

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Reforms and Refinements, and Establish Forward Resource Adequacy Procurement Obligations.

Rulemaking 21-10-002  
(October 7, 2021)

**INFORMAL COMMENTS ON RESOURCE ADEQUACY REFORM WORKSHOPS OF  
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

**I. Introduction**

The California Independent System Operator Corporation (CAISO) submits informal comments on the November 17, December 1, December 15, and December 17, 2021 Track 3B.2 Resource Adequacy Reform Workshops. The CAISO's goal is to ensure a resource adequacy framework is developed that will result in load serving entities (LSEs) procuring and showing the CAISO a proper mix of resources that ensures grid reliability. Any resource adequacy framework should also be compatible with and administrable by both the Commission and the CAISO.

**II. Discussion**

**A. A Resource Adequacy Framework Must Ensure LSEs Procure and Show Sufficient Resources to Meet Demand Plus the Planning Reserve Margin Across All Hours of the Day.**

Any resource adequacy framework must ensure LSEs show sufficient resources to meet demand plus the planning reserve margin (PRM) across all hours of the day. LSEs and suppliers must continue to show resources to the CAISO pursuant to existing or future tariff provisions, and such resources must be subject to a 24/7 must offer obligation so the CAISO can operationalize and optimize the resource fleet across the day. Additionally, the selected resource adequacy framework must be durable and adaptable to changes as the resource fleet decarbonizes and increasingly consists of use-limited, availability-limited, and variable output resources.

**B. The Commission’s Resource Adequacy Framework Must Allow the CAISO to Continue to Validate All Local Regulatory Authority (LRA) Resource Adequacy Programs.**

The Commission and the CAISO’s resource adequacy programs have inherent differences the Commission must consider before adopting a new resource adequacy framework. The CAISO administers its resource adequacy program across multiple local regulatory authorities (LRAs). Any modifications to resource adequacy processes should remain workable within the CAISO’s overall resource adequacy construct.

The Commission must consider how proposals will align with the CAISO’s resource adequacy program. The CAISO has concerns about administering resource adequacy programs that may differ significantly across LRAs. For example, in administering its backstop procurement role, the CAISO must be able to validate consistent data points across all LRAs in order to test for overall deficiencies effectively. The CAISO’s ability to procure backstop capacity under its capacity procurement mechanism (CPM) when a LSE fails to show sufficient resources to meet its demand and reserve margin requirements depends on the existence of a net overall deficiency in meeting total demand and reserve margin requirements based on an evaluation of all LSEs’ resource adequacy showings.<sup>1</sup> If there are significant differences among LRA resource adequacy programs, it may be difficult for the CAISO to determine if an overall net deficiency exists under any particular set of circumstances. If faced with resource adequacy models that differ significantly among LRAs, the CAISO might have to consider adopting appropriate modifications to its CPM tariff authority to ensure it can effectively backstop for deficiencies in resource adequacy showings. If, for example, an LRA adopts a resource adequacy paradigm that differs significantly from other LRAs, it may be necessary for the CAISO to change its tariff to base backstop procurement on the existence of an LRA-specific net total deficiency, *i.e.*, evaluating whether the showings of all an LRA’s jurisdictional LSEs meet the resource adequacy requirements established by LRA (without considering the procurement of LSEs subject to the jurisdiction of other LRAs).

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<sup>1</sup> CAISO tariff section 43A.2.3.

**C. The Commission Must Account for Changes to CAISO Processes in Implementation Timelines.**

Proposed changes to the Commission’s resource adequacy framework discussed in this proceeding will likely require significant changes to CAISO processes, tariff, and systems. If a new resource adequacy framework is adopted by the Commission, a stakeholder process at the CAISO will be necessary to address changes to CAISO processes, tariff, and systems. The CAISO recommends the Commission consider changes to CAISO processes in its implementation timeline for resource adequacy reform proposals. Given the Commission seeks to implement a new resource adequacy framework for resource adequacy year 2024<sup>2</sup>, the Commission must work with the CAISO to assess whether a revised resource adequacy framework can be feasibly implemented to meet this timeline.

At this time, Southern California Edison’s (SCE) 24-hour slice proposal and Gridwell Consulting’s (Gridwell) two-slice proposal are the two main proposals parties are considering for further development. The CAISO addresses both proposals in the sections below.

**D. The Commission and Parties Must Address Significant Outstanding Concerns Before Any Decision to Move Forward with SCE’s Proposal.**

SCE’s proposal could be a viable long-term framework to ensure reliability needs are met across the day. SCE’s proposal includes an explicit check to ensure LSEs procure and show sufficient resources to meet demand and to provide excess energy to charge the storage portfolio. This energy requirement is potentially beneficial, because in the near term, significant retirements of dispatchable resources are expected and storage resources are currently expected to provide the bulk of the net qualifying capacity (NQC) needed to maintain reliability in the face of these retirements. These conditions place particular emphasis on how storage resources will be charged and discharged and whether there will be sufficient energy to meet charging requirements. SCE’s proposal would also replace and provide a higher quality check for energy sufficiency than the maximum cumulative capacity (MCC) bucket framework the Commission currently administers. Though SCE’s proposal has merit, the CAISO has some important concerns regarding the proposal that must be addressed before any decision to move forward. The CAISO outlines these concerns below.

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<sup>2</sup> D.21-07-014, p.28.

## **1. Net Qualifying Capacity (NQC)**

Each LRA, including the Commission, has the authority to establish the Qualifying Capacity (QC) for each resource type, while the CAISO establishes the Net Qualifying Capacity (NQC) based on Pmax testing and deliverability studies.

SCE's proposal lacks clarity on how NQC values would be established by the ISO under its 24-hour slice framework. The CAISO cannot feasibly conduct deliverability studies and develop NQC values for each hourly slice. Furthermore, running deliverability studies for each hour of the day (while not feasible) would result in different and, in most cases, lower values than those established at the peak. This in turn would trigger different deliverability statuses for each resource at different hours, making the same resource fully deliverable at peak, partially deliverable (to different percentages cross most of the day) and potentially undeliverable in other parts of the day. This process would be highly unmanageable, would require significant changes to CAISO processes and systems, and would not yield a fungible capacity product. A single "net qualifying capacity" value for resource adequacy showings is necessary to maintain consistency with CAISO deliverability studies. SCE must provide detail on how a single representative net qualifying capacity value will be derived and shown to the CAISO.

## **2. Compatibility with CAISO processes**

The CAISO recognizes adopting a new resource adequacy framework may necessitate changes to the CAISO's supply plan validation processes. Today, the CAISO only validates the NQC value of resources at the gross peak. The CAISO has concerns, however, about the feasibility of validating 24 hour slices, or 24 data points, under the SCE proposal.

As noted above, any resource adequacy framework must ensure the CAISO can continue to validate all LRA resource adequacy programs and assess aggregate LSE showings. The CAISO has concerns about how other LRA showings would align with 24-hour showings, to allow the CAISO to test for net overall deficiencies. The CAISO is concerned that translating SCE's 24 hour framework at the Commission into a single NQC value per resource in CAISO processes could create inconsistencies between showings to the Commission and to the CAISO.

The CAISO is also concerned that if compliance requirements and validations differ between the Commission and the CAISO, then LSEs may be subject to different procurement incentives. As indicated above, the CAISO might have to consider adopting new backstop

procurement rules, and possibly other resource adequacy rules, if there is a disconnect between an LRA's resource adequacy provisions and the existing CAISO program.

Although the CAISO sees merit in SCE's 24-hour design, the design must ensure that the Commission and CAISO processes can function together.

#### **E. SCE's Proposal Could Benefit from Additional Detail on Counting Rules and Treatment of Storage Resources.**

SCE should provide further detail on counting rules and treatment of storage resources in its proposal.

##### **1. Counting rules**

SCE should provide more detail on its proposed exceedance methodology to quantify the reliability contribution of wind and solar resources in order to allow parties to better evaluate the effectiveness of this counting framework relative to ELCC. SCE should also provide more details on how potential over-counting of these resources' contribution to reliability interacts with the PRM and addresses resource saturation effects. It is imperative to the CAISO that these resources, and any additional capacity procured as a result of changes to the PRM, will meet reliability needs in critical hours.

SCE has not yet recommended a specific approach for determining qualifying capacity (QC) values for thermal resources. The CAISO continues to advocate for adoption of a UCAP resource counting methodology to account for the forced outages and use limitations of the thermal (and storage) fleet. A UCAP methodology accounts for both ambient de-rates and forced outages, both of which create non-trivial impacts to thermal resource capacity values.

##### **2. Storage resources**

SCE proposes to allow storage resources to count for multiple charge and discharge cycles. The CAISO believes this approach could complicate the test for energy sufficiency, and it recommends that parties consider a way to track storage cycles in the energy sufficiency test more effectively. For example, a negative qualifying capacity value could be applied to in hourly slices where the LSE plans to show excess capacity to charge the storage resources. The CAISO also recommends using an attestation or some other mechanism to ensure that storage resources are physically capable of delivering multiple cycles per day, should storage resources be shown for multiple cycles.

**F. The Gridwell's Proposal Appears More Compatible with Existing Resource Adequacy Processes and Has Merit, but the CAISO is Concerned About the Ability of This Proposal to Adapt to Future Conditions.**

Gridwell's proposal largely retains the existing resource adequacy framework. Given this proposal retains many aspects of the current resource adequacy structure, Gridwell's framework appears to be more compatible with existing resource adequacy processes and implementation, and does not share some of the issues noted above with the SCE proposal. However, the CAISO has concerns about the proposal's durability, particularly regarding whether checking only gross peak and net load peak requirements will be sufficient to ensure future reliability. In particular, Gridwell's proposal does not include an explicit test for sufficient excess energy to charge the storage portfolio.

Significant dispatchable resource retirements are expected over the next five years as the remaining OTC gas-fired generation resources reach the end of their compliance extensions and the Diablo Canyon Power Plan reaches its scheduled retirements. Storage is currently expected to make up the bulk of the expected net qualifying capacity needed to maintain reliability in the face of these retirements. These conditions place particular emphasis on how these storage resources will be charged and discharged—and whether there will be sufficient energy to meet charging requirements. The CAISO believes a test for sufficient excess energy to charge the storage portfolio will be an important resource adequacy program feature going forward.

Gridwell's proposal also lacks detail on the structure of net load showings and validations to the Commission and the CAISO. Although Gridwell has offered some options to validate resource adequacy showings at the net load peak, including utilizing the net load methodologies used in CAISO's Flex and Local resource adequacy studies or setting the value of solar to zero for this net peak evaluation, without a definitive proposal, it is difficult to determine how showings under Gridwell's proposal will align with CAISO processes.

Some proponents of the Gridwell proposal have also suggested that additional slices could be added if other hours become an operational concern. However, Gridwell's proposal largely relies on applying ELCC-based QC methodologies to most resource types. Given the ELCC study complexity, it would be necessary to understand how feasible these additional slice evaluations would be under that approach.

In any case, as noted above, the CAISO remains concerned that even if a reasonable approach to a net load peak assessment is determined in this proceeding, the rapidly changing

characteristics of the resource adequacy fleet may make this approach insufficient to meet reliability needs in future years.

### **III. Conclusion**

The CAISO appreciates the opportunity to provide these informal comments and looks forward to working with the Commission and parties further in the resource adequacy proceeding.

Dated: December 22, 2021