



Memorandum

To: ISO Grid Reliability/Operations Committee
From: Kellan Fluckiger, Chief Operations Officer
Armando J. Perez, Director of Grid Planning
CC: ISO Board; ISO Officers
Date: May 11, 2000
Re: ***SDG&E Valley-Rainbow 500 KV Project***

This memorandum requires Board action.

EXECUTIVE SUMMARY

As an extension to the San Diego Gas & Electric (SDG&E) 1999 Annual Grid Planning Assessment, a stand-alone study was recently completed by SDG&E in response to reliability problems identified in the 1999 Assessment beginning in the year 2004. Violations to the ISO Grid Planning Criteria (Criteria) are expected to occur in 2004 as a result of serving the increasing load demand in San Diego County and southern Orange County. The objective of the study was to identify and recommend the preferred transmission solution that could be placed in service by June 2004 and serve the load demand while meeting the Grid Planning Criteria. The study was conducted in an open stakeholder process that included three stakeholder meetings on February 25, April 17 and May 1 to discuss study findings and elicit stakeholder comments.

The study assessed four 500 kV transmission alternatives. The selection of the preferred alternative was based on an evaluation of technical performance, plan of service costs and lead-time requirements. The cost of some externalities were factored into the overall cost estimates as a "cost risk factor" based on engineering judgement and past experience, since actual externality costs cannot be accurately ascertained a priori. These externalities included right-of-way routing alternatives and equipment selection options. SDG&E provided cost information solely to ISO Management under a confidentiality agreement.

Results of the 500 kV Study indicated that the preferred 500 kV transmission project is a transmission line between Edison's existing Valley Substation and a new SDG&E substation at either the Rainbow or Pala site in northern San Diego County. This "Valley-Rainbow" 500 kV Project is expected to meet the near-term reliability requirements from 2004 through 2008. Additional 500 kV transmission reinforcements would be required to meet the long-term reliability requirements beginning in the 2008 time frame. ISO Management believes a "stage 2" study should soon commence to determine the next preferred long-term transmission project to serve the San Diego area.

SDG&E issued a formal report entitled "Valley-Rainbow Interconnection Project Feasibility Study Report" (Report), which documents the 500 kV Study. This Report has been posted on the ISO web site and is provided in **Attachment A**. After its review, ISO Management sent a letter of findings on the Report to SDG&E, which is provided in **Attachment B**. Concurring with SDG&E's recommendation that the near-term preferred transmission

alternative is the Valley-Rainbow 500 kV Project and in accordance with the Board's direction that projects over \$20 million be approved by the Board, ISO Management is presenting the following motion for board approval.

Move that the Committee recommend that the Board of Governors approve:

- ***the Valley-Rainbow 500 kV Project (without regard to routing) as the preferred near-term transmission alternative to address the identified reliability concerns on the San Diego & southern Orange County portion of the ISO grid beginning in 2004 and direct SDG&E to proceed with design and licensing activities for the project.***
- ***the application of a competitive solicitation process to allow non-wires alternatives to compete with the Valley-Rainbow 500 kV Project to mitigate the identified reliability problems and development of a cost recovery mechanism that would not impinge on SDG&E transmission rates. Because of the transitional nature for the Project, the ISO will support FERC moving away from recovery of 50% towards 100% of abandoned project costs, and specifically will support SDG&E in its case to recover reasonably incurred costs prior to and during the solicitation process if the Valley-Rainbow 500 kV Project is not chosen as the preferred alternative.***
- ***the commencement of a "stage 2" 500 kV Study by SDG&E to identify the preferred long-term transmission alternative for the next stage of expansion after Valley-Rainbow to address the reliability concerns on the San Diego & southern Orange County ISO grid.***

BACKGROUND

Each year, the PTO's file with the ISO a transmission expansion plan covering a minimum five-year period. Results of the SDG&E 1999 Annual Assessment indicated that multiple violations to the ISO Grid Planning Criteria (Criteria) would begin to occur in 2004 as a result of serving the increasing load demand in San Diego County and southern Orange County. To serve the increasing demand while meeting the Criteria in years prior to 2004, SDG&E had successfully employed the simpler, lower cost and shorter lead-time mitigation measures involving reinforcement of 230 kV and lower voltage grid facilities. However, prompted by previous studies, SDG&E acknowledged that any meaningful gains realized by reinforcing the existing 230 kV grid had been exhausted. Owing to the realization that to mitigate the reliability problem would require 500 kV facilities and a major study effort, SDG&E began a separate study as an extension of the 1999 Annual Assessment earlier this year. The objective of the study was to identify and recommend the preferred 500 kV transmission project that could be placed in service by June 2004 and serve the load demand while meeting the Criteria. The study was conducted in an open stakeholder process that included three stakeholder meetings on February 25, April 17 and May 1 to discuss study findings and elicit stakeholder comments.

The study assessed four 500 kV transmission alternatives. The selection of the preferred alternative was based on an evaluation of technical performance, plan of service costs and lead-time requirements. The cost of some externalities were factored into the overall cost estimates as a "cost risk factor" based on engineering judgement and past experience, since final externality costs cannot be accurately ascertained a priori. These externalities included right-of-way routing alternatives and equipment selection options. Results of the study indicated that the preferred 500 kV transmission project is a relatively short (i.e. 30-40 miles) transmission line between Edison's existing Valley Substation and a new SDG&E substation at either the Rainbow or Pala site in northern San Diego County near the border with Riverside County. If a decision is made to pursue the Project, a "Phase 2" study will begin to further refine the plan of service and comply with WSCC transmission rating procedures.

The plan of service for this "Valley-Rainbow" 500 kV Project (Project) also includes 230 kV transmission reinforcements to deliver power from Rainbow (or Pala) 500 kV Substation into the SDG&E grid, power control equipment, and voltage support facilities. Based on a 1-in-10 year weather adjusted load forecast, this Project would serve load growth while meeting the Criteria through 2008 depending on whether or not it is acceptable to employ load shedding to meet the Criteria under the combined contingency of a single generator and a single transmission line. Based on the recently ISO Board approved "Interim California ISO Principles Toward the Application of Involuntary Planned Load Interruption," involuntary load interruptions should not be used to meet the Criteria for the combined contingency of a single generator and a single transmission line unless the ISO Board decides that the capital project alternative is not cost effective. This decision would need to be made when subsequent projects are brought before the ISO Board to serve increasing demand while meeting reliability in the 2006+ time frame.

In recognition of the long lead time (6-10 years) necessary to complete any of the anticipated 500 kV transmission alternatives needed to meet the long-term reliability needs in the 2006-08 time frame, ISO Management believes a "Stage 2" 500 kV study to identify the preferred transmission project needs to be completed this year to allow sufficient time for the project to be placed in service when needed.

ISSUE STATEMENT

The Project that is proposed for approval is required to maintain system reliability. The approval of this Project is important to the ISO in fulfilling its mission of providing reliable transmission service to its customers. Maintaining the status quo will have serious reliability impacts in specific areas of the ISO Grid. An outline is presented below describing 3 options for Board consideration.

OPTIONS TO SOLVE PROBLEM OR DEAL WITH THE ISSUE

Option 1: Do not approve Project

Option 2: Approve the Project to go forward without a Competitive Solicitation

Option 3: Approve the Project to go forward only if chosen as the preferred alternative after a Competitive Solicitation that included non-transmission alternatives with the provision that the ISO will support SDG&E in its case to recover reasonably incurred costs prior to and during the solicitation process if the Project is not chosen as the preferred alternative

PROS AND CONS OF EACH OPTION

Option 1: Do not approve Project

Pros – Would reduce capital expenditures.

Cons – Would negatively impact reliability in sensitive load areas.

Option 2: Approve the Project to go forward without a Competitive Solicitation

Pros - Would help insure that reliability issues are addressed in a timely fashion, though this is not expected to be an issue if SDG&E continues pre-licensing activities during the competitive solicitation process.

Cons – Would foreclose the opportunity for potential savings that could result from non-transmission alternatives.

Option 3: Approve the Project to go forward only if chosen as the preferred alternative after a Competitive Solicitation that included non-transmission alternatives with the provision that the ISO will support SDG&E

in its case to recover reasonably incurred costs prior to and during the solicitation process if the Project is not chosen as the preferred alternative

Pros - Would help insure that the lowest cost solution would be selected.

Cons – Could increase the possibility of not having a project in place in time to address the reliability criteria violations, though this is not expected to be an issue if SDG&E continues pre-licensing activities during the competitive solicitation process.

The selection of any of the above options is not expected to result in a significant change in the ISO's labor or capital budget.

POSITIONS OF THE PARTIES

SDG&E and ISO Management support the approval of this Project as the preferred transmission alternative to meet reliability needs. No party has expressed opposition for the need to mitigate anticipated criteria violations in 2004, or that the Valley-Rainbow 500 KV Project is the preferred transmission alternative to mitigate the criteria violations. However, PG&E Generating submitted comments expressing concern over insufficient Project details, including the lack of cost information available to stakeholders and the lack of sufficient information on non-wires alternatives to the Project.

No party has expressed the position that the Project should go through an expedited process (**Option 2**). PG&E Generating and other stakeholders have expressed the position that the Project should go through competitive solicitation. ISO Management also supports moving forward with this Project only if chosen through a competitive solicitation process (**Option 3**). SDG&E has indicated that it would continue pre-licensing activities during a competitive solicitation process.

MARKET ANALYSIS OPINION

The Department of Market Analysis recommends Option 3. Non-wires projects should be allowed to compete with the preferred transmission Project. The transmission Project should be approved for construction only if chosen as the preferred alternative after a competitive solicitation that includes non-transmission alternatives. DMA further recommends that the cost-benefit evaluation methodology, the time horizon for the evaluation, and the underlying assumptions used in the comparative evaluation undergo detailed review to ensure the needed reliability enhancement is obtained through the most economically efficient project.

MANAGEMENT RECOMMENDATION

Management recommends that the Board approve the Valley-Rainbow transmission project as the preferred transmission project to compete with non-wires alternatives to correct the identified reliability problems in a competitive solicitation process (**Option 3**).