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**Testimony of L. Jan Reid on  
Track I and Track III Issues**

**R.10-05-006**

Served August 5, 2011  
on behalf of  
L. Jan Reid

## TABLE OF CONTENTS

1		
2		
3		
4		
5	I. RECOMMENDATIONS .....	<b>Error! Bookmark n</b>
6	II. RENEWABLE INTEGRATION MODELS .....	2
7	A. Background .....	2
8	B. Deficiencies in the CAISO Methodology .....	3
9	C. Number of Standard Deviations .....	5
10	D. Backtesting .....	5
11	E. Robustness .....	6
12	F. Renewable Integration Need .....	6
13	III. NUCLEAR POWER PLANTS .....	6
14	IV. TRACK III ISSUES .....	9
15	A. Once Through Cooling (OTC) .....	9
16	B. The Rulebook .....	10
17	1. Independent Evaluators .....	11
18	2. Procurement Review Groups .....	12
19	VI. CONCLUSION .....	14
20	Appendix A Statement of Qualifications .....	B-1
21		

1 Pursuant to Rule 1.9 of the Commission's Rules of Practice and Procedure,  
2 I serve this testimony on Track I and Track III issues of this proceeding.

3 Pursuant to the procedural schedule set forth in the June 13, 2011 ruling  
4 (Ruling) of Administrative Law Judge (ALJ) Peter Allen as modified by the  
5 August 4, 2011 email from ALJ Allen, I submit this testimony on behalf of myself.  
6 I am a customer of Pacific Gas and Electric Company (PG&E) and am a party in  
7 this proceeding.

8 In the testimony, I discuss the recommendations of the investor owned  
9 utilities (IOUs)<sup>1</sup>. I discuss Track I issues in Sections II-III and Track III issues in  
10 Section IV. In briefs, I may take positions on issues not addressed herein. The  
11 testimony is supported by workpapers that are available on request.

12 Witness qualifications are set forth in Appendix A.

13 **I. Recommendations**

14 I have relied on state law, past Commission decisions, and information  
15 furnished by the California Independent System Operator and the investor  
16 owned utilities in developing recommendations regarding the issues in this  
17 proceeding. Page references are given in parentheses after each recommendation  
18 or proposed finding.

19 I recommend the following:

- 20 1. The Commission should adopt a system capacity need of zero  
21 megawatts (MW) for renewable integration. (pp. 2-6)
- 22 2. The Commission should adopt the Energy Division Staff (Staff)  
23 proposal on Once Through Cooling (OTC) given in Appendix A of  
24 ALJ Allen's June 13, 2011 ruling. (pp. 9-10)

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<sup>1</sup> The IOUs in this proceeding are Pacific Gas and Electric Company (PG&E), San Diego Electric & Gas Company (SDG&E), and Southern California Edison Company (SCE).

- 1           3. The Commission should not establish a Rulebook as suggested by  
2           Staff. (pp. 10-11)
- 3           4. The Commission should prohibit both an IE and the IE's employer  
4           from having a financial interest in any potential bidder in a  
5           solicitation. (pp. 11-12)
- 6           5. The Commission open an Order Instituting Investigation (OII) into  
7           the feasibility of shutting down the SONGS and Diablo Canyon  
8           facilities. (pp. 6-8)

9           My recommendations are based on the following proposed findings:

- 10          1. No party in this proceeding has recommended that the Commission  
11          adopt a specific non-zero system need for renewables integration.  
12          (p. 3)
- 13          2. The CAISO's RIM methodology is deficient with respect to the items  
14          listed in Section II.B of this testimony. (pp. 3-5)
- 15          3. The Staff's OTC proposal encourages conservation, seeks to improve  
16          water quality, and is consistent with the Commission's policy goals.  
17          (pp. 9-10)
- 18          4. The Commission does not need to establish a Rulebook in order to  
19          adopt changes to procurement rules. (pp. 10-11)
- 20          5. The IE has a conflict of interest if his or her firm has a financial  
21          interest in a potential bidder in a solicitation. (pp. 11-12)

## 22   **II. Renewable Integration Models**

### 23    **A. Background**

24           Two separate renewable integration models have been the subject of  
25   workshops and comments in this proceeding. Workshops were held on  
26   August 24-25, 2010, October 22, 2010, November 30, 2010, and May 10, 2011.  
27   Parties filed workshop comments on September 21, 2010, November 22, 2010,  
28   and January 14, 2011. Parties filed workshop reply comments on September 28,  
29   2010, December 3, 2010, and January 26, 2011.

1 At the workshops, model results were presented by both PG&E and the  
2 California Independent System Operator (CAISO).<sup>2</sup> It is my understanding that  
3 PG&E is continuing development of its model, but is not presenting it for con-  
4 sideration at this time. Therefore, my testimony only addresses the CAISO's  
5 Renewable Integration Model (RIM).

6 The CAISO and the IOUs served testimony on July 1, 2011. The parties  
7 conducted submitted discovery to the CAISO and the IOUs. The CAISO's  
8 response to Reid's first set of discovery questions is provided in Attachment A to  
9 this testimony.

10 In its opening testimony, The CAISO has stated that "In addition to the  
11 five CPUC scenarios, the ISO also studied an "All Gas" scenario in support of  
12 development of metrics by the IOUs, and conducted a sensitivity analysis  
13 assuming all three Helms pumps are available year round.identified." (CAISO  
14 Testimony, p. 7) The CAISO's has also stated that "the study results show the  
15 flexibility requirements to support a 33% RPS result in a range of possibilities,  
16 from no additional capacity needs to the need for substantial capacity additions  
17 depending on the scenario assumptions." (CAISO Testimony, p. 4)

18 I note that no party in this proceeding has recommended that the Commis-  
19 sion adopt a specific non-zero system need for renewables integration.

## 20 **B. Deficiencies in the CAISO Methodology**

21 Reid and other parties have identified a number of deficiencies in the  
22 CAISO's methodology. These deficiencies include:

- 23 • The CAISO modeled small smaller profiles at an aggregate level,  
24 instead of individually. (CAISO Testimony, p. 23)

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<sup>2</sup> PG&E did not present its model results at every workshop.

- 1 • The CAISO states that “The CAISO used three standard deviations for  
2 the seasonal load forecast errors. The forecast errors for wind and solar  
3 were also truncated at  $\pm$  three standard deviations.” (Attachment A,  
4 CAISO Response to Reid Question 11) I discuss the number of  
5 standard deviations in Section II.C.
- 6 • The CAISO has also stated that “Holding all other variables constant,  
7 an increase in forecast error would increase the load following and  
8 regulation needs determined in Step 1.” (Attachment A, CAISO  
9 Response to Reid Question 3b)
- 10 • The CAISO did not conduct sensitivity runs which account for the  
11 potential substitution between wind and solar. (Attachment A, CAISO  
12 Response to Reid Question 3c)
- 13 • The CAISO did not calculate the elasticity<sup>3</sup> of capacity need with  
14 respect to the vast majority of variables. (Attachment A, CAISO  
15 Response to Reid Question 5)
- 16 • The CAISO states that an increase in the price of electricity “does not  
17 change the need for additional capacity, even though high electricity  
18 price may provide incentives for investments in new capacity.”  
19 (Attachment A, CAISO Response to Reid Question 5)
- 20 • The CAISO did not calculate a correlation matrix between several  
21 important variables. (Attachment A, CAISO Response to Reid  
22 Question 6)
- 23 • The CAISO states that “The ISO did not perform studies for every year  
24 between 2012 and 2020 and the study results vary greatly based on the  
25 scenarios assumptions.” (Attachment A, CAISO Response to Reid  
26 Question 7)
- 27 • The CAISO did not employ a historical trend to estimate the forecast  
28 error for the period 2011-2020. (Attachment A, CAISO Response to  
29 Reid Question 8)

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<sup>3</sup> Elasticity is the ratio of the percent change in one variable to the percent change in another variable. For example, if a one percent change in Variable A causes a 1.5 percent change in Variable B, the elasticity of Variable B with respect to Variable A is 1.5

- 1 • The CAISO's model does take into consideration the autocorrelation of  
2 forecast errors associated with load, wind resources, and solar  
3 resources. (Attachment A, CAISO Response to Reid Question 16)
- 4 • The CAISO did not account for technological changes that may occur to  
5 reduce the intermittency level of renewable resources? (Attachment A,  
6 CAISO Response to Reid Question 17)
- 7 • The CAISO did not test for the existence of serial correlation. Instead,  
8 the CAISO states that "There is no serial correlation assumed."  
9 (Attachment A, CAISO Response to Reid Question 25h)
- 10 • The ISO did not backtest the simulation results against historical  
11 results. Attachment A, CAISO Response to Reid Question 29) I discuss  
12 backtesting in Section II.D.
- 13 • The CAISO did not conduct external robustness tests relative to its  
14 RIM. I discuss robustness tests in Section II.E.

### 15 **C. Number of Standard Deviations**

16 A confidence level of 95% is a standard confidence level in many types of  
17 statistical applications. For example, the CPUC has ordered the investor owned  
18 utilities (IOUs) to use a 95% confidence level when calculating Time To Expira-  
19 tion Value at Risk (TEVaR) results. (Decision (D.) 07-12-052, Ordering Paragraph  
20 21, slip op. at 303)

21 Therefore, I recommend that a 95% confidence level (1.96 standard devia-  
22 tions) be used in the CAISO's model. A confidence level of 95% is consistent  
23 with 1.96 standard deviations. I note that PG&E has provided a graphical expla-  
24 nation of the relationship between confidence intervals and the number of  
25 standard deviations. (PG&E October, 2010 Presentation, Slide 38)

### 26 **D. Backtesting**

27 Backtesting (or back-testing) is the process of evaluating a strategy, theory,  
28 or model by applying it to historical data. A key element of backtesting that  
29 differentiates it from other forms of historical testing is that backtesting

1 calculates how a strategy would have performed if it had actually been applied  
2 in the past. For example, backtesting can be used in studying how a trading  
3 method would have performed in past markets.

#### 4 **E. Robustness**

5 In computer science, “robustness” is the ability of a computer system to  
6 cope with errors during execution; or the ability of an algorithm to continue to  
7 operate despite abnormalities in input, calculations, etc. Formal techniques, such  
8 as fuzz testing,<sup>4</sup> are essential to proving robustness, since this type of testing  
9 involves invalid or unexpected inputs.

10 The size and resource intensiveness of a particular model does not prove  
11 that the model is robust.

#### 12 **F. Renewable Integration Need**

13 For all of the above reasons, I recommend that the Commission adopt a  
14 system capacity need of zero MW for renewables integration in this proceeding.

### 15 **III. Nuclear Power Plants**

16 SCE has pointed out that “Women’s Energy Matters (WEM) has filed  
17 intervenor testimony in Track II of this proceeding recommending the  
18 immediate shutdown of San Onofre Nuclear Generating Station Units (SONGS 2  
19 & 3).” (SCE Testimony, p. 36)

20 WEM’s recommendation was not limited to the SONGS facility. WEM  
21 argued that “It is incumbent on the Commission to begin preparing for a shut-  
22 down of Diablo Canyon and San Onofre nuclear reactors in either case. Both

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<sup>4</sup> “Fuzz testing” or “fuzzing” is a software-testing technique that provides invalid, unexpected, or random data to the inputs of a program. A description of fuzz testing and references is available at <http://pages.cs.wisc.edu/~bart/fuzz/>.



1 reactors sit on and near multiple faults capable of major earthquakes; both sit on  
2 oceanfront real estate where tsunamis are a possibility. The earth's tectonic  
3 plates can heave at any moment, without warning." (WEM Track II Testimony,  
4 May 4, 2011, p. 8)

5 SCE argues that WEM's recommendation should not be adopted because:

- 6 • The premature shutdown of SONGS would have immediate and  
7 adverse impacts on electric system reliability.  
8 (SCE Testimony, pp. 38-39)
- 9 • There is not enough time for mitigation to avoid the negative impacts of  
10 an immediate shutdown of SONGS (SCE Testimony, pp. 39-40)
- 11 • A premature shutdown of SONGS would impact state environmental  
12 goals. (SCE Testimony, p. 40)
- 13 • A shutdown of SONGS would have a negative economic impact on  
14 Southern California. (SCE Testimony, pp. 40-41)

15 Both WEM and SCE have provided compelling arguments concerning the  
16 nuclear power plant shutdown issue. WEM is certainly correct concerning the  
17 risks associated with the continued operation of California's nuclear power  
18 plants. SCE makes a compelling case that it may not be in the public interest for  
19 the Commission to order an immediate shutdown of the SONGS facility.

20 The existence of nuclear power plants has been a major public issue in  
21 California since at least the 1972 debate over Proposition 9, which established the  
22 California Coastal Commission.

23 A recent poll conducted by the Public Policy Institute of California (PPIC)  
24 found that Californians are opposed to building more nuclear power plants. The  
25 Josh Richmond of the Oakland Tribune has reported that "The poll found 65  
26 percent of Californians now oppose building more plants while 30 percent are in

1 favor, the lowest level of support since PPIC began asking the question in 2001  
2 and a 14-point drop since one year ago.”<sup>5</sup>

3 Although the poll did not ask respondents whether Californians should  
4 shutdown its nuclear power plants, the results indicate that there is significant  
5 public opposition to nuclear power in California.

6 Since both WEM and SCE make compelling arguments concerning this  
7 issue and there is a growing public concern about nuclear power plants. I seek to  
8 resolve this issue by recommending that the Commission open an OII into the  
9 feasibility of shutting down the SONGS and Diablo Canyon facilities. In this OII,  
10 I recommend that the Commission consider the following factors:

- 11 1. The risks associated with the continued operation of these facilities.
- 12 2. Electric system reliability.
- 13 3. Ratepayer costs associated with de-commissioning.
- 14 4. The disposition of utility costs associated with un-depreciated  
15 ratebase.
- 16 5. The financial effect on the IOUs if the nuclear plants are shut down.
- 17 6. The cost of replacement power.
- 18 7. The effect on renewable integration.
- 19 8. Existing regulations of the U.S. Department of Energy and the  
20 Nuclear Regulatory Commission.
- 21 9. The transmission licensing process.
- 22 10. The cost effectiveness of shutting down the nuclear power plants.
- 23 11. The economic impact of a shutdown on California residents.

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<sup>5</sup> Source: “State poll: Support for offshore oil drilling grows”, Josh Richman, Oakland Tribune, July 28, 2011.

1 **IV. Track III Issues**

2 ALJ Allen's Ruling refers to four Track III issues which have been  
3 identified in a previous ruling issued on March 13, 2011. (Ruling, p. 6) These  
4 four issues are

- 5 1) procurement rules relating to once-through cooling issues;  
6 2) refinements to the bid evaluation process, particular weighing  
7 competing bids between utility-owned generation and power  
8 purchase agreements; 3) refinements to the existing timelines  
9 associated with the utilities' RFOs for resource adequacy products;  
10 and 4) utility procurement of greenhouse gas related products.

11 The Ruling states that "This Ruling confirms that we are addressing those  
12 four issues, plus one other issue, consisting of procurement oversight rules,  
13 including the oversight responsibilities and authority of various entities (includ-  
14 ing Independent Evaluators and the Procurement Review Group) and standards  
15 of conduct applicable to the utilities and their employees." (Ruling, p. 6)

16 The Ruling contains two appendices, Appendix A and Appendix B. ALJ  
17 Allen has requested that parties' testimony address the proposals contained in  
18 these appendices. (Ruling, p. 7)

19 I discuss Track III issues below.

20 **A. Once Through Cooling (OTC)**

21 The CPUC Energy Division Staff's (Staff's) OTC Proposal (See Ruling,  
22 Appendix A) would prohibit a utility from entering into a contract for longer  
23 than one year with an OTC facility. There are three possible exemptions from  
24 this prohibition. A utility is exempt from this prohibition if one of the following  
25 three conditions applies:

- 26 1. A facility is found by the Water Resources Control Board to be fully  
27 in compliance with Section 316(b) of the Clean Water Act.

- 1           2. If the Commission authorizes the procurement of new capacity in  
2           the LTPP proceeding, contracts longer than one year and/or that  
3           extend beyond the Water Resources Control Board OTC compliance  
4           date as detailed in the October 1, 2010 Statewide Water Control  
5           Policy on the Use of Coastal and Estuarine Waters Used for Power  
6           Plant Cooling or successor documents for the express purpose of  
7           enabling the repowering of those OTC facilities are permitted if  
8           those contracts do not result in operation of the once-through-  
9           cooling system beyond the compliance date.
  
- 10          3. If an OTC facility elects to comply with the State Water Resources  
11          Control Board OTC policy by means of SWRCB Track 2 (under  
12          which water intake is reduced by 93% or screens or similar  
13          technologies that are expected to be approved by the State Water  
14          Resources Control Board are utilized) contracting with such a  
15          facility beyond the State Water Resources Control Board's  
16          compliance date is permitted.

17           The Commission has a long history of supporting water policies which  
18   improve water quality and encourage conservation. The Commission has stated  
19   that: (CPUC Water Action Plan, December 15, 2005, p. 2)

20           In light of increasing statewide concerns about water quality and  
21           supply, the Commission will explore innovative solutions to water  
22           problems and keep pace with newer approaches it is implement-  
23           ing in the energy and telecommunications sectors as well as strate-  
24           gies being used by water agencies and entities not subject to  
25           Commission jurisdiction. In our loading order for water supply  
26           sources, we recognize that cost-effective conservation is the best,  
27           lowest-cost of supply.

28           The Staff proposal encourages conservation, seeks to improve water  
29   quality, and is consistent with the Commission's policy goals. Therefore, the  
30   Commission should adopt the Staff proposal.

## 31    **B. The Rulebook**

32           Energy Division staff (Staff) "has consistently envisioned that the  
33   Rulebook should supersede existing decisions, in that the document would be

1 treated as a General Order and will be fully enforceable.” (Ruling, Appendix B,  
2 p. 2)

3 I disagree with Staff on this issue. The Rulebook should serve an informa-  
4 tive purpose and should not be treated as a General Order as suggested by Staff.  
5 The Rulebook should serve to:

- 6 1. Inform the public of the procurement rules that have been adopted  
7 by the Commission.
- 8 2. Inform CPUC staff, the IOUs, and other parties of the procurement  
9 rules that have been established by the Commission.

10 The Commission does not need to establish a Rulebook in order to change  
11 its’ procurement rules. Therefore, I recommend that the Commission not estab-  
12 lish a Rulebook at this time.

13 Below, I address Staff’s proposed changes to the Commission’s existing  
14 procurement rules.

### 15 **1. Independent Evaluators (IEs)**

16 Staff proposes that “A minimum criterion for independence is that the IE  
17 has no financial interest in any of the potential bidders, including the affiliate, or  
18 in the outcome of the process.” (Ruling, Appendix B, p. 10) This requirement is  
19 necessary, but not sufficient.

20 Even though an IE has no financial interest in any of the potential bidders  
21 in a solicitation, the IE may still have a conflict of interest. The IE has a conflict of  
22 interest if his or her firm has a financial interest in a potential bidder. Therefore,  
23 I recommend that the Commission mandate that neither the IE nor an IE’s  
24 employer have a financial interest in any potential bidder in a utility solicitation.

25 Staff recommends that “An IE may remain in the IE pool for two years,  
26 after which he/she must go through a reevaluation process based upon the

1 inclusion criteria as defined in Section 1 (b) to assure continued compliance.”  
2 (Ruling, Appendix B, p. 11)

3 I recommend that this item be changed to indicate that an IE will not be  
4 subject to the two-year limit unless the IE has been given an assignment by the  
5 IOU and has completed that assignment. In some instances, the IE will not have  
6 been assigned and have completed an assignment within a two-year period. In  
7 this case, neither the IOU nor its procurement review group (PRG) will be able to  
8 fairly evaluate the IE’s performance.

## 9 **2. Procurement Review Groups**

10 Section 451 of the Public Utilities Code requires that the Commission  
11 ensure that all utility charges are just and reasonable. Because the Commission  
12 is responsible for ensuring that rates are reasonable, it must consequently ensure  
13 that utility costs (including procurement costs) are reasonable.

14 Prior to 2002, the Commission often discharged this responsibility via  
15 periodic ex-post reasonableness reviews. Since October 2002, the reasonableness  
16 of utility procurement has been determined by the interaction of the utility, its  
17 PRG, and the advice letter process. The PRGs have been an important part of  
18 this process. They have reduced the need for the ex-post reasonableness review,  
19 and have been used by the Commission on numerous occasions. The  
20 Commission has explicitly noted their effectiveness.

21 The Commission established a PRG for each IOU’s interim procurement in  
22 August 2002. (D.02 08 071, slip op. at 24 25). The PRG process was initially  
23 extended until the end of 2003 (D.02 10 062, slip op. at 3) and then extended  
24 indefinitely.

25 The Commission has reviewed the PRG process and found that “PRGs are  
26 valuable for the IOUs’ procurement process and we direct the IOUs to continue

1 to use them in an advisory capacity for their procurement activities, including for  
2 procurement when an IOU is considering recovering costs from bundled and  
3 unbundled customers using the D.06-07-029 CAM.” (D.07-12-052, Conclusion of  
4 Law 23, slip op. at 293)

5 The PRG process acts as an alternative to formal Commission proceedings.  
6 Instead of Commission review of all procurement activities in formal  
7 applications or in ex-post reasonableness reviews, utility procurement is  
8 reviewed by the PRG, and then the utility is allowed to request approval through  
9 expedited applications or the advice letter process. I believe that the  
10 Commission assumes that utility procurement activities will be adequately  
11 reviewed by the PRGs. In this way, lengthy Commission proceedings can often  
12 be avoided.

13 Staff recommends that “The California Energy Commission and IOU are  
14 invited to participate in the PRG.” (Ruling, Appendix B, p. 12) I have no  
15 objection to the California Energy Commission re-involving itself in the PRG  
16 process. However, it is not necessary to invite the IOUs to participate in their  
17 own PRG. The IOUs convene the PRG meetings and make presentations to their  
18 PRGs.

19 An IOU should not be allowed to routinely participate in another IOU’s  
20 PRG. There may be times when joint meetings of the PRGs may be held, but this  
21 should be a special circumstance. One IOU should not be allowed to have access  
22 to confidential information of another IOU via the PRG process. For these rea-  
23 sons, I recommend that the above-quoted sentence be rewritten to read “The  
24 California Energy Commission is invited to participate in the PRGs.”

25 Staff recommends that “The members of each PRG would be committed to  
26 devote the time necessary to meet and confer with the utilities on each proposed  
27 contract and/or procurement process and provide written comments to the

1 utilities within no later than fifteen days of initiation of the review process.”

2 (Ruling, Appendix B, p. 17)

3 I am a member of PG&E’s PRG group. I unable to provide meaningful  
4 feedback to PG&E on a proposed contract or process until PG&E responds to my  
5 data requests.

6 Therefore, I recommend that the following language be used:

7 The members of each PRG would be committed to devote the time  
8 necessary to meet and confer with the utilities on each proposed  
9 contract and/or procurement process. PRG members shall submit  
10 data requests to the IOU within 48 hours of the initial presentation  
11 by the IOU. PRG members shall provide written comments to the  
12 IOUs within 15 days of the IOUs response to a PRG member’s  
13 data request.

14 **V. Conclusion**

15 The Commission should adopt my recommendations for the reasons given  
16 herein. This completes my direct testimony. Witness qualifications are given in  
17 Appendix A.



**APPENDIX A**  
**WITNESS QUALIFICATIONS**

**QUALIFICATIONS AND PREPARED TESTIMONY OF**  
**L. JAN REID**

My name is L. Jan Reid. My business address is 3185 Gross Road, Santa Cruz, CA 95062. I retired from the California Public Utilities Commission (CPUC) in June 2005, and am now working as sole proprietor of Coast Economic Consulting, and as a consulting economist and expert witness.

I hold a Bachelor of Arts degree in Economics and a Master of Science degree in Applied Economics and Finance from the University of California, Santa Cruz. The subject of my master's thesis was whether the Capital Asset Pricing Model (CAPM) is a biased estimator of market risk.

I was employed at the Commission in the Office of Ratepayer Advocates from 1998 to 2005. I sponsored written testimony on cost of capital, electric procurement, risk management, and credit ratings. I have made presentations in Commission workshops, developed econometric models, and provided internal financial and economic analysis in proceedings related to market power, electric procurement, operations support services, asset valuation, performance-based ratemaking (PBR) proposals, and utility service quality.

Since leaving the Commission, I have represented myself and Aglet Consumer Alliance in procurement review groups (PRGs) for Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company. I have participated in formal proceedings involving cost of capital, renewables portfolio standards, long-term procurement plans, resource adequacy, and demand-response programs.

This completes my statement of qualifications.

## VERIFICATION

I, L. Jan Reid, make this verification on my behalf. The statements in the foregoing document are true to the best of my knowledge, except for those matters that are stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Dated August 5, 2011, at Santa Cruz, California.

/s/

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