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STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

IN THE MATTER OF:	DOCKET NO. 21-ESR-01
Summer Energy Reliability Workshop	RE: Energy Reliability Workshop

CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE MAY 2, 2025, SUMMER ENERGY RELIABILITY WORKSHOP

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The California Community Choice Association[1] (CalCCA) submits these comments on the Summer Energy Reliability Workshop, held on May 2, 2025 (Workshop). The Workshop included an overview of anticipated 2025 summer weather and fire conditions, new clean energy resources expected to come online, hydroelectric resource conditions, and an update on anticipated system reliability conditions for the electricity, fossil gas, and petroleum markets.

I. INTRODUCTION

CalCCA appreciates the significant efforts by the California Energy Commission (CEC), the California Independent System Operator (CAISO), the California Public Utilities Commission (CPUC), the Governor's Office of Business and Economic Development (GO-Biz), The California Department of Forestry and Fire Protection, and others to monitor and assess the energy reliability outlook for California. As the Commission prepares for summer operations

[1] California Community Choice Association represents the interests of 24 community choice electricity providers in California: Apple Valley Choice Energy, Ava Community Energy, Central Coast Community Energy, Clean Energy Alliance, Clean Power Alliance of Southern California, CleanPowerSF, Desert Community Energy, Energy For Palmdale's Independent Choice, Lancaster Energy, Marin Clean Energy, Orange County Power Authority, Peninsula Clean Energy, Pico Rivera Innovative Municipal Energy, Pioneer Community Energy, Pomona Choice Energy, Rancho Mirage Energy Authority, Redwood Coast Energy Authority, San Diego Community Power, San Jacinto Power, San José Clean Energy, Santa Barbara Clean Energy, Silicon Valley Clean Energy, Sonoma Clean Power, and Valley Clean Energy.

with cautious optimism, CalCCA encourages continued emphasis on several topics addressed in the Workshop:

- The CPUC should continue to evaluate the resource adequacy (RA) market dynamics through a Slice-of-Day (SOD) stack analysis as a complement to other RA reliability studies. The RA market is in the process of a major transition and market dynamics sit at the intersection of reliability and affordability;
- Import tariff uncertainty, and the implications for contracting and reliability, should be included in the list of factors that the state prioritizes for mitigating project delays; and
- The Commission should continue to refine important input data and assumptions for modeling mid-term reliability, particularly around hydropower availability, representations of new loads, availability of imports outside of the summer evening hours, and operational impacts on RA.

II. THE CPUC SHOULD CONTINUE TO EVALUATE RA MARKET DYNAMICS THROUGH A SOD STACK ANALYSIS TO INFORM RA PROGRAM RELIABILITY AND AFFORDABILITY

The CPUC should continue to evaluate the RA market dynamics through a SOD stack analysis as a complement to other stochastic RA reliability outlooks. The RA market is in the process of a major transition and market dynamics sit at the intersection of reliability and affordability. CalCCA appreciates the addition of the CPUC's RA market outlook to the summer reliability outlook to inform stakeholders of potential RA reliability and affordability outcomes.[2] As CalCCA noted in comments on the 2024 Summer Reliability workshop, an RA market assessment differs from a reliability assessment.[3] The RA market outlook investigates the sufficiency of the RA supply stack to meet load-serving entity (LSE) RA compliance obligations. Reliability assessments, on the other hand, investigate the sufficiency of the RA supply stack to serve load to a predetermined reliability standard (e.g., 0.1 loss-of-load expectation (LOLE)).

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[2] *See Combined Slide Deck Summer Energy Reliability Workshop,* Docket No. 21-ESR-01 (May 2, 2025) (Workshop Slides) at 113-118.

[3] *See California Community Choice Association's Comments on the May 29, 2024, Summer Reliability Workshop*, Docket No. 21-ESR-01 (June 12, 2024) (Workshop Slides) at 4-5: https://efiling.energy.ca.gov/GetDocument.aspx?tn=256819&DocumentContentId=92637.

The sufficiency of the RA supply stack from an RA market perspective versus a reliability perspective is necessarily measured using different inputs and assumptions. For example, the reliability assessment generally assumes import availability increases outside of the constrained summer peak hours in the early evening. On the other hand, the CPUC's RA market outlook finds that RA import shapes in LSE filings decrease in HE23 and HE24.[4] The CPUC notes that the reduced RA imports in late evening hours reflect arrangements in firm capacity contracts, an important metric from an RA market outlook perspective, rather than actual import flows, an important metric for a reliability assessment. The CPUC finds that reduced RA imports in the late evening hours results in HE23 and HE24 becoming more constrained, requiring battery discharge to be spread over more than four hours and therefore showing less than full power in other hours.[5] Because California counts on imports to maintain a reliable system, the CPUC's stack analysis highlights the importance of evaluating the availability of imports outside of the typical summer peak evening hours. Given the importance of both the market and reliability assessments, the CPUC should continue to evaluate the RA market dynamics through a SOD stack analysis as a complement to stochastic RA reliability outlooks from other entities.

III. IMPORT TARIFF UNCERTAINTY SHOULD BE INCLUDED IN THE LIST OF FACTORS THAT THE STATE PRIORITIZES FOR MITIGATING PROJECT DELAYS

GO-Biz and the Tracking Energy Development (TED) task force should include import tariff uncertainty, and the implications for contracting and reliability, in the list of factors that the state prioritizes for mitigating project delays. At the Workshop, GO-Biz provided an excellent summary of factors causing project delays, including, permitting, interconnection, transmission, supply chain, and construction, and the efforts of GO-Biz and the TED task force to address

4 *See* Workshop Slides at 110-120.

5 *Id.* at 113-118.

these issues.[6] However, an additional issue is emerging that GO-Biz and the TED task force should begin immediately tracking: import tariff uncertainty.

At the Workshop, BloombergNEF showed batteries are the energy technology that are most exposed to price increases associated with tariffs.[7] New battery deployment is an important contributor to reliability in the mid-term and cost uncertainty can lead to contract cancellation or renegotiation, and delayed deployment. GO-Biz and the TED task force should therefore monitor tariff impacts on battery projects under contract and begin considering mitigation approaches that can help continue the timely deployment of new batteries to support system reliability.

IV. THE COMMISSION SHOULD CONTINUE TO REFINE IMPORTANT DATA AND ASSUMPTIONS FOR MODELING MID-TERM RELIABILITY

CalCCA supports the CEC's exploration of mid-term reliability through probabilistic modeling.[8] The CEC's analysis demonstrates that while the system is reliable in the next few years, risks of outages increase out to 2040.[9] The increasing risk of outages is accompanied by other changes including shifting periods of outage risk to both summer and winter, increasing duration of loss of load events, and transitioning from primarily being capacity constrained to being energy constrained.[10]

As the CEC continues refining the data and assumptions underlying mid-term reliability modeling, the CEC should prioritize the following:

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6 *Id.* at 80-89.
7 *Id.* at 45-49.
8 *Id.* at 143-159.
9 *Id.* at 151.
10 *Id.* at 151-155.

- Stochastic treatment of hydropower availability;
- Improve modeling representation of new loads;
- Assessment of import availability outside of the summer peak period; and
- Inclusion of operational limitations in the reliability assessment.

A. The CEC Should Stochastically Model Hydropower Availability

The CEC should stochastically model hydropower availability, rather than use historical monthly averages. The CEC's mid-term reliability base case assumption limits the contribution of hydropower based on historical average monthly hydropower generation levels.[11] In a sensitivity analysis, the CEC finds that the expected loss of load is two to ten times greater if monthly hydropower limits instead come from random sampling of historical monthly hydropower or from a low hydropower availability year, respectively.[12] Because the system is increasingly energy constrained, rather than capacity constrained, hydropower availability significantly impacts system reliability and should therefore be incorporated into modeling.

In addition, CalCCA's evaluation of historical hydropower data shows that drought conditions are weakly correlated with reductions in hydropower capacity, as set forth in Figure 1, below. Classifying droughts as years when the June-September hydropower generation is less than 7 terawatt hours (TWh), following the approach from EIA,[13] results in average peak hydropower output of approximately 5.0 gigawatts (GW) in drought years and 5.7 GW in non-drought years. Drought years includes the stressful years of 2020 and 2022, where the hydropower system would have been expected to produce at maximum capacity to mitigate

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11 *Id.* at 156.

12 *Id.* at 157.

13 U.S. Energy Information Administration (EIA), *Short-Term Energy Outlook Supplement: Drought Effects on California Electricity Generation and Western Power Markets* (May 2022): https://www.eia.gov/outlooks/steo/special/supplements/2022/2022_sp_02.pdf.

reliability events. This suggests that hydropower capacity should also be treated stochastically in modeling, with restricted capacity under drought conditions.

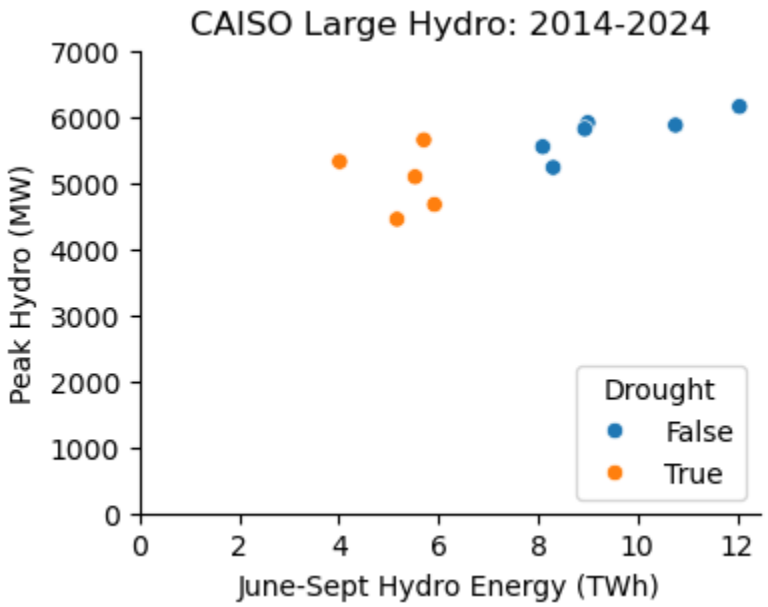

Figure 1. Relationship between peak hydropower production and summer hydropower generation
Source: CAISO 5-min hydropower data from the Large Hydro column of the Production and Curtailment reports 2014-2024.[14]

B. The CEC Should Improve Modeling Representation of New Loads

The CEC should seek to improve its modeling representation of new loads. Rapid growth in new loads from electric vehicles, heat pumps, and data centers contribute both to reliability issues if not properly planned for and shifting of periods of outages from summer to winter. However, these new loads are least understood in terms of their response to weather conditions and flexibility. Reliability events may be mitigated relative to the base case if the new loads provide opportunities for users to adjust timing of consumption in response to system conditions.

[14] Data downloaded from https://www.caiso.com/library/production-curtailments-data. During data cleaning, CalCCA removed a ~3GW spike in Large Hydro production, which lasted only 10 minutes, on June 25, 2020. This spike appears anomalous and not reflective of the sustained capacity of hydropower during critical conditions.

Alternatively, reliability issues can be exacerbated relative to the base case if, for example, heat pump efficiencies drop in extreme weather conditions further driving up heating or cooling loads during stressful events.[15] CalCCA supports the CEC improving the representation of these new loads in the mid-term reliability modeling.

C. The CEC Should Assess Import Availability Outside of the Summer Peak Period

The CEC's mid-term reliability model included only California loads and resources with assumptions about import availability.[16] It is clear from the sensitivity analysis that the availability of imports is important to maintaining reliability in 2030 and beyond. The CEC should continue to closely monitor loads and resources outside of California to gauge the likelihood of resources being available to import into California, especially at times outside of the traditional summer peak.

CalCCA tracks RA demand and supply in the non-California Western Electricity Coordinating Council (WECC) using publicly available data published in the North American Electric Reliability Corporation (NERC) Long-term Reliability Assessments[17] and Summer Reliability Assessments.[18] As a rough approximation, the gap between the prospective resources and RA demand informs the resources that may be available for import into California during peak periods, as set forth in Figure 2, below. Availability of imports was constrained in 2022, but growth in new resources has improved the outlook for 2025. Planned retirements and continued

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15 *See, e.g.,* Larson Energy Research, *Extreme Weather Events Findings* (Aug. 18, 2022): https://nwcouncil.app.box.com/v/082022-xtremeweatherevntsmemo.

16 *See* Workshop Slides at 148.

17 *See, e.g.,* https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.

18 *See, e.g.,* https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2024.pdf.

load growth may again lead to tight conditions for imports by 2032. The CEC should consider extending a similar analysis to the non-peak periods to inform the availability of winter imports, especially considering the winter peaking systems of some areas in the non-CA WECC. Beyond a simple comparison of supply and demand in non-CA WECC, the CEC should consider extending the reliability modeling to include all of WECC, such that imports are not based on assumptions around availability.

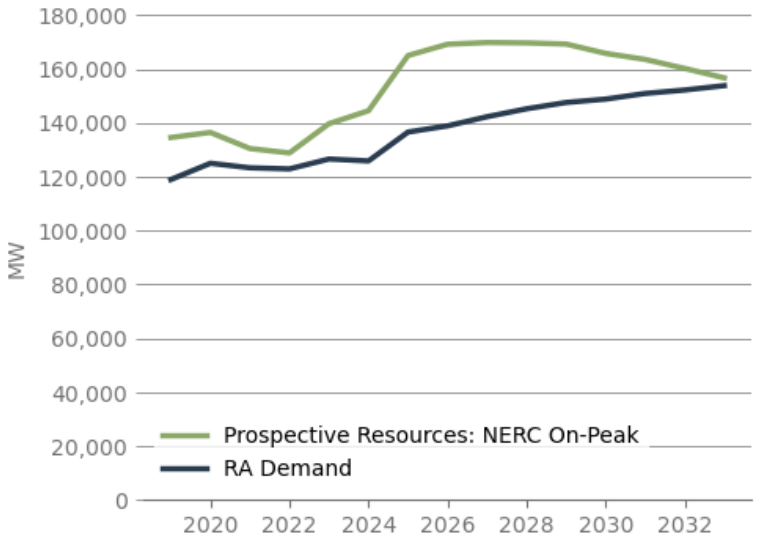


Figure 2. Approximation of import availability from comparing prospective resources and RA demand in the non-California WECC

D. The CEC Should Include Operational Limitations in the Reliability Assessment

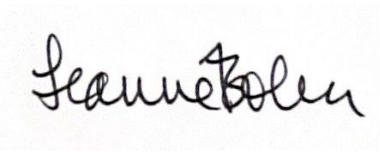
The CEC should prioritize incorporation of operational constraints into reliability modeling. In particular, forecast errors between the day-ahead and real-time can lead to storage being dispatched prematurely or only after a critical reliability event has already begun. Forecast errors potentially reduce the reliability contribution of storage, especially for 4-hour or shorter

duration storage.[19] With the significant growth in both battery storage and variable renewables, the CEC's reliability modeling should account for forecast errors in its assessments.

V. CONCLUSION

For all the foregoing reasons, CalCCA respectfully requests consideration of the comments herein and looks forward to an ongoing dialogue with the Commission.

Respectfully submitted,



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[19] S. Awara, C. Murphy, A. Schleifer, G. Stephen, P. Denholm, *Impacts of hybridization and forecast errors on the probabilistic capacity credit of batteries,* Next Energy, Volume 1, Issue 2, 100021 (2023): https://doi.org/10.1016/j.nxener.2023.100021.