study area is characterized by relatively open, uninterrupted views with minimal overstory vegetation cover. Significant concern is expressed over the views from the parks, recreation, residence, and preservation areas, views from highways, scenic routes, sensitive cultural sites, and impacts affecting inherent aesthetic value of the landscape.

Minimize Impacts to Biological Resources - There is a wide variety of both vegetation and wildlife in the project area. A total of twelve vegetation communities were identified within the SWIP study corridors with 73 plant species identified as sensitive on the state and/or federal level. Wetlands do occur in the project area, but would be avoided. Within the project area, there are 560 species of vertebrates, 111 species of mammals, 15 species of amphibians, and 70 species of fish. Issues for wildlife species and important wildlife habitats are related primarily to increased public access into remote areas and/or ground disturbance. Ground disturbance caused by construction of the transmission line could result in habitat loss and destruction. Increased public access may result in more harassment for all wildlife. There is considerable public concern regarding the tortoise hatchlings falling prey to ravens, and raptors colliding with transmission lines.

Cultural Resources - The project area has been occupied for thousands of years, and contains a long history of human use. Thousands of cultural sites have been recorded, but only a few have been formally inventoried. The public and agencies are aware of the archeological sites and are concerned that many of these sites would be impacted due to construction and increased accessibility.

Health and Safety - In recent years there has been growing public concern over the possible effects that electromagnetic fields (EMF) could have on human health. Some studies have shown a statistical association between EMF and certain diseases, while other studies have failed to show this relationship. Ongoing research into EMF has detected no cause-and-effect relationship between EMF and disease. While EMF can produce biological effects, it is unclear whether these effects

would be of any consequence to human health. Please refer to Chapter 3 of this document for a discussion of recent EMF research results.

Wilderness/Wilderness Study Areas (WSAs) - One wilderness area and a number of WSAs are found in or near the study corridors for the SWIP. The agencies and the public are concerned about the presence of the transmission line on adjacent lands potentially affecting the designation of WSAs as wilderness.

Minimize Land Use Impacts - The primary issues associated with the construction of the transmission line would be expected to occur from conflicts with the land uses found throughout the project area (i.e., agricultural lands, irrigation systems, airport clear zones, residences, and planned development).

Use Existing Transmission Line Corridors - Both the public and agencies expressed a desire to locate the transmission line along existing transmission corridors, wherever possible, to minimize environmental impacts.

Property Values and Compensation - Private property owners expressed a concern for a decrease in the monetary value of their property as a result of the proposed transmission line, and whether or not they would receive adequate compensation for property loss.

Effects of Alternatives on Agency Land Management Plans - The BLM plans and designates corridors for linear utility use. Portions of the Agency Preferred Alternatives (Midpoint to Dry Lake segment and Ely to Delta segment), evaluated along with other alternatives in the SWIP DEIS/DPA and in this document, would not follow designated or planning utility corridors. Several BLM resource management plans would be amended by approval of this document (refer to Proposed Plan Amendments in Chapter 1).

Route Comparisons

The comparative environmental consequences are summarized below for each of the final alternative routes. This summary compares only a few of the many resources evaluated. For a complete comparison, see Table 1-1 and 1-2 in this document.

Midpoint to Dry Lake Segment

- Route A:
- crosses 131.1 miles within Military Operating Areas (MOAs) of Hill and Nellis Air Force Bases
 - crosses 35.2 miles of sage grouse leks and wintering range
 - crosses 15.3 miles of bald eagle habitat
 - crosses 53.2 miles of desert tortoise habitat
 - crosses 1.3 miles near ferruginous hawk nests
 - crosses 24.1 miles of crucial pronghorn habitat
 - crosses 39.0 miles of potential high water erosion soils
 - crosses 58.8 miles of potential high wind erosion soils
 - 370.4 miles in designated or planning corridor
 - 142.6 miles outside designated or planning corridor
 - crosses 18.4 miles of predicted high sensitivity cultural zones
 - crosses 95.2 miles of private land
- Route B:
- crosses 182.9 miles within MOAs of Hill and Nellis Air Force Bases
 - crosses 36.8 miles of sage grouse leks and wintering range
 - crosses most (32.8) miles of bald eagle habitat
 - crosses 53.2 miles of desert tortoise habitat
 - crosses 1.4 miles near ferruginous hawk nests
 - crosses least (7.2) miles of crucial pronghorn habitat
 - crosses most (53.1) miles of potential high water erosion soils
 - crosses 58.9 miles of potential high wind erosion soil
 - 363.1 miles in designated or planning corridor
 - 153.0 miles outside designated or planning corridor
 - crosses 19.3 miles of predicted high sensitivity cultural zones
 - crosses 97.3 miles of private land
- Route C:
- crosses 131.1 miles within MOAs of Hill and Nellis Air Force Bases
 - crosses 30.7 miles of sage grouse leks and wintering range
 - crosses 16.3 miles of bald eagle habitat
 - crosses 53.2 miles of desert tortoise habitat
 - crosses 1.3 miles near ferruginous hawk nests
 - crosses 16.2 miles of crucial pronghorn habitat
 - crosses 44.4 miles of potential high water erosion soils
 - crosses 58.8 miles of potential high wind erosion soils
 - 337.0 miles in designated or planning corridor
 - 169.9 miles outside designated or planning corridor
 - crosses 17.2 miles of predicted high sensitivity cultural zones
 - crosses 104.6 miles of private land

- Route D:
- crosses 129.5 miles within MOAs of Nellis Air Force Bases
 - crosses 34.1 miles of sage grouse leks and wintering range
 - crosses least (5.8) miles bald eagle habitat
 - crosses 53.2 miles of desert tortoise habitat
 - crosses 1.3 miles near ferruginous hawk nests
 - crosses 34.9 miles of crucial pronghorn habitat
 - crosses least (35.5) miles of potential high water erosion soils
 - crosses 52.1 miles of potential high wind erosion soils
 - 377.1 miles in designated or planning corridor
 - 136.4 miles outside designated or planning corridor
 - crosses 20.5 miles of predicted high sensitivity cultural zones
 - crosses 98.7 miles of private land
- Route E:
- crosses 182.9 miles within MOAs of Hill and Nellis Air Force Bases
 - crosses 36.3 miles of sage grouse leks and wintering range
 - crosses 18.2 miles of bald eagle habitat
 - crosses 53.2 miles of desert tortoise habitat
 - crosses 1.3 miles near ferruginous hawk nests
 - crosses 18.6 miles of crucial pronghorn habitat
 - crosses 48.6 miles of potential high water erosion soils
 - crosses 64.3 miles of potential high wind erosion soils
 - 365.6 miles in designated or planning corridor
 - 158.1 miles outside designated or planning corridor
 - crosses 18.4 miles of predicted high sensitivity cultural zones
 - crosses 88.5 miles of private land
- Route F:
- crosses 131.1 miles within MOAs of Hill and Nellis Air Force Bases
 - crosses 32.8 miles of sage grouse leks and wintering range
 - crosses 16.3 miles of bald eagle habitat
 - crosses 53.2 miles of desert tortoise habitat
 - crosses 1.3 miles near ferruginous hawk nests
 - crosses 16.5 miles of crucial pronghorn habitat
 - crosses 47.8 miles of potential high water erosion soils
 - crosses most (73.3) miles of potential high wind erosion soils
 - least (329.1) miles in designated or planning corridor
 - most (194.9) miles outside designated or planning corridor
 - crosses least (11) miles of predicted high sensitivity cultural zones
 - crosses most (115.6) miles of private land
 - visual impacts to Hagerman Fossil Beds National Monument
 - impacts airstrip used by agricultural spraying operations
- Route G:
- crosses 131.1 miles within MOAs of Hill and Nellis Air Force Bases
 - crosses 40.6 miles of sage grouse leks and wintering range
 - crosses 19.6 miles of bald eagle habitat
 - crosses 53.2 miles of desert tortoise habitat
 - crosses 1.4 miles near ferruginous hawk nests
 - crosses 39.7 miles of crucial pronghorn habitat
 - crosses 36.4 miles of potential high water erosion soils
 - crosses 46.7 miles of potential high wind erosion soils
 - most (379.4) miles in designated or planning corridor

- least (125.3) miles outside designated or planning corridor
- crosses most (20.6) miles of predicted high sensitivity cultural zones
- crosses 85.3 miles of private land
- reduces visual impacts to U.S. Highway 93

Utility:

- crosses 131.1 miles within MOAs of Hill and Nellis Air Force Bases
- crosses most (42.2) miles of sage grouse leks and wintering range
- crosses 19.6 miles of bald eagle habitat
- crosses 53.2 miles of desert tortoise habitat
- crosses 1.4 miles near ferruginous hawk nests
- crosses 39.7 miles of crucial pronghorn habitat
- crosses 36.4 miles of potential high water erosion soils
- crosses least (44.1) miles of potential high wind erosion soils
- 376.3 miles in designated or planning corridor
- least (125.3) miles outside designated or planning corridor
- crosses 20.5 miles of predicted high sensitivity cultural zones
- crosses 87.0 miles of private land
- reduces visual impacts to U.S. Highway 93

Agency
Preferred
Alternative:

- crosses 146.6 miles within MOAs of Nellis Air Force Bases
- crosses 37.2 miles of sage grouse leks and wintering range
- crosses 6.0 miles of bald eagle habitat
- crosses 53.2 miles of desert tortoise habitat
- crosses 1.3 miles near ferruginous hawk nests
- crosses most (43.2) miles of crucial pronghorn habitat
- crosses 37.3 miles of potential high water erosion soils
- crosses least (49.5) miles of potential high wind erosion soils
- 370.4 miles in designated or planning corridor
- 132.7 miles outside designated or planning corridor
- crosses 18.4 miles of predicted high sensitivity cultural zones
- crosses least (83.1) miles of private land
- reduces visual impacts to U.S. Highway 93

Ely to Delta Segment

Direct Route:

- crosses 55.1 miles within R-6405 Restricted Area
- crosses 130 miles within restricted air space and MOAs of Utah Testing and Training Range (UTTR)
- crosses 7.9 miles of sage grouse leks and wintering range
- crosses 7.0 miles of bald eagle habitat
- does not cross ferruginous hawk nesting areas
- crosses least (56.5) miles of crucial pronghorn habitat
- crosses least (6.8) miles of potential high wind erosion soils
- least (14.3) miles in designated or planning corridor
- 115.8 miles outside designated or planning corridor
- crosses least (0.8) miles of predicted high sensitivity cultural zones
- crosses least (0.0) miles of private land

- shortest route and crosses least public and private land
- avoids visual impacts to Great Basin National Park
- crosses wetlands known as the Leland-Harris Spring Complex

Cutoff Route:

- crosses 104.2 miles within MOAs of UTTR
- crosses 6.8 miles of sage grouse leks and wintering range
- crosses 8.4 miles of bald eagle habitat
- does not cross ferruginous hawk nesting areas
- crosses 70.1 miles of crucial pronghorn habitat
- crosses 12.7 miles of potential high wind erosion soils
- 75.5 miles in designated or planning corridor
- 78.4 miles outside designated or planning corridor
- crosses least (0.8) miles of predicted high sensitivity cultural zones
- crosses least (0.0) miles of private land
- insignificant visual impacts to viewpoints within Great Basin National Park

230kV Corridor
Route:
(Agency Preferred
Alternative)

- crosses 102.5 miles within MOAs of UTTR
- crosses 7.1 miles of sage grouse leks and wintering range
- crosses most miles (17.8) of bald eagle habitat
- crosses 4.5 miles of ferruginous hawk nests
- crosses 71.5 miles of crucial pronghorn habitat
- crosses 19.2 miles of potential high wind erosion soils
- most (145.9) miles in designated or planning corridor
- least (14.9) miles outside designated or planning corridor
- crosses most (8.0) miles of predicted high sensitivity cultural zones
- crosses (10.2) miles of private land
- utilizes existing 230kV corridor
- crosses most private and national forest lands
- insignificant visual impacts to viewpoints within Great Basin National Park

Southern Route:

- crosses least amount of MOAs of UTTR
- crosses 11.8 miles of sage grouse leks and wintering range
- does not cross bald eagle habitat
- crosses the most (10.1) miles of ferruginous hawk nests
- crosses most (85.7) miles of crucial pronghorn habitat
- crosses most miles (40.0) miles of potential high wind erosion soils
- 49.5 miles in designated or planning corridor
- most (161.5) miles outside designated or planning corridor
- crosses 6.0 miles of predicted high sensitivity cultural zones
- crosses (1.6) miles of private land
- highest overall environmental impacts
- longest route

Preferred Alternative Selection

Based upon review of potential impact characterizations, significant, unavoidable adverse effects, agency and public comments, and cumulative environmental consequences of the alternative routes, the preferred routes were identified (refer to Identification of Preferred Alternatives in Chapter 2 in the DEIS/DPA and page 1-9 of this document).

Route A is the Environmentally Preferred Route for the Midpoint to Dry Lake segment. The least impact route on the Ely to Delta segment is the Cutoff Route, however the 230kV Corridor Route would cause similar environmental impacts and would be environmentally acceptable. Because of the utilities future need to interconnect with the 230kV system in the Ely area, the potential cumulative environmental effects from the Cutoff Route would be more significant than the cumulative effects from the 230kV Corridor Route (refer to the Cumulative Effects section in Chapter 3 of this document). Therefore, because the 230kV Corridor Route would likely cause fewer future cumulative effects in the Ely area, this route is environmentally preferred.

The Agency Preferred Alternative for the Midpoint to Dry Lake segment is a combination of Route A and Route G. The Agency Preferred Alternative for the Ely to Delta segment is the 230kV Corridor Route. The Agency Preferred Alternative substation sites include: Site #4 of the Thousand Springs siting area, Site #10 of the Robinson Summit siting area, Site #14 of the Intermountain siting area and in the Dry Lake siting area, all of the potential substation sites are environmentally acceptable and will be determined through the analysis of the Marketplace-Allen Transmission Project. The Agency Preferred Alternative proposes to construct microwave communication facilities at Hansen Butte, Cottonwood, Ellen D, Six Mile, Rocky Point, Spruce Mountain, Long Valley, Copper, Cave Mountain, Mount Wilson, Highland Peak, Beaver Dam Mountain, and Glendale.

The IPCo prefers the Agency Preferred Alternative route for the Midpoint to Dry Lake segment with two important modifications:

- prefer Link 102 over Links 715 and 713 near Contact, Nevada
- prefer Link 280 over Link 291 north of the Robinson Summit Substation site

The Utility Preferred Route on the Ely to Delta segment is the 230kV Corridor Route.

The significant, unavoidable adverse effects of the Agency Preferred Alternative involve biological, visual, and cultural resources only, as summarized below:

<u>Resource Category</u>	<u>Significant Unavoidable Adverse Impacts</u>
Biological Resources	On the routes between Midpoint Substation and Dry Lake, Route A would potentially cross 3.2 miles of riparian habitat (although none is actually expected to be disturbed), 52.1 miles of sensitive desert tortoise habitat, and 35.2 miles of sage grouse leks and wintering range. Route G would potentially disturb 4.8 miles of riparian habitat, a similar disturbance to desert tortoise, and 40.6 miles of sage grouse leks and wintering range.

Resource Category

**Significant Unavoidable
Adverse Impacts**

On the Ely and Delta segment, the Cutoff Route would potentially cross 1.2 miles of riparian habitat (although none is actually expected to be disturbed) and 6.8 miles of sage grouse leks and wintering range. The 230kV Corridor Route would potentially disturb 0.9 miles of riparian habitat and 7.1 miles of sage grouse leks and wintering range.

Although riparian areas and desert tortoise are significant issues, the impacts would be largely mitigated. Impacts to sage grouse habitat would be significant where there are no existing transmission lines.

Visual Resources

On the Midpoint Substation and Dry Lake segment, Route A would potentially result in 13.5 miles of significant impacts to the area's visual resources. Significant impacts are predicted to approximately 83 residences within one mile of the route, and to one scenic highway. The route would cross 7.3 miles of the BLM and the FS lands managed to retain visual quality (VRM Class II and VQO Retention, respectively). Route G would potentially result in 14.7 miles of high impacts to the area's visual resources. Impacts are predicted to approximately 93 residences within one mile of the route, and to one scenic highway crossed.

On the Ely and Delta segment, the Cutoff Route would potentially result in 1.2 miles of significant impacts to the area's visual resources. Significant impacts are predicted to 2 residences within one mile of the route. The 230kV Corridor Route would potentially result in 7.3 miles of high impacts to the area's visual resources. Impacts are predicted to approximately 26 residences within one mile of the route.

Cultural Resources

On the routes between Midpoint Substation and Dry Lake, Route A would potentially result in 6.8 miles of significant impacts to cultural resources. Among the 454 sites identified within one mile, 53 are historic, 13 are ethnohistoric, and 388 are prehistoric. Route G would potentially result in 7.3 miles of significant impacts to cultural resources. Among the 474 sites identified within one mile, 61 are historic, 14 are ethnohistoric, and 399 are prehistoric.

On the Ely to Delta segment, the Cutoff Route would potentially result in 4.6 miles of significant impacts to cultural resources. Among the 39 sites identified within one mile, 5 are historic, 8 are ethnohistoric, and 26 are prehistoric. The 230kV Corridor Route would potentially result in 5.5 miles of significant impacts to cultural resources. Among the 100 sites identified within one mile, 12 are historic, 8 are ethnohistoric, and 80 are prehistoric.