

April 22, 2003

Attn: Parties of CPUC Docket # I.00-11-001

RE: Docket # I.00-11-001, 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

Dear Parties:

Enclosed please find the Opening Testimony of Robert Sparks Regarding Transmission Upgrades Related to Tehachapi on Behalf of The California Independent System Operator in Docket # I.00-11-001.

Thank you.

Sincerely,

Jeanne M. Solé
Regulatory Counsel

Cc: Attached Service List

Exhibit No.: _____
Commissioner: Lynch
Administrative Law Judges: Gottstein and TerKeurst
Witness: Robert Sparks

**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

**OPENING TESTIMONY OF ROBERT SPARKS REGARDING TRANSMISSION UPGRADES
RELATED TO TEHACHAPI ON BEHALF OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR**

Submitted by the California Independent System Operator

April 22, 2003

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1 **THE STATE OF CALIFORNIA**

2
3 Order Instituting Investigation into)
4 implementation of Assembly Bill 970 regarding) I.00-11-001
5 the identification of electric transmission and)
6 distribution constraints, actions to resolve those)
7 constraints, and related matters affecting the)
8 reliability of electric supply.)
9 _____)

10 **OPENING TESTIMONY OF ROBERT SPARKS REGARDING TRANSMISSION UPGRADES**
11 **RELATED TO TEHACHAPI ON BEHALF OF**
12 **THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR**

13 **Submitted by the California Independent System Operator**

14 Q. Please state your name, employer, position, duties and qualifications.

15 A. My name is Robert Sparks, Lead Grid Planning Engineer in the Grid Planning Department of the
16 California Independent System Operator Corporation (CA ISO). My duties on behalf of the CA ISO
17 and my qualifications are submitted as attachment 1 to this opening testimony.

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

19 A. I am submitting this testimony on behalf of the CA ISO.

20 Q. What is the purpose of your testimony?

21 A. The purpose of my testimony is to provide CA ISO comments on the Tehachapi Transmission
22 Conceptual Facilities Study Report, Phase 1 and Phase 2 (SCE Study Reports) prepared by Southern
23 California Edison (SCE). The SCE Study Reports have been shared with the CA ISO, and the CA ISO
24 believes that the project described in the reports is likely to be presented by SCE as their proposed
25 alternative to expand transmission capacity into the Tehachapi wind generation area. As explained in
26 this testimony, the CA ISO supports the necessary expansion of transmission capacity to the Tehachapi
27 wind generation area, and is proposing an evaluation of additional alternatives to accomplish this
28 objective. This testimony briefly describes the transmission option that SCE has set forth in the SCE
Study Reports, and the alternative options that are proposed for evaluation by the CA ISO. The CA ISO
looks forward to working with the utilities and state agencies to ensure an efficient and effective process

1 for selecting the best transmission project for the electric customers in California.

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

3 A. Yes. Unless indicated otherwise, I use capitalized terms as defined in CA ISO Tariff Appendix
4 A: Master Definitions Supplement.

5 **I. Wind Resources**

6 Q. What information exists regarding the level of wind generation that will develop in the
7 Tehachapi wind generation area?

8 A. SCE received conceptual wind generation proposals from ten wind developers. Nine of the ten
9 included defined project locations, and totaled 1500 MW in all. The last of the ten wind generation
10 developers provided a conceptual plan for an additional 1000 MW of wind generation, but provided only
11 a general description of the location. In addition, the California Energy Commission (CEC) recently set
12 forth its view of a reasonable assumption for wind generation development in the SP15 congestion zone
13 for the next ten years, in their Preliminary Electricity and Natural Gas Infrastructure Assumptions
14 Report, dated February 11, 2003 issued in the Integrated Energy Policy Report Proceeding (docket
15 number 02-IEP-01). The CEC's SP15 wind generation assumption for 2003-2013 was 1425 MW. This
16 number includes wind development in the Tehachapi, San Gorgonio, and other potential wind resource
17 regions in the SP15 congestion zone. Thus, there is uncertainty about the level of wind generation that
18 should be assumed to develop in the Tehachapi wind generation area and a phased-approach to
19 upgrading transmission into the area appears to make sense.

20 **II. SCE Alternative**

21 Q. Has the CA ISO reviewed the SCE Study Reports (Tehachapi Transmission Conceptual
22 Facilities Study Report, Phase 1, dated March 14, 2002, and Phase 2, dated January 15, 2003) prepared
23 by SCE at the request of the group of wind generation developers?

24 A. Yes.

25 Q. Please describe SCE's transmission proposal for the Tehachapi wind generation area as set forth
26 in the SCE Study Reports.

27 A. The SCE proposal has three stages of transmission facility construction designed to ultimately
28 connect up to 2500 MW of wind generation in the Tehachapi area.

1 The first stage of the SCE proposal is to build a 60 Mile double circuit 230 kV transmission line
2 from Pardee 230 kV substation to the Tehachapi wind generation area. This new line would connect up
3 to three new wind generation 230/66 kV collector stations. The long-term plan would include four wind
4 generation 230/66 kV collector stations and two 60 mile double circuit 230 kV transmission lines from
5 either Pardee or Vincent 230 kV substations to the Tehachapi wind generation area. The CA ISO has
6 not received transmission system impact studies of the SCE alternative. Based on the conceptual
7 information that the CA ISO has been provided, it appears that the SCE alternative would be adequate to
8 interconnect the additional wind generation that can be expected in the Tehachapi area.

9 Q. Does the CA ISO have any significant concerns with the SCE Study Reports?

10 A. Yes. The SCE Study Reports did not include any documentation of alternatives considered. In
11 order for the CA ISO to approve a transmission expansion project proposal, an adequate analysis of
12 reasonable alternatives must be included along with a demonstration that the proposed project is the
13 most economic alternative that meets the reliability needs of the ratepayers that will ultimately pay for
14 the upgrade. The CA ISO requires a review and analysis of alternatives, in order to allow the CA ISO to
15 assure itself that the best alternative has been selected.

16 **III. Alternative Options for Interconnecting Additional Tehachapi Wind Generation**

17 Q. Does the CA ISO have any recommendations for alternatives that should be considered for
18 upgrading the transmission system to the Tehachapi wind generation area?

19 A. Yes. It appears to the CA ISO that SCE and PG&E are both working separately evaluating
20 transmission expansions in the San Joaquin and Tehachapi areas considering primarily reliability and
21 economic impacts within their own service areas. A more regional approach needs to be taken, which
22 considers the impacts and benefits to the entire region, in order to ensure the selection of the best
23 alternative.

24 Q. Can you elaborate?

25 A. Yes. The CA ISO believes that there are a number of options, described below, that should be
26 analyzed both separately and as a multi-phased, inter-utility transmission plan in order to provide for the
27 transmission expansions needed to accommodate the Tehachapi wind generation projects, as well as for
28 the transmission needs in the San Joaquin Valley. Again, a phased approach should be considered given

1 the uncertainty about the level of generation that can be expected to materialize in the Tehachapi wind
2 generation area.

3 The Tehachapi wind resource area is approximately 10-20 miles east of the Magunden-Antelope
4 230 kV lines owned by SCE. These lines are part of what is known as SCE's Big Creek and San
5 Joaquin Valley 230 kV transmission system. This system is located adjacent to PG&E's 230 kV
6 transmission systems that serve the Fresno and Bakersfield areas.

7
8 PG&E's Greater Fresno Area Long Term Supply Study Final Report, dated September 24, 2002,
9 and prepared as part of the CA ISO Annual Expansion Planning process, identified a need for expanding
10 the Fresno Area transmission system. One of the alternatives considered was Alternative 8: PG&E and
11 SCE Big Creek Interconnection Plan A. This alternative involves building a switching station in Fresno
12 at the crossing of PG&E's Helms-Gregg 230 kV lines and SCE's Big Creek-Rector 230 kV lines
13 (Fresno Switching Station), and establishing a phase shifted 230 kV tie between PG&E and SCE.
14 PG&E showed that this alternative would 1) provide over 10 years of load serving capability to the
15 Fresno area, and 2) increase the ability to utilize the 1212 MW Helms Pump Storage facility. PG&E
16 also analyzed an Alternative 2, which involves adding a new 60 mile double circuit transmission line
17 from Gates 230 kV substation to Gregg 230 kV substation.

18 After comparing project costs and benefits, PG&E determined that Alternative 2 is the preferred
19 alternative. However, PG&E did not have the information necessary to include all of the regional
20 benefits of Alternative 8, the PG&E and SCE interconnection alternative. The CA ISO believes that the
21 PG&E and SCE interconnection alternative would create transmission capacity for interconnecting
22 additional Tehachapi wind generation by tapping the new generation to the Antelope-Magunden 230 kV
23 lines.

24 In addition, in the most recent SCE transmission expansion plan that was prepared as part of the
25 CA ISO Annual Expansion Planning process (the "CAISO Controlled SCE Transmission 2003-2007 and
26 2012 Expansion Plan - Final Report" dated January 30, 2003), SCE has identified transmission
27 deficiencies at Rector 230 kV substation and has proposed to loop one of the Springville-Big Creek 230
28 kV lines into Rector 230 kV substation. The Rector upgrades could be combined with a modified

1 PG&E Alternative 8. Alternative 8 could be modified so that the Springville-Big Creek #4 230 kV line
2 and one Rector-Big Creek 230 kV line are looped into the Fresno Switching Station, described above,
3 instead of two Rector-Big Creek 230 kV lines. This modification to Alternative 8 is expected to increase
4 system benefits beyond what PG&E documented in their analysis.

5 Further, PG&E's Bakersfield 230 kV substation and SCE's Magunden 230 kV substation are
6 located only about 5 miles apart. SCE and PG&E should evaluate the feasibility of constructing a phase
7 shifted tie-line between those two substations for the purpose of increasing transmission capacity for
8 exports from the Tehachapi wind generation area.

9 Finally, the existing radial 230 kV line connecting the Tehachapi wind generation area to
10 Vincent 230 kV substation has only one circuit. SCE and the owner of that line should consider the
11 feasibility of adding a second circuit to the existing radial line. An evaluation should consider the
12 possibility of temporarily moving, during line reconstruction, the existing wind generation on the radial
13 line to newly built 230/66 kV collector stations (which would be a part of any alternative to improve
14 transmission into the Tehachapi wind area).

15 Q. What is your estimate of the time required to complete an analysis of the CA ISO proposed
16 alternatives?

17 A. The CA ISO believes that an abbreviated technical analysis and a rough economic comparison
18 between the SCE proposed alternative and the CA ISO proposed alternatives could be accomplished in
19 two to three months. The CA ISO anticipates that SCE, PG&E and the CA ISO would work together to
20 create a scope of work defining the exact alternatives to analyze, and a study plan to accomplish the
21 power system analysis and economic evaluation work. Sharing the workload among the three entities
22 would allow for much of the analysis to be accomplished in parallel. In addition, PG&E has already
23 studied an alternative very similar to the alternative that the CA ISO is proposing; accordingly much of
24 the work would consist of an update to an existing analysis.

25 Q. Thank you. I have no further questions.
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28

1 **QUALIFICATIONS OF ROBERT SPARKS**

2

3 Q. Please state your name and business address.

4 A. My name is Robert Sparks. My business address is California Independent System Operator
5 (CA ISO), 151 Blue Ravine Road, Folsom, CA 95630

6 Q. Briefly describe your responsibilities at the CA ISO.

7 A. I am a Lead Grid Planning Engineer in the Grid Planning Department. One of my primary job
8 responsibilities is to work with CA ISO Participating Transmission Owners, state agencies, and
9 stakeholders to create a comprehensive long-term transmission expansion plan for California to ensure
10 that facilities are in place as needed to economically provide wholesale electric service and to meet
11 applicable reliability criteria.

12 Q. Please summarize your educational and professional background.

13 A. I received a Master of Science degree in Electrical Engineering from Purdue University in 1989.
14 I have over 13 years experience in electric transmission system planning and operations. After
15 graduation I worked for Pacific Gas & Electric Company in Transmission Planning and System
16 Operations until 1997. In 1997 I joined the CA ISO as a Grid Planning Engineer. From December 2001
17 to August 2002 I worked for FPL Energy, and then rejoined the CA ISO in September 2002.

18 Q. Does this conclude your statement of qualifications?

19 A. Yes.

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PROOF OF SERVICE

I hereby certify that on April 22, 2003, I served by electronic and U.S. mail, the Opening Testimony of Robert Sparks Regarding Transmission Upgrades Related to Tehachapi on Behalf of The California Independent System Operator in Docket # I.00-11-001.

DATED at Folsom, California on April 22, 2003.

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