Application No.: R.12-03-014
Witness: Julia May
Exhibit No.:

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans	R.12-03-014 (Filed March 22, 2012)

REBUTTAL TESTIMONY OF JULIA MAY ON BEHALF OF THE CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE REGARDING SONGS RETIREMENT, TRACK IV

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
October 14, 2013

TABLE OF CONTENTS

I. SUMMARY

I am a Senior Scientist at Communities for a Better Environment (CBE), which is a member organization of the California Environmental Justice Alliance (CEJA). My background includes a bachelor's degree in Electrical Engineering and over 25 years providing engineering and policy analysis in state and local regulatory proceedings regarding industrial regulation, permitting, electricity planning, renewable energy, transmission alternatives, energy efficiency, and air pollution assessment. These include proceedings before the CEC, CPUC, CARB, SCAQMD, and BAAQMD[1] in California, as well as other state and tribal regions. I have provided engineering analysis on behalf of CBE, other non-profit environmental organizations, and trade unions. I previously provided Track 4 testimony, testimony in Track 1 of the 2012 LTPP (Long Term Procurement Plan), and in the 2010 LTPP before the CPUC. A true and current copy of my CV is appended hereto as Attachment A.

This rebuttal testimony, which is submitted on behalf of the California Environmental Justice Alliance (CEJA), is in response mainly to the testimony of Pacific Gas and Electric (PG&E), NRG Energy, Inc. (NRG), AES Southland (AES), and the Independent Energy Producers Association (IEP) in Track 4 of the LTPP. Below is a table summarizing each of these party's procurement requests and recommendations, the basis for their findings, and a synopsis of my rebuttal. This provides an overview; more details follow the table. In general, the same thread is shared by many or all of these parties, which unfortunately is based on a failure to identify required resources missing from CAISO'S analysis. As a result, AES, IEP, NRG, and PG&E either recommended or stated that (A) the CPUC should not wait for CAISO to complete its Transmission Planning Process; (B) there is uncertainty in the demand forecast, energy efficiency, SCE's proposed "Living Pilot" program (which they do not want approved), and transmission plans; (C) SONGS presents an immediate need in addition to a long term need; and (D) the CPUC should procure a greater amount of gas-fired-generation than was sought by CAISO, SCE, and SDG&E.

I also reviewed testimony of The Utility Reform Network (TURN), and agreed with much of the testimony, but respectfully submit that TURN overlooked certain issues described later.

[1] Respectively the California Energy Commission, California Public Utilities Commission, California Air Resources Board, South Coast Air Quality Management District, and Bay Area Air Quality Management District.

SB_GT&S_0145022

Summary of key statements from 4 parties' testimony in Track 4; a few rebuttal points

Compare to: CAISO – requested delaying procurement until after TPP is completed; SCE – found no need but asked for 500 MW; SDG&E – requested 500-550 MW need

PG&E	NRG	AES	IEP
Wants 5000 MW approved based on SCE & SDG&E requests before identified mitigation applied	• **Wants 560 MW Carlsbad** (Encina repower) CEC approved, meets SONGS 2022 needs, could be ready by 2018 if expedited • If costs covered could continue **Etiwanda 3&4 & Coolwater 3&4**	• Repowering **HB** 939 MW, **Alamitos** 2,048 MW; and **Redondo Beach** 1,356 MW • **Submitting application for 2000 MW more** • Says SCE should have asked for 1000MW • Need extra MW in case transmission & other fails	• Reject SCE, SDGE pilots • All source solic., cost-recov., IOUs set attributes • → **3326-3976 MW:** 2506 SCE + (820 to 1470) SDGE for Track 1 + interim Track 4 • After TPP, add Track 4 phase 2 procurement if needed, but no reductions regardless of TPP • Need extra for insurance
Says CPUC should not lower procurement based on: • Transmission proposed by SCE and SDG&E. • SCE's "Living Pilot" or other pilots, or • Authorization from prior decisions	• Above was assumed retired • Repowering coastal plants is cleaner, lower water, at key locations, existing transmission • These replace >2200 MW, 1100 MVAR - SONGS • Acute 2013 & 2014 needs.	• Claims new gas has lowest GHGs • HB location most effective • Repower reduces transmission needs • Already have applications in for more than enough w/o SONGS • SCE should not be allowed to issue pre-permits • Mesa Loop-in uncertain • DG might require sudden power ramp	• Uncertainty in load forecast, uncommitted EE, transmission, Living Pilot is unreliable, i.e. better too much procured than too little • Pre-permitting sites is not needed • Use conservative assumptions • Assume 7 years for transmission, no OTC extensions • IOUs should set attributes of sources bidding
REBUTTAL • Can't re-argue Tracks 1 & 2 • No evidence or modeling to substantiate • Substantially exceeds other requests • Left out Scoping Memo & substantial resources	REBUTTAL • Track 4 Scope is 2018 & 2022, (not '13 & '14) • Short term needs are already being met • Mid & long term needs are met by cleaner resources	REBUTTAL • CAISO built in a large extra margin • Gas is not low-GHG • CAISO is modeling Mesa-Loop-In, voltage support, and transmission likely by 2018 in pending TPP • No need for 2000 MW more • Deep Dive Track 1 showed DG lowers needs → peak matching	REBUTTAL • This testimony & the others in this table failed to identify large conservative factors in CAISO evaluations and missing resources • These were detailed in my Direct Testimony – see below
These procurements are unnecessary and directly violate state requirements: **GHG REDUCTIONS TO 1990 LEVELS BY 2020; 80% BY 2050 LOADING ORDER**			

SB_GT&S_0145023

These testimonies failed to identify available resources as well as the conservative nature of CAISO's assessment (addressed in detail in my direct testimony), among others, which if accounted for would provide strong assurance that grid reliability needs will be met:

- They failed to identify that CAISO did not follow the Scoping Order's assumptions, and did not apply almost 1,550 MW of preferred resources (except to Category D contingencies);[2]
- They failed to identify that CAISO's worst contingency involved the failure of three major transmission lines: Southwest, Sunrise, and CFE;[3]
- They failed to find that CAISO identified feasible reactive support that could be implemented relatively quickly, such as another 300 MW reduction in need, by adding 550 MVAR of reactive support near SONGS;[4]
- They did not include any new energy storage relating to the recent proposed decision;[5]
- And many additional specifics were left out.

These testimonies also heavily favored gas-fired generation while failing to consider or even acknowledge basic state requirements:

- They ignored the Loading Order[6] as well as the need for Greenhouse Gas reductions to 1990 levels by 2020[7] and to 80% below 1990 levels by 2050;[8]

---

[2] 50 MW Energy Storage, 997 MW Demand Response, and 496 MW small-scale customer-side PV. See Prepared Direct Testimony of Julia May on Behalf of the California Environmental Justice Alliance Regarding SONGS Retirement, Track IV, at pp. 2, 3, 14-18 (Sept. 30, 2013) [hereinafter CEJA Track 4 Testimony].
[3] Id. at pp. 2, 3, 29-32.
[4] Id. at pp. 3, 7.
[5] Id. at pp. 46-48.
[6] Consumer Power and Conservation Financing Authority et al., 2003 Energy Action Plan, at p. 4 (May 8, 2003); available at http://www.energy.ca.gov/energy_action_plan/2003-05-08_ACTION_PLAN.PDF. ("The Action Plan envisions a 'loading order' of energy resources that will guide decisions made by the agencies jointly and singly. First, the agencies want to optimize all strategies for increasing conservation and energy efficiency to minimize increases in electricity and natural gas demand. Second, recognizing that new generation is both necessary and desirable, the agencies would like to see these needs met first by renewable energy resources and distributed generation. Third, because the preferred resources require both sufficient investment and adequate time to 'get to scale,' the agencies also will support additional clean, fossil fuel, central-station generation. Simultaneously, the agencies intend to improve the bulk electricity transmission grid and distribution facility infrastructure to support growing demand centers and the interconnection of new generation.").
[7] AB 32 ("California Global Warming Solutions Act of 2006"); CA Health & Safety Code § 38500 et seq.
[8] Executive Order by the Governor of the State of California, S-3-05 ("NOW, THEREFORE, I, ARNOLD SCHWARZENEGGER, Governor of the State of California, by virtue of the power invested in me by the

SB_GT&S_0145024

- They ignored the high risk to the public due to climate change, of continuing long-term strategies that rebuild the grid with new gas-fired generation that will be present for many decades;
- They ignored the economic risk to the public of long-term investment in fossil fuel powered electricity, demonstrated as the most risky, with cost of recovery shifted to the public.[9]

The Loading Order and GHG targets are state requirements, not niceties, and necessary to avert catastrophic climate change and reduce severe levels of smog. These testimonies also missed facts regarding available clean alternatives that will meet SONGS-area needs without new gas, as shown in my Direct Testimony.[10] The testimonies I am rebutting did not seek a balanced package of clean resources meeting state requirements, but rather appear to set out to prove that their business plans for gas-fired generation were justifiable. Moreover, SONGS itself was a nuclear generating facility and, as such, did not emit GHGs; therefore replacing it with gas would double the negative impact by adding new CO2 and smog precursor emissions that were not previously present.

II. REBUTTAL OF INDIVIDUAL PARTIES' TESTIMONY

a. IEP

IEP provided the following table and text summarizing CAISO's estimate:

Table 7 - CAISO Estimate of Resource Need in SONGS Study Area

Scenario	Track 1 Decisions (MW)			Residual Resource Need
	LA Basin	San Diego	Resource Need without SONGS	Need Net of Track 1 Procurement
	(1)	(2)	(3)	(4) = (3) - (1) - (2)
80%/20% LA/SD)	1,800	308	4,642	2,534
67%/33% LA/SD)	1,800	308	4,507	2,399

Constitution and statutes of the State of California, do hereby order effective immediately: 1. That the following greenhouse gas emission reduction targets are hereby established for California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels.").

[9] Ceres, Practicing Risk-Aware Electricity Regulation: What Every State Regulator Needs to Know, at pp. 5, 6, 7, 8, 9, 12, 17 (Apr. 2012), *available at* http://www.ceres.org/resources/reports/practicing-risk-aware-electricity-regulation [hereinafter Ceres Report].

[10] CEJA Track 4 Direct Testimony, summarized at p. 3 and detailed throughout.

SB_GT&S_0145025

> *"As can be seen from Table 7, the CAISO's preliminary results show that there is a baseline need for new resources of between 2,399 and 2,534 MW by 2022. This is in addition to the 1,800 MW that have been previously authorized for procurement by SCE and SDG&E in the prior Commission Track 1 decision."* [11]

IEP used these numbers to justify its request for a decision now, before CAISO finishes its Transmission Planning Process (TPP), for procurement of 2,500 MW (representing the net megawatts needed to replace SONGS, plus the 1,800 MW from Track 1).

IEP opposed waiting until after the TPP for a decision on Track 4 based on arguments that SONGS represented a large amount of megawatts at a key juncture, that OTC plants are retiring,[12] that there is uncertainty in the load forecast, EE assumptions, preferred resources[13] and transmission plans;[14] and that we need extra resources for insurance.[15] While these are all true on the surface, IEP misrepresented their significance by failing to evaluate:

1. The large additional margins padding CAISO'S analysis – not required by NERC – which already very conservatively provide extra insurance of reliability by setting needs based on the failure of three major lines (Southwest, Sunrise, and CFE) on the hottest day in ten years, assuming a 700 MW extra need for a 2.5% reserve, and with no load shed;
2. The over 1500 MW of resources set by the ALJ's Scoping Order for Track 4 to be used for Category C contingencies but which were used by CAISO only for Category D;
3. Conservative factors built into the load forecast by CEC;[16]
4. The ability for reactive support (key to replacing SONGS) to be developed quickly, as evidenced by measures CAISO has quickly added, described in my previous Track 4 testimony;
5. The fact that CAISO'S 2012-2013 Transmission Plan nuclear back-up studies (and CAISO Summer Assessments) identified measures that CAISO stated can reasonably be implemented by 2018;[17]

---

[11] Testimony of William A. Monsen on Behalf of the Independent Energy Producers Association Concerning Track 4 of the Long-Term Procurement Plan Proceeding, at p. 41 (Sept. 30, 2013) [hereinafter IEP Track 4 Testimony].
[12] See e.g., IEP Track 4 Testimony, at p. 34:12-17 ("Q. Do you have specific reasons for supporting an interim procurement now? A. Yes. The loss of SONGS means the loss of over 2,000 MW of baseload capacity. In addition, approximately 7,000 MW of OTC units are scheduled to shut down. An interim procurement now, supplemented by additional procurement as needed based on further studies, is a low-risk, high-value strategy for securing the resources necessary to ensure grid reliability.").
[13] Id. at p. 10.
[14] Id. at p. 4.
[15] Id. at p. 15.
[16] See generally, R. 12-03-014, Sierra Martinez, Track 4 Opening Testimony of the Natural Resources Defense Council (Sept. 30, 2013) regarding Energy Efficiency reductions of load left out of the load forecast.

SB_GT&S_0145026

6. CAISO's identification of an additional 300 MW of reduced need achievable by adding 550 MVAR of reactive support near SONGS;[18]
7. CAISO's basic acknowledgement that its modeling is unfinished;[19] New Energy Storage resources in the proposed decision that are phased in conservatively every 2 years;[20]
8. The finding by the CPUC that SCE and SDG&E are underutilizing Demand Response that is available today in favor of gas resources;[21]
9. Additional resources identified in my direct testimony.

Although there is always uncertainty in long-term planning, the missing resources provide a wide and decisive margin of reliability for replacing SONGS. In Table 1 of my direct testimony, I listed and added together only the missing resources that were already quantified. *After discounting the total by a third in order to add another conservative factor*, about 3,500-4,700 MW of additional resources were available that were not included in CAISO's modeling. These did not include additional resources listed that have yet to be quantified. These also did not include SDG&E's regional transmission project which the IEP testimony found uncertain.

IEP instead took the approach that resources must be allocated now assuming that every single part of the plan separately fails (e.g. demand forecast too low, EE too high, transmission options do not pan out, preferred resources fail). IEP also took the approach that we should overbuild because doing so is less risky than underbuilding.[22] These approaches are both incorrect. It is extremely improbable that every resource and forecast will separately fail and that there is no time left to wait until CAISO finishes.

In response to some of these parties' wishes, IEP identified CAISO's follow-up comments stating that it did not mind if an interim procurement decision was proposed now and

---

[17] California Independent Systems Operator, 2012-2013 Transmission Plan, at p. 19 (Mar. 20, 2013), *available at* http://www.caiso.com/Documents/BoardApproved2012-2013TransmissionPlan.pdf [hereinafter CAISO 2012-2013 Transmission Plan].
[18] CEJA Track 4 Testimony, at pp. 3, 7.
[19] R.12-03-014, Pre-Hearing Conference Transcript, at p. 286 (Sept. 4, 2013) (CAISO's attorney informed the Commission that "from the ISO's standpoint, our testimony is not really finished yet.").
[20] CEJA Track 4 Testimony, at pp. 46-48.
[21] CEJA Track 4 Testimony, at p. 22,
[22] IEP Track 4Testimony, at p. 11 ("If the system has significant excess resource capacity, then an under-forecast of need does not pose a substantial risk to reliability and the ability to meet demand. However, because the local areas in the LA Basin and San Diego are short of resources, under-forecasting resource need could result in having to take extreme measures to ensure system reliability. Such measures might include emergency authorization of new generation facilities or curtailment of firm load.").

SB_GT&S_0145027

then adjusted by the CPUC after the TPP's completion,[23] but IEP objected to any downward adjustment after the TPP, only favoring upward adjustments. CAISO specifically recommended that the Commission wait until after the TPP in its opening testimony.[24] Moreover, CAISO composes individual short term reliability plans and as an agency charged with maintaining system reliability, it is hardly likely to take a radical, non-conservative approach when assessing reliability risks. SCE similarly did not find a need in its modeling. Only SDG&E found a need, and even that disappears when the 80% / 20% split of resources identified by CAISO is applied (with the LA Basin taking a larger share). It would contradict the evidence and the Loading Order to adopt IEP's proposal for a large amount of procurement committed to now, and it should be denied.

Furthermore, the risk to the public is now extreme both economically and ecologically as we face multiple climate and public health threats from air pollution. My prior testimony provided updates on evidence of climate change with dire forecasts of risk.[25] I also provided testimony regarding current evaluations of economic risk from long-term investments in gas-fired power plants, finding that gas represented the highest long-term investment risk while clean, renewable resources represented the lowest.[26]

IEP is focused on adding more generation than CAISO, SCE, and SDG&E have requested. The breakdown IEP proposes is the Track 1 SCE decision (1,400 to 1,800 MW), plus IEP's own "all-source" procurement proposal for a new "Phase 1" of Track 4, to be approved immediately (with 706 to 1,106 MW for SCE and 820 MW for SDG&E).[27] The total proposed for both of these Track 1 and Phase 1 Track 4 together is 2,506 for SCE, 820 MW for SDG&E, and 3,326 MW for both (since some movement of bidders between the two tracks is proposed). After the 2013-2014 TPP becomes available, IEP proposes adding even more resources in a "Phase 2" of Track 4 if the need is identified, but if the need goes down, IEP proposes not adjusting procurement downward.

"All-source" according to IEP can supposedly be any resource – gas, EE, DG, DR, etc. – but IEP narrows that choice by making the lowest current cost the goal: "The Commission

---

[23] IEP Track 4Testimony, at p. 41.
[24] Track 4 Testimony of Robert Sparks on Behalf of the California Independent System Operator Corporation, at p. 31:1-4 (Aug. 5, 2013) [hereinafter CAISO Track 4 Testimony].
[25] CEJA Track 4 Testimony, at pp. 38-42.
[26] Ceres Report, at pp. 5, 6, 7, 8, 9, 12, 17.
[27] IEP Track 4Testimony, at p. 30, Table 6.

SB_GT&S_0145028

should encourage competition among resource types to ensure ratepayers receive the *lowest cost service* consistent with reliability and policy goals."[28] Locking California into an assessment based on the current cost of resources as the primary driver favors procurement that commits now to building new gas-fired plants that will be in place for many decades, even though the cost of preferred resources is rapidly declining.[29] This does not make good economic sense for California and violates the Loading Order.

Furthermore, IEP never provided a detailed discussion of what should be considered in any measurement of cost, only making a general reference that "externalities" should be included.[30] If IEP is genuine in its consideration of "externalities," its discussion of cost should include the social cost of carbon. A recent report by the White House Office of Management and Budget found that the social cost of carbon dioxide is rapidly increasing.[31] If IEP's cost-based approach included the social cost of carbon, then the true cost of adding gas-fired generation might make preferred resources a lot more preferable.

IEP also leaves it to the utilities to decide how to assess the different resources' attributes and ancillary services. Utilities have frequently ignored the ability of renewables to provide the same attributes they normally ascribe to gas. These decisions should not be left behind closed doors, but take place in public processes. For example, see the discussion on the Deep Dive study from my Track 1 testimony regarding studies on flexible resource needs and distributed generation compared to gas, which found that solar did better than gas, requiring far fewer resources, because of peak-matching.[32] Please also see my previous Track 4 testimony regarding the proven ability of smart solar inverters to provide reactive support, fault ride-through capability, curtailment, and other flexible attributes, as well as Energy Storage's ability to provide faster ramping than gas.[33]

---

[28] IEP Track 4 Testimony, at p. 31:1-3 (emphasis added).
[29] For example, the cost of solar power in California has dropped nearly 50% since 2007 according to the CEC and CPUC. Go Solar California, California Solar Statistics, Cost by Quarter, http://www.californiasolarstatistics.ca.gov/reports/quarterly_cost_per_watt/ (last updated Oct. 9, 2013).
[30] IEP Track 4 Testimony, at pp. 31:24-32:2.
[31] Council of Economic Advisors et al., Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866, at p. 13 (May 2013), *available at* http://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf ("By way of comparison, the 2020 SCC estimates reported in the original TSD were $7 [per metric ton of CO2], $26, $42 and $81 (2007$) [whereas the 2013 TSD estimates are $12, $43, $65, and $129].").
[32] R.12-03-014, Prepared Direct Testimony of Julia May on Behalf of the California Environmental Justice Alliance, at pp. 23-26 (June 25, 2012).
[33] CEJA Track 4 Testimony, at p. 19.

SB_GT&S_0145029

As a further example, testimony from the Environmental Defense Fund (EDF) added to the discussion on the crucial resource of Demand Response, providing further reassurance that resources high on the loading order can increase in the future and be greatly expanded: EDF highlighted the increased usage of DR in the Eastern U.S. (as compared to California):

> A recent experience in PJM [a regional transmission organization] demonstrates the value of both DR in meeting resource adequacy needs and DR as an active participant in markets with rules that treat resources comparably, including a forward centralized clearing auction to meet future reliability needs. Resources compete on a level playing field in PJM, where grid operators have avoided trying to make DR and other preferred resources comply with the unique characteristics of one particular type of generating technology. As is the case with CAISO, PJM operates a grid in which a variety of electricity providers including IOUs, municipal utilities, and rural electric co-operatives participate and successfully provide DR through a variety of procurement and market-based mechanisms. While we are not necessarily recommending that California adopt PJM's capacity market approach, the integral role that DR is playing in the northeast demonstrates that it can play a significant role in meeting the needs of the grid within a supportive regulatory construct.
>
> During the week of September 10th, normally a shoulder period in PJM, unexpectedly high temperatures led demand to spike at 10% over the previous September peak. In spite of a number of generation facilities being offline for typical seasonal maintenance, operators were able to meet system demand through the use of DR procured in the forward capacity market. PJM's capacity market has been successful in attracting new capacity, including demand response resources, which provided approximately 6,000 MW of demand response during this emergency. According to PJM officials, "Generation performance and demand response played significant roles in balancing the supply and demand on the grid during unusual conditions this week," and "PJM continues to see the value and success of demand response participating in PJM markets." Further, a recent study of DR in the northeastern U.S. by Synapse Energy Economics found that DR can both perform reliably and can contribute directly to resource adequacy.[34]

This is a large amount of demand reduction – 6000 MW – applied to an unusual weather event, and a much better way to organize energy use under such circumstances than through the wholesale building of gas power plants that are expensive not just in terms of dollars, but environmentally, and are not presently needed in the SONGS-area.

---

[34] Opening Testimony of Environmental Defense Fund on Track 4 of the Long-Term Procurement Planning Docket, at pp. 10-11 (Sept. 30, 2013).

SB_GT&S_0145030

b. AES Southland

AES testimony contains the same gaps listed above for IEP: it does not acknowledge CAISO's conservative starting point (hottest day in 10 years, 2.5% margin, three transmission lines down, no load shedding); that over 1500 MW of the ALJ's Track 4 preferred resource assumptions are missing from the modeling; the 300 MW reduction that can be achieved through an added 550 MVAR of voltage support near SONGS; the additional transmission studies CAISO found will likely be available by 2018 which further reduce needs; the new Energy Storage targets; the underutilization of even current levels of Demand Response found by the Commission; or the greatly lowered demand forecast. For a simple reference, let us call this the Missing SONGS-Replacement Set (detailed in my previous Track 4 testimony and mostly summarized in Table 1 of that testimony).

AES found that SCE should have asked for 1000 MW instead of 500 MW,[35] and announced that it plans to submit a proposal this year for nearly 2000 MW[36] more. It found that extra insurance is needed in case transmission and other resources fail. AES projects include Huntington Beach, Redondo Beach, and Alamitos,[37] (3854 MW[38] of Gas Fired Generation (GFG)), *in addition* to the 2000 MW now sought. Not surprisingly AES conveniently concluded that it can meet all the new needs of the region, with room to spare, and that SCE's development proposal should be denied:

> It should be noted that AES SL is already several years into its development effort, as described earlier in the testimony, and it is pursuing permits for more capacity than may ultimately be needed in this procurement cycle. AES SL is certainly willing to consider entering into option contracts for any of it existing sites. As I explained below, however, AES SL does not believe that it is appropriate for SCE to pursue its own permits….
>
> There is absolutely no evidence that SCE needs to initiate its own project development efforts or that it could do it more cost effectively than third parties. Independent developers are already putting their own capital at risk to pursue projects and it is a near certainty that they will continue to do so. Authorizing SCE to use ratepayer funds to secure permits and interconnection agreements would not represent an effective use of

[35] Track 4 Prepared Testimony of Hala N. Ballouz on Behalf of AES Southland (September 30, 2013) [hereinafter AES Ballouz Testimony], p. 2-3.
[36] Track 4 Prepared Testimony of Eric Pendergraft on Behalf of AES Southland, at p. 3 (Sept. 30, 2013) [hereinafter AES Pendergraft Track 4 Testimony].
[37] Id. at pp. 1-2.
[38] Id. at p. 2.

SB_GT&S_0145031

> those funds and would skew the competitive landscape since no other participant has the ability to develop projects without risk of recovering their investment.[39]

AES also basically acknowledges having the inside track for gaining emissions credits for repowering existing gas plants and uses that as part of the justification for why its development plans should be considered the best option:

> Furthermore, there is a strong argument that constructing new capacity at existing generation sites is the best solution given there is an existing path to air compliance, it is likely the most cost effective…and it provides the greatest amount of benefits to the system. While it would be extremely unwise for any entity to assume they were participating in a solicitation without competitors, it is understood that the factors noted above may limit the potential universe of parties that can participate in a procurement effort.[40]

While it is true that the Huntington Beach site is a key location for providing reactive support, the Commission should nevertheless first ensure completion of reliable modeling on the *need* for new generation in the region before deciding whether a particular party's power plant development strategy should be considered. It is excessive for AES to propose this large amount of repowering, especially through gas-fired facilities, when there is no need established and when preferred resources could fill any existing need much faster.

AES finds that their excess generation (i.e. everything over the 1000 MW of need they found) can be considered a contingency: "It is recognized that this is more than what is currently expected to be needed by the CAISO and SCE, but the additional permitted capacity will provide contingency and the ability to move relatively quickly to construct new gas-fired generation if additional capacity is needed beyond what is expected to be authorized in this proceeding." But certainly any consideration of added contingencies can wait until after the TPP is finished. Moreover, committing billions of dollars to build gas-fired plants that will only be used for contingency situations rather than baseline ones would be inefficient, especially when compared with cheaper and cleaner preferred resources.

AES is offering a 100% GFG solution with no consideration of other resources and insufficient evidence indicating that there is a need. This goes against the Loading Order and GHG reduction goals.

---

[39] Id. at p. 8.
[40] Id. at p. 6.

SB_GT&S_0145032

c. **NRG**

As in the case of IEP and AES, NRG also failed to identify the large set of missing resources and conservative factors included in the previously-described Missing SONGS Replacement Set.

NRG also focuses its discussion on issues that may be outside the scope of Track 4. The intent of Track 4 according to the ALJ's Scoping assumptions is to assess mid-term (2018) and long-term (2022) local reliability needs due to SONGS closure;[41] the assessment of short-term reliability issues appears to be outside this scope. In that light, NRG's testimony regarding short term reliability needs in 2013 and 2014 reliability plans due to SONGS closure is not at issue in Track 4. However, if it was, NRG's concerns are unsubstantiated. For example, NRG states that San Diego is short of resources in 2013,[42] but in fact CAISO found that even in the event of extreme weather, there is still enough reserve to prevent load shedding.[43] This was accomplished despite the absence of SONGS and Huntington Beach generators, through the use of synchronous condensers added at Huntington Beach, additional reactive support in the SCE area, and the reconfiguration of the Barre Ellis lines.[44] CAISO also identified new resources, additional reactive support and transmission improvements, as discussed in my previous Track 4 testimony.

NRG also discusses the benefits of replacing Once Through Cooling (OTC) plants with new gas-fired ones that have lower water use compared to the old OTC plants, lower air emissions compared to old power plants, and are located to enable use of existing transmission. Though it is true that in comparison to existing plants, new gas plants would be less resource-intensive, this still begs the question: as compared to what? Clearly, preferred resources such as EE, DR, and rooftop solar reduce or eliminate water and air emissions; distributed resources require less or no transmission; and they are all higher in the Loading Order than gas-fired generation.

---

[41] California Public Utilities Commission, Revised Scoping Ruling and Memo of the Assigned Commissioner and Administrative Law Judge, at p. 6 (May 21, 2013) [hereinafter CPUC Revised Scoping Memo]. ("IT IS RULED that: … 3. The assumptions in Attachment A to this Ruling shall be used to study interim (2018) and long-term (2022) local reliability needs in the Los Angeles Basin local area and San Diego sub-area resulting from an extended SONGS outage.").

[42] Track 4 Testimony of Brian Theaker on Behalf of NRG Energy, Inc., at p.5:12-16 (Sept. 30, 2013).

[43] California Independent System Operator, 2013 Summer Loads and Resources Assessment, at p. 6 (May 6, 2013), *available at* http://www.caiso.com/Documents/2013SummerLoads_ResourcesAssessment.pdf.

[44] *Id.* at p. 3.

SB_GT&S_0145033

d. PG&E

First, PG&E testimony stated that the reason its Northern California customers have a vested interest in Track 4 is because the SONGS closure may cause cascading impacts in Northern California:

> Although Track 4 is focused on local reliability needs in southern California given that the San Onofre Nuclear Generating Station (SONGS) is no longer in operation, PG&E customers have a vested interest in this track of the proceeding as an insufficient amount of generation in southern California could have cascading impacts on the statewide electric grid.[45]

This is unsupported and outside the scope of the Track 4 assessment, because (1) Track 4 is set up to evaluate local requirements, not system needs, which were to be assessed in Track 2 and which were found in the last round to have sufficient resources; and (2) no evidence was found in Track 4 that would lead to any concern of cascading outages, let alone in PG&E territory. To the contrary, the evidence showed clearly that even with three lines down (Southwest Powerlink, Sunrise Powerlink, and CFE), on the hottest day in ten years, with an assumption that an added 2.5% margin must be present (providing over 700 MW of buffer), and without using load shedding, needs were still met.[46] Thus CAISO's evaluation was shown to be very conservative, with no threat of cascading outages impacting PG&E territory or anywhere else. Further, even if PG&E's statement was not outside the scope of Track 4, it still failed to provide any evidence supporting the threat of such a cascading impact. If this is the basis for PG&E's testimony, it should be provided in the next LTPP and removed from Track 4.

PG&E's testimony simply stated, without providing its own analysis, that it wants the CPUC to issue a procurement authorization of 5,070 MW based on various portions of SCE's and SDG&E testimonies since this was close enough to CAISO's identified need. PG&E based its request on SCE's LA Basin Generation Scenario of 2,802 MW[47] (plus the 500 MW SCE asked for to bridge the gap with CAISO) even though SCE itself did not endorse that particular scenario; PG&E similarly relied on the 1,770 MW in SDG&E's Conventional Generation case even though SDG&E did not request that amount. PG&E did not provide evaluation on an abundance of evidence contrary to such a need determination (discussed, for example, in my

---

[45] Pacific Gas & Electric Company, 2012 Long-Term Procurement Plan, Track 4 – Local Reliability Needs Without Songs, Prepared Testimony, at p. 1-1 (Sept, 30, 2013) [hereinafter PG&E Track 4 Testimony].
[46] CEJA Track 4 Testimony summarized at p. 2-3 with details throughout.
[47] PG&E Track 4 Testimony, at p. 1-2.

SB_GT&S_0145034

Direct Testimony) and ignored Track 4 assumptions set by the ALJ. PG&E then stated that the Commission should not even reduce the need determination based on:

- Transmission projects proposed by SCE and SDG&E,
- The outcome of SCE's "Living Pilot" program or other pilot programs,
- Or procurement authorizations already made in prior decisions.[48]

Asking the Commission to identify a total need determination of 5,070 MW, an amount substantially greater than what has been sought by every other party – including SCE and SDG&E – in the Track 4 proceeding, contrary to the evidence at hand, and without providing any supporting analysis renders that number highly questionable. PG&E testimony also seems to re-argue decisions made during the Track 1 process.

A report this year by the Edison Electric Institute (of which PG&E is a member[49]) identified the looming threats to utilities' profits due to increasing accessibility and steadily lowering costs of distributed energy and demand management:

> *Recent technological and economic changes are expected to challenge and transform the electric utility industry.* These changes (or "disruptive challenges") arise due to a convergence of factors, including: falling costs of distributed generation and other distributed energy resources (DER); an enhanced focus on development of new DER technologies; increasing customer, regulatory, and political interest in demand side management technologies (DSM); government programs to incentivize selected technologies; the declining price of natural gas; slowing economic growth trends; and rising electricity prices in certain areas of the country. Taken together, *these factors are potential "game changers" to the U.S. electric utility industry . . .*
>
> The timing of such transformative changes is unclear, but *with the potential for technological innovation (e.g., solar photovoltaic or PV) becoming economically viable* due to this confluence of forces, the industry and its stakeholders must proactively assess the impacts and alternatives available to address disruptive challenges in a timely manner. [50]

---

[48] Id. at pp. 1-2 – 1-3 ("The Commission should not reduce this need determination based on conceptual or proposed transmission projects, the possible outcomes of SCE's 'Living Pilot' program or other pilot programs, or procurement authorizations made in prior proceedings.").

[49] Edison Electric Institute, About EEI, http://www.eei.org/about/Pages/default.aspx (last visited Oct. 14, 2013) ("The Edison Electric Institute (EEI) is the association that represents all U.S. investor-owned electric companies.").

[50] Edison Electric Institute, Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business, at p. 1 (Jan. 2013), *available at* http://www.eei.org/ourissues/finance/Documents/disruptivechallenges.pdf.

SB_GT&S_0145035

In response to these changes, the report identified a strategy for utilities to obtain 30-year contracts to maintain profits without regard to the need to reduce greenhouse gases, smog precursors, or whether alternative energy becomes cheaper than gas:

> The electric utility sector will benefit from proactive assessment and planning to address disruptive challenges. *Thirty year investments need to be made on the basis that they will be recoverable in the future in a timely manner. To the extent that increased risk is incurred, capital deployment and recovery mechanisms need to be adapted accordingly.*[51]

"Recovery mechanisms" basically means the public pays through regulatory structures, regardless of whether these long-term investments are economically sound. Given these fixed attitudes, PG&E's testimony, which calls for thousands of megawatts of gas procurement despite clear alternatives and pre-existing decisions by the Commission, sounds more like a business policy statement and less like an evidence-based assessment of need and it should be considered in that context. While business or economic considerations are and should be a natural part of the Commission's evaluations, guaranteed long term profits for utilities should not be sacred or valued any more than economically viable alternative energy, economic protections for ratepayers, or the need to protect the public from imminent climate dangers and public health hazards. The changing landscape providing access to clean energy should not be subverted in this way.

In reality, SCE found no need in its Track 4 modeling (although it nevertheless still asked for 500 MW of procurement). The only actual need found by the two utilities' which performed modeling in Track 4, was the 500-550 MW need found by SDG&E. That is a far cry from the order of magnitude higher proposal by PG&E for 5,070 MW without any modeling of its own. Moreover, my Track 4 Direct Testimony also showed that the SDG&E need goes away when using the 80% / 20% split between the Los Angeles Basin and SDG&E, as identified by CAISO, and this testimony provides much more evidence showing no need due to SONGS closure.[52]

Regarding transmission solutions, PG&E dismisses them as "conceptual" despite the fact that specific, necessary reactive support has been identified as a key need for replacement of SONGS by CAISO, in addition to other specific evaluations CAISO plans for the 2013-2014 period. Again, please see my Direct Testimony for specific lists.[53] PG&E merely stated that

---

[51] Id. at 2.
[52] CEJA Track 4 Testimony, at p. 28 and throughout.
[53] CEJA Track 4 Testimony, at pp, 4-18; see e.g., CAISO 2012-2013 Transmission Plan, at p. 19.

SB_GT&S_0145036

there are risks associated with transmission projects without providing any evaluation about specific transmission projects.[54]

PG&E did state later in its testimony that if, in the future, the already-approved procurement from Track 1 is found to meet local needs, then at that time it can be counted against the 3300 MW PG&E proposes for SCE territory. Thus, at best, assuming the 1,800 MW already approved by the ALJ meets PG&E's idea of what is appropriate, then PG&E is asking for 1,500 new megawatts in SCE territory plus another 1,770 MW for SDG&E, or 3,270 new MW. This is 2,270 MW more than the approximately 1000 MW that SCE and SDG&E are asking for, without any modeling performed. And, just as in the previously discussed testimony, PG&E makes no mention of utilizing preferred resources in this scenario, thereby ignoring the CPUC's Loading Order and the State's Greenhouse Gas Reduction goals. Therefore, since PG&E's request has no evidence to substantiate it and is without merit, it should be denied.

e. TURN

TURN's testimony was well reasoned and provided extremely helpful information about the millions of dollars in cost to ratepayers associated with CAISO's determination not to use load shedding, even in extreme contingencies. TURN also described well the need for California to make step-by-step progress using a multiplicity of resources in order to complete the package needed for reliability in Southern California: "[t]here are no single 'silver bullet' projects, technologies or other solutions that will cure all the South Coast's reliability challenges in one 'fell swoop.'"[55]

However, I respectfully disagree with TURN's conclusion that it is reasonable for the Commission to approve 500 MW for SCE, and 500 MW for San Diego. This conclusion does not appear to reflect the fact that CAISO only applied the preferred resources required in the ALJ's Track 4 Scoping Memo to Contingency D conditions, not Contingency C as required, which CAISO confirmed as described in my testimony.[56] CAISO also clarified that the N-1-1 Sunrise and Southwest Powerlinks contingency causes CFE to trip, meaning the conditions modeled by CAISO are actually for three major lines down, not two, without load shedding.

---

[54] PG&E Track 4 Testimony, at pp. 1-2, 1-3, 2-2, 2-3.
[55] Prepared Testimony of Kevin Woodruff on Behalf of The Utility Reform Network Regarding Track 4 – SONGS Retirement, at p. 2 (Sept. 30, 2013).
[56] CEJA Track 4 Testimony, at pp. 14, 15.

SB_GT&S_0145037

Thus CAISO has set its needs assessment for very extreme conditions. This was not highlighted by CAISO, but was confirmed in data responses.[57]

Furthermore, there are known reactive support additions, including a specific measure identified by CAISO that would reduce needs by 300 MW by providing 550 MVAR of support near SONGS;[58] this could be quickly deployed. The combination of over 1500 MW of missing preferred resources from the Scoping Memo, the 300 MW of reduced need from reactive support, the extremely conservative starting point that assumes three major lines down, and the addition of load shedding should by themselves be sufficient to wipe out the 500 MW each for SCE and SDGE identified by TURN. I hope these points regarding the need for gas procurement will be reconsidered.

III. CONCLUSION

Since I found the testimonies of AES, IEPA, NRG, and PG&E did not notice the conservative nature of CAISO's assessment and overlooked a large number of available resources, their conclusions about both an urgent and long-term need for new gas resources to replace SONGS are invalid. These testimonies heavily favor gas-fired generation in support of their individual business interests while making little effort to comply with the state's overall interests in reducing greenhouse gases and emissions as per AB 32 and the Loading Order. Their testimonies not only ignored the high risk to the public due to climate change, they also generally looked to shift long-term investment risk to the public for gas-powered plants which have been shown to be the riskiest investments in electricity planning. The Commission should reject proposals for interim procurement, or if any is approved, this should be limited to preferred resources. It would be best to delay the proceeding until after CAISO's 2013-2014 TPP.

---

[57] California Independent System Operator, Response of the California Independent System Operator Corporation to the First Set of Data Requests Related to Track 4 of the Division of Ratepayer Advocates; California Environmental Justice Alliance; Sierra Club, CA; and Clean Coalition, Request No. 7 (July 12, 2013) ("Q: In its track 4 analysis, does the line from the CFE to CAISO trip under certain conditions? What are those conditions? Has CAISO studied ways to mitigate the line from tripping? A: The line from Otay Mesa – Tijuana 230 kV [CFE] would be tripped under an overlapping N-1-1 contingency of Imperial Valley – Miguel 500kV [Southwest Powerlink] and Imperial Valley – Suncrest 500kV line [Sunrise Powerlink] to mitigate overloading concerns on CFE's 230kV system. Otay Mesa – Tijuana line is tripped for summer load conditions, and the Imperial Valley – La Rosita 230 kV line would be tripped for non-summer conditions.").

[58] CEJA Track 4 Testimony, at pp. 3, 7.

SB_GT&S_0145038