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Additional submitted attachment is included below.

INDEPENDENT ENERGY PRODUCERS

May 8, 2017

**IEP Comments on
Joint Agency Workshop on
Risk of Economic Retirement for California Power Plants
(Docket 17-IEPR-14)**

The Independent Energy Producers Association (“IEP”) is pleased to participate in the Joint Agency Workshop addressing Existing Power Plants and Local Reliability convened on Monday, April 24, 2017. The workshop topics included existing generation contracting, resource adequacy and flexibility, defining local capacity areas, and determining reliability needs, and ancillary services. In addition to IEP’s oral comments provided at the workshop, we offer the following written comments for the record in Docket No. 17-IEPR-14.

1. Key Workshop Outcomes: Near-term Risk of Capacity Insufficiency

From a planning/procurement perspective, most workshop participants understand that the state’s existing Resource Adequacy (RA) program serves to mitigate the risk of capacity insufficiency one-year forward (although, local and/or flexible capacity needs may emerge occasionally). Similarly, the state appears positioned to mitigate the risk of insufficient capacity in the long-term, due to the IRP/LTPP focus on capacity needs 10-years forward. On the other hand, the California currently does not have a program to identify capacity insufficiency in the intervening years nor does it have a program to secure capacity to mitigate the risk of capacity shortage that may occur due to planned retirement (i.e. “orderly”) and/or uneconomic retirement (i.e. “disorderly”). From a planning and procurement perspective, this planning and procurement

“gap” raises concerns, particularly in an environment when orderly and disorderly retirements are looming.

The workshop raised an important issue: does the California electric grid have sufficient capacity (system, local, and/or flexible) to meet near-term needs, e.g. over the next 2-5 years, in light of the risk of resource retirement? In this context, the workshop addressed a number of critical issues including the risk of capacity insufficiency in the near-term: the impact of Community Choice Aggregation (CCA) formation on planning and procurement; and, challenges associated with load-curve volatility and supply-curve volatility, i.e. the so-called “Duck Curve.” IEP comments on each of these matters below. We follow this discussion with specific recommendations for addressing what we view as a problematic near-term gap in planning and procurement.

a. Risk of Capacity Insufficiency and Need for Timely Decision-making

The evidence suggests that the California electric system will lose approximately 14,000 to 16,000 MWs of existing capacity by 2025. For example, assuming implementation by 2019 of the legislatively mandated Effective Load Carrying Capacity (ELCC) methodology, the evidence suggests that by 2019 the aggregate capacity valuation of renewable resources for purposes of RA counting may decline an estimated 2,500 MWs – 4,000 MWs depending on the month of the year.¹ By 2020, approximately 9,000 MWs of Once-thru-Cooling (OTC) units will shut-down. By 2024-2025, approximately 2,200 MWs of baseload capacity will be gone due to the shut-down of the Diablo Canyon Nuclear Generating Facility. In aggregate, this capacity represents nearly 25 percent of the approximately 60,000 MW peak demand of the state. This

¹ R. 14-10-010, Calpine Corporation Final Phase 3 Proposal, Attachment A, p. 8 (February 24, 2017)

capacity represents a higher percentage of the peak demand subject to the operational control of the CAISO.²

The rate of known capacity shut-down raises two fundamental questions. First, what is the risk that capacity insufficient emerges over the next 2-5 years? Second, if the evidence suggests that a capacity shortfall may occur in the near term, when should the state agencies take action to mitigate this risk?

To address the risk that capacity insufficiency emerges in the near term, the CAISO presented evidence that “capacity sufficiency issues start to emerge between 4,000 to 6,000 MW of retirement, considering some uncertainties” (assuming no change to OTC policy and the planned closure of Diablo Canyon Nuclear Generating Facility in the 2024-2025 timeframe).³ Additionally, the CPUC staff presented evidence that by 2022 an RA procurement gap of 5,500 MWs statewide looms, including a 2,500 MWs gap of Local North Capacity and a 3,000 MW gap of Local South Capacity.⁴ IEP believes that the evidence indicates that the risk of capacity insufficiency is front and center today.

With regard to *when* should the state agencies take action to mitigate this risk of capacity insufficiency, the workshop focused on a number of active proceedings to address the matter. Currently, the two-year Integrated Resources Plan (IRP) proceeding at the CPUC appears to be the primary procedural vehicle for securing new capacity additions. Yet, relying on the IRP/LTPP to mitigate a near-term risk of capacity insufficiency is problematic. The current

² The retirement of capacity discussed at the workshop fails to account for unknown, unplanned retirements due to revenue insufficiency.

³ Presentation of Neil Millar (CAISO), Economic Early Retirement of Gas-Fired Generation – Managing Risk, p. 13 (April 24, 2017). The CAISO’s conclusions derive from its recently adopted 2016-2017 Transmission Plan. CAISO modeling assumes OTC units retire as scheduled per state policy. The modeling also assumes that Diablo Canyon Nuclear Generating Facility ceases operation and the expiration of its existing operating permit (i.e. Unit 1 in 2024 and Unit 2 in 2025).

⁴ Michele Kito (CPUC), “Joint Agency Workshop on Risk of Early Economic Retirement, p. 24 (April 24, 2017) presenting Preliminary Results from 2017 Contracting Data. The CPUC Preliminary results reveal the gap between the forecasted RA need and currently procured capacity, which includes utility-owned generation (UOG) and contracted capacity.

2017 IRP is a “test run” not scheduled to result in procurement authorizations. Thus, the 2018-2019 IRP presents perhaps the best IRP path to address the concern of near-term capacity insufficiency. However, a 2018-2019 IRP Final Decision is not expected until late-2019/early-2020. Once an IRP Final Decision is deemed no longer appealable, it may take an additional 18 months to conduct the requisite competitive solicitations to meet the forecast need. Thus, under the IRP-approach, developers are not likely to begin construction until the late 2021-2022 timeframe at best.

Alternatively, workshop panelists discussed the feasibility of an RA Reform approach.⁵ This approach typically would trigger a two-step procedural process. The CPUC would need to “scope” out the issues in a formal proceeding, which suggests that the desired reforms may not be addressed until 2018-2019 at the CPUC. Moreover, the CAISO would need to address various discrete, RA-related issues through its various stakeholder initiatives, including the FRACMOO2 Initiative and the Energy Storage and Distributed Energy Resources (ESDER) Initiative.⁶ IEP is concerned that CAISO stakeholder initiatives typically takes 12-18 months to complete. To the extent the outcomes of the CAISO stakeholder initiative outcomes are required to be considered formally by the CPUC (e.g. in a formal RA proceeding), an additional 12-18 months typically are required to reach final, no longer appealable decisions. Moreover, the extent that a FERC approval is triggered to enact changes in CAISO tariffs, this step can add an additional 4-12 months. Based on historical trends, the CAISO/CPUC pathway(s) to address the near-term issues are not likely to be completed prior to 2019 or 2020 at best.

Under either the suggested RA Reform path or the IRP path, once final regulatory hurdles are overcome, planners should assume an additional 1-2 years may be required for new infrastructure selected to meet capacity needs to obtain necessary permits, complete construction,

⁵ Presentation of Greg Cook (CAISO), Policy Development to Address Risk of Early Retirement, p. 2ff.

⁶ Ibid, p. 3

etc. This suggests that neither the RA Reform path nor the IRP path is likely to result in timely capacity addition(s) or mitigate the risk of capacity insufficiency due to capacity retirement.

b. Uncertainty Associated with CCA Formation

The three large electric IOUs have pointed out in a separate context that the time required to move from Community Choice Aggregation (CCA) exploration to actual implementation is shrinking; and, they have indicated that, in aggregate, potential load departure could be up to 80% of total retail load.⁷ To the extent that the IOUs foresee a significant risk of CCA expansion, they will be reluctant to procure on a mid-term or long-term basis. Yet, prior to formal formation, CCAs do not face an RA obligation and, therefore, CCAs will not procure RA resources in advance of that obligation being imposed. IEP is increasingly concerned that the threat of load shifting among LSEs risks a “procurement gap” exactly at the time that the near-term capacity insufficiency is manifest.

c. The Challenge of Expanding Renewable Resources: Load-curve Volatility and Supply-curve Volatility Affecting Capacity Needs

Renewable resources represent an increasing component of the California resource portfolio, because of the associated environmental, GHG, and fuel diversity benefits. Yet, the expansion of these resources, particularly intermittent wind and solar resources, impose unique operational challenges to grid operators that need to be recognized and timely addressed. Intermittent resources, for example, impact load-curve volatility and supply-curve volatility. As this volatility changes due to expanded renewable development, a concomitant change in capacity needs (e.g. flexible capacity) is also expected to occur.

Importantly, intermittent renewable resources impact load-curve volatility and supply-curve volatility (which contributes to the so-called “duck curve”) in varying degrees depending

⁷*Joint Utilities’ Proposal on Competitive Neutrality Cost Causation Principles in Response to Administrative Law Judge Hymes’ December 2, 2016 Ruling*, February 17, 2017, R. 13-09-011; ex parte notice of PG&E, January 27, 2017, A.16-06-003..

on whether the resource is located in-front of the meter (i.e. grid-connected solar PV and/or wind) or whether the resource is located behind-the-meter (BTM) such as rooftop solar PV. For example, intermittent resources located in-front-of-the-meter typically are visible to and under the operational control of the grid operator such that the grid operator can rely on these resources to help manage supply-curve volatility. The CAISO can utilize its curtailment protocols and dispatch decisions to reduce supply-volatility.

On the other hand, BTM resources uniquely contribute to both supply-curve volatility and load-curve volatility. Not only is the energy from rooftop solar typically delivered to the electric grid intermittently (net of load served behind the meter), thereby contributing to supply-curve volatility; but, this resource also intermittently reduces the demand for power served by the electric grid to the extent it serves behind-the-meter load, thereby contributing to load-curve volatility from the perspective of the grid operator. Importantly, planners and grid operators has little “visibility” as to when or where BTM resources are installed; and, as noted, they have little control over when they operate. To the extent that the BTM resources continue to expand in the near-term, their impact on the duck-curve will grow concomitantly.

2. Next Steps: Addressing Capacity Insufficiency Through a Multi-year RA Framework.

The challenge for the agencies is determining how and when to address the risk of capacity insufficiency over the next 2-5 years. The CAISO posed two fundamental questions during the workshop: (a) “What is the risk of retirement of gas units?” and (b) What level of retirement provides comprehensive reliable service, and are the ‘right’ sources leaving?”⁸ IEP agrees that these are critical questions, but we do not agree that either the suggested RA Reform pathway (coupled with CAISO stakeholder initiatives) or the IRP framework will timely address the issue of capacity insufficiency in the near-term.

⁸ Neal Millar (CAISO), Presentation, p. 2.

As an alternative to the suggested regulatory approaches available to address the issue of capacity insufficiency, IEP believes a simple, quicker solution is available. Specifically, IEP recommends that the CPUC simply modify the existing RA framework and (a) extend its' application from one-year forward to a five-year forward framework; and, (b) impose on load-serving entities (LSEs) both a RA Reporting Obligation and a RA Procurement Obligation as outlined more fully below. Moreover, to address the growing duck-curve phenomenon, we suggest some pro-consumer changes in rate design and some additional consideration in LCBF planning and procurement.

a. Adopt Multi-Year Forward RA Framework to Address Looming Capacity Insufficiency

To ensure timely action, IEP suggests that the existing RA framework be modified in R. 14-10-010 to simply adopt a Multi-year Forward RA Framework entailing both an annual RA Reporting Obligation coupled with a 5-year forward RA Procurement Obligation. Under this Multi-year Forward RA Framework, the CPUC would first impose on LSEs an obligation to annually report their contracted RA capacity over at least a 5-year time horizon. Second, the CPUC would impose on LSEs an obligation to procure sufficient RA capacity (system, local, and flexible) to meet 95% of their forecast RA need one-year forward while declining on a straight-line basis to meet 60% of their forecast RA need five years forward.

Under this proposed Multi-year Forward RA Framework, the most current LCR Studies would define the forward RA requirements (system, local, flexible) so as to preclude additional new studies; the existing “all-source” competitive procurement framework coupled with the CPUC-approved least-cost/best-fit (LCBF) bid evaluation methodology would govern IOU

procurement so as to preclude changes in that respect; and, the Loading Order would govern resource selection as is the situation today:⁹

Importantly, under IEP’s proposed Multi-year RA Framework, all beneficiaries pay for associated RA procurement conducted by LSEs.

Table A, below, outlines the IEP proposal for a Multi-year Forward RA Framework that can be implemented in a timely manner no later than the end of 2017. This framework relies on existing rules, policies, and protocols to ensure ease of implementation.

Table A

**Multi-year Forward RA Framework
To Mitigate Risk of Capacity Insufficiency
In A Timely Manner**

- 1. In CPUC R. 14-10-010, adopt a Multi-year Forward RA Program in 2017 featuring the following:**
 - a. *Annual LSE RA Reporting Obligation* (that continues in time), and
 - b. *2019-2024 LSE RA Procurement Obligation* to cover transition period between 2019-2024:
 - i. Set Forward RA Procurement Obligation at 95% One-Year Forward;
 - ii. Declining to 60% in Year Five; then, evaluate effectiveness.

- 2. Authorize IOUs to conduct in 2018 an “All-Source” Competitive Solicitation to mitigate risk of RA Capacity Insufficiency (5 years forward).**
 - a. Rely on *existing*, most recent LCR Studies to identify need. LCR studies are the best data available. If data changes in the future prior to solicitation, use that information. [If FLEX RA changes, “grandfather” contracted Flex RA to count against new obligation(s) – see #3 below].
 - b. Utilize *existing* “All-Source” Procurement rules and protocols. This approach has proven effective in comparing diverse resources (see SCE SoCal Reliability “All Source” Competitive Procurement).
 - c. Utilize *existing* Least-Cost/Best-Fit Bid (LCBF) bid-evaluation methodology. Focus should address local area needs and resource availability to the extent practical.
 - d. Apply *existing* Loading Order to the extent practical to ensure grid reliability, GHG goals attainment, etc.

⁹ IEP submitted a proposal such as this on the record in the Commission’s Resource Adequacy Proceeding, R. 14-10-010. IEP has added a requirement to adopt a multi-year forward RA Procurement Obligation for purposes of this Action Plan. As noted, the obligation begins at 95% of the forecasted RA need and declines to 60% in year five. This is slightly different than the proposal submitted by IEP in the R. 14-10-010, but we believe the issues addressed in the Joint Agency Workshop addressing Existing Power Plants and Local Reliability warrant these changes.

3. Reduce Uncertainty Related to Forward Procurement:

- a. ***Eliminate Double-Jeopardy.*** Adopt rules up-front clarifying that Load-serving Entities which contract for RA to meet a multi-year forward obligation will not face “double-jeopardy” if the obligations regarding System, Local, or Flexible Capacity change in the future (i.e. clarify that RA contracts approved by the Commission under a multi-year RA Framework will be counted against future RA obligations, even if those obligations are modified based on new information).
- b. ***All Beneficiaries Pay.*** Ensure cost allocation to all beneficiaries of CPUC-approved RA contracts executed under this program via a non by-passable charge(s).

b. Partial Solutions to the “Duck Belly” Phenomenon

The state should take credit for producing an abundance of low-cost, GHG-free energy.

The corollary of such success is that the consumption of low-cost (often zero priced or negative priced) GHG-free energy is a good thing. The state should figure out how best to consume this energy, rather than curtail it. Given the projections of renewable expansion, it is surprising that the apparent default solution to the over-generation of this low-cost, GHG-free energy is limited to either (a) curtail it, or (b) store it. IEP is not opposed to curtailing the delivery of excess generation in periods of over-supply (consistent with contractual commitments), but curtailment of GHG-free energy should be the last resort. IEP is not opposed to storing this energy, but there may be more beneficial and cost-effective uses of the GHG-free energy as explained more fully below.

- i. **Enable industrial/commercial customers to access real-time, dynamic pricing during periods of over-supply on a voluntary basis as an incentive to lower the cost of economic activity and/or increase economic output.**

Incentives to increase consumption of low-cost, GHG free energy should include retail rate redesign to afford large commercial, industrial, and agricultural consumers an opportunity to choose retail rates that track real-time wholesale prices over time. Retail rates that match wholesale prices will position these consumers to help absorb the energy from renewable resources during periods of over-supply. Enabling large industrial, commercial, and agricultural

consumers to voluntarily access low-cost, often zero-priced energy is good for the California economy, good for jobs, good for the tax base, etc., without increasing GHG emissions. That is a good thing and in some cases a “win-win-win” situation (e.g. access to low energy prices could lower costs for water pumping, water desalination, etc., and thus assist in dealing with drought situations).

ii. Include “Grid Operator Control” As a Value in Resource Cost-effectiveness Tests

A key factor contributing to the “duck curve” is the dramatic shift in load in the late morning/early evening hours when wind and solar resources delivery energy to the grid and/or serve load behind-the-meter. Unfortunately, the BTM solar resources are, as yet, uniquely invisible to and outside the control of the grid operator. Thus, unlike grid-connected wind and solar resources, BTM solar resources present unique challenges to grid operations due to its unique contribution to the volatility on both the supply-curves and load-curves in real-time.

In resource planning and resource cost-effectiveness tests, the Commission should take into account the value of grid-operator “visibility” and control over resources, including BTM resources, when comparing/contrasting the value of its resource portfolio. The CAISO indicates that, currently, the daily ramp need is 13,000 MWs in three hours between 3:00 pm and 9:00 pm on some days.¹⁰ The CAISO expects this ramp to increase as renewables expand. The absence of grid operator visibility and control over this resource should be integrated into cost-effectiveness tests and resource valuations used by the state agencies.

In summary, the agencies, particularly the CPUC, already have available to them the requisite tools to mitigate the risk of capacity insufficiency over the near-term at a cost-effective and reasonable manner. These tools and practices include an “All-Source” competitive

¹⁰ Neil Millar Presentation, p. 4.

procurement framework coupled with a CPUC-approved Least-Cost/Best-Fit (LCBF) bid evaluation mechanism to compare/contrast bids.

The key question is how best to employ these tools to achieve positive outcomes in a timely manner? As noted above, the IRP process and the alternative RA Reform approach (coupled with CAISO FRACMOO2 and ESDER initiatives) are unlikely to be timely. The best vehicle available today to send the appropriate market and procurement signals is to take advantage of the existing RA Proceeding (R. 14-10-010) and use it to adopt a Multi-year Forward, RA Framework as proposed herein. R. 14-010-010 is scheduled to conclude in 2017; and the issue of whether to adopt a multi-year RA framework is within the scope of that proceeding. This path will send clear and invaluable market signals regarding which resources that have been deemed needed for purposes of RA in the near-term. This path will provide a transparent means to mitigate the near-term risk of capacity insufficiency. Finally, this path will send transparent signals to the market with regards to units that are needed and not needed; thereby, leading to a more orderly and timely retirement of unneeded resources.

Respectfully submitted,

A handwritten signature in black ink that reads "Steven Kelly". The signature is written in a cursive, flowing style with a large, sweeping underline.

Steven Kelly
Policy Director