BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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OPENING COMMENTS OF THE CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES ON PROPOSED DECISION ADOPTING LOCAL CAPACITY OBLIGATIONS FOR 2019 AND REFINING THE RESOURCE ADEQUACY PROGRAM

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The Center for Energy Efficiency and Renewable Technologies ("CEERT") respectfully submits these Opening Comments on the Proposed Decision of Administrative Law Judges (ALJs) Allen and Chiv "Adopting Local Capacity Obligations for 2019 and Refining the Resource Adequacy Program" mailed in this proceeding on May 22, 2018 ("Proposed Decision"). These Opening Comments are timely filed and served pursuant to Rule 14.3 of the Commission's Rules of Practice and Procedure and the instructions accompanying the Proposed Decisions.

ALJs Allen and Chiv also issued a Proposed Decision "Adopting Flexible Capacity Obligations for 2019" which was mailed in this proceeding on June 1, 2018 ("June 1 Proposed Decision"). CEERT is not filing Opening Comments on the June 1 Proposed Decision but reserves the right to file and serve Reply Comments.

I.
THE PROPOSED DECISION ADEQUATELY QUANTIFIES SYSTEM, LOCAL AND FLEXIBLE CAPACITY OBLIGATIONS FOR 2019

Although CEERT continues to have serious reservations concerning aspects of the processes and metrics used for calculating all of System, Local and Flexible Capacity Obligations, it agrees that a few of the proposed reforms are ripe for adoption in Track 1 for

2019. The two reforms that should be adopted in Track 1 to modify the resource adequacy (RA) process for 2019 are: (1) RA measurement hours should be aligned with California Independent System Operator (CAISO) Availability Assessment Hours,[1] and (2) Combined storage and demand response (DR) projects are eligible to participate in the RA program.[2] Other than these changes, any decision the Commission issues setting System, Local and Flexible Capacity Obligations for 2019 must use existing processes. In addition, load-serving entity (LSE) procurement should commence immediately and the Commission should initiate Tracks 2 and 3 post haste.

The Proposed Decision includes an extensive discussion of issues to be discussed in Tracks 2 and 3 without a definitive schedule and process for accomplishing the effort. CEERT concurs with the issues tabled but believes that the numerous party complaints about transparency need to be dealt with before resolution can be reached. This topic plus one addition to the Track 2 and 3 agenda are discussed below.

II.
LOAD FORECASTS AND CONTINGENCY SCENARIOS FOR SYSTEM, LOCAL AND FLEXIBLE CAPACITY OBLIGATIONS NEED TO BE RECALIBRATED TO 2017 ACTUAL LOADS AND CONTINGENCIES

2017 was truly a remarkable year. System loads were higher than any year since 2006, and two 1 in 10 heat storm events, one at the end of June and one at the beginning of September occurred. This was coupled with the beginning of the wave of retirements of once-through cooling (OTC) units and economic stress on the remainder of the existing gas fleet with low gas prices eroding infra-marginal energy market revenues, the consequences of interstate pipeline failures and the loss of the Aliso Canyon storage facility stressing gas supply capabilities, and the rapid growth of preferred resources, principally solar photovoltaic (PV) eroding gas market share.

[1] Proposed Decision, at p. 45, Ordering Paragraph 13.
[2] Proposed Decision, at p.45, Ordering Paragraph 14.

All of these factors combined with historic fire and landslide disruptions to the grid infrastructure to put stress on the grid that has not been seen in many years.

While grid reliability in general remained high, the experience was sobering and deserves introspection as we look to reform the RA program in Tracks 2 and 3. In addition, the California Energy Commission (CEC) load forecast that forms the underpinning of the analytical studies to determine forward requirements for RA obligations underwent a dramatic shift. For the first time, the State now has a true 8760 hourly load forecast with the impact of the rapid growth in solar PV, both distributed and utility scale, on load shapes endogenous to the forecast. No longer do we need to rely on the ex post application of a "peak shift" fudge factor to account for this shift in daily and seasonal net load shapes that transforms all three of the RA requirements. This new forecast model needs to be benchmarked to the historic 2017 actual loads at all of the monthly System, extreme heat event driven Local, and light load period driven Flexible RA requirements.

CEERT notes that failure of this new forecast model to deal with coincident peak ramps doomed the first attempt at the 2019 Flexible RA Technical Study. Also, significant shifts in local peak load forecasts occurred. For example, in Southern California, San Diego load forecasts decreased significantly while West LA Basin and Moorpark sub-area forecasts increased significantly from previous year forecasts with the old model. At the same time, 2017 was the first full year of experience with forward Flexible RA procurement to mitigate flexibility challenges. Track 2 needs to open with a robust forensic analysis of 2017 experience to guide the RA reform process.

CEERT believes that Track 2 should open with a workshop analyzing all of these factors. The 2017 RA Report on procurement experience from the Energy Division needs to be published

as soon as possible. The new CEC load forecast model needs to be back cast to the 2017 weather data and compared with actual 2017 monthly system load and daily ramps. Local area 1 in 10 peak load forecasts for the June and September heat storms need to be compared to actual loads during these events. The experience with grid performance during, in particular, the Thomas fire needs to be examined for any lessons for contingency planning. 2016 forward procurement experience, both quantity and cost, for the 2017 compliance year needs to be compared to the actual resource utilization during stress periods in 2017.

CEERT also notes that two critical special studies being conducted by the CAISO need to be included in the record for Track 2. Draft results from the "Transfers between Pacific Northwest and California Study" and the "Local Capacity Requirements Potential Reduction Study"[3] will be available mid-November 2018. Both of these studies are very relevant to future System and Local RA supply and demand.

III.
THE CONSEQUENCES OF THE EMERGENCE OF USE-LIMITED PREFERRED RESOURCE ALTERNATIVES TO RA SUPPLY NEED COMPREHENSIVE ANALYSIS

The Proposed Decision finally explicitly recognizes the ability of use limited hybrid storage and preferred resources to supply RA by stating: "We will remove the prohibition on combined storage and DR resources being eligible for RA."[4] However, the Proposed Decision is silent on all of the necessary changes to RA metrics and processes that this seemingly simple and obvious statement implies. This issue needs to be added to the Track 2 Agenda. CEERT also notes that similar considerations apply as well to hybrid storage/solar resources as well as stand-alone storage.

[3] www.caiso.cam/planning/Pages/TransmissionPlannig/2018-2019TransmissionPlan
[4] Proposed Decision, at p. 38.

Virtually every RA Workshop or Presentation this past year begins with multiple parties including Commission Staff, Investor Owned Utilities (IOUs), the CAISO, fossil fleet operators as well as preferred resource advocates saying something to the effect that: "Eventually, we will rely on preferred resources to supply RA and other essential reliability services, but…" Eventually starts now with the long overdue official recognition that storage hybrids offer the ability to transform both the quantity and price of preferred resources to perform this critical task. As the electric grid transitions toward a low carbon future, preferred resources simply must provide capacity value and reliability services as well as "as available" energy. As the energy market share of use limited, near zero marginal cost preferred resources more than doubles over the next decade, the negative impact on the economics of greenhouse gas (GHG) emitting, high marginal cost fossil resources will increase dramatically. It is simply unsustainable to imagine a grid that relies almost exclusively on fossil resources to "back up" variable energy resources.

This transition requires significant changes to RA planning metrics, procurement practices, real time utilization protocols, and post use financial settlement practices. Among the issues that must be addressed are the following: (1) maximum instantaneous peak load is no longer the appropriate metric for RA Requirements, (2) Net Qualifying Capacity or "NQC" of individual hybrid resource components cannot be summed to arrive at the capacity value of a portfolio for RA purposes, and (3) real time dispatch of preferred resource hybrids using an optimization engine based on energy bids and system marginal cost becomes problematic especially for local RA where partial or complete islanding occurs during transmission contingencies.

A. Maximum instantaneous peak load is no longer the appropriate metric for RA requirements.

Preferred resources are generally use limited and the resource cost is much more dependent on the amount of energy supplied over time as opposed to peak capacity that is determined almost solely by inverter size. As such, the appropriate metric for preferred resources is required on-peak energy and duration of the reliability need. The new CEC load forecasting methodology is explicitly designed for this shift and is capable of directly estimating this requirement but needs some tuning and verification based on experience. This metric should be adopted for 2020 in Track 2.

B. Net Qualifying Capacity or "NQC" of individual hybrid resource components cannot be summed to arrive at the capacity value of a portfolio for RA purposes.

Individual preferred resources have different energy supply and depend on hybridization with storage to achieve capacity value which means that the NQC is an obsolete metric. The easiest way to think about this is that the hybrid "NQC" is set by the inverter size of the storage component but the RA value is set by the energy stored in the battery plus the ability of the preferred resource component to supply energy to recharge the battery and/or avoid using the full discharge capability of the inverter. Related to this fact is that concepts such as minimum storage duration of four hours or maximum response time of 20 minutes for DR for them to be eligible to count for RA is no longer relevant. Also, the Effective Load Carrying Capability (ELCC) value of the same local solar installation is dramatically different when used for system or local RA due to the difference in load shapes between the system and local areas during transmission contingencies that create load pockets.

C. Real time dispatch of preferred resource hybrids using an optimization engine based on energy bids and system marginal cost becomes problematic especially for local RA where partial or complete islanding occurs during transmission contingencies.

The CAISO market optimizes in real time based on energy bids that are constrained to be closely related to short run marginal cost. Since preferred resources generally have near zero marginal cost but are use limited, bidding behavior and market power policing practices need to evolve. This is especially true for dispatch to resolve local capacity needs where the engine is incapable of simultaneously optimizing the system and the local area dispatch during transmission contingencies. CEERT believes that Scheduling Coordinators or Distribution System Operators will need to have more responsibility for dispatch and optimization of local area needs rather than the CAISO.

This is not meant to be an exhaustive list of all the modifications necessary at the Commission, CEC, and CAISO to fully realize the potential of use limited preferred resource hybrids to supply RA. Nor are detailed solutions to all of these questions necessarily obvious. However, the process must start now in Track 2 for the 2020 compliance year if the transition is to proceed smoothly. In addition, ongoing preferred resource procurements by Southern California Edison for the Moorpark/Santa Clara/Goleta areas and Pacific Gas & Electric for the Oakland and South Bay areas offer real world opportunities to explore these issues with actual projects and portfolios rather than hypotheticals. Experience over the last few years that has resulted in declining participation of preferred resources such as DR, and artificial arbitrary cut-offs for RA eligibility by solar, storage and DR have taught us the value of learning by doing rather than trying to band aid a system predicated on the characteristics of fossil resources. This will be a multi-year process and must start now.

IV.
CONCLUSION

CEERT appreciates the opportunity to comment on this Proposed Decision and agrees with the Proposed Decision's finding that the RA process for 2019 should be modified to align RA measurement hours with CAISO Availability Assessment Hours and to reflect that combined storage and DR projects are eligible to participate in RA. Furthermore, CEERT argues that LSE procurement should begin immediately and Tracks 2 and 3 should be initiated immediately. Track 2 should start with a workshop analyzing the unique circumstances from 2017 and the new CEC load forecast model. Lastly, CEERT contends that necessary changes to RA planning metrics, procurement practices, real time utilization protocols and post use financial settlement practices must be included in the Track 2 Agenda

Respectfully submitted,

June 11, 2018

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APPENDIX A

CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDERING PARAGRAPHS FOR THE PROPOSED DECISION OF ALJS ALLEN AND CHIV

The Center for Energy Efficiency and Renewable Technologies ("CEERT") propose the following modifications to the Findings of Fact, Conclusions of Law, and Ordering Paragraphs in the Proposed Decision of ALJs Allen and Chiv mailed in R.17-09-020 on May 22, 2018 (Proposed Decision).

Please note the following:

- A page citation to the Proposed Decision is provided in brackets for each Finding of Fact, Conclusion of Law, or Ordering Paragraphs for which a modification is proposed.
- Added language is indicated by **bold type**; removed language is indicated by **bold strike-through**.
- A new or added Finding of Fact, Conclusion of Law, or Ordering Paragraph is labeled as "**NEW**" in **bold,** underscored capital letters.

PROPOSED ORDERING PARAGRAPHS:

NEW. **Track 2 should commence with a workshop to review procurement and operational experience with the unique circumstances that occurred in 2017 and include the new CEC 8760 hourly forecast.**

NEW. Modifications to RA planning metrics, procurement practices, and dispatch protocols are added as issues to be explored in Track 2.