

April 12, 2002

RE: Docket # A 01-03-036: Conditional Application of San Diego Gas and Electric Company for a Certificate of Public Convenience and Necessity Authorizing the Construction of the Valley-Rainbow 500kV Transmission Project.

To the Parties of Docket # A. 01-03-036:

Enclosed please find the Rebuttal Testimony of Jeffrey C. Miller and Keith Casey on Behalf of the California Independent System Operator in Docket # A. 01-03-036, Conditional Application of San Diego Gas and Electric Company for a Certificate of Public Convenience and Necessity Authorizing the Construction of the Valley-Rainbow 500kV Transmission Project.

Sincerely,

Jeanne M. Solé
Regulatory Counsel

Cc: Service List A 01-03-036

Exhibit No.: _____
Commissioner: Henry M. Duque
Administrative Law Judge: Michelle Cooke
Witness: Jeffrey C. Miller and Keith Casey

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

Conditional Application of SAN DIEGO GAS
AND ELECTRIC COMPANY for a Certificate of
Public Convenience and Necessity Authorizing the
Construction of the Valley-Rainbow 500 kV
Transmission Project

Application 01-03-036

**REBUTTAL TESTIMONY OF JEFFREY C. MILLER
AND KEITH CASEY ON BEHALF OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR**

Submitted by the California Independent System Operator

April 12, 2002

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3 **THE STATE OF CALIFORNIA**

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5 ELECTRIC COMPANY for a Certificate of Public
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9 **REBUTTAL TESTIMONY OF JEFFREY C. MILLER AND**
10 **KEITH CASEY ON BEHALF OF**
11 **THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR**

12 Submitted by the California Independent System Operator

13 Q. Please state your names, employer, positions, duties and qualifications.

14 A. Our names are Jeffrey C. Miller, Regional Transmission Manager of the California
15 Independent System Operator Corporation (CA ISO) and Keith Casey, Manager of Market Analysis
16 and Mitigation in the Department of Market Analysis of the CA ISO. Our statements of qualifications
17 were provided as attachments to our opening testimony.

18 Q. On whose behalf are you submitting this rebuttal testimony?

19 A. We are submitting this rebuttal testimony on behalf of the CA ISO.

20 Q. What is the purpose of your rebuttal testimony?

21 A. The purpose of our rebuttal testimony is to respond to the testimony of the Office of Ratepayer
22 Advocates (ORA) and the joint testimony of Save Southwest Riverside County, the City of Temecula,
23 and the Pechanga Development Corporation (Joint Opponents) based on the most recent information
24 available to the CA ISO.

25 Q. Can you please summarize your testimony?

26 A. Yes.

27 First, the CA ISO will continue to evaluate the reliability need for projects using the CA ISO
28 Grid Planning Standards that have been approved by the CA ISO Governing Board, absent an

1 approval by the CA ISO Governing Board of different standards. Evaluated against the Standards, the
2 reliability need for the Valley-Rainbow Transmission Project (Valley-Rainbow) continues to evolve.
3 The Joint Opponents are correct that new generation has been added in the area; however, it is also
4 important to consider that much of the proposed new generation has been cancelled or delayed. Thus,
5 while it may be possible to delay the in-service date of the project based on some of these new plant
6 additions, it is unlikely that sufficient new generation will be developed to entirely eliminate the need
7 for the project. Moreover, it is possible that if sufficient new generation develops in Mexico and the
8 transmission system in Mexico is able to deliver that generation to San Diego during critical outages,
9 Valley-Rainbow could be delayed. Additional studies are underway to examine this possibility.

10 Further, the CA ISO remains concerned that neither of the economic assessments presented to
11 the California Public Utilities Commission (CPUC) has assessed the market power mitigation benefits
12 of upgrading Valley-Rainbow. There is growing empirical evidence and economic literature on the
13 potential benefits a transmission expansion can have on improving the competitiveness of competitive
14 wholesale electricity markets. Thus, the CA ISO is persuaded that adding critical transmission
15 infrastructure is one of several key approaches that should be undertaken to put into place the
16 structural elements required to support a workably competitive wholesale electricity market. Without a
17 thorough assessment of the potential market power mitigation benefits from the upgrade, the true
18 economic value of Valley-Rainbow cannot be evaluated.

19 Q. Do you use any specialized terms in your testimony?

20 A. Yes. Unless indicated otherwise, we use capitalized terms as defined in CA ISO Tariff
21 Appendix A: Master Definitions Supplement.

22 I. RESPONSE TO RELIABILITY ARGUMENTS

23 Q. Do you have a response to the suggestion of the ORA that the L-1/G-1 standard is an
24 inappropriate benchmark for determining whether a project is needed for reliability?

25 A. Yes. ORA's testimony suggests that the CA ISO Grid Planning Standards are too stringent,
26 and that designing the system to be able to supply all firm load during the combined outage of a single
27 generator and a single transmission line is too conservative. However, the CA ISO is required by law
28 to "ensure efficient use and reliable operation of the transmission grid consistent with achievement of

1 planning and operating reserve criteria no less stringent than those established by the Western Systems
2 Coordinating Council and the North American Electric Reliability Council." California Public Utilities
3 Code § 345. The CA ISO Grid Planning Standards are based on a NERC/WSCC Planning Standard,
4 have been discussed at length in a CA ISO stakeholder process, and have been adopted by the CA ISO
5 Governing Board for use across the CA ISO Controlled Grid. As acknowledged in the testimony of
6 the Joint Opponents "generally accepted probabilistic criteria do not yet exist in the industry. The
7 WSCC is currently working towards transitioning to a probabilistic approach to assessing reliability
8 and the [CA] ISO has expressed an interest in developing probabilistic reliability criteria. Until
9 probabilistic reliability criteria are adopted, the traditional reliability criteria (e.g., L-1/G-1) continue
10 to apply." Joint Testimony of Save Southwest Riverside County, the City of Temecula and the
11 Pechanga Development Corporation, at II-5, footnote 3. The CA ISO agrees with this assessment.

12 Further, the CA ISO is not aware of any transmission owner or stakeholder that would
13 seriously support making the CA ISO Grid Planning Standards less stringent. Rather, certain
14 stakeholders support a more stringent standard for some areas of the CA ISO Controlled Grid. For
15 example, in response to stakeholder comments and its own reliability concerns, the CA ISO has
16 developed a more stringent standard in the San Francisco Greater Bay Area. In the San Francisco
17 Greater Bay Area, the CA ISO Grid Planning Standards require that four generating units be removed
18 from service along with the most critical single transmission line in assessing the need for further
19 system upgrades. The more stringent standard for the San Francisco Greater Bay Area is necessary due
20 to the large number of generating units in that area and the higher than normal outage rates of those
21 units. The larger number of units in the area increases the probability that at least one unit will be out
22 of service, and in fact, in the San Francisco Greater Bay Area, historically there has been one or more
23 units out of service more than 90 percent of the time.

24 The CA ISO believes that application of the single generator out and single line out standard is
25 necessary to provide the San Diego area with acceptable system reliability. The San Diego area should
26 not have substandard reliability and, unless and until the CA ISO Governing Board approves a weaker
27 standard, the CA ISO must continue to plan the power grid in that area in accordance with the CA ISO
28 Grid Planning Standards.

1 Q. Can you respond to the arguments of ORA and the Joint Opponents that Valley-Rainbow is not
2 needed to meet the CA ISO Grid Planning Standards?

3 A. Yes. To set the stage, the CA ISO opening testimony indicated that absent new generation,
4 Valley-Rainbow would be needed to meet CA ISO Grid Planning Standards in 2004, if the summer
5 peaker contracts that expire in three years are not renewed, and in 2005, if the summer peaker
6 contracts are extended. The testimony also acknowledged that if new proposed generating projects
7 amounting to 657 MW that have been permitted by the California Energy Commission (CEC) are
8 assumed to be online, the reliability need for the project can be deferred further. ORA and the Joint
9 Opponents have discussed changes in the ability to import power from Mexico as a further
10 consideration. My testimony below provides updates and responses on these points.

11 Q. Do you agree with the Joint Opponents that SDG&E has improperly assumed that no new
12 generation will come online?

13 A. As stated in the CA ISO opening testimony, standard industry practice, used in the CA ISO
14 grid planning process is to consider new generating projects that have been permitted by the CEC. In
15 this regard, I agree with the general discussion in the testimony of the Joint Opponents on pages II-8
16 through II-10, about how new generation is considered in the planning process and the fact that
17 generally, projects that have been permitted by the CEC are considered in the studies.

18 That discussion indicates, however, that plants that have been permitted can be omitted when
19 specific information indicates that the future of such plants is in question. See Joint Testimony of
20 Save Southwest Riverside County, the City of Temecula, and the Pechanga Development Corporation,
21 II-9 at 4-5. In this case, there is specific information that indicates that the future of Otay Mesa is in
22 question.

23 Over the last year, the CA ISO has been reviewing 36 generation projects that were proposed
24 for the San Diego area. The large amount of generation planned for this area made it seem possible
25 that sufficient generation would develop so that Valley-Rainbow would not be needed to maintain
26 reliability. In fact, it appeared that the justification for Valley-Rainbow might change from a reliability
27 based justification related to the need to serve local load, to an economic justification related to the
28 need to export power and to the potential for lowering the cost of power to consumers.

1 However, the generation development picture has changed dramatically over the last few
2 months. While 7 of the 36 proposed projects have been placed in service, and should be considered in
3 determining the reliability need for Valley-Rainbow, 17 projects have been cancelled. Otay Mesa
4 specifically has been delayed and its future is now much less certain. Only one additional significant
5 project remains active in the San Diego area (Palomar – 500 MW). The other remaining active projects
6 are located south of San Diego (primarily across the border in Mexico) where the benefits to the San
7 Diego area are much less substantial.

8 Thus, currently, there is only one major project remaining within the San Diego Area that has
9 filed an application for certification with the CEC. This project is the 500 MW Palomar Project that is
10 located near Escondido and is being developed by Sempra Energy Resources. Whether or not this
11 generation will be developed is uncertain. If it were to be developed and its generation could be
12 depended upon to serve local load, the in-service date for Valley-Rainbow could be delayed by
13 approximately two years. However, the addition of the Palomar Project alone would not eliminate the
14 need for Valley-Rainbow. In addition, given that the Palomar project has not completed the permitting
15 process, it should not be included in the planning studies.

16 Q. Do you have anything further to add about appropriate generation assumptions for determining
17 the need for Valley Rainbow?

18 A. Yes. It is worth noting that the primary generating resources available to the San Diego area
19 are the steam units at Encina and South Bay which total 1635 MW. In addition, there are 27 small
20 generators (50 MW or less) that total 702 MW. Seven of these small plants are peaker projects that
21 have been added over the last year. All together this adds up to 2337 MW of local generation. The
22 majority of this generation is antiquated and inefficient when compared to modern combined cycle
23 generation plants. When new and more efficient generation comes on line elsewhere in the Western
24 Interconnection, the older and less efficient generation will be operated less and may be retired.
25 Therefore, the existing generation cannot be assumed to be available indefinitely to meet the long-term
26 needs of the area. While it is not possible to precisely predict when the older less efficient plants will
27 be retired, it is prudent and necessary to consider the age and condition of the plants when undertaking
28 long term planning. The CA ISO's determination of need for Valley-Rainbow assumed that all

1 existing generation would continue to be available. This is because industry convention is that, until a
2 generating unit officially announces its retirement, it is assumed to be available in planning studies. In
3 the case of the San Diego area, the age and condition of some of the older plants should be considered
4 in making a final determination of need for Valley Rainbow.

5 Q. Do you have any comments on the testimony of ORA and the Joint Opponents regarding the
6 ability to import power from Mexico in the event of an L-1/G-1 contingency?

7 A. Yes. Currently more than 3000 MW of generation is proposed for the area south of San Diego.
8 Most of this generation will be located across the U.S. border in Mexico. It is expected that at least
9 1000 MW of this generation will be developed although the total amount that will be developed is still
10 uncertain. Generation close to the Miguel Substation would provide the greatest benefit.

11 Unfortunately, most of the generation being developed in Mexico is located to the east near the
12 Imperial Valley Substation. Generation in this eastern area will be available to San Diego when all
13 facilities are in service but may not be available during critical outages such as the loss of the
14 Southwest Power Link (SWPL). Rather, the ability to deliver this eastern generation to San Diego is
15 dependent on the capability of the transmission system in Mexico. Thus, the amount of generation that
16 can be relied on in case of an emergency is dependent on technical and contractual transmission
17 limitations between CFE and SDG&E.

18 The testimony for the Joint Opponents states that at least 410 MW could be reliably transmitted
19 to the San Diego area through the Mexican system during an outage of the SWPL. While this is true
20 today, it is not known whether or not this capability will continue to be available to San Diego in the
21 future. As the Comisión Federal de Electricidad (CFE) load increases, and as CFE develops new
22 resources to serve CFE load, the existing capability on the Mexican system will be utilized more and
23 more to meet the needs of Mexico and less of that capability may be available to San Diego to back up
24 their system during outages. Whether or not SDG&E can continue to rely on the capability to import
25 410 MW from Mexico in the future is currently under study. These additional studies are intended to
26 determine the amount of through flow (flows from Imperial Valley to Miguel via the Mexican system)
27 and imports from Mexico that will be available during outages of the SWPL. While it is possible that
28 the capability on this interface may continue to exist in the future, it is not known whether this

1 additional capability will be sufficient to delay the need for Valley-Rainbow.

2 Q. In light of these additional considerations, what is the CA ISO's conclusion about the continued
3 reliability need for Valley-Rainbow?

4 A. At this time, the CA ISO has not modified its formal determination that Valley-Rainbow is
5 needed in 2005. However, this determination is under review, pending the outcome of the studies
6 associated with imports from Mexico.

7 II. RESPONSE TO ECONOMIC ARGUMENTS.

8 Q. Do you have any further comments on the assessments that have been presented to the
9 Commission on the economic benefits of Valley-Rainbow.

10 A. Yes. Neither the ORA, nor the Henwood economic studies directly address the issue of market
11 power. In a competitive wholesale electricity market, some degree of market power is apt to exist
12 such that under certain system conditions, prices in that market reflect the outcome of strategic bidding
13 rather than the true marginal cost of production. A transmission expansion, by increasing the potential
14 for additional supply into a constrained area, can have a significant impact in mitigating the ability of
15 suppliers to exercise market power. This in turn can have a significant benefit to electricity consumers.

16 There is growing empirical evidence and economic literature on the potential benefits a
17 transmission expansion can have on improving the competitiveness of competitive wholesale
18 electricity markets. Without a thorough assessment of the potential market power mitigation benefits
19 from the upgrade, the true economic value of Valley-Rainbow cannot be evaluated.

20 To date, most economic assessments of proposed transmission system upgrades, including the
21 ORA and Henwood studies submitted in this case, have used different variants of a production cost
22 model where a perfect competitive market is assumed and market prices are obtained by the
23 intersections of supply and demand. Such methodologies assume that all suppliers will bid all their
24 supply capacity into the market at competitive price levels. Using these methodologies, the economic
25 benefit of a transmission project is measured either as changes in the cost-to-load (Henwood's
26 approach) or changes in re-dispatch costs (ORA's approach). Both these methodologies could
27 severely underestimate the economic benefit from a transmission project, in the context of a
28 competitive wholesale electricity market, because the suppliers in a particular region have a strong

1 incentive to take advantage of any physical constraints, including transmission constraints, to exercise
2 market power.

3 Transmission upgrades can provide significant economic benefits by introducing more
4 competition in regions connected by constrained transmission facilities. Borenstein, Bushnell, and
5 Stoft (2000) have pointed out that the mere focus on the reliability-enhancing role of a transmission
6 project, such as reduced curtailments in service, increased imports and exports over the new facilities,
7 or revenue derived from charging for the usage of new capacity, might severely underestimate the
8 economic benefits of a transmission project and lead to poor policy decisions. Borenstein *et al* further
9 provide theoretical analysis to illustrate how a transmission upgrade could have a significant impact on
10 mitigating the market power in a competitive wholesale electricity market. Similarly, the CA ISO's
11 evaluation of the market power mitigation benefits of upgrading Path 15, illustrated how a production
12 cost analysis can significantly understate the economic benefits of a proposed transmission upgrade by
13 failing to account for market power mitigation benefits.

14 In sum, until a thorough market power assessment of Valley-Rainbow is undertaken, the full
15 economic benefits from the upgrade cannot be properly assessed.

16 Q. Do you have a response to the joint testimony of Save Southwest Riverside County, the City of
17 Temecula, and the Pechanga Development Corporation that market power is best contained through
18 on-going regulatory intervention?

19 A. Yes. As the CA ISO testified recently in the context of a proposed Path 15 upgrade, putting
20 into place needed transmission infrastructure is one of several key structural elements to create a
21 workably competitive wholesale electricity market. First, it is risky to rely on a continued effective
22 market power mitigation program on the part of the Federal Energy Regulatory Commission (FERC)
23 in lieu of correcting the structural deficiencies that enable suppliers to exercise market power. FERC
24 has indicated repeatedly that it will terminate the current West-wide market power mitigation approach
25 on September 30, 2002, and any subsequent measures adopted by FERC will likely be confined to
26 California and hence much less effective. Second, to adequately mitigate the ability of suppliers to
27 exercise market power, actions to correct all the key structural deficiencies in the market should be
28 pursued aggressively, as an exclusive focus on one or another of the structural deficiencies is unlikely

1 to be as effective as a combination of strategies. Finally, it is particularly important to undertake
2 transmission system upgrades that have statewide, or regional significance.

3 The CA ISO acknowledges that in determining whether to proceed with a transmission upgrade
4 based on the need to mitigate market power, it is appropriate to review the market power benefits of
5 the upgrade versus its cost and to consider the relative risks of proceeding or not with the upgrade. As
6 a general matter, however, the CA ISO strongly believes that the addition of critical transmission
7 infrastructure is among the key strategies that should be assessed and, where cost-effective, undertaken
8 to mitigate market power.

9 Q. On page 48, of the ORA "Assessment of the Valley-Rainbow Transmission Project" it states
10 "The ISO's contractor that was hire [sic] to develop a methodology for evaluating the benefits of a
11 transmission project, London Economics, Inc., has already decided upon the appropriate economic
12 perspective from which to estimate benefits and that is total net societal benefits." Do you agree with
13 this statement?

14 A. No. London Economics did not specify an objective function in evaluating transmission
15 upgrades. Rather, London Economics identified consequences from transmission upgrades that can
16 and should be measured, including net social surplus, and transfers of wealth among consumers and
17 producers. London Economics has stressed the need to weight these different factors as a matter of
18 policy. (Certainly, a recommendation on the part of ORA that, as a matter of policy, transfers of
19 wealth from consumers to producers should be given no weight would be surprising.)

20 For example, the consequences of suppliers exercising market power include a significant
21 welfare transfer from consumers to producers, a decrease in quantity consumed, and an absolute loss
22 of efficiency (dead-weight-loss). A transmission project that mitigates market power could have
23 significant welfare redistribution effects by restraining the ability of generators to obtain higher prices
24 from consumers. Again, London Economics has noted that assigning weight to these effects is an
25 important policy consideration.

26 Moreover, London Economics has stressed that a change in net social surplus is a very
27 different concept from a change in cost of total generation. The social surplus includes consumer
28 surplus and producer surplus. A change in social surplus would be equal to a change in production

1 cost only under the very rigid assumption that demand is perfectly inelastic.

2 In fact, London Economics has stressed the importance in incorporating market power in
3 evaluations of the benefits of transmission upgrades. Using a model reflecting strategic bidding
4 behaviors of different suppliers, London Economics has used a stylized example to show that a
5 transmission upgrade is one of most effective ways of mitigating market power, and could
6 substantially decrease the market clearing prices and increase consumer surplus.

7 In summary, it is incorrect to state that London Economic supports a production cost model
8 approach to assessing the benefits of a transmission upgrade. A production cost model approach does
9 not accurately assess net social surplus, does not account for transfers of wealth between consumers
10 and producers, and does not consider the effects of market power on either of these two factors.
11 Accordingly, a production cost model approach is inadequate to assess the full economic benefits to
12 consumers from a transmission upgrade.

13 Q. Thank-you. I have no further questions.

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PROOF OF SERVICE

I hereby certify that on April 12, 2002, I served Rebuttal Testimony of Jeffrey C. Miller and Keith Casey on Behalf of the California Independent System Operator in Docket # A. 01-03-036, Conditional Application of San Diego Gas and Electric Company for a Certificate of Public Convenience and Necessity Authorizing the Construction of the Valley-Rainbow 500kV Project.

DATED at Folsom, California on April 12, 2002.

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An Employee of the California
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