

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

Order Instituting Rulemaking to Develop an
Electricity Integrated Resource Planning
Framework and to Coordinate and Refine
Long-Term Procurement Planning
Requirements.

Rulemaking 16-02-007
(Filed February 11, 2016)

**COMMENTS OF THE CALIFORNIA INDEPENDENT
SYSTEM OPERATOR CORPORATION**

Roger E. Collanton
General Counsel
Anthony J. Ivancovich
Deputy General Counsel
Anna A. McKenna
Assistant General Counsel
Jordan Pinjuv
Senior Counsel
California Independent System
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 351-4429
Fax: (916) 608-7222
Email: jpinjuv@caiso.com

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The California Independent System Operator Corporation (CAISO) hereby provides comments in response to the *Proposed Decision Requiring Electric System Reliability Procurement for 2021-2023* (Proposed Decision), issued in this proceeding on September 12, 2019.

I. Introduction

The CAISO appreciates the Commission's quick response to address impending reliability shortfalls. The CAISO directionally agrees with the incremental procurement authorized in the Proposed Decision, but recommends that the Commission take further action to address the near-term operational and renewable integration needs articulated in the CAISO's reply comments.¹ Specifically, the Commission should take the following actions:

1. Authorize incremental procurement to address operational and renewable integration needs as required by prior Commission decision;
2. Adopt the CAISO's operational analysis as the baseline for 4,700 MW of incremental procurement;
3. Develop an annual assessment to determine the efficacy of new procurement to support early release of once-through cooling (OTC) resources with extended OTC compliance deadlines;
4. Consider an extension of the OTC compliance date for the Moss Landing Power Plant (Moss Landing);

¹ Reply Comments, to the *Assigned Commissioner and Administrative Law Judge's Ruling Initiating Procurement Track and Seeking Comment on Potential Reliability Issues*, August 12, 2019 (August 12 Reply).

5. Develop enforcement criteria for incremental procurement; and
6. Develop interim resource adequacy counting rules for hybrid resources.

The CAISO provides additional comments on procurement allocation, OTC resource contracting through load serving entity contracting rather than the CAISO's backstop procurement mechanism, treatment of imports, multi-year system and flexible procurement, and planning and procurement for the retirement of the Diablo Canyon Power Plant (Diablo Canyon).

II. Discussion

A. The Commission Should Authorize Incremental Procurement to Address Operational and Renewable Integration Needs.

The CAISO supports the Proposed Decision's authorization to procure an initial 2,500 MW to meet the system peak resource adequacy requirement, but the Commission should increase procurement to a total of 4,700 MW, as calculated in the CAISO's August 12 Reply, to specifically and directly address operational needs, including renewable integration.² In the decision adopting the Preferred System Portfolio and Plan in the 2017-2018 Integrated Resource Planning (IRP) cycle, the Commission concluded that the IRP proceeding is uniquely suited to address multi-hour operational needs:

While the resource adequacy proceeding addresses planning reserve margins one year ahead, and now has a three-year procurement requirement for local resources, it currently does not provide a comprehensive look at all of the **operational resource needs across all time periods** addressed by the IRP process. Thus, we conclude that the IRP proceeding is the only venue we currently have for addressing these types of resource questions, and we intend to use it for this purpose going forward.³ [emphasis added]

Regarding procurement, the PSP Decision explained:

[The Commission] will be focused on procurement activities addressing the following types of resources, with these types of specific attributes:

- Diverse renewable resources in the near term, to reduce reliance on fossil-

² August 12 Reply, pp. 10-11. As stated in the August 12 Reply, 4,700 MW is the highest operational need identified in the CAISO's analysis, which occurs in hour ending 18 (HE18) in 2022. In the operational analysis the CAISO assumed incremental solar and wind generation of 144 MW based on RESOLVE capacity expansion results. Without the RESOLVE builds, the need increases to 4,900 MW.

³ California Public Utilities Commission, *Decision Adopting Preferred System Portfolio and Plan for 2017-2018 Integrated Resource Plan Cycle* (D. 19-04-040), April 25, 2019, pp. 132-133 (PSP Decision).

fueled generation and at levels sufficient to reach the 2030 optimized portfolio, in coordination with the RPS program;

- **Near-term resources with load following and hourly or intra-hour renewable integration capabilities;**
- Existing natural gas resources at minimal levels consistent with reliability needs; and
- Long-duration storage, approached in a technology-neutral manner.⁴ [emphasis added]

The CAISO strongly agrees with these conclusions and urges the Commission take action in the Proposed Decision to meet operational needs, including renewable integration. The CAISO's operational analysis highlights the need for additional energy after the peak hour, when load remains high but solar generation is significantly reduced or has ceased.⁵ The analysis clearly shows that the current fleet available for resource adequacy contracting – even under the most optimistic circumstances – is insufficient to meet a 1-in-2 hourly load and a 15 percent planning reserve margin (which includes North American Electric Reliability Corporation (NERC)-mandated operating reserves).⁶ It is critical for the Commission to direct upfront procurement in light of a capacity shortfall of this magnitude because the CAISO has no mechanism, including backstop authority, to authorize new capacity. As discussed in greater detail below, the Commission should adopt the CAISO's operational assessment to guide additional procurement to address this post-peak hour reliability need.⁷

The Commission should also modify the Proposed Decision to provide guidance to load serving entities to procure incremental resources that support renewable integration and specifically address the operational issues presented by the CAISO.⁸ The CAISO notes that the Commission was unable to reconcile the individual load serving entity portfolios when selecting the Preferred System Portfolio because the individual portfolios did not collectively meet the

⁴ *Id.*, pp. 140-141.

⁵ August 12 Reply, *see* discussion on pages 8-11, and analysis in Attachment B.

⁶ Several of the assumptions in the CAISO analysis reflect an optimistic scenario such as: no generation or transmission outages; all available net qualifying capacity and mothballed resources can be and will be placed under resource adequacy contracting; resources based on a net qualifying capacity number can generate consistently across the six hour analyzed timeframe including short-duration storage and demand response; resource adequacy import levels do not fall below historical average; and observed generation for wind, solar, and hydro do not fall below historical average.

⁷ While some parties have argued for more complicated analyses, the stack analyses created by Energy Division staff, Southern California Edison Company (SCE), and the CAISO are sufficient and appropriate to meet resource adequacy needs.

⁸ *See* August 12 Reply.

objectives of the IRP proceeding. As a result, the Commission rejected the aggregation of individual plans for a centrally optimized portfolio. The Commission explained its decision:

While some amount of individual variation in resource choices may be able to be accommodated, the core of the system needs to balance in real time and function to deliver electricity over an integrated transmission and distribution grid, and thus there is an inherent balance that needs to be achieved to ensure reliability and renewable integration... [In order] to balance the system between now and 2030, the resource balance will need to include a mix of existing and new resources, a mix of baseload and intermittent resources, and a mix of renewable, storage, and conventional fossil-fueled resources. In analyzing the IRPs of all of the LSEs, there is inconsistent, and in some cases, nonexistent, recognition of these realities.⁹

The Commission can avoid a similar outcome in this proceeding by providing upfront guidance and requirements to balance individual load serving entity procurement with operational and renewable integration needs.

B. The Commission Should Adopt the CAISO's Operational Analysis as the Baseline for 4,700 MW of Incremental Procurement.

The Commission should adopt the CAISO's operational analysis as the baseline for 4,700 MW of incremental procurement to address near-term reliability, operational, and renewable integration needs.¹⁰ The CAISO's operational analysis is a more appropriate baseline for incremental procurement because the adopted Preferred System Portfolio reflects several outdated assumptions.¹¹ As one example, the Preferred System Portfolio assumed the continued operation of the 750 MW Inland Empire Energy Center, but the generation owner recently submitted its decommissioning and demolition plan to the California Energy Commission effective December 31, 2019.¹² For all other generators internal to the CAISO's footprint (except for wind, solar, and hydro resources), the CAISO used 2019 net qualifying capacity values, which are more recent than those used in the adopted Preferred System Portfolio.

⁹ PSP Decision, pp. 104-105.

¹⁰ As noted above, this could increase to 4,900 MW if incremental solar and wind from RESOLVE capacity expansion modeling are removed from the baseline assumptions.

¹¹ Proposed Decision, p. 29.

¹² Inland Empire Energy Center Decommissioning and Demolition Plan, Docket Number: 01-AFC-17C, TN Number: 228806, June 20, 2019, p.1.

More importantly, the adopted Preferred System Portfolio did not use an import assumption commensurate with the resource adequacy program, and instead assumed import energy up to the entire maximum import capability. The level of resource adequacy imports presented in the Preferred System Portfolio is not supported by actual practice as the CAISO found only 5,340 MW of resource adequacy-based imports were secured on average from 2015 through 2018 during September, the month of future projected system peaks.¹³ In fact, the upcoming 2019 IRP Reference System Plan revises the contribution from imports down from the maximum import capability to contracted resource adequacy capacity.¹⁴ The Commission should use the CAISO's import assumptions rather than the assumptions adopted in the Preferred System Portfolio so incremental imports above the 5,340 MW level included in CAISO's analysis can count towards incremental procurement. The CAISO recognizes that there is a challenge to differentiating import replacement (which should count towards the baseline) versus incremental imports, but the Commission should develop a methodology to resolve this issue.

Lastly, the CAISO is the only party on the record in the IRP proceeding's procurement track to provide analysis and consider operational and renewable integration needs by providing the historical generation profiles for wind, solar, and hydro resources. As a result, the Commission should use the CAISO's analysis to establish its incremental procurement targets to meet operational needs.

C. The Commission Should Develop an Annual Assessment to Determine the Efficacy of New Procurement to Support Early Release of OTC Resources with Extended Compliance Deadlines.

The Commission should put in place an annual assessment to determine the efficacy of the new procurement to support the early release of OTC resources with extended compliance deadlines. The Proposed Decision seeks to extend the OTC retirement deadline from the end of 2020 to the end of 2023 for 2,500 MW to 3,750 MW of OTC resources.¹⁵ The Commission did

¹³ August 12 Reply, pp. 5-6.

¹⁴ California Public Utilities Commission, Integrated Resource Planning Modeling Advisory Group Webinar, "Core Modeling Assumptions for 2019-20 IRP Reference System Portfolio Development," June 17, 2019, p. 11, available at:

https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/irp/2018/IRP_MAG_20190617_CoreInputs.pdf.

¹⁵ Proposed Decision, p. 19.

not provide an exact MW need or an extension timeline for OTC resources but notes that “[i]f procurement proceeds in a timely fashion, all three years of the extensions may not be needed.”¹⁶ Although the CAISO agrees with the Commission’s reasoning that OTC resources with extended OTC retirement deadlines may be released earlier due to effective procurement that meets reliability, operational, and renewable integration needs, the Proposed Decision does not provide sufficient process to assess procurement and potential early release of OTC resources.

The Commission should develop and put in place a detailed annual assessment¹⁷ of the expected in-service dates for incremental procurement, including whether the resources can address renewable integration needs. Delays in the in-service dates or expected procurement identified by the annual assessment can be remedied with an OTC compliance extension and subsequent procurement. The Commission can use the annual assessment to determine that effective and procured incremental resources are sufficient to allow OTC units to retire upon the respective OTC compliance date.¹⁸ The Commission could use the annual resource adequacy showings or the May 1 and October 1 annual individual IRP filings ordered in the Proposed Decision to determine if new procurement eliminates the need to retain OTC resources. With the detailed annual assessment, the Commission should be able to determine the capacity needed to meet reliability needs (in MW) and specify the OTC units that are needed. The Commission should also be clear on its expectations for which load serving entities will contract with the OTC resources with extended OTC compliance deadlines. Lastly, the Commission should develop a schedule for how and when the OTC compliance deadline extension requests will be presented to the State Advisory Committee on Cooling Water Intake Structures (SACCWIS) and, eventually, the State Water Resources Control Board (Water Board).

¹⁶ *Id.*, p. 20.

¹⁷ For example, a publicly available spreadsheet tracking both the baseline and incremental resources to justify the need for the OTC compliance extension updated at least annually.

¹⁸ The OTC compliance extension request and actual procurement are separable. For example, a request may be made to the State Water Resources Control Board for the OTC compliance deadline extension for any or all of the resources but actual procurement may be determined at a later date for any, all, or none of the resources. In other words, a request for an OTC compliance extension does not automatically mean a resource (or portions of a resource) will be procured for resource adequacy.

D. The Commission Should Consider an OTC Compliance Date Extension for Moss Landing.

The CAISO has included the OTC resource, Moss Landing, in its operational analysis baseline. Moss Landing is currently seeking to comply with OTC regulations through a series of upgrades and may not be certified by the Water Board until those upgrades are completed at the end of 2020. Until that time, the OTC compliance date for Moss Landing remains December 31, 2020. Currently, the Commission prohibits investor-owned utilities from contracting with an OTC resource beyond its compliance date. It is the CAISO's understanding that other load serving entities are not similarly prohibited. The Commission should also request an extension of the OTC compliance date for Moss Landing to ensure it is available for resource adequacy contracting until upgrades are certified by the Water Board.

E. The Commission Should Develop Enforcement Criteria for Incremental Procurement.

The Proposed Decision does not articulate any consequences for load serving entities that fail to procure the requisite incremental capacity or if there is a slip with the in-service dates. The Commission should consider providing such guidelines to clearly set expectations for procuring entities.

F. The Commission Should Develop Interim Resource Adequacy Counting Rules for Hybrid Resources.

The Proposed Decision notes that hybrid generation and storage projects “will fare well in competitive solicitations for system reliability resources and should be strongly considered.”¹⁹ However, the Commission has not developed a pathway for hybrid resources to count towards resource adequacy. The Commission should ensure coordination with the resource adequacy proceeding to develop and adopt qualifying capacity values for hybrid resources. For example, the CAISO recently proposed an interim methodology that allows the storage component to be counted at the 4-hour duration sustained output and the renewable component to be counted at the existing effective load carrying capability (ELCC), subject to deliverability and capped at the interconnection capacity rights. This simplified approach builds on existing counting conventions and can likely be implemented on an expedited basis to coincide with the

¹⁹ Proposed Decision, p. 38.

incremental procurement authorized in the Proposed Decision. In conjunction with this interim approach, the CAISO will allow existing solar facilities to co-locate new storage with an expedited Material Modification Assessment Process so the additional storage does not need to resubmit into the CAISO interconnection queue.²⁰

G. Additional Comments.

The CAISO provides additional comments for the Commission’s consideration.

1. The Commission Should Allocate Procurement Based on System Need.

The Proposed Decision allocates incremental procurement responsibilities to load serving entities within the SCE transmission access charge (TAC) area because (1) the OTC generation is located in the SCE TAC area and (2) “SCE is also the entity most concerned...about near-term reliability challenges that may occur due to the OTC retirements.”²¹ The CAISO notes that both the resource adequacy and operational needs are at the system level and are not unique to the SCE TAC area. To the extent the Commission is concerned about allocating incremental procurement to load serving entities that are already long on system capacity, the Commission should seek to resolve that issue through a more nuanced mechanism and ensure equitable responsibility for electric reliability.

2. The Proposed Decision Correctly Directs Resource Adequacy Procurement for OTC Units with Extended Retirement Dates.

The CAISO agrees with the Proposed Decision’s direction to procure OTC units through the Commission’s resource adequacy process. The CAISO’s reliability must-run (RMR) process is a backstop procurement mechanism. The RMR process and application is untested with regard to meeting a system need.

3. The Proposed Decision Correctly Does Not Discount Imports.

The CAISO supports the Proposed Decision’s clarification that imports should not be arbitrarily discounted.²² As the CAISO explained above, incremental imports above the

²⁰ Presentation entitled *Hybrid Resources RA Counting*, presented by Chris Devon at the CPUC Workshop, September 6, 2019, included with this filing as Attachment A.

²¹ *Id.*, pp. 33-34.

²² *Id.*, p. 26.

5,340 MW of imports included in the CAISO analysis should be allowed to count towards incremental procurement. Today, the CAISO balancing authority is heavily dependent upon imports, especially in the after peak hours when solar generation is significantly reduced or has ceased.²³ Imports today are helping with renewable integration and ramping needs.

4. The Commission Should Consider Multi-Year System and Flexible Resource Adequacy.

The CAISO also encourages the Commission to consider multi-year resource adequacy procurement for system and flexible needs or, at a minimum, ensure that the IRP process is validating near- and medium-term resource adequacy and operational needs.

5. The Commission Should Consider How Current Incremental Procurement will Address Medium- and Long-Term Needs such as Retirement of Diablo Canyon.

The CAISO's 2019 Net Qualifying Capacity list for all natural gas-fired, hydro, nuclear, and renewable resources (excluding wind and solar resources) spreadsheet analysis identified near-term reliability and renewable integration shortfalls in a format that is easy to use and understand. In the longer-term, the Commission should use a production cost model to validate the operability of incremental procurement authorized by this, and subsequent, Commission decisions. For example, if significant amounts of short-duration storage are procured, the Commission should analyze whether the resources can be sufficiently charged and discharged to meet the system hourly energy needs and support renewable integration.

Lastly, given the near-term capacity needs, the Commission should expect that the Diablo Canyon retirement will require additional incremental resource adequacy capacity procurement and should develop a comprehensive medium-term procurement plan to address this matter by the end of 2019 and issue a decision on medium-term procurement and related actions by summer 2020. The Commission's comprehensive procurement plan should simultaneously address reliability and renewable energy needs during the system peak and across all hours of the year.

²³ See, for example, CAISO presentation on Post-2020 Grid Operations Outlook to the CAISO Board of Governors, available at <http://www.caiso.com/Documents/Briefing-Post-2020-GridOperationalOutlook-Presentation-Sep2019.pdf>.

III. Conclusion

The CAISO appreciates the opportunity to provide comments and supports the Proposed Decision and looks forward to working with the Commission on the foregoing actions the Commission should take.

Respectfully submitted,

By: /s/ Jordan Pinjuv

Roger E. Collanton
General Counsel
Anthony J. Ivancovich
Deputy General Counsel
Anna A. McKenna
Assistant General Counsel
Jordan Pinjuv
Senior Counsel
California Independent System
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 351-4429
Fax: (916) 608-7222
Email: jpinjuv@caiso.com

Attorneys for the California Independent System
Operator Corporation

Date: October 2, 2019

Attachment A



Hybrid Resources RA Counting

Chris Devon

Sr. Infrastructure and Regulatory Policy Developer

CPUC Workshop – September 6, 2019

Overview of CAISO input

- Impending system capacity shortfall RA year 2021 causes a need for near term solutions
 - Potential for co-located storage at existing solar facilities to be developed on expedited basis (e.g., through the CAISO's Material Modification Assessment Process)
- To meet 2021 needs, ISO proposes interim approach for hybrid resource QC methodology
 - Urgent need for a QC methodology for combined hybrid resource (mixed fuel with single resource ID)
 - May need to be an interim solution until a more nuanced approach can be developed
- Must consider how to best operationalize new storage to meet system needs reliably
 - May require interim approaches to ensure availability

Potential capacity shortfall in 2021 is becoming apparent and is a driver for urgency

- CAISO previously opposed adoption of QC methodology for combined hybrid resources suggested in RA proceeding and suggested workshops would be beneficial
- Impending System RA capacity shortfall in 2021 has led to the CAISO now encouraging immediate action
- CAISO will attempt to provide some fast tracking to interconnect new resources
 - Co-locating storage is one possibility for expedited resource addition
- A hybrid QC methodology is needed **quickly** to enable timely resource development – could be an interim solution until a more nuanced QC approach can be developed

Interim proposal for QC methodology for combined hybrid resources (mixed fuel with single resource ID)

- Policy question discussed briefly in CAISO hybrid resources issue paper
 - CAISO initially suggested that an “exceedance” methodology for hybrids could be one potential approach for these – CAISO is moving away from this prior suggestion
 - Would require historical information that may not be available initially and could be problematic for interim approach/expedited RA QC evaluation – also may have unintended consequences
- CAISO supports CPUC adopting the following approach that would be more appropriate as an interim methodology:

ELCC for VER component + Pmax of storage component

- ***Subject to deliverability***
- ***Capped at interconnection capacity rights***

Other areas of focus related to meeting near term needs

- CPUC may direct new resource procurement of storage additions to existing renewable projects
- CPUC can expedite adoption of an RA counting approach for hybrid resources in the current RA proceeding
 - Alternatively CPUC could clarify that the interim approach falls within the “four corners” of existing rules and is acceptable on an interim basis
- CAISO will reach out to industry to ensure broad understanding of material modification assessment process and deliverability implications
- CAISO is considering publishing a list of existing renewable projects with approved material modification assessment requests to add storage to help facilitate procurement

How do we ensure that resources are fully charged for net load peak?

- CAISO believes there may be a need for interim operational solutions to accompany any interim QC methodology in absence of more nuanced approach that could take more time
- The only tool CAISO currently has to require resources to charge more than two hours in advance is exceptional dispatch
 - RTUC: 1.75 hours in advance can inform binding RTPD dispatch instructions to charge – These may be ramp constrained by given flexibility available
 - STUC looks out 4.5 hours, but schedules are only advisory
- One solution CAISO is exploring is requirement for RA storage resources to self-schedule all Day-Ahead schedules into the Real-Time market
 - May impact CAISO ability to access full flexibility from storage resources

