

GILA BEND TO HIGHLAND 500 kV ROUTING & FEASIBILITY

NRG ENERGY
MINNEAPOLIS, MINNESOTA
MR. ROD LEAS

PROJECT COST: \$174,000,000
COMPLETION DATE: 2001
PHONE: (651) 653-6698

PROJECT DESCRIPTION

ECI was retained by NRG Energy's corporate headquarters in Minneapolis, Minnesota, as well as the project support office in San Diego, California to perform feasibility assessment for a new 500 kV transmission line from Palo Verde, Arizona to a terminus that would allow marketing of energy to California and Mexico. At the time of ECI's services in 2001, NRG had expended the five preceding years on a wide variety of pre-development alternatives, including initial feasibility, preliminary routing, preliminary environmental assessment and power supply negotiation. Key markets for energy to be transmitted over this project are to the Cetys, Mexico, as well as utilities throughout southern California. ECI's responsibilities were to conduct and independent review of project feasibility, cost and schedule for the Gila Bend to Highland Transmission (GBH) project. Project need had been previously reviewed by several planning committees, including the Western Area Transmission System group (WATS) and the Central Arizona Transmission System group (CATS).

ECI's activities to perform the technical review of this project included, but were not limited to the following:

- ❑ Field review of the proposed line route and constructability assessments
- ❑ Electrical system load flow evaluation used in conjunction with the planning to develop facility costing and technical viability
- ❑ Preparation of exhibits showing line routing and transmission facility characteristics
- ❑ Development of 500 kV switchyard General Arrangements
- ❑ Development of a highly detailed CPM schedule for engineering, studies project approvals, procurement, construction, startup and testing

In addition to the above responsibilities, and as a consequence of the familiarity of Mr. Jim Cloud, a member of the Project Team on the Gila Bend Power Partners project, Mr. Cloud was assigned the responsibilities for right-of-way acquisition activities for this project. Focus of the right-of-way activities were approximately 138 miles of route from Gila Bend to Yuma, Arizona. In addition to the right-of-way issues, a variety of other technical and construction issues were also coordinated by the Project Team. These included the proposed 500 kV transmission tower swap at the Colorado River due to right-of-way constraints, preliminary engineering and project support required by the APS Planning and Transmission Project Groups.

A follow-up report was presented to NRG, complete with technical assessments for facilities, including update of

KEY FACTS & HIGHLIGHTS

- ◆ **500 kV LINE ROUTING ASSESSMENT**
- ◆ **R/W SERVICES**
- ◆ **CONSTRUCTABILITY REVIEWS**
- ◆ **SUPPORT OF ENVIRONMENTAL PROCESSES**

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existing 500 kV line series compensation facilities. Total estimated cost of the project was \$174M. Initially, costs were broken into Phase I related duties such as final permitting and Phase II for the engineering, construction, construction management and testing services. The study presented cash flow by quarter for a 36-month development period. Key ECI Team Members included Mr. Dick McComish, Mr. Dave Anderson and Mr. Gary Bowles.



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