Docket:	**R. 10-05-006**
Exhibit No.:	
Commissioner:	**Michael R. Peevey**
ALJ:	**Peter V. Allen**
Witnesses:	**Rory Cox**

PACIFIC ENVIRONMENT

Errata to Prepared Track I Testimony of Pacific Environment Related to SDG&E's Request for LCR Procurement Authorization

Rulemaking No. 10-05-006
Long-Term Procurement Planning Track III Testimony
San Francisco, CA
August 8, 2011

ERRATA TABLE

Page #	Errata
1	Change to "415 megawatts (MW)"
2	Change to "56 ~~megawatts~~ MW installed"
2	Change to "install additional ~~megawatts~~ MW"
2	Change to "solar capacity to 5,800 ~~MWs~~ MW"
2	Change to "920 ~~MW's~~ MW of the solar power"
2	Change to "Governor's order of 12,000 ~~MWs~~ MW"
2, footnote 5	Change to "*See* https://energycenter.org/index.php?option=com_docman&task=cat_view&gid=244&Itemid=666~~.~~; *see also* SDG&E Smart Grid Deployment Plan: 2011-2020, Roadmap Section, http://www.sdge.com/regulatory/documents/a-11-06-006/Roadmap.pdf."
4	Change to "SDG&E ~~fail~~ fails to consider energy storage"
4	Change to "deployment of 2 ~~megawatts~~ MW"
4	Change to "problems with ~~S~~ SDG&E's"
4, footnote 19	Change to "Electricity Advisory Committee, *Energy Storage Activities in the United States Electricity Grid*, at p. 11 (May 2011), ~~http://www.oe.energy.gov/DocumentsandMedia/FINAL_DOE_Report-Storage_Activities_5-1-11.pdf.~~ http://www.doe.gov/oe/downloads/energy-storate-activities-united-states-electricity-grid-may-2011."
5	Change to "SDG&E ~~rely~~ relies on a 1-in-10"
5	Change to "1-in-10 forecast by 235 ~~megawatts~~ MW"
5, footnote 22	Change to "~~*Id.* at Table 1-1.~~ ICF Jones & Stokes et al., *Electric Grid Reliability Impacts from Regulation of Once-Through Cooling in California*, at Table 1-1 (April 2008)."
5	Change to "SDG&E's request for 425 MW~~,~~"

EXECUTIVE SUMMARY

Pursuant to the *Administrative Law Judge's Ruling Revising System Track I Schedule*, Pacific Environment discusses how SDG&E's request for local capacity is based on a large cushion, faulty input assumptions, including a significant underestimate of renewable build-out and a failure to consider alternative resources to fossil-fuel generation. Pacific Environment urges the Commission to reject this request for new capacity.

I. SDG&E'S REQUEST FOR LOCAL CAPACITY IS BASED ON FAULTY MODELING ASSUMPTIONS AND SHOULD BE DENIED.

Q. Have you read SDG&E's Track I testimony?

A. Yes.

Q. Does SDG&E request new procurement authority?

A. SDG&E asks the Commission to authorize the procurement of 415 megawatts (MW) of new generation.[1] But, as SDG&E admits, its calculation resulted in a cushion of 393 MW.[2]

Q. Do you agree that SDG&E needs new procurement authority?

A. No.

Q. Can you explain why?

A. SDG&E's model is faulty. In addition to the cushion in SDG&E's calculation, the type of model the calculation relies on, as even SCE admits, "cannot be used to conduct full, or robust, LCR studies, which require flow and other detailed transmission modeling analysis."[3] In addition, SDG&E ignores several key factors in its calculus, which if examined, would have shown no new additional fossil capacity requirements.

Q. What are these factors?

A. SDG&E does not consider all of its available resources when making its need determination. In particular, SDG&E assumes a figure of only 21 MW of local renewable energy and a small number of MW for all proposed renewable resources for the years 2012-2020.[4] This is an assumption that appears to ignore the advancement of behind the meter solar PV projects, among other renewable energy projects. For just one

[1] Prepared Track I Testimony of San Diego Gas & Electric, at pp. 11-12 (July 1, 2011).
[2] *See* SDG&E Data Request Response to DRA, 002-Q1.
[3] Southern California Edison Track I Testimony, at p. 10.
[4] SDG&E Track I Testimony, at Table 1.

program, the California Solar Initiative, the SDG&E territory has had approximately 56 ~~megawatts~~ MW installed.[5] Other programs, including a recently approved Commission program, are expected to install additional ~~megawatts~~ MW.[6] This also ignores the tremendous potential that the San Diego region has in efficiency gains, and in additional solar resources. A 2007 study, "San Diego Smart Energy 2020," found that by fully implementing existing programs, following existing laws, and emphasizing distributed solar, SDG&E can cost reduce energy consumption by 4,000 megawatts, while building solar capacity to 5,800 ~~MWs~~ MW, by 2020. 920 ~~MW's~~ MW of the solar power would have energy storage capability to smooth out the load.[7] This is far above what SDG&E is considering in this LTPP.

Q. Is the plan discussed in San Diego Smart Energy 2020 cost-effective?

A. According to the report, this buildout would cost $700 million.[8] However, since the report was published, the cost of solar photovoltaics has fallen further. We believe this is cost-effective, and will contribute to the Governor's order of 12,000 ~~MWs~~ MW of distributed renewable generation statewide.

Q. Why should these solar resources be considered when determining local reliability needs?

A. Distributed solar resources help meet peak LCR demand in 1 in 10 scenarios. Hot summer days in Southern California are sunny or nearly-cloud free, and recent studies have shown that distributed solar resources can absorb variable conditions. A 2010

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[5] *See* https://energycenter.org/index.php?option=com_docman&task=cat_view&gid=244&Itemid=666~~.~~; *see also* SDG&E Smart Grid Deployment Plan: 2011-2020, Roadmap Section, http://www.sdge.com/regulatory/documents/a-11-06-006/Roadmap.pdf.

[6] *See* D.10-09-016 (authorizing a five-year solar PV program to develop up to 100 MW of 1 to 5 MW solar PV projects in SDG&E service area); SDG&E Advice Letters 2210-E, 2211-E (establishing the implementation of the program).

[7] Powers, Bill. *San Diego Smart Energy* 2020. 2007. http://sdsmartenergy.org/smart.shtml.

[8] *Id.* at p. 5.

Lawrence Berkeley Lab study demonstrated that the relative aggregate variability of PV plants sited over a 20 km-wide region is six times less than the variability of a single site for variability on time scales less than 15-minutes.[9] The report concludes that the costs of managing solar PV are dramatically reduced by geographic diversity.[10]

Moreover, recent data from the CSI program has demonstrated that solar PV has a high on-peak availability.[11] Thus, the solar PV resources should be considered as a viable way to meet LCR requirements.

Q. Have California permitting agencies recognized the effectiveness of distributed solar as a viable alternative to peaking natural gas power plants?

A. Yes, in June 2009, the California Energy Commission rejected an application for an upgrade of the Chula Vista Energy Project (CVEP).[12] The CEC took issue with the "too-narrow project objective [which] artificially limit[ed] the range of potential alternatives."[13] Specifically, the applicant eliminated PV generation from its alternatives analysis when it found that PV did "not meet the project objective of utilizing natural gas available from the existing transmission system."[14] The CEC relied on testimony of Bill Powers, who found that it was feasible to install PV "on rooftops and over parking lots in a quantity sufficient to meet or exceed the project's incremental increase in output."[15]

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[9] Mills, et. al, Lawrence Berkeley National Laboratory, *Implications of Wide-Area Geographic Diversity for Short-Term Variability of Solar Power*, http://eetd.lbl.gov/ea/emp/reports/lbnl-3884e.pdf.
[10] *Id.*
[11] *See* Track II Testimony of Bill Powers on Behalf of Pacific Environment, at pp. 9-12 (describing the results of the CSI program).
[12] Final California Energy Commission Decision on Chula Vista Energy Upgrade Project, Application for Certification (June 2009), http://www.energy.ca.gov/2009publications/CEC-800-2009-001/CEC-800-2009-001-CMF.PDF.
[13] *Id.* at p. 29.
[14] *Id.*
[15] *Id.*

The CEC went on to find that solar PV was a viable option, and that rooftop PV "mounted on existing flat warehouse roofs or on top of vehicle shelters in parking lots do not consume any acreage. The warehouses and parking lots continue to perform those functions with the PV in place . . . [and] there was little or no difference between the cost of energy provided by a project such as the CVEUP compared with the cost of energy provided by PV."[16] The CEC also quoted Bill Powers' finding that "PV does provide power at a time when demand is likely to be high—on hot, sunny days," and "that storage technologies exist which could be used to manage" solar PV.[17]

Q. Are there other resources that SDG&E do not consider?

A. Yes, SDG&E ~~fail~~ fails to consider energy storage as an eligible resource to meet LCR. There is growing body of evidence and case studies that demonstrate that storage is a viable and affordable energy source to smooth peak load. For instance, Glendale Water and Power recently announced deployment of 2 ~~megawatts~~ MW of "Ice Bear" storage units from Ice Energy that store energy that is generated at night for daytime peak use, especially in HVAC systems. Each unit installed thus far reduces energy use by more than 386,000 Kwh, largely from peak demand, according to the company.[18] In addition, there is a Soluble Lead Flow Battery project being developed in San Diego.[19]

Q. Are there other problems with ~~S~~ SDG&E's analysis?

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[16] *Id.* at pp. 29-30.
[17] *Id.* at p. 30.
[18] Ice Energy Website, Case Study Summary from Glendale Water and Power, http://www.ice-energy.com/stuff/contentmgr/files/1/0fbddf59bb319b2fd3e5f3d1f0f32be5/download/ie_case_study_gwp.pdf; see also infra at pp. 7-8 (discussing other storage projects that have been developed and are being constructed in SCE's and SDG&E's territory).
[19] Electricity Advisory Committee, *Energy Storage Activities in the United States Electricity Grid*, at p. 11 (May 2011), ~~http://www.oe.energy.gov/DocumentsandMedia/FINAL_DOE_Report-Storage_Activities_5-1-11.pdf.~~ http://www.doe.gov/oe/downloads/energy-storate-activities-united-states-electricity-grid-may-2011.

A. Yes, SDG&E ~~rely~~ relies on a 1-in-10 load scenario from the 2009 IEPR that has already been shown to be too high in recent CEC projections. The CEC's more recent revised forecast reduces SDG&E's demand in 2011 for the 1-in-10 forecast by 235 ~~megawatts~~ MW.[20]

Q. Will the retirement of once-through cooling ("OTC") units in SDG&E's service territory create a need for additional fossil-fuel units?

A. No, OTC units located in SDG&E's service territory can and should be decommissioned per the State Water Resources Control Board's (Water Board) compliance schedule[21] without the need for new fossil resources. Much of the available capacity provided by the existing OTC power plants throughout the state is rarely used. In addition, two of the three OTC facilities in SDG&E's local resource area plan to convert units to dry cooling and continue running.[22]

Even in a scenario where all of the OTC units are phased out before 2020, in-place programs for demand response, energy efficiency, and the RPS, as detailed above, are more than adequate to meet this capacity. Replacing this capacity with renewable energy and energy efficiency, such as the programs discussed above, also would cost significantly less than replacing the units with fossil fuel facilities.[23] Thus, SDG&E's request for 425 MW, is excessive.

According to a report by Jones & Stokes on the impacts of OTC retirements, transmission upgrades can cost-effectively compensate for much of the power lost from

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[20] *See* CEC, Revised Short-Term Peak Demand Forecast (2011-2012).

[21] *See California's Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling*, at Table 1, pp. 12-14 (October 2010).

[22] ~~*Id.* at Table 1-1.~~ ICF Jones & Stokes et al., *Electric Grid Reliability Impacts from Regulation of Once-Through Cooling in California*, at Table 1-1 (April 2008).

[23] *See* Pacific Environment, *Green Opportunity: How California Can Reduce Power Plant Emissions, Protect Marine Environment, and Save Money* (Nov. 2009), *available at* http://www.pacificenvironment.org/downloads/PacEnv_GreenOpportunity_final.pdf.

OTC retirements from natural gas power plants.[24] According to the report, "modeling showed that OTC plant requirements could be compensated for solely through transmission upgrades . . . . In other words, under all but the most extreme scenarios, more than enough power plants are expected to be operating in 2015 to more than compensate for any or all OTC plant retirements, with a projected 28 percent reserve margin of supply over demand in the Western half of North America. The key will be ensuring the transmission system is capable of delivering power from those plants to the loads presently served by OTC plants."[25]

Further, SDG&E appears to rely on an accelerated OTC retirement schedule instead of the actual compliance schedule set forth in the Water Board's OTC Policy to support their analysis. Accelerated OTC retirements coupled with the lack of consideration of alternative resources that could be used to replace MW from OTC facilities produces an inaccurate forecast that greatly overestimates need.

II. CONCLUSION

Q. Can you summarize your response to SDG&E's claim of local capacity need?

A. SDG&E bases its requests for new local capacity on a large cushion and faulty modeling assumptions, which greatly inflate the resource need.

As such, the Commission should deny SDG&E's request for local capacity.

[24] ICF Jones and Stokes, *Electric Grid Reliability Impacts from Regulation of Once-Through Cooling in California*, at pp. 2-3, 4.
[25] *Id*. at pp. 2-3.

QUALIFICATIONS AND PREPARED TESTIMONY OF RORY COX

Q. Please introduce yourself.

A. My name is Rory Cox.

Q. Who are you testifying on behalf of?

A. I am submitting testimony of behalf of Pacific Environment.

Q. Which sections of Pacific Environment's testimony are you sponsoring?

A. I am sponsoring the entirety of Pacific Environment's Track I Testimony, which includes Testimony on CAISO's modeling results and SCE and SDG&E's local need.

Q. Please briefly describe your background and qualifications.

A. I am a Senior Energy Consultant for Pacific Environment. I have led a West Coast-wide effort to stop the development of Liquefied Natural Gas ("LNG") import terminals proposed for Mexico, California, and Oregon. I have written extensive comments regarding the need for LNG regulation and current trends in California's natural gas market to several California agencies, including the Public Utilities Commission, the State Lands Commission, and the California Air Resources Board. My comments played a direct role in the rejection of an application for the Cabrillo Port LNG terminal, to be located near Oxnard. I have authored a report on LNG entitled *Collision Course: How Imported Liquefied Natural Gas Will Undermine Clean Energy in California*, and edited a report entitled *Green Opportunity: How California Can Reduce Power Plant Emissions, Protect the Marine Environment, and Save Money.*

Q. Please briefly describe the data, information, and reports on which you base your testimony.

A. My testimony is based on my review of publicly available sources and responses to data requests in this proceeding. These sources largely consist of prior Commission decisions, rulings, and policy manuals, as well as reports produced by CAISO and state environmental and energy agencies, such as the California Energy Commission.

APPENDIX

R.10-05-006 SDG&E 08/03/11 Response
LTTP Track 1 Proceeding
DRA-SDGE-002 Dated July 18, 2011
DRA-SDGE-002: Q1-5

Question 1.

On page 4 of the SDG&E testimony, it is stated that SDG&E will have a cushion of approximately 300 MW." Table 1 shows a surplus of 393 Mw in 2020. How did SDG&E derive an approximate value of 300 MW of surplus capacity.

SDG&E Response to Q1:

The approximate 300 MW is based on the value estimated in Table 1. As Table 1 was finalized the final value did increase to closer to 400 MW than 300 MW, however the testimony was not changed. While it might have been more accurate to reflect the specific 393 MW number from Table 1, it should be noted that the 393 MW value is derived from the analysis that was conducted based on the CPUC-Required assumptions, which SDG&E does not support for the reasons set forth in its testimony. Accordingly, in SDG&E's view, the point is moot.