Exhibit No.: ________________
Commissioner: Loretta Lynch
Administrative Law Judge: Meg Gottstein
Witness: ______________________________

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Investigation into implementation of Assembly Bill 970 regarding the identification of electric transmission and distribution constraints, actions to resolve those constraints, and related matters affecting the reliability of electric supply.	)))))))	I.00-11-001

JOINT TESTIMONY ON BEHALF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR, SAN DIEGO GAS AND ELECTRIC COMPANY, SOUTHERN CALIFORNIA EDISON COMPANY AND THE CALIFORNIA ENERGY COMMISSION

Submitted by the California Independent System Operator, San Diego Gas and Electric Company, Southern California Edison Company, and the California Energy Commission

May 18, 2001

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I. INTRODUCTION AND SUMMARY OF CONCLUSIONS

(Sponsoring witnesses: Ronald Cottom, Don Kondoleon, Linda Brown, Jeffrey Miller[1])

This testimony has been prepared jointly by the California Independent System Operator (CA ISO), the Southern California Edison Company (SCE), the San Diego Gas and Electric Company (SDGE), and the California Energy Commission (CEC) (the "Opening Parties"). All of these entities share the common goal of developing the transmission grid in California to support reliable system operations and to afford Californian's the opportunity to obtain reliable service at the lowest possible cost. In pursuit of this goal, the Opening Parties have been working to assess the need for additional transmission capability between Southern California and the Southwest (Nevada and Arizona) and/or Mexico.

The work that has been undertaken by the Opening Parties in the context of the CA ISO Coordinated Grid Planning Process (CA ISO Grid Planning Process) and in this proceeding demonstrates that there is unlikely to be a need for a transmission link to the Southwest or Mexico to maintain reliable operations

[1] A statement of qualifications for Mr. Miller is attached. A statement of qualifications for Mr. Cottom, Mr. Kondoleon, and Ms. Brown is attached to the individual testimony of Southern California Edison Company, the California Energy Commission, and the San Diego Gas and Electric Company respectively.

in Southern California in the next ten years or longer (this testimony addresses only links to out-of-state resources and does not address whether in-state transmission upgrades are needed to maintain reliable operations). However, such links may be justified on economic grounds to access lower cost generation in the Southwest or Mexico and/or increase the market for electric power accessible to Southern California. In order to determine whether such links are justified on economic grounds, however, it is necessary to assess a wide variety of variables, many of which are highly uncertain and interdependent.

Nonetheless, a thorough and responsible assessment is indispensable since the cost of projects to link Southern California to Mexico or the Southwest would be significant: the cost of the Mexico link could range between a quarter of a billion dollars to one and three quarters billion dollars whereas the cost of the Southwest link could cost between half a billion dollars and two billion dollars (see Section V). The Opening Parties are close to finalizing a Request for Proposals (RFP) to develop a methodology for undertaking an economic assessment, and describe herein the schedule for the RFP Process. At the same time, the CA ISO and the utilities will continue to review on an annual basis in the CA ISO Grid Planning Process whether projects to Mexico or the Southwest are necessary to maintain reliability in Southern California (as well as the need for in-state transmission upgrades).

Through the CA ISO Grid Planning Process, the utilities and the CA ISO recently completed a study that examines the need for potential regional bulk transmission system enhancements in Southern California in the year 2008. The study focuses on whether additional transmission from Southern California to Northern California or Arizona/Nevada is needed to meet Southern California's reliability needs. The study determined that even using very conservative assumptions, a transmission link from Southern California to the Southwest would not be required to maintain reliability until 2008; however a link might be justified on economic grounds. One of the conclusions of the study was the development of the RFP described above.

On March 29, 2001, the Administrative Law Judge issued a ruling in this proceeding (March 29 ALJ Ruling) directing the Pacific Gas and Electric Company (PG&E), SCE and SDG&E to "file scenario analyses for evaluating the cost-effectiveness of potential transmission upgrades for a Southern California-Southwest link that include: 1) alternatives regarding generating facilities, and 2) load growth scenarios, including geographic demand patterns". In light of its statutory responsibility for transmission system reliability and planning, and its expertise in these areas, the CA ISO agreed to work with the utilities to undertake this work and to participate as one of the Opening Parties. Because the CEC has information and expertise with regards to key parameters of the analysis, the CEC also agreed to participate as one of the Opening Parties.[2]

Two products have been developed and are presented as part of the opening testimony of the Opening Parties:

1) a matrix of scenarios showing in light of different assumptions about load growth and generation development: 1) whether the system can be operated reliably with existing transmission capability to the Southwest and Mexico (ignoring in-state transmission constraints) and 2) whether there is likely to be generation located in the Southwest or Mexico that cannot be transported to California in light of transmission system constraints (these scenarios involve only arithmetic calculations and are meant to be used as a screening tool that would need to be confirmed with technical studies);

2) this testimony which describes: 1) the study already undertaken by the utilities and the CA ISO as a first step in the process to assess the need for transmission upgrades to serve Southern California; 2) the process for development of the scenarios assessed in response to the March 29 ACR; 3) the assumptions used in the scenarios; 4) the results of the analysis and the conclusions drawn by the Opening Parties from the exercise; and 5) a discussion of economic factors that must be considered to determine whether a transmission line is economically justified to access generation located in the Southwest or Mexico. In accordance with directions from the ALJ as conveyed to the parties through the California Public Utilities Commission ("CPUC" or "Commission") Energy Division, this testimony identifies the source and sponsoring witness for each variable in the scenarios, and sets forth a road map for understanding and use of the matrix.

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[2] PG&E is not one of the Opening Parties as Northern California is less directly impacted by transmission access to the Southwest and Mexico than Southern California.

In addition to preparing this testimony, the Opening Parties have made available to all parties in the proceeding and to the Energy Division the matrix of scenarios. Other parties are thus able to create their own scenarios based on their own assumptions which may be defended by their own sworn witnesses.

II. SUMMARY OF THE RECENT SOUTHERN CALIFORNIA LONG-TERM REGIONAL TRANSMISSION STUDY

(Sponsoring witnesses: Linda Brown, Jeffrey Miller)

Assessing the justification for additional transmission capability between Southern California and the Southwest or Mexico is not a new undertaking. Over the years, a variety of studies have examined the need for additional transmission between California and the Southwest or Mexico and many transmission projects between these areas have been completed.

Recently, there has been a flood of proposals to add new generation in the Southwest and Mexico. Given the possibility of new projects in these areas, interest has been renewed in examining the justification for additional transmission from Southern California to these areas. To assess the need for new transmission, a study was recently completed by the CA ISO, SCE and SDG&E in the context of the CA ISO Grid Planning Process. The study is entitled the "Southern California Long-Term Regional Transmission Study" ("Southern CA Study"). The study was completed in an open stakeholder process where all interested parties were given an opportunity to participate. The study report is posted on the California ISO website at: http://www.caiso.com/docs/2000/06/16/2000061610404021794.html

The Southern CA Study is a conceptual study that examines the need for regional bulk transmission system reinforcements in the year 2008. The study focuses on whether additional transmission from Southern California to Northern California or Arizona is needed to meet Southern California's reliability needs, or to access the significant amount of new generation that has been proposed at the Palo Verde Nuclear Power Plant in Arizona, the region around Las Vegas and PG&E's Midway near Bakersfield, California.

The Southern CA Study included a technical analysis of the ability of the transmission system to import power into Southern California to supply the electricity needs of the area that are in excess of the capability of the local generation sources. The study included a detailed power flow analysis that modeled the capability of the transmission system, providing a snapshot of the need for additional transmission import capability to maintain reliability given one (very conservative) set of assumptions, and alternatives to meet that need. In particular, to be conservative, the study was based on very pessimistic assumptions for the development of new generation in Southern California. Only one generating station (High Desert at approximately 700 MW) was added to the existing generation to model 2008 system conditions. The technical analysis demonstrated that, given the conservative scenario assessed, major improvements to transmission import capability are needed to meet reliability requirements in Southern California in the year 2008. Of course, if additional generation materializes in Southern California then the need for new transmission import capability will be reduced.

The technical assessment identified the following conceptual preferred transmission reinforcement alternatives:

To increase import capability into the Los Angeles area:

1. Upgrade the series capacitors on the Palo Verde-Devers 500 kV line and add a second 500/230 kV transformer bank at Devers. This upgrade would increase Los Angeles area import capability by 300 MW;

2. Build a second Palo Verde-Devers 500 kV line, upgrade the series capacitors on the Palo Verde-Devers 500 kV line, and add a second 500/230 kV transformer bank at Devers. This project would increase import capability into the Los Angeles area by 1200 MW.

To increase import capability into the San Diego area:

1. Upgrade the series capacitors on the 500 kV Southwest Power Link (SWPL) between Palo Verde and Miguel Substations. This project would increase import capability into the San Diego area by 500 MW;

2. Build a second Southwest Power Link 500 kV line between Palo Verde and Imperial Valley Substations. Build a new 500 kV line from Imperial Valley to a new 500 kV substation (Ramona or another location east of San Diego) and from Ramona to SDG&E's proposed Rainbow Substation. Build two 230 kV lines between Ramona and SDG&E's Sycamore Substation. This project would increase San Diego area import capability by 1200 MW.

Combined, all four of these transmission alternatives could increase Southern California's simultaneous import capability by as much as 3200 MW.

Transmission reinforcements to PG&E's Midway Substation were also investigated. However, this alternative was found to be significantly more costly than transmission reinforcements to Arizona. In addition, more new merchant generation is being proposed in the vicinity of Palo Verde and elsewhere in Nevada and Arizona than in the Midway area. Finally the study determined that the necessary transmission right-of-way from Southern California to Midway would be very difficult to permit due to the amount of development in the area. Accordingly, transmission reinforcements to PG&E's Midway Substation were determined to be of less interest than reinforcements to the Southwest.

As mentioned earlier, if a sufficient amount of additional new generation is licensed and built within Southern California, the need for major new transmission projects to maintain reliability by accessing resource areas outside of Southern California could be deferred. In fact, even if only a fraction of the recent flood of new generation proposals materialize, it appears from the Southern CA Study that new transmission to the Southwest is not likely to be needed for system reliability within a five to ten year planning horizon. The CA ISO is currently reviewing proposals for more than 20,000 MW of new generation in Southern California while the total load in the area is only forecasted to be approximately 30,000 MW. Moreover, as part of the CA ISO's Grid Planning Process, the need for new transmission to the Southwest and Mexico to maintain reliability will be evaluated on an annual basis, taking into account new information on the development of new generation in Southern California and other changes to the load, generation and transmission mix.

While new transmission to the Southwest or Mexico may not be necessary at this time to meet reliability requirements, it may still be justified based on its ability to reduce the price of power in California through access to economically priced power in the Southwest or Mexico and/or the expansion of the market for power available to California. However, the technical studies that were conducted for the Southern CA Study are not able to assess the benefit that a new line could have on power prices. To make such an assessment, a market analysis would need to be completed. As part of this analysis, a methodology will need to be developed to assess the uncertainty associated with future generation and load development and other key variables such as fuel price differentials among regions. A conclusion of the Southern CA Study is to conduct such an analysis.

III. SCENARIO ANALYSIS

(Sponsoring witnesses: Ronald Cottom, Don Kondoleon, Linda Brown, Jeffrey Miller, David Le[3])
This section sets forth a general description of the scenario analysis undertaken and the process used to develop the scenarios and then provides a detailed road map to the matrix.

A. Scenario analysis: what it is and how scenarios were developed.

At the request of the CPUC, the Opening Parties have developed a series of scenarios set forth in the attached matrix. The scenarios illustrate in light of different assumptions about load growth and generation development: 1) whether the system can be operated reliably with generation developments in Southern California absent additional import capability from the Southwest and/or Mexico (ignoring in-state transmission constraints), and 2) whether there is likely to be generation located in the Southwest or Mexico that cannot be transported to California in light of transmission system constraints.

The scenarios are not based on technical studies and do not take into account internal transmission constraints within California. They are exclusively arithmetic exercises useful to undertake an initial screening of the range of possible outcomes.[4] Technical studies do underlie the one scenario based on

[3] A statement of qualifications for Mr. Le is attached.
[4] There was insufficient time to undertake technical studies of the magnitude that would have been required to undertake technical assessment of links to the Southwest or Mexico (typically a technical study of one such scenario could take between

the Southern CA Study. Moreover, additional technical studies will be undertaken in the context of the CA ISO Grid Planning Process. The scenarios, particularly coupled with the results of the Southern CA Study, do provide an initial screen of timing considerations and the issues and scenarios that merit additional assessment. Further, the scenarios do not include any economic analysis, discussion of economic factors is set forth in Section V of this opening testimony.

The scenarios were developed in an open process in which all parties to the proceeding and the Energy Division were invited to participate. The CA ISO hosted 3 meetings in which there was discussion of the variables to be used in the scenarios, the structure of the scenarios, the appropriate entity to provide particular inputs, the source of inputs, and draft results. All parties to the proceeding and the Energy Division were notified of the meetings and invited to attend. Teleconferencing was made available to parties unable to participate in person. Drafts of the scenarios were circulated to all parties and the Energy Division.

As an initial matter, the parties had to contend with the reality that there was limited time and resources to undertake the analysis requested by the CPUC and that there is a large degree of uncertainty associated with several of the key variables of the analysis (e.g. load growth, generation development, market development, forecasted generation outage rate and generation retirement levels). In light of this reality, it was deemed both appropriate and necessary to limit the number of scenarios and variables assessed to the minimum necessary to present a robust picture of possible outcomes. While the Opening Parties have used their collective wisdom and expertise to develop a reasonable set of possible scenarios, it must be stressed that the Opening Parties have insufficient information at this time to assess the likelihood that one or another of the scenarios presented in the analysis will in fact develop. Instead, as described above, the Opening Parties are currently undertaking an RFP process to develop the information and methodology to address this question. In addition, as mentioned earlier, the scenarios reflect arithmetic calculations only and would require technical studies to confirm them. The scenarios

several months and several years time depending on the depth of the analysis). Certainly, there was insufficient time to undertake technical studies of the broad range of possible scenarios which the Energy Division informed the Opening Parties would be of interest to the CPUC.

were developed in response of the direction of the CPUC for the purpose of illustrating various possible outcomes given the current state of knowledge among the Opening Parties at this time.

The following section of this opening testimony discusses the matrix in detail.

B. Matrix Road Map

The Matrix is comprised of two spreadsheets (Planning Criteria) and (Aggressive Generation Retirement & Outage Scenario). The spreadsheets are identical in many respects. Thus, this road map will describe the first spreadsheet (Planning Criteria) completely. It will then set forth the differences between the first spreadsheet (Planning Criteria) and the second spreadsheet (Aggressive Generation Retirement & Outage Scenario). It will next describe each category of information (section) presented in the matrix along the source of each case.

1. Spreadsheet 1 (Planning Criteria)

Spreadsheet 1 includes variables, calculations, preliminary capability assessments, an additional information item, and reliability/access assessments.

- Variables: 4 categories of variables are included: Southern California load forecast, section A; existing in-state generation, section B; projected new in-state generation, section C; and projected new available market imports to Southern California, section D.
- Calculations: Based on the 4 categories of variables a number of items are calculated: 1) required minimum resources to serve load, section E, which adds to the load forecast cases necessary operating reserves; 2) projected available resources to meet load, section F, which adds together existing in-state generation, new in-state generation, California controlled out-of-state resources, and firm imports, and then subtracts from this number firm exports, and an allowance for outages; 3) projected market import need, section G, which is minimum resources needed to serve load, section E, minus projected available in-state resources to meet load, section F.
- Preliminary capability assessments: Based on in-state generation, a preliminary assessment was made of the available import capability without upgrades, section I.
- Additional information: the spreadsheet presents projected available market imports, section H, which list existing available market imports, used to calculate transmission import capability need in section J, and adds to it projected new available market imports to Southern California from section D.
- Reliability/access assessments: the spreadsheet arithmetically assesses 1) the need for new transmission import capability for reliability (ignoring in-state transmission constraints), section J; and 2) the amount of projected new available market imports to Southern California that could not be accessed absent new transmission import capability, section K.

2. Spreadsheet 2 (Aggressive Generation Retirement and Outage Scenario)

Spreadsheet 2 was developed at the direction of the Energy Division and is identical to spreadsheet 1, except that there is a difference in the calculation of projected available resources to meet load, section F. Like section F in spreadsheet 1, section F in spreadsheet 2 adds together existing in-state generation, new generation, controlled out-of-state resources, and firm imports, and then subtracts from this number firm exports and an allowance for outages. In addition, however, spreadsheet 2 subtracts aggressive generation outage and retirement values provided by the CEC in accordance with direction from the Energy Division. This change affects the calculation of projected market import need , section G, and the result of the reliability assessment, section J. The change does not affect sections A, B, C, D, E, H, I or K.

3. Matrix sections:

<u>A. Load forecast</u>

Three alternative load forecasts were used: 1) a utility base load case (A1) comprised of information on SDG&E base load from SDG&E (described in separate SDG&E testimony), information on SCE base load from SCE (described in separate SCE testimony) and information on base load from the City of Pasadena from the CEC (described in separate CEC testimony); 2) a CEC base load case (A1)(described in separate CEC testimony); and 3) a utility average load case (A5) comprised of information on SDG&E average load from SDG&E (described in separate SDG&E testimony), information on SCE average load from SCE (described in separate SCE testimony) and information on average load for the City of Pasadena from the CEC (described in separate CEC testimony). Each base load case was scaled up by 10% (A2) and scaled down by 10% (A3). Pursuant to a request by the Energy Division, each base load case was also scaled up by 20% (A4) and scaled down by 20% (A5).

The load forecasts are based on a 1-in-5 year heat wave forecast. The load forecasts include the service territories of SDG&E, SCE and the City of Pasadena. Load forecasts from other municipal utilities that are served from SCE’s transmission system (e.g., City of Vernon, Anaheim, Azusa and Banning) are included in SCE’s load forecasts.

B. Existing In-state Generation

Two alternative existing in-state generation cases were used: 1) a utility existing in-state generation case (B) comprised of information on existing generation in the SDG&E service territory from SDG&E (described in separate SDG&E testimony) and information on existing generation in the SCE service territory from SCE (described in separate SCE testimony); and 2) a CEC existing in-state generation case (B)(described in separate CEC testimony).

The utility existing in-state generation case reflects existing dependable generation levels available as of January 1, 2001. Any new generation additions that are on-line after January 1, 2001 are reflected in new in-state generation numbers (C).

The CEC existing in-state generation case reflects nameplate capacity which is usually higher than the dependable generation level.

C. New Generation Additions in Southern California

Five alternative new in-state generation cases were used: 1) a utility maximum new in-state generation case (C1) comprised of information on new generation in the SDG&E service territory from SDG&E (described in separate SDG&E testimony) and information on new generation in the SCE service territory from SCE (described in separate SCE testimony); 2) a CEC maximum new in-state generation case (C1)(described in separate CEC testimony); 3) a CEC medium new in-state generation case (C2)(described in separate CEC testimony); 4) a CEC low new in-state generation case (C3)(described in separate CEC testimony); and 5) a very low new in-state generation case from the Southern CA Study (C4) which is described below. All new in-state generation addition numbers are held constant after the year 2005 because 1) the Opening Parties are not aware of any requests for interconnection beyond 2005, and 2) it is very difficult to make any reasonable assumptions about new generation beyond several years.

The maximum, medium and low new in-state generation cases reflect generation having different statuses as defined by the CEC for new generation projects:

Status 1: Under construction or recently completed
Status 2: Regulatory approval from the CEC received
Status 3: Application under review by the CEC
Status 4: Starting application process before the CEC
Status 5: Press release only

The maximum new in-state generation case includes all known projects having CEC's status 1 - 5. The medium new in-state generation case includes all projects having CEC's status 1 – 3. The low new in-state generation case has all projects having CEC's status 1 – 2. Utility and CEC numbers are presented for the maximum new in-state generation case because they differ.

The very low new in-state generation case is from the Southern CA Study. It includes only one new project: High Desert (720 MW) because, as described above, the study was intended to be very conservative.

D. New Out-of-State Generation Additions in Arizona, Nevada and Mexico

This variable presents forecasts of new out-of-state generation that may be available to California. Two new out-of-state cases were used: 1) a maximum potential level available to Southern California (D2) and 2) a medium potential level available to Southern California (D3). In addition, for Arizona and Nevada, a maximum potential development number is provided (D1) for reference only. All new out-of-state generation addition numbers are held constant after the year 2007.

Arizona and Nevada: Numbers for Arizona and Nevada were provided by the CEC (described in separate CEC testimony). The maximum potential level available to Southern California (D2) for Arizona and Nevada was assumed to be 50% of the maximum potential development (D1). The medium potential level available to Southern California (D3) for Arizona and Nevada was assumed to be 20% of the maximum potential development (D1). These assumptions are based on the premise that not all new generation constructed externally would be available to California because such projects would also be needed to meet load growth in Arizona and Nevada.

Mexico: Numbers for Mexico including a maximum potential level available to Southern California (D2) and a medium potential level available to Southern California (D3) were provided by SDG&E (described in separate SDG&E testimony).

E. Required Resources for Southern California

Required resources to meet Southern California's electricity demand are calculated using the load forecasts from section A, and adding a 7% operating reserve required to meet the Western Systems Coordinating Council's Minimum Operating Reliability Criteria (MORC).

F. Projected Available Resources

Projected available resources, section F, are a forecast of the available existing resources plus new in-state generation that would be available to meet demand (section E). As described above, the calculation of projected available resources is different in spreadsheet 1 (Planning Criteria) and spreadsheet 2 (Aggressive Generation Retirement and Outage Scenario).

Spreadsheet 1 (Planning Criteria)

The following parameters were used to calculate the projected available resources in spreadsheet 1:

1. Existing generation (from section B)
2. Allowance for outages (described below)
3. New in-state generation additions (from section C)
4. Existing California controlled out-of-state resources (described below)
5. Existing firm imports (described below)
6. Existing firm exports (described below)

Allowance for outages: the allowance for outages is the figure used in accordance with the NERC, WSCC, and CA ISO Planning Standards to account for outages in transmission planning. These standards specify that in undertaking transmission planning, members assume the most critical single generating unit to be out of service in combination with the most critical single transmission line. In the case of the CA ISO Controlled Grid, the largest single generating unit is San Onofre's Unit 2 or 3 with a capacity of 1150MW.

Existing California controlled out-of-state resources. This number represents out-of-state resources in which SCE has an ownership interest or to which SCE has an entitlement and that are thus available to meet California demand. The figure includes the SCE ownership interest in Palo Verde Units 1-3; and the entitlement that SCE has on Hoover generation.

Existing firm imports: This figure represents imports that are that committed to Southern California including: 1) generation from out-of-state generating units (San Juan, Intermountain Power Project) owned by Southern California municipal utilities such as the Los Angeles Department of Water and Power that are available for sale within the CA ISO Controlled Grid ; 2) the entitlements of municipal utilities (such as the Cities of Pasadena, Riverside, Vernon, Anaheim, Azusa, Banning and Colton) in generation output from Palo Verde and Hoover; and 3) long term power contracts between SCE and SDG&E with various suppliers in the Northwest.

Existing firm exports: This figure represents exports that are committed to entities outside of the CA ISO Controlled Grid from Mohave generation, included in section B, to Los Angeles Department of Water and Power, Nevada Power, and Salt River Project and, other exports pursuant to existing long term contracts between SCE, and Tucson Electric and Arizona Public Service Company.

Four of these inputs (allowance for outages, existing California controlled out-of-state resources, existing firm imports and existing firm exports) do not vary. There are two cases from section B for existing generation (utility and CEC numbers); and five cases for section C, new in-state generation additions (utility maximum; CEC maximum, medium and low; and Southern CA Study). There was no calculation made using utility existing generation numbers and CEC new maximum in-state generation numbers or vice versa.

Spreadsheet 2 (Aggressive generation retirement and outage scenario)

The following parameters were used to calculate the projected available resources in spreadsheet 2:

1. Existing generation (from section B)
2. Allowance for outages (described above)
3. New in-state generation additions (from section C)
4. Existing California controlled out-of-state resources (described above)
5. Existing firm imports (described above)
6. Existing firm exports (described above)
7. Additional Generation Outages
8. Generation Retirement

Parameters 1 through 6 are exactly the same in spreadsheets 1 and 2. In spreadsheet 2, however, additional values are subtracted, reflecting additional generation outages and generation retirement. This case was constructed at the request of the Energy Division. The values for additional generation outages and generation retirement were provided by the CEC (described in separate CEC testimony).

<u>G. Projected Import Need</u>

Projected import need is a calculation which subtracts available resources (section F), from required resources (section E). The object is to show whether imports are required to meet in-state demand given the level of in-state resources, or whether excess in-state resources are available for export.

H. Projected Available Market Imports

Historic imports over the East-of-the-River path and Path 26 (Midway - Vincent) are presented. This figure is used to undertake the reliability assessment in section J. The historic figure was derived using 2/3 of the year 2000 flows over these Paths minus firm imports over these Paths. New potential market imports (section D) was added to the historic figure for a total available market imports calculation. The total figures are not used for any calculation in the matrix.

I Available Transmission Import Capability for New Imports

A rough approximation was made of the available transmission import capability available for new imports given different internal generation cases. The figures represent import capability available for new imports as estimated by CA ISO engineers using their professional judgement, and deducting capability used for existing firm imports, committed resources (see section F) and historic market imports from section H. Extensive technical studies are necessary to determine actual available transmission import capability in different scenarios with any kind of precision. The assessment does not consider in-state transmission constraints.

Transmission import capability is a sum of the simultaneous transmission import capability of the Southern California–Arizona, Southern California–Nevada, Southern California–Mexico intertie lines. For high, medium and low new in-state generation addition cases, the available import capability is estimated to remain relatively unchanged. This is because in all cases, dynamic voltage support and load demand would be met primarily from existing and new internal generation. For the very low new in-state generation scenario, the available transmission import capability is estimated to decline. This is because adequate dynamic voltage support is unlikely to be provided by the internal generation.

J. Capacity / Deficiency of Existing Import Lines Based on Reliability Assessment

Arithmetic reliability assessments are provided in this section based on arithmetic calculations and the professional judgement of CA ISO engineers. These assessments would need to be confirmed through appropriate technical studies. Two assessments are provided for each case: 1) whether transmission import capability is adequate to access new market imports that are needed to maintain reliability (ignoring in-state transmission constraints) and 2) whether needed new market imports are likely to be available to Southern California. Both assessments are provided since it would be of no use to build a line to access resources that are not available.

The assessment was conducted by taking the required resources figure from section G and subtracting from it the historic imports from section H to obtained the level of new imports required to maintain reliability (or where no imports were required, the level of resources available for export). Two assessments were then undertaken: adequacy of transmission import capability and adequacy of external new market imports.

To determine adequacy of transmission import capability, the level of new imports needed to meet load was compared to transmission import capability from section I. If no new imports were needed the result was marked as N/A (not applicable). Adequate transmission import capability was marked A; deficient transmission import capability was marked D. In-state transmission constraints were ignored for this assessment.

To determine adequacy of external new market imports, the level of new imports needed to meet load was compared to available new market imports from section D. If no new imports were needed to meet demand, the result was marked as N/A (not applicable). Adequate new imports were marked A; deficient market imports were marked D.

For this analysis (reliability assessment), it is assumed that new in-state generation will be dispatched to meet the electricity demand prior to dispatching out-of-state resources. If there are still insufficient internal resources to serve load, then new external generation will be dispatched.

The following scenarios were analyzed with different resource and load levels:

J1. Maximum availability of imports from external generation and maximum internal generation scenario;

J2. Maximum availability of imports from external generation and medium internal generation scenario;

J3. Medium availability of imports from external generation and maximum internal generation scenario;

J4. Medium availability of imports from external generation and medium internal generation scenario;

J5. Maximum availability of imports from external generation and low internal generation scenario;

J6. Medium availability of imports from external generation and low internal generation scenario;

J7. Maximum availability of imports from external generation and very low internal generation scenario;

J8. Medium availability of imports from external generation and very low internal generation scenario

Each of the above scenarios was assessed for each load case from Section A.

K. Capacity / Deficiency of Existing Import Lines To Access External Generation

An arithmetic assessment is presented in section K of the available new external generation that could not be accessed without transmission upgrades. The calculated existing import capability for the maximum, medium and low generation cases, section I, I1, is subtracted from the maximum potential level of new imports available to Southern California section D, D2, to get a value of available imports that cannot be accessed given the maximum potential imports, section K, K3.1, and from the medium potential level of new imports available to Southern California section D, D3, to get a value of available imports that cannot be accessed given the medium potential imports, section K, K3.2.[5]

IV. RESULTS

(Sponsoring witnesses: Ronald Cottom, Don Kondoleon, Linda Brown, Jeffrey Miller)

A. Results: Reliability Assessment

As noted earlier, the work done by the Opening Parties in preparing this testimony involved an initial arithmetic screening exercise, assessing at a general level a very broad range of scenarios to determine whether and when resources from the Southwest or Mexico would likely be required to maintain system reliability. Any conclusions must therefore be confirmed through technical studies. Nonetheless, the

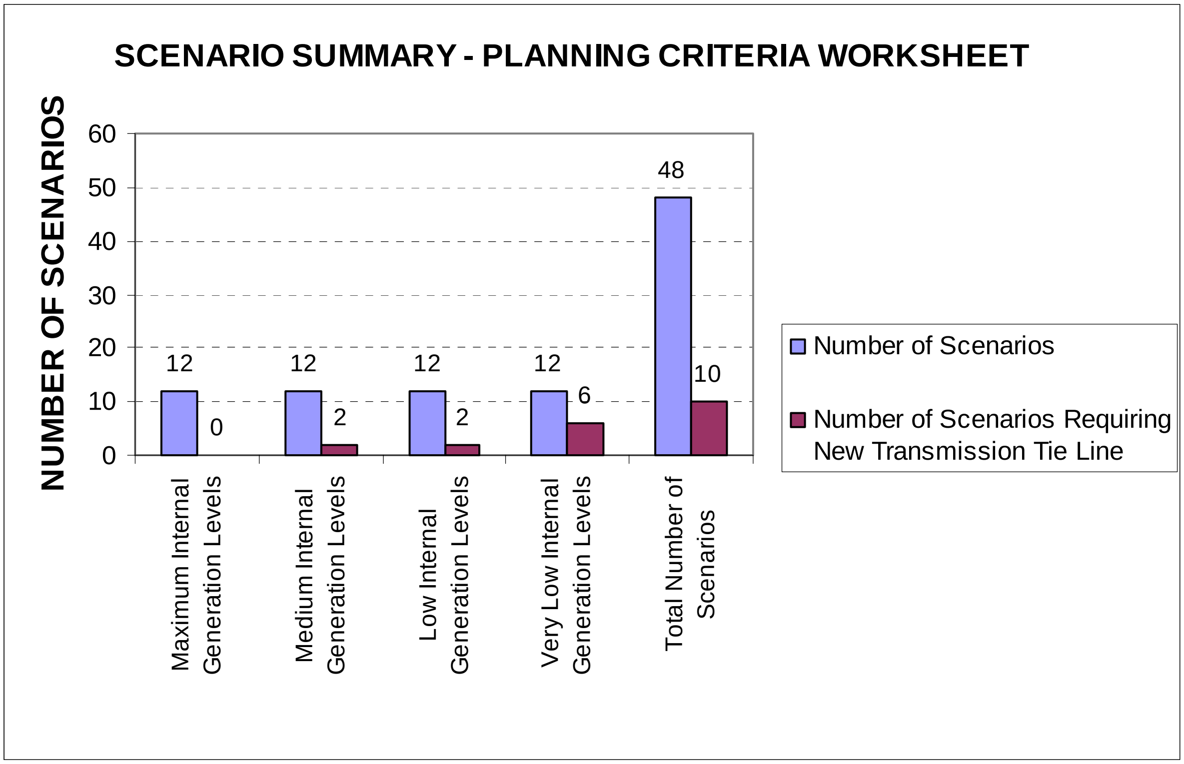
[5] K1 merely sets forth for convenience the values in D2 and D3 (maximum and medium potential level of new imports available to Southern California); K2 merely sets forth for convenience the values in I1 (existing import capability in all scenarios other than the very low generation scenario).

results of the assessment, coupled with the results of the Southern CA Study which did involve detailed technical studies, indicate that transmission import capability upgrades to the Southwest and Mexico are unlikely to be required to maintain reliable operations in Southern California in the next five to ten years. (No assessment was made of in-state transmission constraints.) This conclusion will be tested annually in the CA ISO Grid Planning Process.

In the scenarios using WSCC planning criteria assumptions (outages reflected using the single most critical generating unit, San Onofre, Unit 2 or 3), all reasonably likely cases reflect adequate transmission import capability for access to out-of-state resources in order to meet reliability needs through the year 2008. See Figure 1, on the following page. (There are deficiencies marked (D) before the year 2008, but these are due to insufficient out-of-state generation available for imports rather than insufficient transmission capability. Further, as mentioned earlier, the assessment did not consider the need for upgrades to address in-state transmission import capability. Additional in-state transmission projects may be required before 2008 to maintain reliability; the need for such projects is assessed annually in the CA ISO Grid Planning Process.).

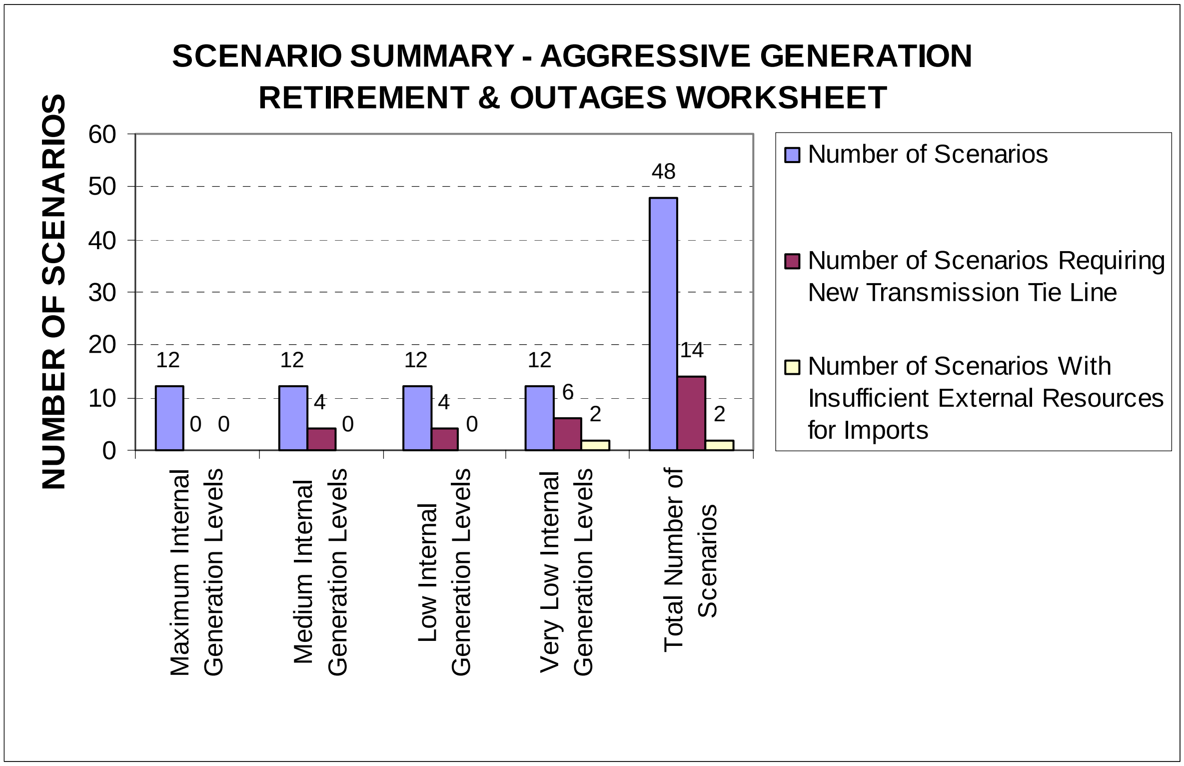
Problems that could be solved with additional transmission import capability for access to out-of-state resources arise prior to 2008 only in the very low new in-state generation case, which assumes that of all the new in-state generation currently proposed (20-35,000 MW) only 720 MW, 2-3.5%, will materialize. Even in this very pessimistic case, however, transmission import capability to access out-of-state resources is required only in the year 2008 using a base load case. (Again, no assessment was undertaken on the need for in-state transmission upgrades.) If the base load forecast is increased by 10%, in the very low new in-state generation, case additional transmission import capability is required by 2005. If the base load forecast is increased by 20%, in the very low new in-state generation case, additional transmission import capability is required throughout the test period.

Figure 1 – Summary of Scenarios – Planning Worksheet



In the scenarios requested by the Energy Division using the aggressive figures for outages and generation retirements, otherwise likely cases still reflect adequate transmission import capability to access resources in the Southwest and Mexico through the end of the year 2007. See Figure 2 on the following page. Need for additional transmission import capability prior to 2008 only arises in a base load case scenario in the very low new in-state generation case, again assuming that of the 20,000 to 35,000MW of new generation currently proposed, only 720 MW (2-3.5%) will materialize. In the low new in-state generation case and the medium new in-state generation cases, need for additional transmission import capability materializes prior to 2008, only if the base load forecast is escalated by 20% or more.

Figure 2 – Summary of Scenarios – Aggressive Generation Retirement & Outages Worksheet



The results of the reliability assessments are consistent with the results of the Southern CA Study. The Southern CA Study used a very conservative in-state generation additions assumption (only 720MW of new generation). Using these assumptions and the base load case in place at the time of the study, a new line to access out-of-state resources is only needed to meet reliability in 2008.

Figure 3 – Summary of Scenarios

SUMMARY OF SCENARIO CASES REQUIRING NEW TRANSMISSION INTERTIE LINE

	SCENARIO #	DESCRIPTION OF LOAD & INTERNAL GENERATION	AVAILABILITY OF EXTERNAL GENERATION LEVELS	YEAR THAT NEW TRANSMISSION LINE IS NEEDED
PLANNING WORKSHEET	J2.3 & J4.3	Medium internal generation levels Base load plus 20% more	Maximum and Medium Levels	2011
	J5.3 & J6.3	Low internal generation levels Base load plus 20% more	Maximum and Medium Levels	2009
	J7.1 & J8.1	Very low internal generation levels Base load	Maximum and Medium Levels	2008
	J7.2 & J8.2	Very low internal generation levels Base load plus 10% more	Maximum and Medium Levels	2005
	J7.3 & J8.3	Very low internal generation levels Base load plus 20% more	Maximum and Medium Levels	2001
AGGRESSIVE GENERATION OUTAGE & GENERATION RETIREMENT WORKSHEET	J2.2 & J4.2	Medium internal generation levels Base load plus 10% more	Maximum and Medium Levels	2010
	J2.3 & J4.3	Medium internal generation levels Base load plus 20% more	Maximum and Medium Levels	2006
	J5.2 & J6.2	Low internal generation levels Base load plus 10% more	Maximum and Medium Levels	2008
	J5.3 & J6.3	Low internal generation levels Base load plus 20% more	Maximum and Medium Levels	2004
	J7.1 & J8.1	Very low internal generation levels Base load case	Maximum and Medium Levels	2004
	J7.2	Very low internal generation levels Base load plus 10% more	Maximum Level	2003
	J7.3	Very low internal generation levels Base load plus 20% more	Maximum Level	2001
	J7.4 & J8.4	Very low internal generation levels Base load less 10% more	Maximum and Medium Levels	2011
	J8.2	Very low internal generation levels Base load plus 10% more	Medium Level	N/A (There are insufficient external resources for imports)
	J8.3	Very low internal generation levels Base load plus 20% more	Medium Level	N/A (There are insufficient external resources for imports)

In sum, it does not appear that new transmission import capability to access resources in the Southwest and Mexico is justified for reliability purposes in the next five to ten years. All reasonably likely cases assessed by the CA ISO indicate that transmission import capability (ignoring in-state constraints) is adequate to obtain new market imports required to maintain reliability through the end of 2007. This result changes only in two types of cases 1) if it is assumed that only 2-3.5% of the new in-state generation currently proposed will materialize, or 2) if it is assumed that load will grow 20% faster than projected in the current utility base load forecast cases and an aggressive factor is added for generation outages/retirements. See Figures 4 and 5 below. Nonetheless, the need for additional transmission import capability to access resources in the Southwest and Mexico in order to maintain reliability will continue to be assessed annually in the CA ISO Grid Planning Process.

Figure 4 - Scenario J7.1. Maximum Availability of Imports (from External Generation) and Very Low Internal Generation Scenario – Base Load Case

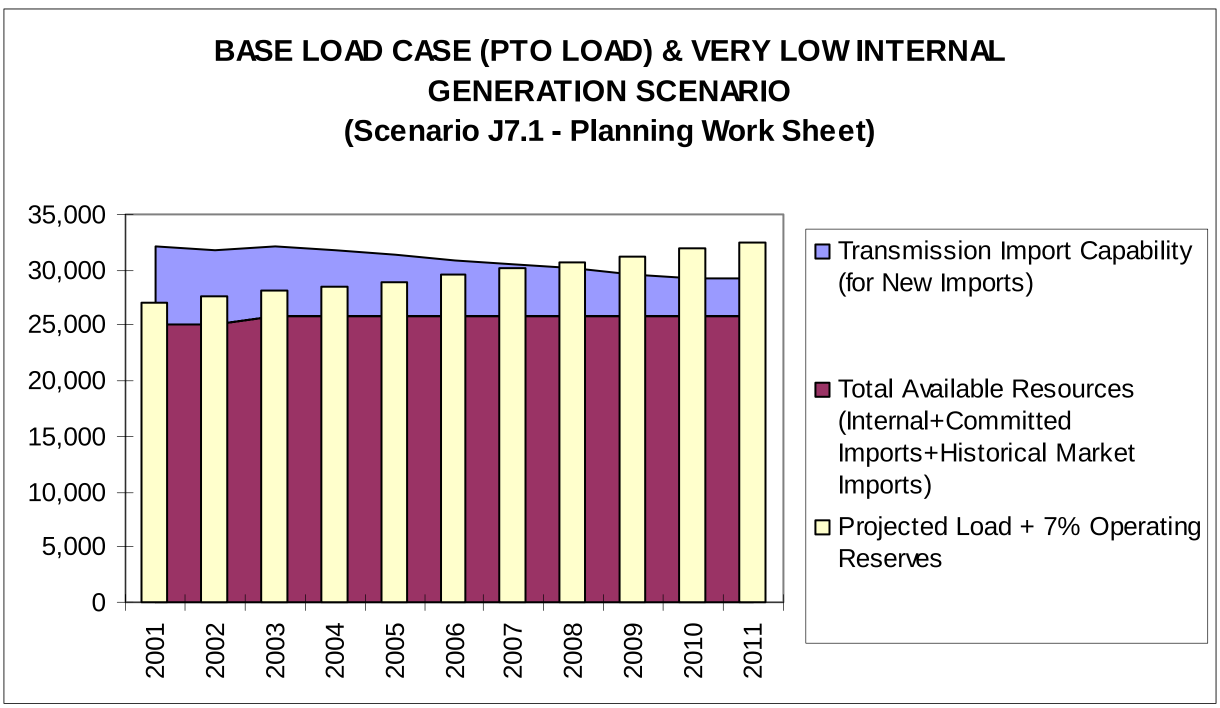
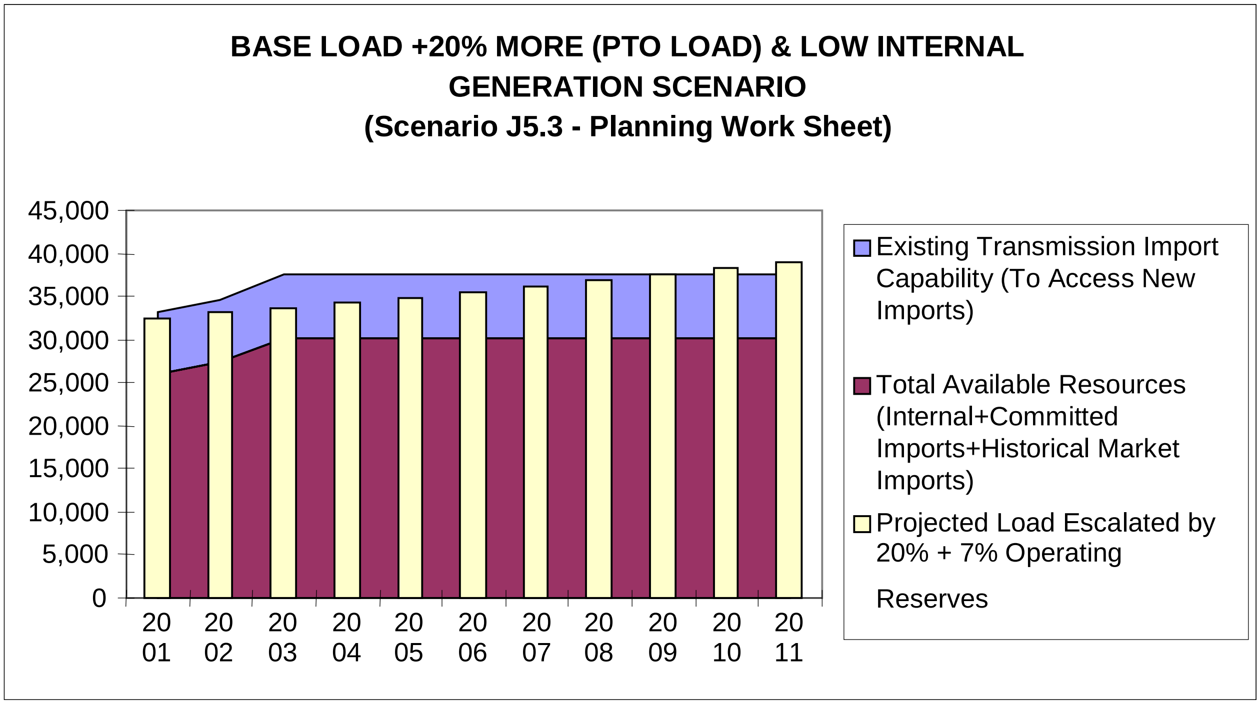


Figure 5 - Scenario J5.3. Maximum Availability of Imports from External Generation and Very Low Internal Generation Scenario – Base Load Case



B. Results: Access to market imports.

Even if there is no need for new transmission import capability from the Southwest and Mexico to maintain reliability within the next five to ten years, additional transmission import capability from the Southwest and Mexico may be justified for purposes of accessing generating capacity that is likely to materialize in the Southwest and Mexico in the coming five years. The Opening Parties developed scenarios to illustrate that new generation is likely to materialize in the Southwest and Mexico that would not be accessible to Southern California due to transmission import capability constraints by 2003 for Mexico and 2002-2005 for the Southwest. The assessments are initial rough assessments that do not take into account transmission constraints internal to Southern California and that would require technical studies to confirm. More importantly, however, an economic assessment is required to determine whether it is cost effective to build a line to access generation in the Southwest or Mexico.

The assessments demonstrate that starting in 2003 there is likely to be generation available in Mexico that could not be accessed by Southern California due to transmission import capability constraints. See Figure 6 below. The assessments demonstrate that there is likely to be generation available in Arizona that could not be accessed by Southern California by 2002 if a large proportion (50%) of the new generation forecast to materialize in Arizona is available to Southern California, and by 2005, if a lesser proportion (20%) of the new generation forecast to materialize in Arizona is available to Southern California. See Figures 7 and 8 below. The scenarios show that import capability from Nevada is likely to be adequate through 2007, even if a high proportion (50%) of the generation forecast to materialize in Nevada is available to Southern California. See Figure 9 below.

Figure 6 – Item K3.1.3. Additional Transmission Capacity Needed to Access Available Maximum External Generation from Mexico

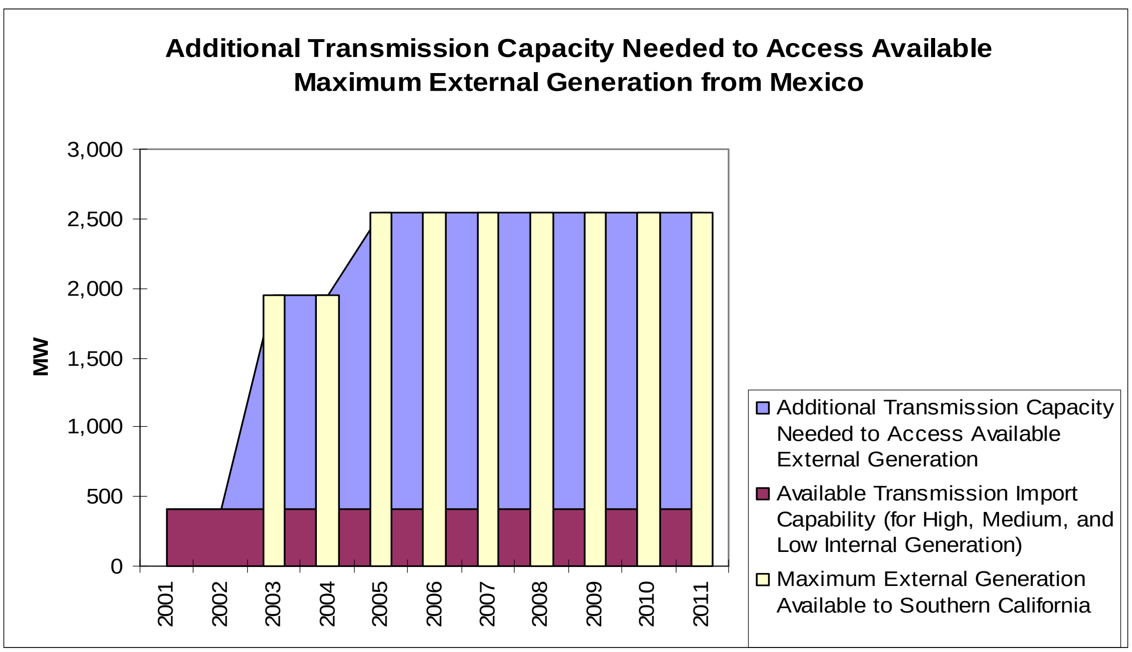
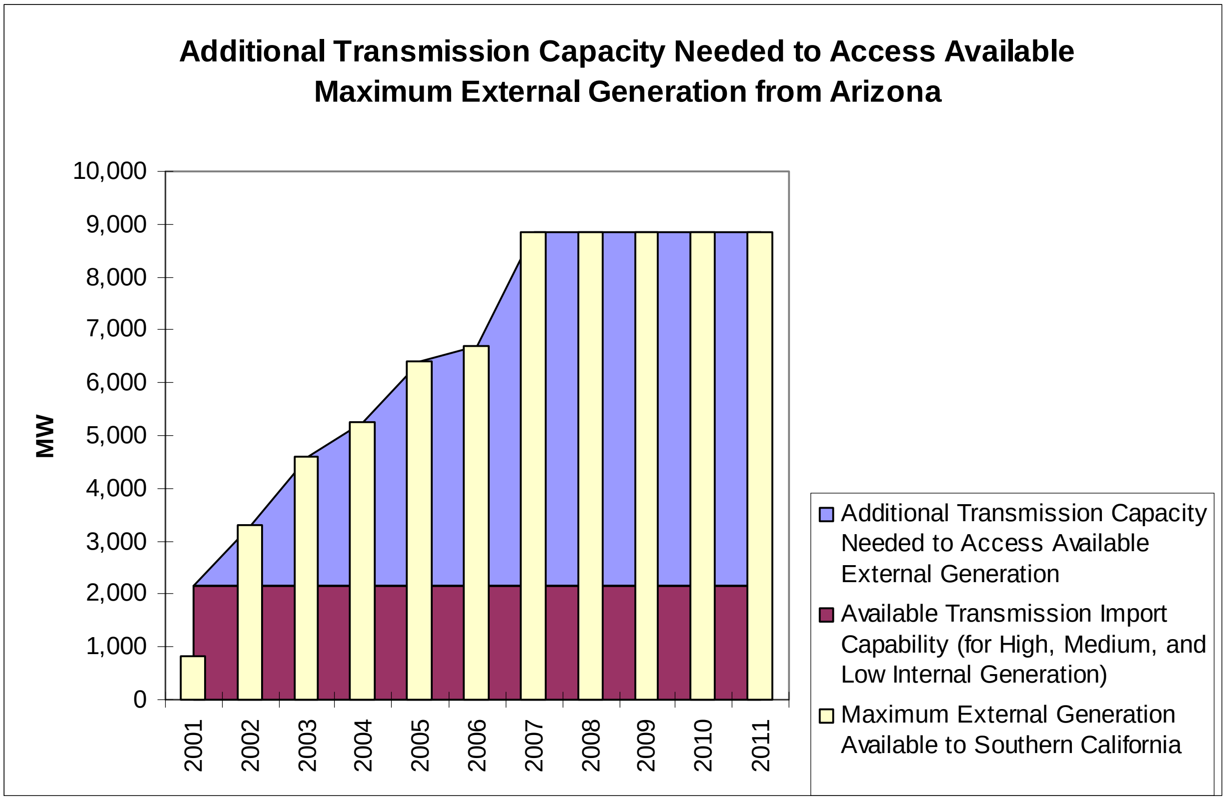


Figure 7 – Item K3.1.1. Additional Transmission Capacity Needed to Access Available Maximum



External Generation from Arizona

Figure 8 – Item K3.2.1. Additional Transmission Capacity Needed to Access Available Medium External Generation from Arizona

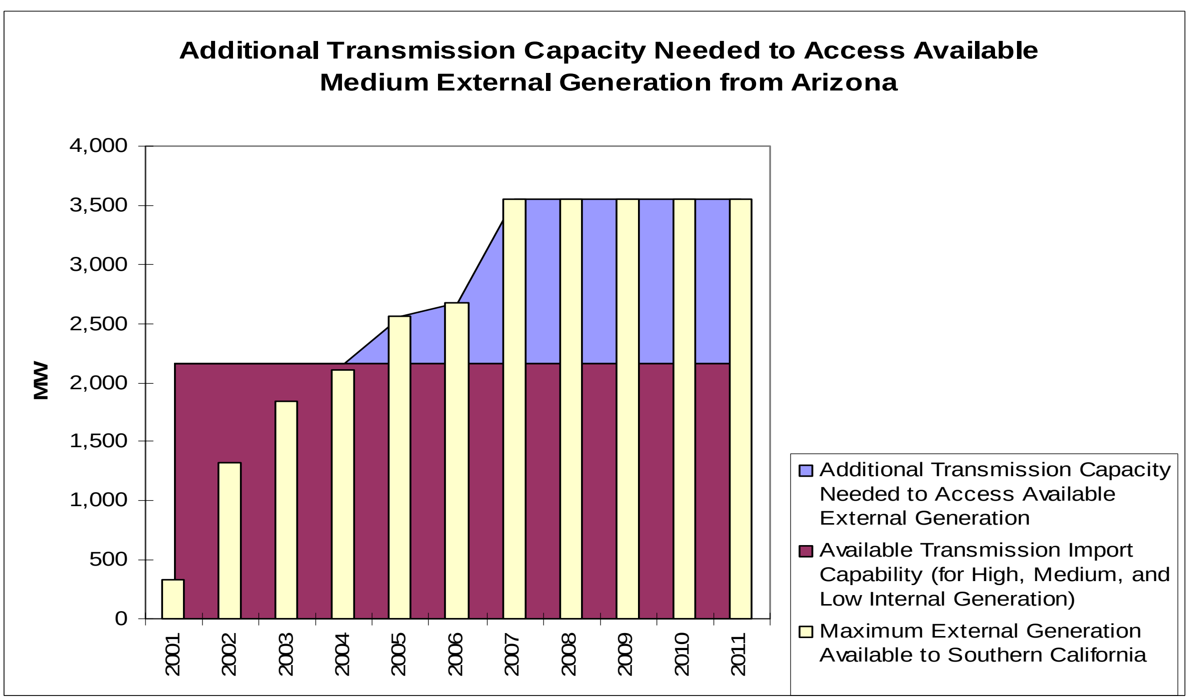
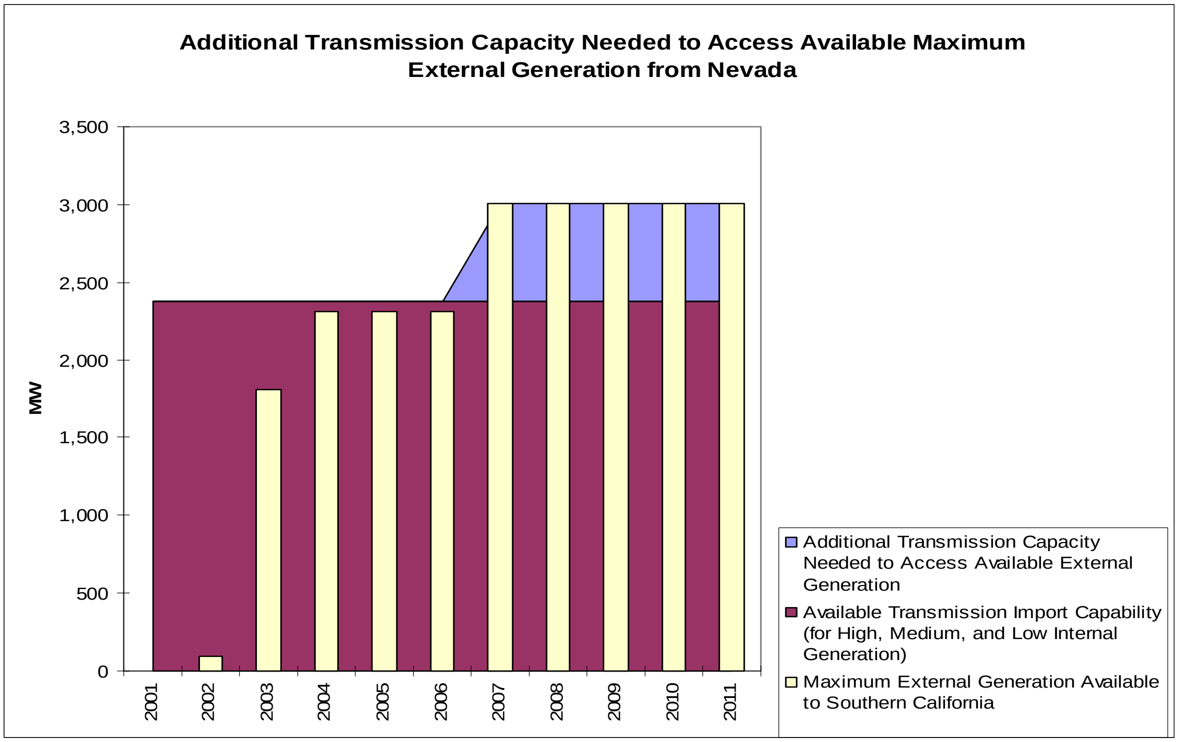


Figure 9 – Item K3.1.2. Additional Transmission Capacity Needed to Access Available Maximum External Generation from Nevada



The scenarios thus show that there is likely to be generation developing in Arizona and Mexico that could not be accessed by Southern California in the relative near term 2002-2005. The scenarios present no information on whether upgrades to transmission import capability to access this generation are economically justified. To make this determination a large range of economic variables must be assessed as is explained in Section V. As Section V discusses, a large number of variables, many having a significant level of uncertainty and interdependency, must be assessed.[6]

Nonetheless, a thorough and responsible economic assessment is indispensable because the transmission upgrades necessary to access power from the Southwest and Mexico are very large. As the economic testimony in action describes, a transmission project to upgrade access from Southern California to Arizona would likely involve 240 miles of new 500 kV transmission line and could cost between half a

[6] The discussion herein focuses on transmission upgrades required to access out-of-state resources. Another subject that should be evaluated from an economic standpoint is whether transmission upgrades are required to export excess in-state generation.

billion to two billion dollars depending on the ultimate cost of transmission line per mile. A transmission project to upgrade access from Southern California to Mexico would likely involve 100-190 miles of new 500 kV transmission line and could cost between one quarter of a billion to one and three quarters billion dollars depending on the route and the ultimate cost of transmission line per mile. These estimates do not include the cost of any upgrades to the in-state transmission system to ensure that the power imported could reach dense load centers.

The Opening Parties have developed an approach to expeditiously, but responsibly undertake a thorough assessment of the cost effectiveness of transmission projects to access new generation forecast to materialize in Mexico and the Southwest. This approach is intended to be developed and implemented in coordination with the Electricity Oversight Board, the CEC and the CPUC. It involves issuing an RFP for the development of a methodology to undertake an economic assessment, applying the methodology developed to assess transmission upgrades to the Southwest and Mexico, and working together to develop projects found to be cost effective. The schedule for RFP activities is as follows:

- CA ISO formed the Steering Committee (utilities and state agencies) April 27, 2001
- Steering Committee meets to finalize Draft RFP, schedule and consultant pool May 22, 2001
- CA ISO sends Final Draft RFP to consultant pool for comment May 23, 2001
- Consultants provide comments on Final Draft RFP to CA ISO June 5, 2001
- Steering Committee meets to finalize RFP and list of consultants June 12, 2001
- CA ISO sends RFP to list of consultants June 14, 2001
- Proposals must be received by the CA ISO July 30, 2001
- Steering Committee meets to select winning proposal August 14, 2001
- Contract sent to winning consultant August 17, 2001
- Consultant progress reports to CA ISO and Steering Committee every two weeks
- Steering Committee meets to review on-going work every two months
- Consultant provides draft report to CA ISO and Steering Committee January 10, 2002
- Consultant sends final report to CA ISO and Steering Committee March 14, 2002
- Steering Committee meets to approve final report March 28, 2002

This work will be coordinated with the work undertaken in the CA ISO Grid Planning Process. In this manner, as information is developed on economic justification, timely technical studies will be undertaken, as necessary to complement the economic assessment of projects to the Southwest and Mexico.

V. ECONOMIC FACTORS

(Sponsoring witnesses: Ronald Cottom, Don Kondoleon, Linda Brown, and Jeffrey Miller)

As discussed in Section IV above, in all reasonably likely cases reliability requirements do not support the construction of an additional transmission line linking the Southwest and Mexico to Southern California before 2008. Thus, the question turns to whether a Southwest/Southern California or Mexico/Southern California transmission line should be built to benefit long term electricity market prices. Deregulation of electricity supply has made it more difficult to accurately assess the economic need for a specific transmission line.

When the utilities exercised cost-based central dispatch of generation, transmission planning, including economic assessments, was relatively straightforward and the simulation of various generation costs was relatively simple. Now, however, without control over generation supplies or access to future generation or future regional market price data, neither the CA ISO nor utility transmission planners have a clear basis for determining whether and when to construct economic transmission additions. Modeling and simulation tools designed under the old paradigm can no longer be relied on to provide accurate estimates. New, more complex, simulation models that appropriately incorporate the complex dynamics of this deregulated environment are required. These tools are necessary to assess the likelihood and range of regional electricity price differentials and/or the effect of access to a larger market for electricity on Southern California electricity prices. Differences in electricity prices to Southern California consumers must then be compared against the cost of building, financing, operating and maintaining a potential new transmission line.

Notwithstanding these limitations, the Opening Parties have been requested by the Commission to provide an economic analysis of a Southwest/Southern California option. Due to time constraints, computer simulation-based production cost analyses, which is useful in forecasting regional market pricing information, was not possible for this study. Thus, the estimates provided in this section of the testimony should be viewed as illustrative only and should not be used by the Commission to forecast potential regional prices or price differences to determine the economic justification for a transmission line. Rather, the Opening Parties recommend that the CA ISO issue an RFP as described in section IV above.

This section will discuss the following four topics for information and illustrative purposes:

- Key Production Cost And Regional Market Prices Drivers
- Cost Of Building, Operating and Maintaining New Transmission
- CEC Fuel Price Projections
- Recommendations

A. Key Production Cost And Regional Market Prices Drivers

A key in determining overall locational market prices are the assumptions used in the various production cost simulation models. Some of the major components that drive operating costs and the resulting forecast production costs include:

- Heat rates
- Fuel costs, including fuel transportation costs
- Marginal operation and maintenance costs
- Emission credits/fees
- Property taxes and permit costs

Other factors that influence the probability of new generation being built, or otherwise have an effect on overall regional prices include:

- Transmission losses
- Load resource balance and the availability of excess energy by season and time of day
- Type of resource – hydro, wind, combined cycle, renewables

- Proximity to transmission so that the new generation can interconnect with the existing transmission network
- Water availability
- Emissions
- Fuel pipeline/fuel availability
- If combined cycle, unit(s) host needs
- Material costs/lead times
- Availability of engineering expertise and other skilled labor resources
- Community receptiveness to a project, including local approvals, environmental and local budget impacts, and the present and future state of the local economy
- Who the lead agency is on the environmental assessment?

Financial considerations are also a major factor in determining if accessing new generation resources is viable. These considerations and trade-offs include:

- State vs. private financing
- Tax exempt vs. private taxable funding and the associated impact on local property taxes
- The ability of either PG&E or SCE to finance any major transmission projects in the next few years

B. Cost Of Building, Operating and Maintaining New Transmission

The cost to build new 500 kV transmission lines is estimated to range from roughly $2 million to $9 million per mile. The cost per mile can vary substantially among the projects depending on required ancillary facilities, substation equipment, right-of-way acquisition costs, *etc*. These estimates include the costs associated with building new substations, to interconnect the new line to the transmission network, and the cost related to land acquisition for right-of-ways.

Based upon this rough range of construction costs, Table 1 presents the approximate line miles and a very elementary forecast of the construction cost for selected new 500 kV transmission lines for the Southern California region to access the Southwest or Mexico.

Table – 1 Estimated Construction Costs For New 500 kV Transmission Line

	Market Access	Line Miles	Cost at $2 MM/mile ($ Millions)	Cost at $5 MM/mile ($ Millions)	Cost at $9 MM/mile ($ Millions)
Palo Verde – Devers	Arizona	240[7]	$480	$1,200	$2,160
Rainbow – Imperial Valley	Mexico	190[8]	$380	$950	$1,710
Rainbow – Miguel	Mexico	100[9]	$200	$500	$900

The estimated annual cost associated with paying the return on and return of the initial capital investment on the transmission project, and the cost of operating and maintaining the new 500 kV line is shown in Table 2.

Table 2 – Annual Cost Associated With New 500 kV Transmission Line

	IOU Financed @15% ($Millions/year)	Annual O&M $6000/per mile ($Millions/year)[10]	Total ($Millions/year)
Palo Verde – Devers			
@ $2 MM/mile	$72.0	$1.4	$73.4
@ $5 MM/mile	$180.0	$1.4	$181.4
@ $9 MM/mile	$340	$1.4	$341.4
Rainbow – Imperial Valley			
@ $2 MM/mile	$57.0	$1.1	$58.1
@ $5 MM/mile	$142.5	$1.1	$143.6
@ $9 MM/mile	$256.5	$1.1	$257.6
Rainbow – Miguel			
@ $2 MM/mile	$30.0	$.6	$30.6
@ $5 MM/mile	$75.0	$.6	$76.1
@ $9 MM/mile	$135.0	$.6	$135.6

To build a transmission project based on the assumption that it will increase competition for generation supply within Southern California, the analysis of annual capital cost recovery and annual O&M must

[7] This number is described in separate SCE testimony.
[8] This number is described in separate SDG&E testimony.
[9] This number is described in separate SDG&E testimony.
[10] This number is described in separate SCE testimony.

show that the transmission facility can be paid for by reducing electricity supply costs within Southern California by an equal or greater amount. Figure 10 is an illustrative graph of the potential hourly saving resulting from a new transmission line. The hourly saving is equal to the product of the differential regional price ($/MWh), multiplied by the power flow rate on the new transmission line (MW). This graph is illustrative, since estimated hourly power flow rates and regional price differences are not available. Figure 11 is another illustrative graph that depicts the summation of the hourly savings, shown in Figure 10, when added together throughout the year. The question that is left unanswered is: whether the potential savings is greater than the annual costs associated with building, operating and maintaining the new transmission line?

Figure 10 - Potential Hourly Saving

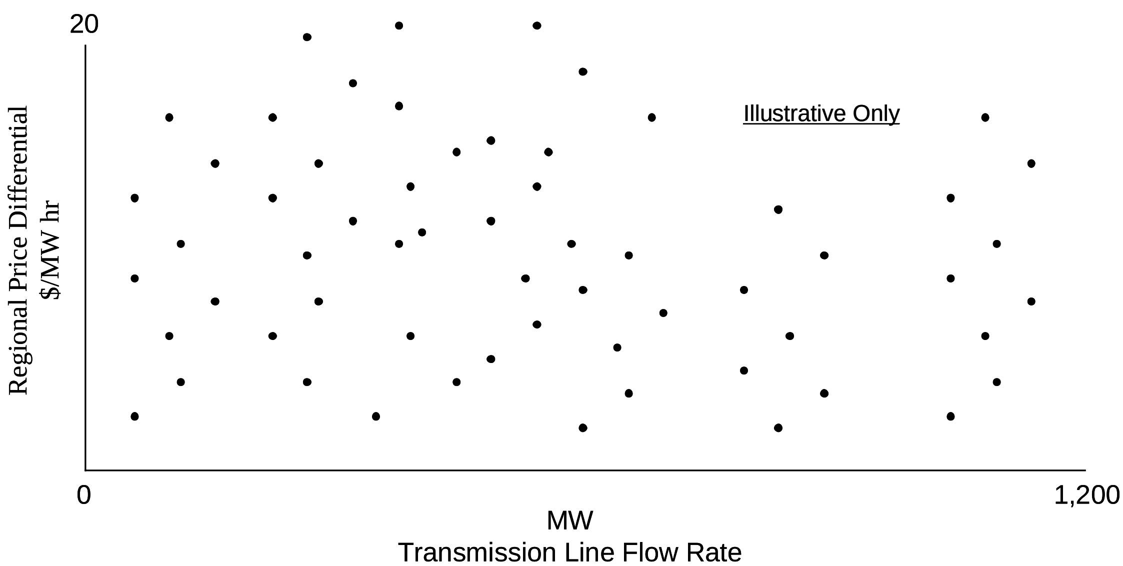
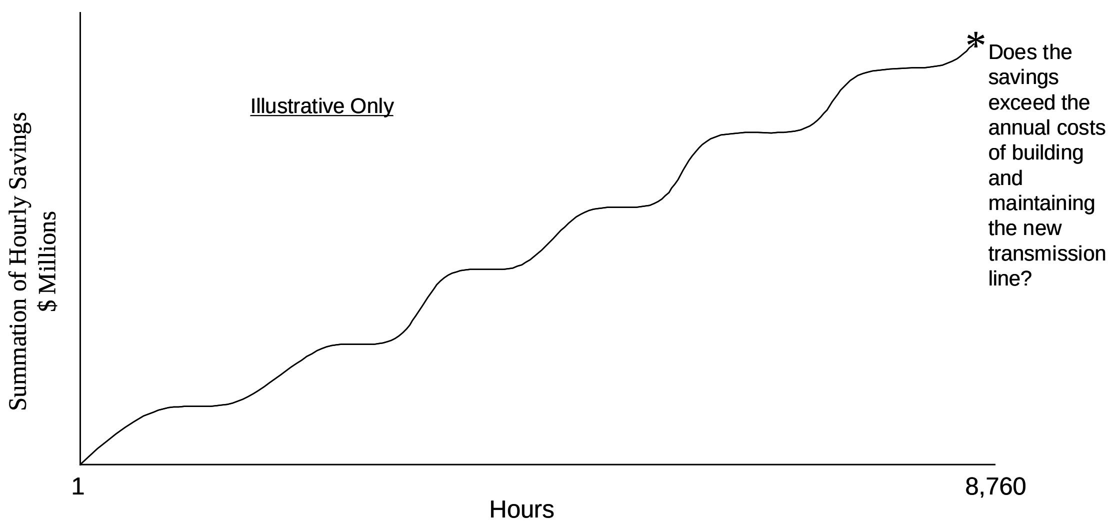


Figure 11 - Summation Of Hourly Saving



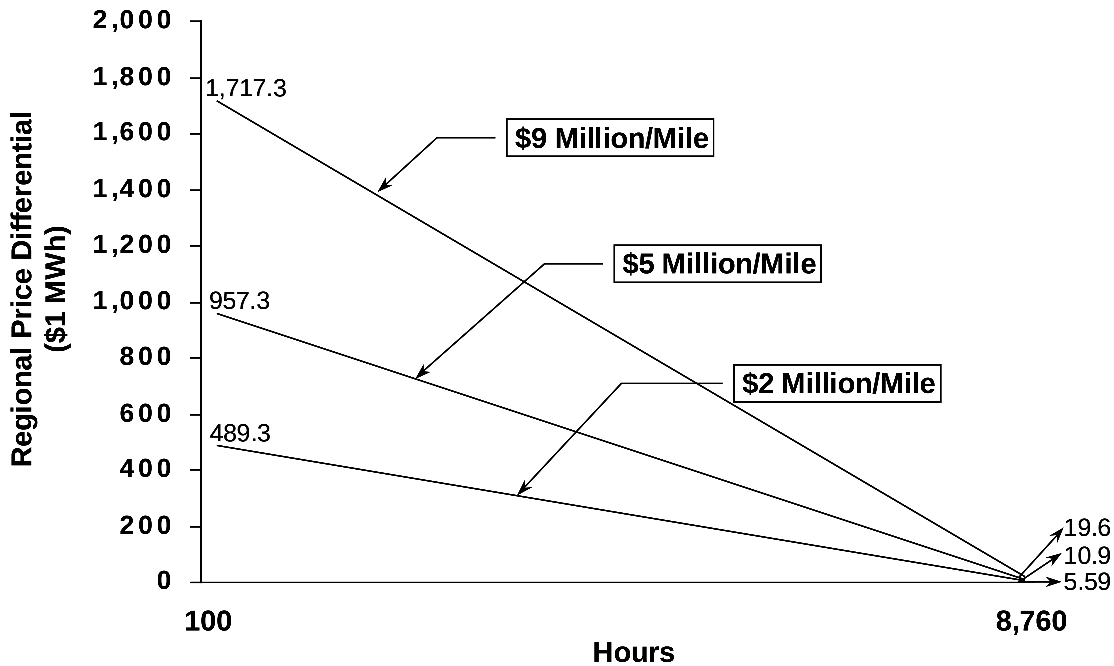
Another illustrative example is shown in Figure 12 below, which presents the differential regional price ($/MWh) compared to the number of hours the new transmission line operates, at various loading levels, for a range of new transmission line construction costs. From a numerical perspective, it is possible to solve for the differential regional price to break-even using the following equation. Annual cost of new line equals the power flow rate multiplied the cost differential multiplied by the hours at the cost differential. As an example, if a new 500 kV line costs $73.4 million annually[11], and the new line had a power flow rate of 1500 MW per hour, for a total of 4400 hours, then the price differential to break even is equal to $11.12/MWh [$73.4 million / (1500 MW * 4400 hours)].

To relate this value ($11.12/Mwh) to an equivalent differential natural gas fuel price, an illustrative example is provided. A forecast of natural gas fuel prices by region is provided in Table 3 below. Assuming that generation from a new power plant (heat rate = 7000 Btu/KWh) in one region entirely displaces system average generation (heat rate = 0,000 Btu/KWh) in another region, then the break even

[11] These costs include a return on, and the return of, the initial capital investments and operating and maintenance costs.

value of $11.12/Mwh would in this example be equivalent to a natural gas fuel price differential of $3.71/MMBtu.

Figure 12 Differential Regional Price Necessary To Pay For New Transmission Line



C. CEC Fuel Price Projections

The CEC prepared a forecast of regional natural gas prices shown in Table 3 below:

Table 3: Natural Gas Price Forecast for Electric Generation[12]

2000 $/MMBtu

Year	SCE	SDG&E	S. Nevada	Arizona	Baja, Mexico
2001	13.07	13.15	13.07	5.81	13.23
2002	10.70	10.78	10.70	4.93	10.86
2003	8.49	8.57	8.49	4.41	8.65
2004	7.21	7.29	7.21	4.30	7.37
2005	6.39	6.47	6.39	4.30	6.55
2006	5.80	5.88	5.80	4.30	5.96

The source of this price forecast was from the California Energy Commission Historical data - Natural Gas Intelligence, Weekly Price Index dated, April 24, 2001. Additional information is also available at the CEC's website and at coralconnect.com.

D. Recommendations

The Opening Parties support the recommendation that the CA ISO develop and issue an RFP as described in Section IV. The Opening Parties support the CA ISO's efforts to develop a new approach to assessing the generation market impacts on transmission planning by obtaining a methodology and analytical tools for evaluating the economic justification of multi-million dollar transmission investments. This includes assessing transmission investments designed primarily to reap generation market benefits while addressing, among any questions, whether:

i. new generation will be developed or not and, if so, where,

ii. there will be adequate fuel supplies for these new generators, and

iii. new generation that may be built within a region will result in stranded investment of new transmission to access more remote generation.

[12] Numbers in Table 3 are described in separate CEC testimony.

The Opening Parties recommend that the CA ISO issue the RFP as soon as possible in accordance with the schedule set forth in Section IV of this testimony.

VI. CONCLUSION

(Sponsoring witnesses: Ronald Cottom, Don Kondoleon, Linda Brown, Jeffrey Miller)

In accordance with the CPUC's directive to undertake an assessment of need for transmission import capability upgrades to the Southwest and Mexico, the Opening Parties have undertaken a screening exercise to assess whether such upgrades are needed for reliability or to access new generation in the Southwest and Mexico. These assessments coupled with the detailed Southern CA Study indicate that upgrades in transmission import capability from the Southwest and Mexico are unlikely to be necessary to maintain reliability through at least the end of 2007. This conclusion will be reviewed annually in the CA ISO Grid Planning Process. The assessments also demonstrate that upgrades may be appropriate to assure access to new generation in Mexico and the Southwest, since proposed new projects significantly exceed existing transmission import capability. However, a rigorous economic assessment is required to determine whether transmission upgrades should be built to access new generation. The Opening Parties have a process in place to undertake this assessment. The Opening Parties undertake to carry out this process cooperatively with the Electricity Oversight Board and the CPUC.

Attachment A

<u>QUALIFICATIONS OF Jeffrey C. Miller</u>

Q. Please state your name and business address.

A. My name is Jeffrey C. Miller. My business address is California Independent System Operator, 151 Blue Ravine Road, Folsom, CA 95630

Q. Briefly describe your responsibilities at the California Independent System Operator.

A. I am a Regional Transmission Manager in the Grid Planning Department at the CA ISO. I manage a group of five grid planning engineers that are responsible for reviewing and approving all new generator interconnection requests. In addition, my group is responsible for identifying the transmission facility additions that are required for one half of the CA ISO Controlled Grid.

Q. Please summarize your educational and professional background.

A. I received a Master of Science degree in Electrical Engineering from Ohio State University in 1981. After graduation I worked for the American Electric Power Service Corporation (AEP) in Columbus Ohio in their Bulk Transmission Planning Department. My responsibilities included planning 345 kV and 765 kV transmission facilities and representing AEP on NERC's ECAR Region Future System Study Group.

In 1985, I left AEP to join the Western Area Power Administration (Western) in Sacramento California. My primary responsibility at Western was to lead a study group responsible for planning the California-Oregon Transmission Project, which consists primarily of a new 340-mile 500 kV transmission line from the California-Oregon border to Tracy California, near San Francisco. In 1987, I left Western to join the Sacramento Municipal Utility District as a Senior Transmission Planning Engineer and later became SMUD's Supervisor of Transmission Planning. While at SMUD I held a number of responsible positions in various Electric industry organizations such as: Chairman of the Western Regional Transmission Association (WRTA) Planning Committee; WRTA Board Member, member of the WSCC Planning Coordination Committee; and Chairman of the WSCC Reliability Subcommittee which develops WSCC's Planning Standards.

In 1997 I left SMUD to join the CA ISO as a Regional Transmission Manager. I have over 20 years experience in electric transmission system planning.

Q. Does this conclude your statement of qualifications?

A. Yes.

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Attachment B

QUALIFICATIONS OF David Le

Q. Please state your name and business address.

A. My name is David Le. My business address is California Independent System Operator, 151 Blue Ravine Road, Folsom, CA 95630

Q. Briefly describe your responsibilities at the California Independent System Operator.

A. I am a Grid Planning Engineer in the Grid Planning Department. One of my primary job responsibilities is to review technical analyses and proposals prepared by Participating Transmission Owners to ensure that facilities are in place as needed to meet applicable reliability criteria, and to coordinate and review annual transmission expansion plans of the Participating Transmission Owners. In addition, I also review proposed new generation interconnections to the CA ISO Controlled Grid.

Q. Please summarize your educational and professional background.

A. I received a Bachelor of Science degree in Electrical & Electronic Engineering (Power Options) from California State University, Sacramento in 1988. After graduation I worked for Pacific Gas & Electric Company (PG&E) until January 1999. My last position with PG&E was Senior Transmission Planning Engineer. From January 1999 to March 2000, I worked for Southern California Edison as Senior Power System Planner. I joined the CA ISO in March 2000 as Grid Planning Engineer. I have over 10 years experience in the electric power engineering discipline.

Q. Does this conclude your statement of qualifications?

A. Yes.