CALIFORNIA ISO

California Independent
System Operator

August 6, 2004

Attn: Parties of R.04-04-003

RE: Docket # R.04-04-003- Order Instituting Rulemaking to Promote Policy and Program Coordination and Integration in Electric Utility Resource Planning

Dear Parties:

Enclosed please find an original and five copies of the Opening Testimony of Robert Sparks Regarding the Long Term Procurement Plan of the Investor Owned Utilities on Behalf of the California Independent System Operator in the above-referenced docket.

Thank you.

Sincerely,

Gene Waas
Regulatory Counsel

Exhibit No.: _____
Commissioner: Peevy
Administrative Law Judges: Wetzell and Gottstein
Witness: Robert Sparks

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Promote Policy and Program Coordination and Integration in Electric Utility Resource Planning	R.04-04-003

OPENING TESTIMONY OF ROBERT SPARKS REGARDING THE LONG TERM PROCUREMENT PLANS OF THE INVESTOR OWNED UTILITIES ON BEHALF OF THE CALIFORIA INDEPENDENT SYSTEM OPERATOR

Submitted by the California Independent System Operator

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Submitted by the California Independent System Operator

Q. Please state your name, title, and employer.

A. My name is Robert Sparks. I am a Lead Grid Planning Engineer in the Grid Planning Department of the California Independent System Operator Corporation (CA ISO).

Q. Please state your professional qualifications for providing this testimony.

A. Attachment 1 to this testimony contains my professional qualifications as a witness.

Q. On whose behalf are you submitting this testimony?

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

I. Summary and Introduction

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide the CA ISO's comments on the Long-Term Procurement Plans (LTPP) submitted by Southern California Edison (SCE), Pacific Gas and Electric Company (PG&E) and San Diego Gas & Electric Company (SDG&E), as a group Investor-Owned Utilities (IOUs). My comments focus on coordinating the CA ISO Grid Planning Process closely with the LTPP to ensure reliable operation and efficient expansion of the transmission system. A well coordinated long-term process should ensure sufficient deliverability of all resources in the IOU portfolios.

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Q. Please summarize the conclusions that you have drawn from your analysis of the LTPP that you discuss in this testimony.

A. The CA ISO is responsible for expansion of the CA ISO Controlled Grid to ensure the continued reliable and efficient operation of the transmission system. The CA ISO oversees the development of the three IOU transmission plans and reviews and approves those plans. As shown in the resource plans and the associated work papers, there are significant resource procurement needs for each of the three IOUs over the 10-year resource and transmission planning horizon. The locations at which the IOUs procure these resources will have a dramatic effect on the transmission expansion needs and plans for the CA ISO Controlled Grid. Therefore, the CA ISO needs to review the LTPP to ensure that they are specific enough to enable the CAISO to develop a complementary transmission plan and to ensure that the LTPP are consistent with the existing long- term transmission plan for the CA ISO Controlled Grid.

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

A. Yes. Unless indicated otherwise, the capitalized terms in this testimony will be used as defined in the CA ISO Tariff Appendix A: Master Definitions Supplement. The Master Definition Supplement is available on the CA ISO website.

II. Comments on the individual LTPP

Q. Are the LTPPs specific enough at this time for purposes of developing a complementary transmission plan and to ensure that the LTPPs are consistent with the existing long-term transmission plan for the CA ISO Controlled Grid?

A. No. They are not.

Q. Please specify where the LTPP are not specific enough.

A. For example, starting on Page 54 of its LTPP, SCE lists the existing resources in its resource portfolio, and its Capacity Resource Accounting Tables on the confidential Data CD include information on uncommitted resource additions. Starting on page 3-3 of its LTPP, PG&E lists the existing resources

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in its resource portfolio, and in Chapter 4, PG&E describes the resources that it needs to add to its resource portfolio to meet PG&E's future resource needs. In Robert B. Anderson's testimony and in the confidential data CD provided by SDG&E, SDG&E lists its existing and future resource additions in its resource plans. However, in order to be able to review these resource plans from a transmission perspective, the CA ISO needs to be able to accurately model them in the CA ISO's detailed transmission system models. Some resources have multiple names, so accurately transferring data from one database to another becomes problematic without either a cross-reference list linking the multiple names or enough characteristic information such as the interconnection point to be able to link the resources. Detailed information is needed to enable the CA ISO to cross reference different resource names, for the same resources, between the resource databases and the transmission model database. In order to facilitate consistency checking between the LTPP and transmission plans, as well as CA ISO review of those plans, the LTPP should include an appendix that provides as much information as possible of the detailed information requested in the CA ISO data request #4 (see Attachment 2 to this opening testimony) related to existing and new resources.

Q. What additional information do you need from SCE on the Devers-Palo Verde transmission project?

A. On page 123 of the SCE LTPP, SCE states that its LTPP includes the Devers-Palo Verde No. 2 500 kV proposed transmission project. The CA ISO needs to know the year in which SCE assumes that this project will be operational. Given the cost and the uncertainty of the timing of this project, SCE should include resource plan scenarios with and without this project. This information would demonstrate the benefits of this transmission project from a resource adequacy perspective. These benefits could then be used in the project justification.

Q. What additional information does the CA ISO need relative to SCE's "in Basin" requirements?

A. In Section F of the SCE LTPP, starting on page 124, SCE provided a discussion of the

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transmission and operational local reliability needs considered in its resource plan. SCE characterized the information included in its analysis as a "placeholder" needing more discussion and coordination with the CA ISO. Tables V-20, V-21, and V-22 included the estimated percent of the SCE capacity needs for operability by category. The largest specific capacity need was the "In-basin" need, which is 40% (based on SCE's Second ERRATA to Volume 1 LTPP) of total system capacity. The CA ISO commends SCE for performing this initial analysis and providing the results. The CA ISO agrees that implementation of both short-term and long-term locational capacity requirements merits more discussion and coordination. As a starting point it would be useful to fully understand the details behind the results in Tables V-20, V-21, and V-22. The LTPP should include: (1) A description of the electrical boundary of the "basin" and its relationship to the South of Lugo and Southern California Import Transmission (SCIT) constraints, (2) Import capability into the "basin", (3) the load forecast for the "basin", Having a detailed understanding of this analysis will allow the CA ISO to verify that the long-term transmission plan and the resource assumptions that the plan is based on are consistent with this LTPP.

In Table V-26 on page 139 of the SCE LTPP, SCE provided information regarding expected Energy Not Served, MWH, and annual average. SCE should include this information for each and every year between 2005 and 2014 for the entire SCE system and for all load pockets in the SCE system such as the "basin". This information should also be provided in terms of a loss of load probability or expectation (LOLP) similar to the LOLP information provided in Section F of SCE's Long-Term Resource Plan Testimony dated April 15, 2003. This information would provide objective evidence regarding the adequacy of resources located in the "basin".

Q. What other comments do you have on the LTPPs of the IOU's?

A. On page 38 of the SCE LTPP, SCE lists two variables that influence QF contract extensions. The second variable is the pricing offered under SO1 contract extensions. The CA ISO proposes that the

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pricing offered should reflect the locational benefits of extending a QF contract. Terminating a QF contract for a facility located in a load pocket could result in reliability problems in that load pocket that would need to be mitigated by procuring new resources located in that load pocket or expanding the local transmission system.

Q. Does a resource have value in a LTPP simply because of its location?

A. Yes. It often does and this value could be either positive or negative. In footnote 5 on page 3-4 of the PG&E LTPP, PG&E notes that they are evaluating the economics of applying for renewal of the FERC license for PG&E's Kilarc-Cow Creek hydroelectric facility. This particular unit is part of the Battle Creek RMR area and is required to meet the RMR Criteria. PG&E needs to address the reliability impacts of not renewing the license for this facility. PG&E should address the short-term and long-term affects of not renewing the license. For example PG&E should clearly show how the local load will be served in the short-term and until a long-term solution such as a transmission or generation project can be completed.

Q. Should SCE model all load pockets in RiskSym and what are the benefits of doing so?

A. On page 154 of the SCE LTPP, SCE states "[t]here is essentially one transarea in RiskSym which contains all of a utility's available generation, transactions, contracts, demand management programs and loads." The CA ISO interprets this statement to mean that no load pockets like the "basin" within the SCE system were modeled in RiskSym. The CA ISO cannot determine how SCE calculated "In-basin" needs in Tables V-20, V-21, and V-22 with only one "transarea" representing the entire SCE system? The CA ISO recommends that SCE explicitly model all known load pockets such as the "basin" in the RiskSym model. This approach would allow SCE to objectively analyze the adequacy of resources in each of these load pockets. A load pocket is a particular area of load and local generation with insufficient transmission to cover its load requirements without the operation of the local generation, for example, the San Francisco Bay, San Diego, and LA Basin areas.

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Q. Please discuss how PG&E has considered local area reliability in its LTPP.

A. On page 1-14 of the PG&E LTPP, PG&E notes that its 2003 Electric Transmission Grid Expansion Plan addresses local reliability issues. Table 4-1 of that transmission report shows that the PG&E system will still require up to 6500 MW of RMR generation. In addition, that table shows that PG&E has planned 24 transmission projects that are related to local reliability issues. The CA ISO commends PG&E for identifying these transmission projects which have been partially or completely justified by RMR contract cost savings. The CA ISO recommends that these plans be reviewed from a long-term resource planning perspective and included in the LTPP. Perhaps longer-term new generation projects, transmission projects or demand side management projects should be considered for these local reliability areas. On page 2-4 of the PG&E LTPP, PG&E proposes that 50% of its new generation needs should be filled by utility- owned generation. The possibility of siting some of this generation in an RMR area should be explicitly considered. Procuring utility owned generation in an RMR area would fill the local area need on a long-term basis and mitigate local market power.

On pages 4-13, 4-50, and 4-54 of the PG&E LTPP, PG&E states that transmission, generation, and demand response alternatives that could meet the load pocket need will be identified, and that PG&E will compare the alternatives as part of the CA ISO grid expansion plan process. Then, if a generation or demand response alternative is the most economic, it will be included in PG&E's next integrated resource plan. Presumably, the identification and evaluation of alternatives will require PG&E to solicit bids. Given the potential need for up to 6,500 MW in 2008 and the sizeable resource need shown in Table 4-3 of the PG&E LTPP, as well as the fact that local resource bidding processes are not typically part of the CA ISO grid planning process, the CA ISO recommends that PG&E move forward in this LTPP with soliciting bids to resolve the approximately 6,500 MW RMR need. This should be done in concert with PG&E's resolution of its resource needs over the long-term.

Q. Please discuss the CA ISO's criteria for evaluating the ability of the IOU to supply load in a load

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pocket.

A. On Page 4-54 of the PG&E LTPP, PG&E summarizes the CA ISO's proposed load pocket capacity requirement as requiring each load pocket to have the same level of reserves regardless of cost, and also states that the starting point for creating a load pocket requirement should be the CA ISO's annual grid planning process. As a clarification, the CA ISO proposal is to adopt a LOLP criterion (e.g. no more that one day in ten years) that can be applied to each of the load pockets. For load pockets that do not meet the criterion for some period in the planning horizon, local generation, transmission or demand side resource alternatives could be procured to ensure that this reliability criterion would be met over the entire planning horizon. As these resources are added within the local area, as part of the overall resource plan, the LOLP within the local area would decrease until it would be at or below an acceptable level. The CA ISO circulated a straw-person methodology for vetting during the Resource Adequacy Workshop process. Unfortunately, due to time constraints, the proposal was not fully vetted. As the CA ISO stated in its workshop comments, a load pocket criterion needs to be adopted by both the CA ISO and the CPUC, preferably in a joint process, to ensure expediency. Ensuring reliability within a load pocket that relies on multiple generators to reliably serve load, requires a criterion that considers the availability of the local generation portfolio, and this type of analysis is typically considered resource planning analysis, which falls under the purview of the CPUC. Reliability within a load pocket also depends on the reliability of the local transmission system, which falls under the purview of the CA ISO. Therefore, approval of the load pocket criterion should be developed and approved by both the CPUC and the CA ISO.

Q. Do you agree with PG&E's statement on page 5-3 of its LTPP that LOLP analysis is not necessary when a reserve criteria for the overall system has been established?

A. No. Conducting a LOLP analysis for the PG&E system and all of the load pockets in the PG&E system would provide information regarding the potential cost of implementing the proposed CA ISO

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load pocket criterion. The CA ISO recommends that all three IOUs include in this study, LOLP information for its systems and all of the load pockets in its systems, as well as resource plans and estimated cost, for informational purposes, that would ensure an LOLP in each of the load pockets of no more than one day in ten years.

Q. What is the criteria by which the CA ISO believes a Load Serving Entity (LSE) should procure resources to meet local area requirements?

A. On a long-term basis, for the purposes of these long-term resource plans, the CA ISO recommends that LSEs procure local area resources as defined in Appendix D of the Workshop Report on Resource Adequacy Issues. As proposed in that Appendix, resources within the load pocket would be required to ensure that the LOLP within the load pocket was below an established level (*e.g.* less than one day in 10 years). Procuring this level of resources will ensure resource adequacy within load pockets to meet local requirements.

Q. Do you agree with the way in which SDG&E applied the CA ISO planning standards in developing its LTPP?

A. In general, yes, although I would like to raise a couple of specific concerns.

In the testimony of Ms. Linda Brown for SDG&E, Tables 1, 2, and 3 "Grid Reliability with SDG&E 90/10 Base Forecast" in SDG&E's LTPP, SDG&E shows an import capability into the SDG&E load pocket of 2,500 MW, as well as the load and resource balance. The CA ISO commends SDG&E for incorporating this load pocket analysis into its LT resource plan. However, the CA ISO has questions regarding the application of the CA ISO's Grid Planning Standards to obtain the 2,500 MW import limit. The 2,500 MW import limit is the import capability into the SDG&E load pocket with the Imperial Valley-Miguel 500 kV line out of service. At this import level, the SDG&E load pocket is able to withstand another contingency without exceeding emergency equipment ratings or emergency voltage violations. Also included in these tables is the assumption that the largest generator in the SDG&E load

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pocket is out of service. Designing to this performance criterion would mean that SDG&E's transmission system could be serving 90/10 load, have the largest generator out of service (G-1), have the Imperial Valley-Miguel 500 kV line out of service (N-1), and then survive the next worst contingency (N-1) while still having all transmission facilities operate within applicable emergency ratings and no emergency voltage violations. This can be characterized as a G-1/N-1-1. On page 5 of the Linda Brown testimony it appears that this scenario is incorrectly characterized as a G-1/N-1 event. An actual application of the G-1/N-1 criterion would most likely result in the need for a lower amount of local resources than is shown in Tables 1, 2, and 3. The CA ISO only makes this point to further support the need for a LOLP criterion for load pockets to supplement the general CA ISO Grid Planning Standards. SDG&E's G-1/N-1-1 approach may result in a load pocket reliability level that is closer to a loss of load probability of 1 day in 10 years than an exact application of the CA ISO Grid Planning Criterion G-1/N-1 to this load pocket.

Q. Does this conclude your opening testimony?

A. Yes. It does.

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QUALIFICATIONS OF ROBERT SPARKS

Q. Please state your name and business address.

A. My name is Robert Sparks. My business address is California Independent System Operator, 151 Blue Ravine Road, Folsom, California 95630

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

A. I am a Lead Grid Planning Engineer in the Grid Planning Department. One of my primary job responsibilities is to work with ISO Participating Transmission Owners, State Agencies, and Stakeholders to create a comprehensive long- term transmission expansion plan that is compatible with the long- term resource plans of the load serving entities for California to ensure that facilities are in place as needed to economically provide wholesale electric service and to meet applicable reliability criteria. As part of this responsibility I have studied the processes for integrating transmission planning and resource planning at other ISOs and RTOs.

Q. Please summarize your educational and professional background.

A. I received a Master of Science degree in Electrical Engineering from Purdue University in August 1989, and a Bachelor of Science degree in Electrical Engineering from California State University, Sacramento in June 1988. While in college, I was awarded a merit scholarship from Pacific Gas & Electric Company (PG&E) and worked during summer break from 1985 through 1988 as an intern for them. Immediately after graduation, I joined PG&E's Transmission Planning Department and worked on the California-Oregon Transmission Project design refinement studies, and QF interconnection studies. I participated in writing "Cost-benefit analysis of power system reliability: two utility case studies" that was published in IEEE Transactions on Power Systems, August 1995. From March 1994 until November 1997 I worked in PG&E's System Operations Department initially as a Lead Operations Engineer and later as a Supervising Power System Engineer. In November 1997, I joined the California ISO as a Grid Planning Engineer and performed the initial Reliabililty Must Run Study for the San Diego, Fresno, and Stockton RMR areas, and reviewed the Southern California Edison and PG&E transmission expansion plans. From December 2001 to August 2002, I worked for FPL Energy as the West Coast Transmission Manager for transmission related issues associated with their

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various generation projects in the WECC. I rejoined the ISO in September 2002 as a Senior Grid Planning Engineer and was later promoted to Lead Grid Planning Engineer. I have over 14 years experience in electric transmission system planning and operations and am a registered Professional Engineer in the State of California.

Q. Have you previously testified before the CPUC?

Y. Yes. I testified in the previous Resource Procurement proceeding (R. 01-10-024) and in the Tehachapi Transmission Project proceeding (I.00-11-001 Phase 6). I have also testified before the California Energy Commission on the San Francisco Energy Project and the High Desert Power Project.

Q. Does this conclude your statement of qualifications?

A. Yes.

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Attachment 2

Resource Information Needed for the ISO to Perform a Transmission/Deliverability Review of the IOU Long-Term Resource Plans

The ISO plans to perform a transmission/deliverability review of the IOU Resource Plans using resource information from the three IOU Plans and ISO power flow analysis models. A description of the resource information needed from the IOU Resource Plans is listed below.

Existing and Committed Resources Included in the Resource Plans

1. Purchased Power Contracts
    a. QFs
        i. Name of facility
        ii. Interconnection Point
        iii. MW amount of contract (gross and net dependable capacity during summer peak)
        iv. Expiration date of contract
        v. Starting date of contract for committed resources
        vi. Generation type (biogas, biomass, geothermal, hydro, solar, wind, other.)
    b. Non-renewable-energy power contracts
        i. Unit specific contracts
            1. Name of facility
            2. Interconnection Point
            3. MW amount of contract (gross and net dependable capacity during summer peak)
            4. Expiration date of contract
            5. Starting date of contract for committed resources
            6. Generation type (fuel type, combined cycle, gas turbine, simple cycle steam, other.)
        ii. Non-unit specific contracts
            1. Delivery point
            2. MW amount of contract (dependable capacity)
            3. Expiration date of contract
            4. Starting date of contract for committed resources
        iii. Import Contracts
            1. Delivery point
            2. MW amount of contract
            3. Expiration date of contract
            4. Starting date of contract for committed resources
            5. Transmission service information for transmission service on non-ISO-Controlled Grid
        iv. Sales, Exchange, and Export Contracts
            1. Delivery point

2. MW amount of contract
3. Expiration date of contract
4. Starting date of contract for committed resources

c. Renewable energy contracts
   i. Name of facility
   ii. Interconnection Point
   iii. MW amount of contract (gross and net dependable capacity during summer peak)
   iv. Expiration date of contract
   v. Starting date of contract for committed resources
   vi. Generation type (biogas, biomass, geothermal, hydro, solar, wind, other.)

2. Utility-Owned Generation
   a. Name of facility
   b. Interconnection Point
   c. MW amount of capacity (gross and net dependable capacity during summer peak)
   d. Expected date of retirement
   e. Starting commercial operating date for committed resources
   f. Generation type (fuel type, combined cycle, gas turbine, simple cycle steam, other.)

Planned Resource Additions

1. Description of Scenario
   a. Renewable Power
      i. General description of location
      ii. MW amount of resource (gross and net dependable capacity during summer peak)
      iii. Generation type (biogas, biomass, geothermal, hydro, solar, wind, other.)
      iv. Starting date of contract
   b. Market Purchases
      i. General description of delivery point
      ii. MW amount of resource (net dependable capacity during summer peak)
      iii. Starting date of contract
   c. New Resources
      i. General description of location
      ii. MW amount of resource (net dependable capacity during summer peak)
      iii. Starting date of contract or operating date of new resource
      iv. Generation type (fuel type, combined cycle, gas turbine, simple cycle steam, etc.)
   d. New Resources located in load pockets
      i. Description of Load pocket

ii. MW amount of resource (net dependable capacity during summer peak)
iii. Starting date of contract or operating date of new resource
iv. Generation type (fuel type, combined cycle, gas turbine, simple cycle steam, other.)

Proposed Transmission Additions

1. Description of Scenario
    a. Please provide information regarding any transmission projects proposed as part of the resource planning scenario that is not a transmission project already approved by the ISO.

CERTIFICATE OF SERVICE

I hereby certify that I have served, by electronic mail, a copy of the foregoing Opening Testimony of Robert Sparks Regarding the Long Term Procurement Plan of the Investor Owned Utilities on Behalf of the California Independent System Operator to each party in Docket No. R.04-04-003.

Executed on August 6, 2004, at Folsom, California.

Karen Voong
An Employee of the California
Independent System Operator