

**PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

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

**OPENING BRIEF OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR
ON PHASE II ISSUES**

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Dated: July 12, 2001

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I. INTRODUCTION AND SUMMARY

In accordance with California Public Utility Commission Rule 75 and the oral ruling of Administrative Law Judge (ALJ) Gottstein,¹ the California Independent System Operator (CA ISO) respectfully submits its opening brief in the above captioned case. In this phase of the proceeding, the California Public Utilities Commission (CPUC) assessed the possibility of need for regional transmission links from Southern California to the Southwest and Mexico. While such links are unlikely to be necessary to maintain reliability before 2008, the CA ISO considers that steady progress is necessary to assess the economic justification of such links for economic reasons.

A study undertaken by the CA ISO, San Diego Gas and Electric Company (SDG&E) and Southern California Edison Company (SCE), supplemented by scenarios undertaken in this proceeding indicate that additional transfer capability into Southern California is unlikely to be needed to maintain reliability before 2008. The exact date of need thereafter is largely dependent on the rate at which new internal generation develops in Southern California and the rate of load growth in the area. Thus, it is important to review on an ongoing basis the timing of a reliability need for added transfer capability into Southern California as additional information becomes available on the development of new internal generation. The CA ISO intends to continue to undertake this task through the annual Coordinated Grid Planning Process.

Further, by 2002-2005, significant new generation is likely to develop in the Southwest and Mexico that will not be accessible to Southern California without additional regional transmission links. Accordingly, it is important to make steady progress toward assessing the

justification for regional transmission links from Southern California to the Southwest and Mexico.

The cost of regional transmission links from Southern California to the Southwest or Mexico will be significant. Moreover, bringing major regional transmission links into existence requires the support of a significant number of key entities. However, at this time, there does not exist a broadly accepted methodology to undertake economic assessments of major transmission links in the restructured electric industry. Under the circumstances, the CA ISO considers that assessment of the justification for regional transmission links to the Southwest and/or Mexico will be expedited by working steadily and cooperatively with the Electricity Oversight Board (EOB), the California Energy Commission (CEC), the CPUC and the utilities to develop a methodology for economic assessments and to apply the methodology to assess transmission links into Southern California. With a steering committee on which the EOB, the CEC, the CPUC and the utilities are represented, the CA ISO has developed and issued a request for proposals (RFP) for assistance in developing a methodology for economic assessments, to begin the process. The CA ISO expects to continue to work cooperatively and expeditiously with the EOB, CEC, CPUC and the utilities to ensure timely progress towards exploring the justification for transmission links to the Southwest and Mexico.

Finally the CA ISO has some concerns about the manner in which this proceeding has unfolded. The CA ISO recognizes that both the CA ISO and the CPUC have a role to play in the development of new transmission in California, and that accordingly coordination and cooperation among them is essential to ensure timely development of needed new transmission. The CA ISO

¹ . In an oral ruling ALJ Gottstein permitted filing of this brief one day late, provided electronic service took place by the original filing due date.

is concerned that the manner in which Phase 2 has unfolded resulted in an inefficient use of resources and creates the specter of inconsistent results -- both effects that could delay rather than expedite progress toward the implementation of needed transmission upgrades. The CA ISO is eager to improve coordination and cooperation with the CPUC to prevent this from happening.

The CA ISO will not address in its opening brief the justification for smaller internal transmission lines (e.g. lines under 500 kV) that may be required to complement regional transmission links to the Southwest or Mexico. The line of this type discussed extensively in the hearings, Miguel-Mission, has been made the subject of further evidentiary hearings in the recent July 10, prehearing conference in this matter.

II. SCOPE OF PHASE 2.

Phase 2 was intended to "explore the cost-effectiveness of building transmission lines to relieve major constraints in meeting power demands on the electric system, under a range of load/generation growth scenarios." March 29, ALJ's Ruling Regarding Summer Hearings in Phase 2 (March 29 ALJ Ruling). At a prehearing conference on March 13, 2001, the ALJ directed the parties to identify the top three priorities (constrained areas) for potential transmission upgrades. Three priority projects were discussed: a 500 kV line from Valley to Rainbow; a Southern California link to the Southwest and upgrades to Path 15. Ultimately, the judge directed that the Valley-Rainbow and Path 15 projects would be addressed in CPCN proceedings and that the hearings in the summer would focus on a Southern California link to the Southwest. See March 29 ALJ Ruling. Assessment of major links required to bring power from Mexico for use throughout Southern California and statewide was added to the scope as the parties to the case explored the development of opening testimony and these discussions were relayed to the ALJ through the Energy Division which participated in the discussions.

Given the preliminary nature of the inquiry, the assessment and hearings focused on conceptual major links from Southern California to the Southwest and from Southern California to Mexico, or more precisely in the case of Mexico, significant backbone lines that would be needed to utilize power from Mexico in Southern California and statewide. The assessment undertaken for this proceeding by the CA ISO in conjunction with the CEC, SDG&E and SCE ignored in-state transmission upgrades that would be required to complement the major conceptual links.

III. THERE IS A NEED FOR STEADY PROGRESS TO ASSESS THE JUSTIFICATION FOR ADDITIONAL TRANSFER CAPABILITY INTO SOUTHERN CALIFORNIA EVEN THOUGH REGIONAL TRANSMISSION LINKS TO MEXICO OR THE SOUTHWEST ARE UNLIKELY TO BE REQUIRED FOR RELIABILITY BEFORE 2008.

A. A Study by the CA ISO, SCE and SDG&E and Certain Scenarios Prepared for this Proceeding Indicate that Regional Transmission Links to Mexico and the Southwest are Unlikely to be Required to Meet Applicable Reliability Criteria before 2008.

The CA ISO is required by California law to comply with planning criteria no less stringent than those established by the Western Systems Coordinating Council (WSCC) and the North American Electric Reliability Council (NERC). Public Utilities Code § 345. The CA ISO accomplishes this objective through the Coordinated Grid Planning Process in which it ensures that all facilities needed to meet applicable planning criteria are put into place. Tr. 2 (Miller) Vol. at 192-4; see also Exh. 29, California ISO Conformed Tariff as of January 12, 2001, §§ 3.2.1.2 and 3.2.2.

Assessments in the Coordinated Grid Planning Process are conducted in accordance with the CAISO Grid Planning Criteria which incorporate criteria and standards developed by WSCC and NERC. Exh. 24, Southern California Long-Term Regional Transmission Study at 7. In

accordance with these criteria, a reliability assessment undertaken in the context of the CA ISO Grid Planning Process begins with an assessment of whether the system will allow for serving "all load with all facilities in services" without causing "any transmission lines [to be] loaded above their normal facility ratings" or causing voltages to occur "beyond their normal limits". Tr. (Miller) 2 Vol. at 221. Once this has been demonstrated, assessments of contingencies are undertaken. Tr. (Miller) 2 Vol. at 222. Generally, the driving criteria in planning the system is the single largest or the single most critical generating unit out combined with the single most critical transmission line out. Id.; see also Exh. 1, 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, at 14. The exercise is largely a deterministic one in which an agreed upon case regarding system conditions is established, and specific tests are run using that case to determine whether the system passes or not. Tr. (Miller) 2 Vol. at 223.

The CA ISO may in addition look into some different scenarios, including different generation levels, and may assess the likelihood of these additional contingencies reviewing the history of loadings on affected facilities. Id. Moreover, there are transmission models that are moving in the direction of assessing loss of load probabilities and expected unserved energy indices and the CA ISO is currently reviewing some standards that move in a more probabilistic planning direction. Id.

The CA ISO meets its responsibility to ensure compliance with WSCC and NERC reliability planning criteria, through an annual Coordinated Grid Planning Process. Tr. (Miller) 2 Vol. at 192-194. In this process, utilities prepare, through a stakeholder process facilitated by the CA ISO, plans reviewing the need for transmission additions to maintain reliability for a minimum five year planning horizon. Tr. (Miller) 2 Vol. at 192-195. The plans are reviewed and approved

by the CA ISO, and projects above 20 million dollars must be reviewed and approved by the CA ISO Governing Board. Id.

Prior to the initiation of Phase 2, in the context of the Coordinated Grid Planning Process, the CA ISO worked with SDG&E and SCE to assess the need for a link from Southern California to the Southwest in accordance with the CA ISO Grid Planning Criteria. Exh. 1, 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, 4; Exh. 24, Southern California Long-Term Regional Transmission Study, at 7. The study included a technical analysis of the ability of the transmission system to import power into Southern California and included a detailed power flow analysis. See Exh. 1, 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, at 5-6; Exh. 24, Southern California Long-Term Regional Transmission Study, at 7. The study, called the Southern California Long-Term Regional Transmission Study, focussed on the 2008 time frame but was undertaken now given the long lead times required to bring into existence large transmission projects. Exh. 24, Southern California Long-Term Regional Transmission Study, at 5-7.

The study found that, without the addition of a significant amount of new merchant generation within Southern California, by 2008 additional transfer capability into Southern California would be needed to maintain reliability. See Exh. 1, 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, at 5; Exh. 24, Southern California Long-Term Regional Transmission Study, at 5. The study recognized that the reliability justification of the line depends on whether sufficient merchant generation will

materialize in Southern California and /or the Southwest. Exh. 24, Southern California Long-Term Regional Transmission Study, at 5. The study also noted that even if sufficient new generation materializes to avoid the need for new transfer capability as a reliability matter, such capability might be justified on economic grounds. Exh. 24, Southern California Long-Term Regional Transmission Study, at 5. The study concluded that "The Cal-ISO, in coordination with SCE and SDG&E should send out an RFP to select a consulting firm to develop and provide recommendations on principles and a methodology to assess, and in appropriate cases, document the economic justification for transmission projects to access regional energy markets." Exh. 24, Southern California Long-Term Regional Transmission Study, at 5. The study noted that "it is ... necessary to define feasible 'backstop' transmission projects as early as possible." Id.

In March, the CPUC directed the utilities to prepare "scenario analyses for evaluating the cost-effectiveness of potential transmission upgrades for a Southern California-Southwest link that include 1) alternative scenarios regarding generation growth, including likely sites for future generating facilities and 2) load growth scenarios, including geographic demand patterns." March 29, 2001 ALJ Ruling at 3. The CA ISO worked with SCE, SDG&E and the CEC (Joint Parties), which was asked to participate in the project as it has information and expertise with regards to key parameters of the analysis, to prepare the requested scenarios. Exh. 1, 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, at 3. Given the limited time and resources available, and the large number of parameters that the CPUC indicated through the Energy Division that it wanted examined, the only feasible alternative was to develop an arithmetic spread sheet to assess a large number of cases and provide a preliminary screen of cases in which additional transfer capability appeared to be required and useful to maintain

reliability. Exh. 1, 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, at 8-9.

Initially, two sets of scenarios, each assessing 48 different cases were prepared and filed as opening testimony. Subsequently, in response to a June 7 ALJ Ruling, three additional sets of scenarios, each assessing 48 different cases, were prepared. While all the scenarios screen whether additional transfer capability appears to be required and useful to maintain reliability, only two of the five sets (Exhibits 2 and 19) are based on the CA ISO Grid Planning Criteria. These two sets of scenarios assume for outages, an outage by one of the largest generating units, San Onofre's Unit 2 or 3 with a capacity of 1150 MW. Exh. 1, 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, at 14.²

The scenarios largely confirm the findings of the Southern California Long-Term Reliability Study. As is discussed in further detail below, need for additional transfer capability into Southern California does not materialize before 2008 in any reasonably likely scenario. The timing of the need for additional transfer capability after 2008 depends heavily on the level of new internal generation that develops in Southern California and the rate of load growth. If new generation development is very aggressive, the need for the line does not arise within the ten year horizon reviewed. See Exh. 2. Accordingly, to determine whether and when additional transfer

² The scenarios in Exhibit 19 are not discussed because they are the same as the scenarios in Exhibit 2 except that the derate for very low generation scenarios is eliminated. Instead of focussing on the elimination of the derate, the brief discusses the effect of applying the derate methodology consistently to the scenarios. This approach is also taken with regards to the scenarios in Exhibit 20 which are the same, but for the derate in the very low generation cases, as the scenarios in Exhibit 3.

capability will in fact be needed, it is important to monitor the development of new internal generation in Southern California and review the need for links to the Southwest or Mexico on an on-going basis. The CA ISO intends to continue to undertake this review annually in the Coordinated Grid Planning Process.

The need for a link before 2008 is demonstrated to be highly unlikely. Of the 48 scenarios assessed in Exhibit 2, only six indicate a need for additional import capability prior to 2008. Exh. 1, 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, at 22, Figure 3. All these six scenarios are highly unlikely. All six scenarios assume very low new internal generation (only 720 MW of new generation); four out of six of the scenarios assume that base load will be 20% more than current projection and the other two scenarios assume that base load will be 10% more than current projections. Exh. 1, 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, at 22, Figure 3.

The entire panel of Joint Parties' witnesses testified that they considered scenarios having an assumption of base load plus 20% improbable, Tr. (Miller) 2 Vol. at 190-2, and there is no contrary evidence on the record to suggest that a base load plus 20% case should be given any weight. To the contrary, load witnesses testified that the base load forecasts provided by the utilities and the CEC for use in the scenario analysis will shortly be revised downward, according to the CEC witness by 5% or more. Exh. 7, Prepared Direct Testimony of Southern California Edison Company, at 2; Tr. (Jack) 1 Vol at 19-21; Tr. (Rohrer) 1 Vol at 22-23.

Similarly the entire panel of Joint Parties' witnesses testified that they considered scenarios with the very low new internal generation assumption improbable, Tr. (Miller) 2 Vol. at 190-2,

and again there is no contrary evidence. Moreover, there is evidence in the record that suggests that a combination of high load growth with very low new internal generation is even more improbably than each of these factors arising independently. Witnesses Jack and Rohrer both noted that the downward revision in the load forecast was due in part to a response to higher prices. Tr. (Jack) 1 Vol. at 19; Tr. (Rohrer) 1 Vol. at 23-24. Higher prices generally result from limited supplies, as would exist with little new generation. Further, higher prices generally stimulate the development of new generation. (Higher prices also provide an incentive for continued operation of existing generation. Tr. (Vidaver) 3 Vol. at 285-296.) Thus, scenarios with high load growth but very low new internal generation are particularly unlikely.

The CA ISO acknowledges one flaw in the scenario analyses that must be addressed in discussing the conclusions that can be drawn from them. As acknowledged by CAISO witness Le, in preparing the scenarios, Mr. Le assumed a derate in transfer capability in the very low generation case, to reflect a finding from a SONGS operational study he performed two years ago that showed a derate in the SCIT import limit where load significantly exceeds internal generation. Tr. (Le) 3 Vol. at 334. The derate is applied to the very low new internal generation cases having base load, base load plus 10% and base load plus 20% because in these cases there is insufficient internal generation to provide adequate voltage to support internal load. See Exh. 3; Tr. (Le) 3 Vol. at 332.

Mr. Le admitted that he did not apply a similar derate to other scenarios where internal generation might be insufficient to provide adequate voltage support to serve internal load, and that, to be consistent, he should have applied the methodology to derate transfer capability in all scenarios. Tr. (Le) 3 Vol. at 333. Moreover, it became evident during the discussion on the record of the derate methodology that the methodology was not consistently applied even in the

very low generation cases because a factor of .8 was used in all such cases, rather than calculating the appropriate ratio in each case. Tr. (Le) 3 Vol. at 332.

After much discussion, it was clarified on the record that simplified to its essence, the appropriate methodology to calculate transfer capability in light of possible derates is as follows: existing transfer capability minus load growth plus new internal generation. Tr. (ALJ Gottstein memorializing an off the record discussion) 3 Vol. at 332. Mr. Le indicated that up to a 500 MW excess of new load over new internal generation could be addressed by relatively minor internal "fixes." Tr. (Le) 3 Vol. at 338. However, Mr. Le noted that above the 500 MW figure, a derate would probably have to be applied, and, for simplicity, a one for one derate should be applied for every MW of new load that exceeds new internal generation, although this assumption would have to be confirmed with power flow studies. Tr. (Le) 3 Vol. at 339.

The CA ISO acknowledges this flaw in the scenarios prepared and has reviewed the results in preparing this brief to correct for the error in accordance with the derate methodology. The corrections do not change the conclusion that a new regional transmission link to Southern California is unlikely to be needed before 2008 to meet CA ISO Grid Planning Criteria. Load growth between 2001 and 2008 in the base case scenario is projected to be between 3,400 and 3,500 MW depending on whether utility or CEC numbers are used, whereas the new internal generation even in the low new internal generation case is 5,000 MW by 2008. Moreover, in all years, new internal generation exceeds load growth. Thus, in accordance with the derate methodology, existing transfer capability would not be reduced in the base load case even in the most pessimistic credible scenario regarding new internal generation, the low new internal generation case. The very low internal generation cases were not assessed as all evidence in the record indicates that they are not likely.

In the cases of base load plus 10%, new load only significantly (more than 500 MW) outstrips new internal generation in 2002 and again in 2008, using the most pessimistic credible new internal generation case, the low new internal generation case. Nonetheless, even after applying the derate methodology in 2002, there is adequate transfer capability to access the required market imports. A correction in the derate methodology would affect the base load plus 20% scenarios; however, all evidence on the record indicates that the base load plus 20% case is unlikely.

Moreover, as Mr. Le testified, the scenarios did not consider the effect on import capability that has resulted from the recent addition of 940 MVARs of on-line reactive VAR support on the system. Tr (Le) 3 Vol. at 332-333; Exh. 32, Supplemental Table 2: Comparison of On-Line Internal Generation Assumptions Between SCIT 2000 Heavy Summer and SCIT 2001 Heavy Summer Cases. Thus, without accounting for the derate error acknowledged above, the import capability was understated in the scenarios by close to 1000MW.

Thus, the Southern California Long-Term Regional Study and the scenarios prepared for this case indicate that new regional transfer capability is not likely to be needed to meet CA ISO Grid Planning Criteria before 2008. Whether a need arises in 2008 or beyond depends heavily on the level of new internal generation that develops in Southern California. However, the CA ISO does not consider that this should lead to a delay in assessing the economic viability of regional links to the Southwest or Mexico, nor was this the conclusion of the Southern California Long-Term Regional Study. Rather, an economic assessment should be pursued as soon as an appropriate methodology is agreed upon. In the meantime, the development of new internal generation and the need for added transfer capability into Southern California for reliability must

continue to be reviewed on an on-going basis. The CA ISO is committed to such review in the context of the Coordinated Grid Planning Process.

B. All scenarios support the approach suggested by the Joint Parties, to proceed steadily with a thorough and responsible economic assessment of regional transmission links to Mexico and/or the Southwest.

In addition to the scenarios assessing the need for additional transfer capability to maintain reliability based on CA ISO Grid Planning Criteria, in response to requests by the Energy Division and a Ruling by the ALJ, the Joint Parties and the CA ISO prepared three sets of scenarios with increased figures for generation outages and generation retirements. These scenarios confirm the findings of scenarios based on CA ISO Grid Planning Criteria, that the need for added transfer capability into Southern California for reliability is unlikely before 2008 and depends heavily on the development of new internal generation (and the level of unit retirement) thereafter.

Exhibit 3, prepared at the request of the Energy Division, sets forth scenarios with aggressive outage figures provided by the CEC in addition to the single contingency outage required by CA ISO Grid Planning Criteria. The panel of Joint Parties' witnesses involved in preparation of the scenarios indicated that they did not consider these scenarios to be likely. Tr. (Miller) 2 Vol. at 191. However, the CEC witness who supplied the outage figures for Exhibit 3, Mr. Vidaver, testified that he believes the aggressive outage figures to be more realistic than the outage figure required by CA ISO Grid Planning Criteria. Tr. (Vidaver) 3 Vol. at 280. Moreover, the CEC outage figures are largely consistent with figures used by the CA ISO operations department to project the resource situation for summer 2001. See Exh. 27, Supplemental Table 1: Comparison of Generation Outage Assumptions Between "CAISO Summer 2001 Assessment" and the Planning Criteria Worksheet #1 Matrix. (The CA ISO

witness responsible for preparation of this projection, Mr. Graves, made it clear that his work does not provide any indication of what may be in store for 2002. Tr. (Graves) 1 Vol. at 15.)

Exhibit 21 prepared in response to a June 7 ALJ Ruling adds a generation retirement figure to the aggressive outage figures provided by the CEC, and the single contingency outage figure required by CA ISO Grid Planning Criteria. Exh. 18, Response to ALJ's Requiring Additional Information From Opening Parties; Exh. 21. Mr. Vidaver, the CEC witness who provided the figures for retirements, indicated that he based his figures on an assumption that older generation with inefficient heat rates would retire if prices normalize, Tr. (Vidaver) 3 Vol. at 284, and that peakers given three-year operating permits will retire, Tr. (Vidaver) 3 Vol. at 282. Mr. Vidaver noted however that with regards to at least some units the CEC's belief that units would retire was based on a belief that the units would be replaced by other facilities at the same site. Tr. (Vidaver) 3 Vol. at 282. Moreover, Mr. Vidaver stressed the relationship between retirements, and new generation coming on line and causing a reduction in electric prices. In his opening testimony he stated that his retirement numbers are plausible "given the assumption that a substantial amount of new capacity coming on-line by 2004, causes prices to drop, rendering the least efficient units unprofitable." Exh. 11, Prepared Direct Testimony of David Vidaver on behalf of the California Energy Commission, at 2. At the hearings, Mr. Vidaver stated that he would expect retirements if there is a prolonged two to three year period of low prices. Tr. (Vidaver) 3 Vol. at 285.

The issue of whether and when to undertake sensitivity analyses in the context of transmission planning that includes a review of outage figures and retirement figures other than those required by CA ISO Grid Planning Criteria is a policy issue that will have to be assessed going forward by the CA ISO, and other entities that play a role in transmission planning. The

CA ISO must and will continue to make determinations with regards to whether a project is required to maintain reliability in a manner that provides that, at a minimum, CA ISO Grid Planning Criteria, which incorporate WSCC and NERC requirements, are met. In addition, the CA ISO is reviewing some standards that move in a "probabilistic planning-type direction," and does in particular cases look at different scenarios. Tr (Miller) 2 Vol. at 223. In this case, the scenarios that incorporate aggressive outage and retirement figures do not provide a basis for concluding that additional transfer capability into Southern California is likely to be needed before 2008 in order to maintain reliability.

Even in cases using the aggressive outage figures provided by the CEC, additional regional transfer capability is only needed by 2008, except in the very low generation cases or the base load plus 20% cases that witnesses testified are not likely. See Exh. 1, 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, at 22, Figure 3. Thus, a conclusion that a new link to Mexico or the Southwest is not needed for reliability before 2008 is supported by the sensitivity analysis provided by the aggressive outage scenarios. Moreover, it is worth noting that, according to the testimony of Mr. Vidaver, in the years prior to 2000, outage figures were closer to the CA ISO Grid Planning Criteria number than to the larger numbers experienced in 2000. Tr. (Vidaver) 3 Vol. at 280-1.

Applied mechanically, the error regarding application of a derate to import capability discussed above does not affect the results in the aggressive outage scenarios since the methodology only considers new load and new internal generation. Even if one considers the effect of additional outages nonetheless, it does not appear that the results should change. As discussed by Mr. Le, the study that supports application of a derate in the first place provides for

the outage of the two SONGS units or roughly 2200 MW (or one unit and one transmission line). Tr. (Le) 3 Vol. at 337. Thus, the real effect of outages should be considered against the 2200 MW of outages assumed in study. By 2004 and thereafter, the aggressive outage scenario applies a figure of 1990MW of outages on top of the planning outage assumption of 1150MW, for a total of 3140 MW of outages (the higher outage figures for the years before 2004 are irrelevant since a line could not be permitted and built before 2004). The difference between the 2200MW of outages assumed in the study and 3140MW of outages assumed in the aggressive outage scenarios is 940MW, which happens to equal the addition of VAR support that was not incorporated in the scenarios because the CA ISO was not aware of the improvement at the time the scenarios were prepared. Tr. (Le) 3 Vol. at 332-333. Accordingly, the deration error does not affect the conclusions of the aggressive outage scenarios even if the method for deration is not applied mechanistically.

The CA ISO does not consider that the sensitivity information from cases that add retirements to aggressive outage figures affect the conclusions that can be drawn from the planning scenarios either; that new transfer capability is unlikely to be required for reliability before 2008 and that need for such capability thereafter depends heavily on the development of new internal generation. If one discards the results of cases with very low internal generation and/or with a base load plus 20%, transfer capability is only needed before 2008 even with retirements in the cases that have low new internal generation and base load plus 10%. In these cases, with retirements, a link is needed in 2007. While, the derate error discussed above would affect the outcome of the scenarios including retirement assumptions it does not significantly change the conclusions.

If units are assumed to be retired, the capacity retired should be deducted from new internal generation in the formula for derating transfer capability. Thus, the formula should be existing transfer capability minus new load, plus new internal generation, minus capacity retired. Further, since the 940MW increase in transfer capability due to VAR support improvements is used to address additional outages as discussed above, only a 500MW allowance for improvements in transfer capability through means other than added generation remains to mitigate the need for a derate.

In preparing this brief, the CA ISO reviewed the results in the retirement scenarios for the utility base load case and the utility base load plus 10% case and for the low, medium and high new internal generation cases looking for cases where need for additional transfer capability into Southern California was indicated before 2008. (The CA ISO did not review the base plus 20 % load cases or the very low generation cases as these were deemed by all witnesses to be unlikely.) The CA ISO adjusted transfer capability in accordance with the formula described in the paragraph above in all cases where new internal generation minus new load minus retirements equaled more than 500MW. This exercise demonstrated that in all high new internal generation cases, scenario results were unaffected by the derate flaw in the scenarios. In the medium new internal generation cases, results through 2008 were only affected in the base load plus 10% cases: correcting for the derate error a new link is need in 2007 in the base load plus 10% cases. Finally, in the low internal generation cases, correcting the results for the derate error makes a link become necessary in 2008 in the base load cases, and in 2005 in the base load plus 10% cases.

The sensitivity analysis provided in the aggressive outage plus retirements scenarios does not lead the CA ISO to conclude that there is a significant likelihood that regional transmission

links will be required to maintain reliability before 2008. Mr. Vidaver testified that retirements are plausible if "a substantial amount of new capacity com[es] on-line by 2004." Exh. 11, Prepared Direct Testimony of David Vidaver on behalf of the California Energy Commission, at 2. Mr. Vidaver also noted the relationship between prices and likelihood of unit retirements and stated that retirements would be likely after a sustained period of lower prices. Tr. (Vidaver) 3 Vol. at 205. Electricity prices are affected by the balance of supply and demand. In a case where not much internal generation develops but load growth is robust, prices are likely to remain high.³ The need for a new link is only significantly before 2008 in cases where a low level of new generation develops but the base load case is escalated by 10%, an instance in which prices are likely to remain high. Moreover, the base case plus 10% figures are themselves likely too high, since all load witnesses testified that the base case should be reduced, according to the CEC witness Mr. Rohrer by 5%. Tr. (Rohrer) 1 Vol. at 2223. All these factors suggest that the sensitivity assessment provided by adding an assumption on unit retirements does not lead to a conclusion there is a reasonable likelihood that a reliability based need for a regional transmission link will arise before 2008.

In sum, the CA ISO does not believe that the sensitivity analyses provided by the scenarios requested by the CPUC in this case indicate a significant likelihood of a reliability based need for a new transmission link to Mexico or the Southwest prior to 2008.

- C. It is necessary to maintain steady progress in developing a methodology to conduct economic assessments of significant new transmission lines and to apply these methodologies as soon as possible to links to the Southwest and/or Mexico.**

³ Even if low cost generation develops in neighboring regions, if such low cost generation cannot be accessed by California in the absence of new internal generation, in-state prices will remain

Although the record in this case supports the view that a link to the Southwest and/or Mexico is unlikely to be needed for reliability before 2008, the CA ISO considers that it is important to maintain steady progress to assess the justification for regional transmission links to the Southwest or Mexico. Two factors underscore the need for steady progress. First, the scenarios demonstrate that there is likely to be significant generation available in Mexico and Arizona within the next three to four years that will not be accessible to Southern California without additional regional transmission links to these areas. Exh. 1, 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, at 25. An economic assessment should review whether projected regional price differentials and usage patterns justify the cost of potential links. Further, given the lead time required to build a regional transmission link, 2008 is not very far away and the economic assessment would be useful in making decisions about and/or justifying a regional transmission line even in cases where it is required to maintain reliability.

The scenarios indicated that by 2003, there is likely to be significant generation available in Mexico that cannot be accessed with existing transfer capability. Exh. 1, 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, at 25. Further, the scenarios indicated that between 2002 and 2005, there is likely to be significant generation available in Arizona that cannot be accessed with existing transfer capability. Exh. 1, 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, at 25.

high.

To determine whether the cost of a new line to access this new generation is justified, it is necessary to project the likelihood that new generation in the affected regions will in fact develop, whether it will be available to California and the price differentials between power available in California and power available in the neighboring regions. Exh. 1, 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, at 29-30.

The cost of new transmission links from Southern California to the Southwest and/or Mexico is significant, ranging between half to two billion dollars for a link to the Southwest and a quarter of a billion to one and three quarters of billion dollars for a link to Mexico. Exh. 1, 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, at 2, 32, Table 1. Accordingly, it is necessary to have a credible economic assessment undertaken to determine whether the lines are justified. Unless steady progress is maintained in this regard, economic benefits to California electricity users from regional electricity transmission links could be unnecessarily delayed.

The credible possibility of need for transmission links from Southern California to the Southwest and/or Mexico by 2008 underscores the need for steady progress. As noted in the Southern California Long-Term Regional Study, the lead time for major transmission lines is significant. Exh. 24, Southern California Long-Term Regional Study, at 5. It is possible that permitting of a link to the Southwest could be accomplished in less than seven years given the amount of environmental and engineering work that has been undertaken on the Palo Verde-Devers line. Tr. (Miller) 2 Vol. at 183. Nonetheless, there is no time to waste and it is important to maintain steady progress developing an economic assessment.

The CA ISO proposes to develop a methodology for conducting economic assessments, in conjunction with key state agencies and the utilities, as described in section IV below. This is not because the CA ISO considers that there is time to spare; rather, this is because the CA ISO considers that developing a good foundation for the justification of the potential regional transmission lines will expedite rather than delay their implementation. Tr. (Miller) 2 Vol. at 182. As described in section IV below, there does not currently exist a broadly supported methodology to undertake the type of economic assessment required at this time. Under the circumstance, the CA ISO is moving as fast as it believes practical to develop a methodology and facilitate an economic assessment of regional transmission links in the expectation that this process will ultimately expedite construction of regional transmission lines that are demonstrated to be justified. Tr. (Miller) 2 Vol. at 182.

In sum, the CA ISO considers that steady progress is required towards undertaking a credible, broadly supported economic assessment of regional transmission links to the Southwest and Mexico. Steady progress is required to ensure that, if a line is economically justified, ratepayers will reap the benefits as soon as possible and also to ensure that a link can be built in time when it is demonstrated to be required for reliability.

IV. A BROADLY ACCEPTED METHODOLOGY FOR ASSESSING THE ECONOMIC JUSTIFICATION OF MAJOR LINES IN THE RESTRUCTURE ELECTRIC INDUSTRY DOES NOT EXIST, ACCORDINGLY IT IS APPROPRIATE FOR THE CA ISO TO CONTINUE TO MOVE FORWARD IN A MEASURED BUT EXPEDITIOUS MANNER TO DEVELOP SUCH A METHODOLOGY, WITH THE EOB, THE CPUC, THE CEC AND THE UTILITIES.

The hearings this summer highlight the need to arrive at a state wide consensus regarding principles and methods to assess and justify large scale transmission projects, particularly those that cannot be justified solely on the grounds of traditional reliability planning standards. The CA

ISO is working cooperatively with state agencies, including the EOB, the CEC and the CPUC, and the utilities to develop such a methodology. Development of the methodology should proceed in an expeditious but measured basis and links from Southern California to the Southwest and Mexico are among first priority projects to be assessed once the methodology is established.

As noted above, the CA ISO is required by California law to comply with planning criteria no less stringent than those established by WSCC and NERC. Public Utilities Code § 345. Since the CA ISO must ensure that facilities required to meet reliability criteria are implemented, as to such facilities economic considerations focus on identifying the least cost alternative to meet reliability needs. See Exh. 29, California ISO Conformed Tariff as of January 12, 2001, section 3.2.1.2.

Where a project cannot be justified on traditional reliability grounds, a more extensive economic assessment is necessary, one that determines whether the projected benefits of a project in terms of reducing the cost of electricity supply outweigh the annual costs associated with building, operating and maintaining the new transmission line. Exh. 1, 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, at 33. In the context of a restructured electric industry, in which generation and transmission are no longer planned and built in an integrated manner, this assessment requires a consideration of a large number of variables, many of which have a significant level of uncertainty. Exh. 1, 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, at 29; Tr. (Kondoleon) 2 Vol at 179. The benefits depend on electricity price differentials between the two areas linked by the projected transmission project, and whether these price differentials are large

enough and/or occur often enough to achieve savings greater than the cost of the line. Exh. 1, 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, at 32-35. Regional price differentials in turn depend on the generation built and available for export in the different regions, and operating costs of such generation. Id.

The record in this proceeding illustrates the wide range of plausible alternatives that can exist with regards to assumptions about whether, when and where new generation will materialize, and the assumptions that should be made about the availability of existing generation, factors which are key inputs into any economic assessment. See Tr. (Kondoleon) 2 Vol. at 178-9. Assessment of the likely operating costs of the new and existing generation, and their exact location are also contentious and complex. Id.

In light of the level of uncertainty attending the economic assessment of significant transmission projects, the CA ISO does not consider that there exists today " a single approach to an economic analysis that would have the support of a wide variety of stakeholders that would be necessary in order to permit . . . a line." Tr. (Miller) 2 Vol. at 176. While one or another approach could be put forward, given the level of uncertainty associated with key factors, any one approach could be challenged by a key entity whose buy-in is required to bring a transmission line into existence. Id. Accordingly, the CA ISO is seeking to develop a methodology that has the support of key players so that once an economic assessment has been undertaken, there is maximum possible agreement as to the results. Id.

To accomplish this objective, the CA ISO is moving forward with development and implementation of an RFP to seek consultant assistance to develop a methodology to undertake economic assessment of major transmission projects. Recognizing that one objective of the RFP is

to facilitate consensus regarding the methodology, the CA ISO has created a steering committee with representatives from the EOB, the CEC, the CPUC and the utilities to develop the RFP, to select a consultant and to monitor review and approve the consultant's work. Exh. 1, 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, at 28. The process and schedule established for development of the methodology provides for consultant progress reports to the steering committee every two weeks and meetings by the steering committee to review on-going work every two months. Exh. 1, 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, at 28. A final report by the consultant to the steering committee is due by March 14, 2002 and final review and approval of the report by the steering committee is to take place by March 28, 2002. Id.

The CA ISO intends to apply the methodology developed under the direction of the steering committee through the RFP process to major complex projects with regional significance including the significant (primarily 500 kV) lines needed to access and utilize generation developed in the Southwest and Mexico. Tr. (Miller) 2 Vol. at 224-6; Exh. 1, 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, at 28. These types of projects require the support of a large number of entities. There must be a sponsor willing to assume the investment responsibility, and the project must be approved through the CA ISO Grid Planning process. Exh. 29, California ISO Conformed Tariff as of January 12, 2001 sections 3.2.1 and 3.2.2. Major lines within California built by public utilities would require Certificates of Public Convenience and Necessity (CPCN) from the CPUC. Public Utilities Code § 1001, et. seq.

Lines with regional consequences would be required to go through a process before the WSCC, in which the project sponsors must explain their studies and demonstrate that the new line would not adversely impact the systems and customers of other WSCC members. Tr. (Miller) 2 Vol. at 206. Inclusion of the costs in utility transmission rates would have to be approved by FERC. Tr. (Miller) Vol. at 194; 198-9. Given the complexity of the issues in the restructured California electricity market, and the number of important entities that must be on board to move a project forward, the CA ISO considers that taking the time to develop a sound and broadly supported methodology to undertake economic assessments will ultimately save time and effort. (Miller) Tr. 2 Vol. at 182; see also Exh. 1, 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, at 27-28; 36.

V. THE CA ISO HAS SOME CONCERNS THAT THIS PROCEEDING HAS UNFOLDED IN A MANNER WHICH COULD DELAY RATHER THAN EXPEDITE PROGRESS TOWARD THE IMPLEMENTATION OF NEEDED TRANSMISSION UPGRADES.

Whereas the CA ISO has responsibility for grid reliability and transmission planning, Public Utilities Code §§330(k), 334, 345, 346, the CPUC is responsible for transmission siting, Public Utilities Code § 1001 et seq. Accordingly, cooperative coordination among the entities is essential. For the reasons set forth below, the CA ISO considers that the manner in which this proceeding has unfolded could be counter productive in that it has turned into an adversarial process in which parties are invited to second guess work underway at the CA ISO; this is not a constructive approach to resolving important planning issues.

As noted earlier, the CA ISO has responsibility for grid reliability and transmission planning, whereas the CPUC has responsibility for transmission siting and more generally for

safeguarding the interest of retail electricity users in California. Further AB 970 required the CPUC in consultation with the CA ISO to

"[i]dentify and undertake those actions necessary to reduce or remove constraints on the state's existing electrical transmission and distribution system, including, but not limited to, reconductoring of transmission lines, the addition of capacitors to increase voltage, the reinforcement of existing transmission capacity, and the installation of new transformer banks. The commission shall, in consultation with the California Independent System Operator, give first priority to those geographical regions where congestion reduces or impedes electrical transmission and supply."

Public Utilities Code § 399.15. Consistent with the statute, the CPUC in its order establishing this proceeding indicated that it was intended in part to fulfill the CPUC's responsibilities under Public Utilities Code § 399.15. As the proceeding has moved forward, however, Phase 2 goes beyond the mandate of Public Utilities Code § 399.15 into areas that duplicate the work that is underway within the CA ISO transmission planning process, and the CA ISO has devoted an enormous amount of staff resources to prepare a large number of scenarios requested by the CPUC within a very short time frame, rather than devoting those resources to the transmission planning process mandated by section 399.15.

The specific concerns about how the process has unfolded in this proceeding include the following:

- The CPUC's decision to open an adversarial proceeding in which the CA ISO may/must participate is not consistent with the AB 970 statutory mandate for "consultation," which connotes acting as partners with dialogue as well as mutual cooperation and respect.

- As stated in the CA ISO's prehearing conference statement on Phase 2, Phase 2 could legitimately have been used as a forum to understand the projects that are in the transmission planning pipeline, to determine the type of CPUC review and approval required for these projects and to coordinate activities and schedules to provide for a streamlined and effective process. Instead, Phase 2 was used to litigate activities which are underway in the CA ISO planning process and as an opportunity for parties angling for different outcomes in that process to circumvent the CA ISO process before the CPUC.
- AB 970 did not transfer back to the CPUC responsibility for transmission planning. Instead, recognizing that the CPUC retains responsibility for transmission siting, that the CA ISO undertakes transmission planning, and that it is important for transmission planning to be coordinated effectively with transmission siting, AB 970 required the CPUC and the CA ISO in the short term (within 180 days of the effective date of the statute -- September 2000 -- or by the March-April 2001) to identify priority transmission constraints and coordinate their respective activities address them expeditiously. This objective could better have been accomplished in context of cooperative discussion between the CPUC and the CA ISO, and is being accomplished in the context of forums that have been established by the Governor where state agencies, the CA ISO, and others entities regularly review the need for and provide updates of progress on generation and transmission developments.
- Public policy does not support litigation by the CPUC of CA ISO planning activities. By providing for litigation of planning activities, the CPUC has undermined the CA ISO planning process in several important ways. First, it has provided a forum in which entities can circumvent the CA ISO planning process before the planning process has even been allowed to run its course. Second, it has created the possibility of inconsistent results between CA

ISO planning and CPUC determinations. Third it has diverted CA ISO resources from critical planning functions to participate in the CPUC's litigated forum.

Again, the CA ISO does not deny the importance of issues that have surfaced in Phase 2 or contest that it is important to develop a consensus at a state wide level including the CPUC regarding answers to these questions. The CA ISO's concerns go only to the manner that has been employed to explore the questions. The CA ISO looks forward to discussing with the CPUC and other state entities a better approach to exploring and reaching consensus on transmission planning issues. The CA ISO recognizes the fundamental importance of CA ISO/CPUC cooperation to achieve this result.

VI. CONCLUSION

The record in this case indicates a need to move forward steadily to assess the justification for regional transmission links from Southern California to the Southwest and Mexico. While a new line is unlikely to be needed for reliability purposes before 2008, economic benefits could support building a line before the 2008 date and in any event 2008 is not far off. The CA ISO is working with the EOB, CEC, CPUC and utilities to develop a broadly supported methodology to assess the economic justification of major new transmission projects and considers that regional links to the Southwest and Mexico are first order candidates for a thorough economic assessment. The CA ISO intends to continue to work cooperatively with state agencies and the utilities to ensure that timely progress is made to assess the justification for added transfer capability into Southern California. Further, since need for a line for reliability by 2008 and beyond is heavily dependent on the development of new internal generation, the CA ISO will continue to monitor developments as to reliability in the annual Coordinated Grid Planning Process.

Respectfully submitted this 12th of July, 2001 by:

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