

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

Order Instituting Rulemaking to
Continue Electric Integrated Resource
Planning and Related Procurement
Processes.

Rulemaking 20-05-003
(Filed May 7, 2020)

**COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR
CORPORATION ON THE ADMINISTRATIVE LAW JUDGE'S SEPTEMBER 8, 2022
RULING SEEKING COMMENTS ON STAFF PAPER ON PROCUREMENT
PROGRAM AND POTENTIAL NEAR-TERM ACTIONS TO ENCOURAGE
ADDITIONAL PROCUREMENT**

Roger E. Collanton
General Counsel
Anthony J. Ivancovich
Deputy General Counsel
William H. Weaver
Assistant General Counsel
Marissa Nava
Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: 916-963-0521
Fax: 916-608-7222
Email: mnava@caiso.com

Dated: December 12, 2022

Table of Contents

I. Introduction..... 1

II. Discussion..... 1

III. Responses to Questions for Parties from Section 1 of the Ruling..... 4

IV. Conclusion 34

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

Order Instituting Rulemaking to Continue
Electric Integrated Resource Planning and
Related Procurement Processes.

Rulemaking 20-05-003
(Filed May 7, 2020)

**COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR
CORPORATION ON THE ADMINISTRATIVE LAW JUDGE’S SEPTEMBER 8, 2022
RULING SEEKING COMMENTS ON STAFF PAPER ON PROCUREMENT
PROGRAM AND POTENTIAL NEAR-TERM ACTIONS TO ENCOURAGE
ADDITIONAL PROCUREMENT**

I. Introduction

Pursuant to the September 8, 2022 *Administrative Law Judge’s Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement* (Ruling), and the October 7, 2022 *Administrative Law Judge’s Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process*, the California Independent System Operator Corporation (CAISO) submits comments on the *Reliable and Clean Power Procurement Program Staff Options Paper* (Staff Options Paper) provided in Attachment A of the Ruling. The CAISO appreciates the significant time and effort the California Public Utilities Commission’s (Commission) Energy Division staff devoted to develop options to improve the integrated resources planning (IRP) procurement framework. The CAISO also appreciates Commission and Energy Division staff efforts to work collaboratively with parties on these critical procurement issues.

II. Discussion

A programmatic approach to electricity procurement is of critical importance for the state’s reliability, and the CAISO appreciates the Staff Options Paper’s focus on addressing this issue expeditiously. The Staff Options Paper correctly emphasizes that one of the greatest challenges to the electricity sector today is insufficient procurement of incremental capacity in a timely and consistent manner to support reliability during the energy transition.¹ The CAISO has

¹ Staff Options Paper, pp. 5-6.

previously stressed the need for diligently and quickly positioning the state’s procurement programs to address new demand and the transition of resources occurring on the power system.² The CAISO remains committed to working with the Commission to evolve the IRP procurement framework, in coordination with the CAISO’s transmission planning processes, to meet the State’s reliability needs. Procurement must move beyond emergency-based “just in time” orders for new capacity to a program that establishes procurement requirements well ahead of the need, based on effective, coordinated, and proactive planning. Sufficient lead-time and forward planning is also critical for transmission expansion, which calls for procurement by load serving entities (LSEs) that is consistent with portfolios vetted through reliability modeling and the CAISO’s transmission planning process. Because reliability modeling considers the entire portfolio of resources and the interactive effects of the resources, retaining existing resources is another critical element the Commission should include in its programmatic approach.

To that end, the Commission should establish a procurement program that explicitly establishes the need and procurement requirements for new resources at least five years forward. This will ensure there is sufficient time to complete all of the necessary processes and provide some buffer time to allow for inevitable delays and unforeseen challenges, including the need for any backstop procurement. The default programmatic approach should be supplemented with resource-specific procurement to address the unique and complex challenges of large and/or long lead-time resources. The Commission should also expand the IRP procurement program scope to include, at a minimum, both existing and incremental resources across a rolling 10-year horizon.

The CAISO recommends the Commission consolidate several critical functions into the IRP proceeding. The IRP program is better suited than the resource adequacy proceeding to conduct the reliability modeling for both the IRP and resource adequacy proceedings. Consolidating the two will avoid duplicative work and misalignment across the two proceedings. Although the resource adequacy proceeding might still oversee some aspects of individual LSE contracting and compliance within the compliance year, the IRP proceeding should be the sole forum for considering Commission footprint-wide planning, procurement requirements, need allocation, compliance, and enforcement of system, flexible, and local capacity requirements

² See generally CAISO, Comments ALJ’s Proposed Decision, R.21-10-002, June 9, 2022; CAISO, Notice of Ex Parte Communication, R.21-10-002, June 9, 2022.

across a rolling 10-year horizon. This holistic approach will allow the IRP program to: (1) procure incremental (including large and/or long lead-time) resources well ahead of the need; (2) ensure existing resources are retained or replaced; (3) co-optimize transmission planning with procurement, including consideration of trade-offs between generation and transmission expansion, especially in local capacity areas; and (4) allow for better coordination with the transmission planning process to align resource procurement volumes and locations with transmission capability and initiate long lead-time transmission expansion. A well-functioning procurement program under the IRP proceeding should lead to predictable and consistent contracting, while minimizing backstop procurement. Until the IRP program can address the needs for both proceedings, the Commission should ensure there is coordination between the IRP program and the resource adequacy program. Regarding modeling, the IRP proceeding should use a single loss of load probability (LOLP) analysis updated annually. The CAISO also agrees with the Staff Options Paper that there should be an explicit feedback loop between current market conditions and forward procurement.³ The CAISO concurs that one way to manage this feedback loop is to require near-term forward showings with more granularity than those five years out. Additionally, the IRP procurement program should include backstop provisions to advance procurement, especially for large and/or long lead-time resources.

For straw options presented in the Staff Options Paper, the CAISO supports Option 2 (capacity contracting with effective load carrying capability (ELCC)), with the following modification: the Commission should adopt a two-step approach that considers the marginal ELCC contribution of new resources to provide feedback and transparency to contracting parties, while using the average ELCC value to assess compliance with the total portfolio needs. However, given the pros and cons of both approaches in the context of an IRP multi-year approach, the CAISO recommends the Commission provide additional opportunity to consider this option in this proceeding.

Finally, the CAISO recommends the Commission adopt an interim approach to manage the risk of program implementation delays. The CAISO recommends the resource-specific interim option, whereby LSEs must procure each resource type according to the amounts and timings in their plans. Further, the Commission should adopt this option as a formal part of the

³ Staff Options Paper, p. 11.

IRP procurement program, mandating that some significant percentage of forward contracting match the resource types detailed in individual IRP filings.

III. Responses to Questions for Parties from Section 1 of the Ruling.

In the subsections below, the CAISO provides responses to selected questions from the Ruling. The relevant questions are reproduced prior to each CAISO response.

Question 1(a): Do the stated objectives of the new procurement program in Attachment A appropriately capture the Commission’s direction given in D.22-02-004? If not, provide additions and/or alternatives.

As discussed below, Objectives 2, 5, 9, and 11 are incomplete and Objective 13 needs clarification.

Objective 2: Achieve economically efficient procurement.

The Commission should expand this objective to include generation procurement impacts on transmission infrastructure buildout. Under the current IRP construct, there is no locational requirement for LSEs to procure in those areas the CAISO’s transmission assessment has found to be most beneficial pursuant to the Commission’s transmitted optimized IRP portfolio. As written, the objective may mean that LSEs could seek to minimize generation procurement costs but inadvertently trigger additional transmission upgrades in less favorable areas. The Commission should modify the objective to read: “Achieve economically efficient procurement considering both generation and transmission costs.” This point is discussed in more detail in response to Question 14.

Objective 5: Complement the RA program, which is focused on the near-term and existing resources, to address the need for both retention of existing and new resources in the medium-to-long term.”

As discussed in more detail in response to Question 4, near-term procurement of existing and new resources should be consolidated into the IRP proceeding. The Commission should modify the objective to read: “Coordinate with the RA program until the IRP procurement program can address the need for both retention of existing resources and addition of new resources in the near-, medium-, and long-term.”

Objective 9: Ensure existing resources persist and new resources get built such that reliability can be predictably maintained.

This objective is incomplete because it does not contemplate the “potential for additional resource retirements”⁴ and how to replace them as discussed in Commission Decision (D.) 22-02-004. The Commission should modify Objective 9 to say: “Ensure existing resources persist and new resources get built such that reliability can be predictably maintained (including new resources to address retirements and load growth) or allow for corrective action such as ordering backstop capacity.” The Commission should ensure there is sufficient lead time to address this objective.

Objective 11: Co-optimize transmission planning with procurement.

The Commission should modify Objective 11 to consider locational needs as contemplated in D.22-02-004.⁵ In addition, the Commission should ensure procurement plans are reliable and actionable and minimize the need for CAISO backstop procurement. The Commission should modify Objective 11 to say: “Co-optimize transmission planning with procurement, including directing procurement to address locational needs on the grid and ensuring the procurement plans are reliable, actionable, and minimize the need for CAISO backstop.” *See also* response to Question 10.

Objective 13: Mitigate risks of market power.

The Staff Options Paper is unclear about what market power problem exists. The CAISO discusses this topic further in its response to Question 1(c).

Question 1(b): How should the program’s objectives be prioritized?

Given the recent reliability challenges noted in the Staff Options Paper and the increased demand on the horizon due to wide-spread electrification and clean energy policies, the program should prioritize Objectives 2 and 11 to ensure there is a strategic framework to address planning, procurement, enforcement, and compliance. These objectives also ensure cost-effective solutions while co-optimizing generation and transmission costs. This is also critical for

⁴ D.22-02-004, p. 68.

⁵ D.22-02-004, p. 68.

procuring new resources well ahead of the need, including generation that requires large and/or long lead-time transmission upgrades.

Question 1(c): Do you agree with how the four factors motivating the need for a procurement program (reliability, environment, financial risk, and market power) are described in the Appendix and Section 7 of Attachment A? If not, provide alternative viewpoints with supporting rationale.

The CAISO addresses the reliability and market power factors below.

Reliability: The CAISO agrees with the Staff Options Paper that to maintain reliability, procurement should explicitly consider the construction of “new power plants to enter the market... [and] ensure that new resources are built to replace retiring generation and meet load growth.”⁶ As the Staff Options Paper correctly points out, the type of resources that are procured directly impacts reliability. The Staff Options Paper notes, for example, that “procurement of a solar resource provides significant quantities of clean energy, but will provide decreasing reliability and risk hedging value as daylight hours become saturated over time with solar energy.”⁷

Consequently, the CAISO supports a resource-specific interim approach where LSEs must procure each resource type according to the amounts and timings in their plans. This is even more critical now that the Preferred System Plan, not the optimized Reference System Plan, is the default portfolio to inform planning and procurement. Otherwise, an attribute-based option would not provide the level of resource characteristic and locational detail necessary to conduct reliability assessments. For example, battery storage resources may have fewer siting barriers, but they may run into charging limitations on certain parts of the grid; whereas geothermal resources can only be sited in specific locations. Using a resource-specific approach also respects LSEs’ individual procurement preferences. The Commission should still be able to supplement the Preferred System Plan to address reliability and other policy concerns. Lastly, the resource-specific option could be durable beyond an interim period. *See* responses to Question 14 and Question 15.

Market power: As noted in response to Question 1(a), it is unclear from the Staff Options Paper what market power problem the Staff Options Paper seeks to address. The Staff Options

⁶ Staff Options Paper, Section 10: Appendix, p. 39.

⁷ Staff Options Paper, Section 10: Appendix, p. 40.

Paper offers examples of different types of market power, but it does not explain whether Energy Division staff or the Commission have found a market power problem to exist and, if so, what kind.⁸ The Staff Options Paper offers the standardized fixed-price forward energy contract (SFPFC) approach as one way to mitigate market power but cautions that to do so “would likely require assessing generator market power and finding that current incentives for LSEs to hedge, existing arrangements such as the Resource Adequacy Availability Incentive Mechanism, or other new physical capacity-based requirements, are insufficient to mitigate it.”⁹ First, the CAISO clarifies that the Resource Adequacy Availability Incentive Mechanism is not a market power mitigation tool in the CAISO markets. As designed, it is simply an incentive mechanism to encourage bidding during hours of system need. Second, the Staff Options Paper does not provide evidence that there is generator market power or that if it exists, LSE hedging or new physical capacity-based requirements are insufficient mitigations. The Staff Options Paper claims that in the energy market resources could “bid high prices during scarcity hours and extract high energy rents”¹⁰ as an example of market power. However, the Staff Options Paper fails to recognize the CAISO market’s local market power mitigation process, which automatically mitigates bids when local areas are deemed uncompetitive. At the system level, the CAISO’s Department of Market Monitoring (DMM) has assessed that the CAISO energy markets have been competitive at a system level since the early 2000s, due in part to long-term bilateral contracting and processes.¹¹ Therefore, to foster competitive energy markets, the Commission should ensure sufficient long-term contracting of physical resources. The Commission should also consider pairing such directives with contracts that provide for or are supplemented by energy hedging.

/

⁸ Staff Options Paper, Section 10: Appendix, p. 40 (stating, “When a market participant is able unilaterally to impact the market price of a product, by manipulating the level of supply and/or demand, that market participant has market power. There are various ways that market power may occur in a bilateral retail energy market like California’s. Generators may have market power over LSEs. Certain LSEs could, in theory, also have market power over other LSEs, absent sufficient regulation. There are various options to mitigate market power, depending on the type.”).

⁹ Staff Options Paper, p. 30.

¹⁰ Staff Options Paper, p. 29.

¹¹ DMM, 2021 Annual Report on Market Issues and Performance, July 27, 2022, p. 16.

Question 1(d): Do you agree that a new procurement program is needed? If not, explain why.

The CAISO strongly agrees that decision-by-decision procurement was necessary to address emergency capacity needs in an ad-hoc manner, but a durable, predictable programmatic approach is required for the future to ensure appropriate procurement signals to the market and ensure the objectives of the program can be met in an efficient and sustainable manner. This requires procurement well ahead of the need with buffer time to allow for inevitable delays and unforeseen challenges. A “just-in-time” approach based on the minimum needed procurement will not allow the system to move beyond the deficiency given the aggressive state goals and climate change impacts during the energy transition. Sufficient lead-time and forward planning is also critical for transmission expansion, which often involves long lead-time projects. As discussed in response to Question 1(e), specific exceptions may arise that would require resource-specific procurement, but the programmatic approach should be the default. The Commission should ensure consistent procurement well ahead of the need under a programmatic approach that includes consideration of existing, incremental, and replacement resources.

Question 1(e): Should the program be designed to drive resource attribute-focused procurement by all LSEs, or should it also be able to deliver some form of centralized, resource-specific procurement (e.g., large-scale and/or long lead-time resources)? Explain your reasoning.

The CAISO agrees with the Staff Options Paper that flexibility is needed to address exceptions to the programmatic approach and allow procurement of specific resources. These specific resources may be needed to supplement default LSE procurement for a variety of reasons, such as evolving procurement and policies, maintaining reliability, ensuring resource diversity, and centralized procurement of large-scale and long lead-time resources. As discussed in response to Questions 4 and 10 below, specific resources may also include: (1) retention of existing resources (*see* response to Question 4) and (2) directing incremental procurement in specific locations to address reliability (*see* response to Question 10).

/

Question 2: The “fundamental program elements” and “additional design features” introduced in Section 4 of Attachment A build on concepts detailed in the November 2020 Staff Proposal for a Procurement Framework in IRP. Comment on their general suitability for discussing potential procurement program designs.

The CAISO agrees with the four key elements identified in the Staff Options Paper: (1) need determination; (2) need allocation; (3) compliance; and (4) enforcement. The CAISO also agrees with and provides feedback below on each of the five additional design features.

Additional design feature 1: Defining procurement subcategories as part of need determination

The CAISO agrees with the characterization of this feature including important considerations such as the types of resources that need to be procured (*i.e.*, firm clean resources), minimum procurement levels, and specifications around new versus existing resources. This design feature should also explicitly consider locational needs on the grid and the impact of and preparation for resource retirements.

Additional design feature 2: Managing changes over time between the program’s need determination and the real-time energy market

The CAISO agrees that there should be an explicit feedback loop between energy markets and forward procurement. The Commission should broaden consideration to include both the day-ahead and real-time energy markets within and outside of the CAISO Balancing Authority Area footprint. The CAISO agrees that one way to manage this feedback loop is to require “near-term forward showings with more granularity than those 5 years out.”¹² The CAISO provides an example in response to Question 4: Compliance.

Additional design feature 3: Requiring that procurement is conducted via centralized auctions or standard offer processes

The CAISO agrees there may be instances where centralized procurement may be more effective than LSE-driven contracting. The Commission should clearly define the parameters under which centralized procurement is needed and how it will be conducted. The CAISO provides an example in response to Question 4: Compliance.

¹² Staff Options Paper, p. 11.

Additional design feature 4: Ensuring need allocation and compliance flexibility to address future load migration between LSEs or market exit

The CAISO agrees this is an important consideration, and it may be related to the need for central procurement.

Additional design feature 5: Risk mitigation strategies to account for inaccuracies or errors in need determination, allocation, compliance, and enforcement

The CAISO agrees that this additional design feature is necessary to address both errors and uncertainty. The Staff Options Paper provides as an example of an additional feature “requiring compliance showings far enough in advance to enable backstop procurement to occur.”¹³ Recent supply chain issues and a sudden surge in interconnection requests with short lead-times reflect the need for bolder risk mitigation strategies, one of which is establishing procurement requirements and ensuring procurement well ahead of the need.¹⁴

The Commission should adopt the four key elements and the five additional design features with the CAISO’s modifications for a procurement program within the IRP proceeding. The CAISO provides additional comments on the four key elements and additional design features in response to Question 4.

Question 4: Comment on each of the fundamental program elements and features described in Section 5 of Attachment A on Designing for Reliability. Is the range of options for each design element or feature appropriate? Explain your rationale.

The CAISO provides specific feedback below on the following three program elements: need determination; (2) compliance; and (3) enforcement.

Question 4(a): Need Determination

The Commission should include under need determination a more explicit and robust consideration of locational needs and resource characteristics as an aspect of reliability. As described in Question 12 below, the CAISO found in its annual transmission planning process that battery storage resources with specific characteristics could successfully address reliability needs in two specific locations on the grid.¹⁵ When the CAISO studies alternatives to

¹³ Staff Options Paper, p. 12.

¹⁴ CAISO, Reply Comments on Section 2 of ALJ’s Ruling Seeking Comments on Staff Paper, R.20-05-003, October 6, 2022, p. 4.

¹⁵ CAISO, 2020-2021 Transmission Plan, March 24, 2021, pp. 114 and 120.

transmission expansion, the analyses always include resources with specific characteristics (*i.e.*, duration of battery discharge and ability to recharge) at a specific location on the grid (*i.e.*, down to the busbar). In order to fully address the reliability need, the Commission had to authorize procurement that met the minimum resource characteristics studied by the CAISO *and* in the general location the CAISO studied. Locational specificity and resource characteristics are also critical in studying other reliability issues such as the proposed closure of the Aliso Canyon Gas Storage facility, thermal retirement scenarios, storage charging needs, transmission expansion in local capacity areas, and to address environmental justice concerns in local capacity areas. Beyond reliability, need determination based on locational needs and resource characteristics are also critical to resource diversification, interconnecting large scale or long-lead time resources that are geographically specific (*i.e.*, offshore wind, geothermal, out-of-state wind), incorporating firm clean energy, and addressing other policy needs.

The CAISO provides additional comments on specific sub-sections of the need determination element from the Staff Options Paper.

Section 5.1.1: *Technical Methods for Determining Reliability Need*

The Commission should adopt the following minimum requirements:

- IRP analysis is grounded in industry-standard LOLP analysis to determine the loss of load expectation metric of no more than 1 day in 10 years across all 8,760 hours of each year;
- Use industry standard models and tools;
- Ensure inputs such as demand forecast distributions and generator outage data are robust enough to support stochastic modeling;
- Ensure the modeling is conducted on the actual portfolios that will be procured rather than perfect capacity (or ensure procurement aligns with portfolios studied); and
- Analysis is conducted on an annual basis with true-ups to align assumptions with actual procurement and other changes.

As the Staff Options Paper correctly notes, LOLP modeling is superior because it “considers the performance of all existing and planned resources during all hours of all simulated

years. Thus, both energy and capacity dimensions of the reliability challenge are assessed.”¹⁶ The Staff Options Paper also notes that almost all of the independent system operators use some form of “regularly-updated probabilistic reliability analysis to set forward capacity procurement requirements, as do many vertically-integrated utilities in their integrated resource plans.”¹⁷ This approach is superior both to a simple deterministic model and the recently adopted monthly 24-hour slice approach in the resource adequacy proceeding. First, the current deterministic approach using a static planning reserve margin (PRM) in the resource adequacy proceeding was validated through a LOLP modeling exercise.¹⁸ However, the lack of consistent and timely updates means the resource adequacy program is relying on the reliability assessment of a portfolio from 2004.¹⁹ As the January 13, 2021 Final Root Cause Analysis describes in detail, planning standards have not kept up with the energy transition to cleaner, more variable and more energy-limited resources.²⁰ Therefore, a deterministic approach alone is insufficient and would not relieve the Commission from conducting the necessary LOLP reliability modeling needed to establish the PRM. Second, the recent proposal to transition to a monthly 24-hour slice approach in the resource adequacy proceeding is both inappropriate for adoption in the IRP proceeding and insufficient. In the resource adequacy proceeding, Energy Division staff is developing a LOLP analysis to ensure the portfolio is reliable, duplicating the same but more comprehensive effort in the IRP program. After the resource adequacy portfolio is assessed for reliability, the 24-hour slice approach will be a *compliance tool* that simplifies the outputs of the full LOLP modeling to assess individual LSE portfolios. Although the 24-hour slice approach seems like it provides more granularity, it in fact only assesses a single, peak load day in each month compared with a full year hourly (8,760 hours) LOLP stochastic assessment under various scenarios. Lastly, as the electricity system evolves with the integration of more use- and energy-limited resources, procurement must consider local area needs. Local capacity areas created by

¹⁶ Staff Options Paper, p. 13.

¹⁷ Staff Options Paper, p. 14.

¹⁸ D.04-01-050, Section IV.A.5: “Appropriate Reserve Levels and Phase-in Period,” R.01-10-024, January 22, 2004.

¹⁹ California Energy Commission, CPUC, and CAISO, *Final Root Cause Analysis*, p. 42, January 13, 2021. Available at: <https://www.aiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>.

²⁰ California Energy Commission, CPUC, and CAISO, *Final Root Cause Analysis*, Sections 4.2.1-2, pp. 40-45, January 13, 2021. Available at: <https://www.aiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>.

transmission constraints present unique challenges such as limiting the amount of storage that can be deployed due to charging constraints, more complex transmission buildouts and resource interconnection, and the need to retain generation in load pockets. The Commission should ensure IRP planning and procurement processes use and align with CAISO's local capacity technical methodologies and studies which are conducted on 1-, 5-, and 10-year bases. As discussed in response to Section 5.1.3 below, the IRP proceeding is better suited to conduct the reliability modeling for both the IRP and resource adequacy proceedings.

Section 5.1.2: Expression of Reliability Need

The Commission should maintain the current focus on effective capacity, rather than perfect capacity or energy needs. Evaluating the need on firm energy alone is insufficient and is a step backwards from where the analysis is today. Through the LOLP modeling, the IRP program already considers physical capacity *and* energy needs. Going forward, given the complexity and interactions between use- and energy-limited resources, the Commission will need to consider additional dimensions of physical capacity (such as location) and energy needs (such as charge and discharge capabilities).

Section 5.1.3: Scope of the Need Addressed by the Procurement Program

The CAISO supports the procurement of all resources (existing and new) under the IRP procurement program. The CAISO strongly agrees with the assessment by the Staff Options Proposal that by procuring all resources:

This approach would recognize that existing and new resources ultimately provide the same reliability attributes (e.g., an existing solar resource provides the same marginal reliability value as a new solar resource of the same size). A holistic program that includes both new and existing resources requires that all of the forward reliability requirement be procured to ensure that the total existing plus new contracted capacity will be sufficient to meet reliability goals. Such a program allows direct competition between existing and new resources to determine market entry and exit.²¹

To procure all resources effectively, the Commission should consolidate the planning and procurement activities of the resource adequacy program into the IRP proceeding. This approach would avoid duplication and misalignment and leverage the efficiencies that could be gained through a holistic process. IRP would include the current scope of the resource adequacy

²¹ Staff Options Paper, p. 15.

program for existing system, local, and flexible resources, including forward contracting from years one through three. The CAISO provides four examples of inefficiencies created by the parallel efforts and different scopes of the resource adequacy and IRP proceedings.

Example 1: This example highlights the benefits of IRP in identifying long-term capacity needs, and trade-offs between new and existing resources. The first procurement order in the IRP proceeding was the November 2019 decision to procure 3,300 MW of incremental capacity and seek extension of the once-through cooling (OTC) resource permits to address reliability shortfalls in 2021-2023.²² This procurement order fell to the IRP proceeding because the resource adequacy proceeding's purview is only one year forward (*i.e.*, 2020) and largely does not address incremental resource needs. However, it is notable that the IRP proceeding adopted a Preferred System Portfolio earlier in April 2019 that also did not identify near-term reliability needs.²³ Under this example, the IRP procurement program, coupled with improved reliability assessments, should be able to identify capacity needs across a 10-year horizon including the trade-offs between new resources and existing resources like the OTC units that were scheduled for retirement.

Example 2: This example recommends the IRP procurement program consider local capacity needs for better visibility and more efficient long-term decision making. D.22-02-004 ordered Pacific Gas and Electric Company (PG&E) to procure a battery storage resource in a local capacity area in its service territory to replace a transmission upgrade identified by the CAISO in its transmission planning process.²⁴ Although the procurement requirements and compliance came from the IRP proceeding, PG&E conducted the actual request for offers as the central procurement entity under the resource adequacy proceeding to meet the three-year forward multi-year local resource adequacy requirement even though the need for the resources is beyond the three year time horizon.²⁵ Under this example, the IRP procurement program, with improved locational granularity, should be able to establish procurement requirements in local capacity areas based on inputs from CAISO's transmission analyses. The IRP procurement

²² D.19-11-016.

²³ D.19-04-040, p. 108.

²⁴ D.22-02-004, pp. 157-161.

²⁵ See: https://www.pge.com/en_US/for-our-business-partners/central-procurement-entity/2022-cpe-kernlamont.page.

program would also have visibility beyond three years of need and optimize between new and existing resources, and even transmission upgrades that reduce the local capacity requirement.

Example 3: This example identifies the benefits of consolidating near-term and long-term planning in the IRP using a single LOLP analysis, updated annually. As the Staff Options Paper noted, many independent system operators and vertically-integrated utilities use LOLP modeling for capacity procurement, including near-term procurement. As noted above, the static PRM in the resource adequacy proceeding has not been updated based on reliability modeling since 2004 even though the IRP proceeding has been conducting LOLP analyses for several years. With the 24-hour slice approach, the resource adequacy proceeding will open a parallel LOLP modeling effort. Instead, near-term and long-term planning and procurement needs should be consolidated under the IRP proceeding using a single LOLP analysis updated annually in time for near-term contracting for existing and new resources.²⁶ A consolidated effort will avoid duplicative work across two proceedings, misalignment in inputs and assumptions due to timing or other drivers, and complex reconciliation efforts between two major proceedings. Although the resource adequacy proceeding might still administer and oversee some aspects of individual LSE contracting and compliance within the year of compliance, the planning, procurement requirements, need allocation, compliance, and enforcement should occupy the IRP proceeding alone. *See also* discussion below for Section 5.3.2. *Forward Compliance Requirement* - volume of need covered in each year). Consequently, the Commission should expand the IRP procurement program scope to include both existing and incremental resources across a rolling 10-year horizon, at minimum.

Example 4: The IRP procurement program should consider resource retirements and contracting. Currently the IRP proceeding focuses on new non-emitting generation, while the resource adequacy program is used to retain the gas-fired generation fleet and other existing resources and to procure imports. This bifurcation does not allow for a holistic view of the total portfolio's ability to maintain reliability, meet state policy goals such as greenhouse gas (GHG) reduction, or assess the risks and tradeoffs between resources or transmission. Beyond the 10-year horizon, as the existing resource fleet (and in particular the gas-fired resources in local

²⁶ Although new resource procurement is rare during the resource adequacy timeframe, it is possible under the new Central Procurement Entity framework for this to occur over the three-year-out time horizon.

capacity areas) near retirement age and new resources installed in the last few years come off of the initial contracts that underpinned their development, consolidation of the IRP and resource adequacy program would provide better clarity to manage the future transition.

Question 4(c): Compliance

The Appendix to the Staff Options Paper described an interim approach requiring LSEs to show specific resources according to their individual IRP plans.²⁷ The Commission should adopt this requirement as a formal part of the IRP procurement program and require some significant percentage of forward contracting to match the resource types detailed in individual IRP filings. As the electricity sector continues to transition to cleaner resources, LSEs are also increasingly dependent on use- and energy-limited resources with very different generation profiles and capabilities. These differences are even more pronounced in local capacity areas. Therefore, to ensure IRP modeling and CAISO transmission analyses are relevant and timely, the Commission should require LSEs to procure to the plans provided without large deviations. *See also* response to Question 14 and Question 15.

The CAISO provides additional comments below on specific sub-sections of the compliance element from the Staff Options Paper.

Section 5.3.1. Resource Counting Towards Compliance

As noted above, the Commission should expand the IRP procurement scope to include procurement of both existing and incremental resources. The Commission should set explicit procurement requirements for incremental, new resources to ensure that resources necessary to meet the total reliability need across the procurement horizon will have sufficient time to come online. This is critical to ensure that resources needed beyond the existing fleet are contracted with sufficient lead time to go through interconnection processes, ensure necessary transmission upgrades will be in place, and to account for other contingencies that suppliers may face to get projects online such as supply chain disruptions. The California Energy Commission (CEC) is also modeling increasing amounts of electrification in its demand forecasts used in Commission and CAISO planning processes.²⁸ In recent CEC demand forecasts, transportation electrification

²⁷ Staff Options Paper, Appendix Section 10.3.1., p. 42.

²⁸ CEC Development of Higher Electrification Grid Planning Scenarios, California Energy Commission, July 6, 2022: <http://www.aiso.com/InitiativeDocuments/CECPresentation-2022-2023TransmissionPlanningProcess-Jul62022.pdf>.
Transmittal Letter to CAISO for 2022-23 TPP High Electrification Portfolio, July 1, 2022: <http://www.aiso.com/InitiativeDocuments/2022-2023TransmissionPlanningProcess-PortfolioTransmittalLetter.pdf>.

is driving the majority of the demand increase in future years. The latest California Air Resource Board (CARB) State Implementation Plan (SIP) will also result in significant load growth due to electrification in other non-transportation sectors.²⁹ Based on demand forecast and policy trends, it is clear that new resources will be necessary to meet increased electric demand in forward years due to accelerated electrification across multiple industries.

The Commission should continue to use a marginal effective load carrying capability (ELCC) assessment to inform procurement for incremental resources. A marginal ELCC approach will provide insights into whether procurement of particular use- or energy-limited resources provides increasing or decreasing marginal value to the portfolio. However, there are advantages to using average ELCC to assess compliance for the totality of the portfolio (existing and new resources together) because “average ELCC values capture the total reliability contribution of each resource type, [and] their sum would equal the total reliability need of the system.”³⁰ For example, if System A has 20,000 MW of installed solar capacity, the contribution of an additional 1,000 MW installed solar capacity to maintain system reliability is the marginal ELCC of the 1,000 MW of new solar. If System B has no solar but 21,000 MW of solar is added, the marginal ELCC of this addition is actually the average ELCC of solar for this portfolio. Even though the two portfolios end up with exactly the same installed capacities, the marginal ELCCs between Systems A and B are materially different. The former is noticeably lower than the latter mostly due to the diminishing effectiveness of the solar resource with its increasing penetration (saturation). This result has been validated by studies and simulations conducted by various parties, including the Commission. This illustrative example shows that using the marginal ELCC to assess the portfolio will potentially under-value existing resources. The CAISO agrees with the Staff Options Paper that a marginal ELCC approach would assign less credit for past procurement that contributed to lowering and shifting the net peak.³¹ An average ELCC approach can better represent the contribution of all solar and wind resources in the portfolio to maintain system reliability than a marginal ELCC approach. Additionally, a marginal ELCC approach that assigns lower value to wind and solar resources will likely

²⁹ 2022 State Strategy for the State Implementation Plan, California Air Resources Board, September 22, 2022: https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf.

³⁰ Staff Options Paper, p. 17.

³¹ Staff Options Paper, p. 19.

translate to a lower PRM. This outcome presents challenges if the portfolio does not materialize as planned, leaving the system with less margin to address potential shortfalls.

The CAISO, however, also agrees with the Staff Options Paper that marginal ELCC values can provide more efficient investment signals for procurement and resource retirement than average ELCC values.³² Therefore, the CAISO supports Option 2 (capacity contracting with average ELCCs), with the following modification: the Commission should consider a two-step approach that considers the marginal ELCC contribution of new resources to provide feedback and transparency to contracting parties while using average ELCC value to assess compliance with the total portfolio. However, given the pros and cons of both approaches in the context of an IRP multi-year approach, the CAISO recommends the Commission provide additional opportunity to consider this option in this proceeding.

Section 5.3.2. *Forward Compliance Requirement.*

- 1. Years covered** – As explained in comments on Section 5.1.3: *Scope of the Need Addressed by the Procurement Program*, the IRP procurement program should cover at least a rolling 10-year window for existing and new resources. It is critical the IRP procurement program have responsibility across all years within the time horizon to avoid gaps and be able to address sudden changes. For incremental resources in particular, the Commission should establish procurement requirements starting at least five years ahead of the need at the program start to ensure there is clear procurement direction. As the CAISO noted in prior comments, insufficient time for procurement can cause downstream problems such as a sudden surge in the interconnection process.³³ Establishing procurement requirements for new resources in time horizons less than five years should (hopefully) reduce over time and would be used on an ad hoc basis to address sudden changes.
- 2. Volume of need covered in each year**
 - **Total reliability need** – The CAISO supports a significant amount of forward contracting to meet the total reliability need (new and existing resources) for years T+1 through T+3. For example, local capacity needs should be procured at 100%

³² Staff Options Paper, p. 19.

³³ CAISO, Reply Comments on Section 2 of ALJ's Ruling Seeking Comments on Staff Paper, R.20-05-003, October 6, 2022, p. 4.

of the need, while system and flexible capacity needs should meet a minimum of 90% of the total need. The CAISO recognizes that some headroom under the system and flexible capacity reliability need for years T+1 to T+3 can be left open for intra-year contracting, for example, with imports. This responsibility may remain with the existing resource adequacy program and dovetails well with the 24-hour slice LSE-by-LSE compliance mechanism under discussion.

- **Incremental resources** – As discussed above, the Commission should set explicit requirements for incremental resource procurement to ensure sufficient lead time for resources to come online. First, the Commission should establish procurement requirements in each IRP cycle for incremental resources identified in the 10-year horizon for large and/or long lead-time resources that would otherwise be at risk of not coming online in time to meet future reliability needs. This likely requires a resource-specific approach due to the complexities and challenges around such resources. Second, for incremental resources that require less lead time, the CAISO supports 100% forward contracting for these new resources for years T+1 through T+5.³⁴ Although this subset of new resources may not require as much lead time to come online as large and/or long lead-time resources, they will still need time to get through interconnection processes and ensure necessary transmission upgrades are in place. Also, additional lead time may be needed to account for contingencies such as supply chain issues. In case of non-compliance, the Commission will also need some time to authorize backstop procurement. Therefore, the CAISO supports contracting for a significant amount of the new resource need identified between years T+1 through T+5. Starting from year 6, the Commission may wish to adopt a declining volume of new procurement.
- **Local capacity:** Local capacity areas present unique challenges with regard to contracting with existing resources, procuring new resources, weighing tradeoffs between generation and transmission, and building new infrastructure. For example, about 70% of the current thermal fleet is located in local capacity areas.

³⁴ Over time, the CAISO expects there will be very little new resource contracting in the T+1 through T+3 horizon except for ad hoc procurement for unforeseen changes or opportunities. Ideally, the forward contracting requirements for system, local, and flexible capacity in T+1 through T+3 for existing resources will ensure sufficient capacity procured to meet reliability and policy goals.

In weighing the decision to retain or retire such resources, especially those in disadvantaged communities, the Commission must ensure reliability is maintained, but alternatives may be limited. Over the last several years, the CAISO has produced local capacity technical studies indicating where battery storage resources (including 1-for-1 replacement with four-hour duration battery storage) could address reliability needs and where such resources are limited.³⁵ Battery storage resources alone cannot address all of the unique needs in local capacity areas. Furthermore, the Commission needs longer timelines to weigh the benefits of generation procurement against feasible transmission alternatives the CAISO identifies to reduce local capacity areas requirements, which in turn may be long lead-time projects. Ensuring there is a local component in IRP also provides a benefit by creating a direct avenue to the CAISO's transmission planning process via portfolios transmitted to the CAISO.³⁶ With these points in mind, the CAISO supports a 100% local requirement for years T+1 to T+3 and a declining but still significant local requirement after year T+3 given the difficulty in building incremental generation and transmission in local areas. The Commission may also wish to consider some form of centralized procurement if that would more effectively or efficiently address local needs. Setting local requirements after year T+3 would also encourage resource procurement identified to meet local needs beyond the current three year resource adequacy local compliance horizon, and it would allow for tradeoffs between resource procurement (including retention of existing resources versus new resources) and transmission alternatives. As discussed above, the IRP procurement program is already set up to have visibility beyond three years of need and to optimize between new and existing resources, and should be expanded to consider transmission upgrades that reduce the local capacity requirement. The

³⁵ For example: CAISO 2023 Local Capacity Technical Study, April 28, 2022. Available at: <http://www.caiso.com/InitiativeDocuments/Final2023LocalCapacityTechnicalReport.pdf>.

³⁶ This relationship does not exist in the same way in the resource adequacy proceeding. There, the CAISO files its local capacity technical study for local requirements with the Commission. The Commission can adopt these requirements as the basis of local capacity compliance. The resource adequacy program does not consider portfolio or transmission alternatives in its local capacity assessment.

Commission should adopt a 100% procurement requirement for the local capacity areas three years forward and commit to work with stakeholders to establish a significant local requirement in years T+4 through T+10. *See also* discussion in response to Question 13.

- 3. Proof of contracting** – The Commission should require actual executed contracts. This will also help downstream efforts to bring these resources online or understand where existing resources will be retained or may retire.
- 4. Persistence of attributes** – The CAISO supports procuring all resources (existing plus new). The CAISO agrees with the Staff Options Paper that this approach “could inherently incentivize LSEs to retain the optimal new and existing resources over time, to meet their rolling requirements.”³⁷
- 5. Frequency of compliance filings** – The Commission should require at a minimum annual compliance filings once the program reaches steady state. Currently, the overall economy is still struggling with supply chain impacts and other delays that may require more frequent reporting such as the bi-annual requirement from D.19-11-016. To align with LOLP modeling, which is conducted on an annual 8,760-hour basis, the Commission should also consider a single annual showing of forward contracting that covers a minimum of 90% of the procurement for the entire year rather than the 12-monthly showing used in the resource adequacy program. As noted in response to Question 2, annual forward showings are needed to manage the risks between incremental procurement five years out and what the CAISO market may experience.³⁸

Section 5.3.3. Streamlining Filings

The CAISO supports streamlining the compliance filings and consolidation where possible.

/

³⁷ Staff Options Paper, p. 21.

³⁸ Staff Options Paper, p. 11.

Question 4(d): Enforcement

Section 5.4.1. Triggers: *When Enforcement Becomes Necessary*

The CAISO largely agrees with the triggers detailed in the Staff Options Paper. As explained below, the CAISO supports backstop procurement when LSEs fail to contract for some portion of the required compliance showing after a defined grace period. For example, for procurement of incremental resources required five years ahead of the need, the Commission could consider a one-year grace period before activating backstop procurement (and subsequent cost allocation). For example if LSE A failed to provide power purchase agreements in year T+0 for its T+5 new resource procurement, it would have until T+1 to cure this deficiency before backstop procurement is authorized, still targeting a T+5 online date. This would allow the backstop entity sufficient time to contract for new capacity and complete all of the downstream processes needed to bring the resource online. The procurement requirement timeline and trigger may be different for large and long lead-time resources due to the additional complexities of those projects. Lastly, the CAISO notes that enforcement for a “[f]ailure of LSE-contracted resources to perform when called upon in the CAISO real-time market” may be more appropriately addressed through contractual terms.³⁹ For example, the CAISO understands that tolling agreements would ensure energy and capacity availability and allow for more control over economic bidding.⁴⁰

Section 5.4.2. *Financial Penalties*

The CAISO supports financial penalties such that LSEs are not indifferent to paying the penalty versus paying for a new resource. Financial penalties should seek to minimize Commission-ordered and CAISO backstop procurement.

Section 5.4.4. *Backstop Procurement*

As noted in prior comments, the CAISO does not believe a penalty structure alone is sufficient to ensure reliability.⁴¹ The IRP procurement program should include backstop

³⁹ Staff Options Paper, p. 22.

⁴⁰ CAISO, Comments on ALJ’s Ruling Seeking Feedback on Mid-Term Reliability Analysis and Proposed Procurement Requirements, R.20-05-003, March 26, 2021, p. 12.

⁴¹ CAISO, Comments on ALJ’s Ruling Seeking Feedback on Mid-Term Reliability Analysis and Proposed Procurement Requirements, R.20-05-003, March 26, 2021, p. 13.

provisions to advance procurement, especially for large and/or long lead-time resources. As noted above, the Commission could establish a defined grace period before backstop actions are initiated, but the grace period should not be so long that it undermines the backstop entity.

Question 5: Comment on each of the fundamental program elements and features described in Section 6 of Attachment A on Designing for GHG-Reduction. Is the range of options for each design element appropriate? Explain your rationale.

- (a): Need Determination;**
- (b): Need Allocation;**
- (c): Compliance; and**
- (d): Enforcement.**

The CAISO has detailed its support for a mass-based approach in prior comments.⁴²

Question 6: Comment on the other program design considerations raised in Section 7 of Attachment A. Should they affect the design of the program and, if so, how?

- (a): Financial risk and risk of LSE market exit;**
- (b): Risk of market power; and**
- (c): Past and centralized procurement.**

For risk of market power, *see* response to Question 1(c).

Questions 7: Assess the straw options in Section 8 of Attachment A. Include in your comments an assessment of the options against the program's objectives listed in Section 3 of Attachment A.

Option 2 (capacity contracting with average ELCCs), including the CAISO's proposed modifications in response to Question 1(a) and support for all resource (existing plus new) procurement explained in response to Question 4, is a viable approach to meet the program's objectives. Option 1 (capacity contracting with marginal ELCCs) may only work well when procurement is limited to new resources. However as noted in Question 4, the CAISO remains open to further discussion on this issue.

As also explained in response to Question 4 with regard to need determination, Option 3 (24-hour slice approach) is a compliance mechanism, not a reliability tool, and therefore is not relevant. Option 4 (the SFPFC approach) was proposed to supposedly address market power that

⁴² CAISO, Opening Comments on Proposed Decision Setting Requirements for Load Serving Entities Filing IRPs, R.16-02-007, p. 7; CAISO, Comments on Administrative Law Judge's Ruling Seeking Comment on the Proposed System Reference Plan and Related Commission Policy, October 26, 2017, pp. 11-13.

is not determined to exist. More importantly, the SFPFC approach does not consider physical capacity and locational needs in a robust manner to be able to maintain reliability.

Question 8: Do you recommend adopting any of the options as presented in Attachment A? Explain your reasoning and justify your recommendation, by including assessment of your preferred approach against the program’s objectives listed in Section 3 of Attachment A. If you do not recommend any of the option in Attachment A, indicate whether you recommend:

- (a): A hybrid of elements described;**
- (b): A hybrid of some elements described and some not described; or**
- (c): An entirely different approach than the options described.**

As explained in response to Question 4, the CAISO supports Option 2 with a modification to adopt a two-step approach that considers the marginal ELCC contribution of new resources to provide feedback and transparency to contracting parties while using average ELCC values to assess compliance with the total portfolio. However as noted in Question 4, the CAISO remains open to further discussion on use of average and marginal ELCCs. Below, the CAISO compares the merits of Option 2 to each program objective, modified with CAISO’s suggested edits.

Objective 1: Support realization of the goals of Senate Bill (SB) 350 and SB 100, in particular regarding reliability and GHG-reduction, safely and equitably, and in light of the current market structure, historical procurement and procurement in progress, and the need to ensure a predictable and stable long-term transition of the electric fleet.

As noted in response to Question 7, Option 2 can meet this objective.

Objective 2: Achieve economically efficient procurement considering both generation and transmission costs. (Objective modified by the CAISO.)

As discussed more fully in response to Question 4, the IRP proceeding already has a strong connection to the CAISO’s transmission planning process, but adding a local capacity component will strengthen the Commission’s ability to take a holistic, long-term approach to addressing the challenging needs in local capacity areas.

/

Objective 3: Incentivize compliance through a predictable and orderly program design that enables LSEs to anticipate, understand, and comply with their obligations while also making it difficult and burdensome to avoid compliance.

As explained in response to Question 4, Option 2, with the CAISO's proposed enhancements, can provide long-term stability for incremental and existing resource procurement.

Objective 4: Complement the IRP planning track, while transitioning away from the current order-by order procurement paradigm for new resources.

As explained in response to Question 4 and Question 14, Option 2 can support a new procurement program that aligns with the planning track.

Objective 5: Coordinate with the RA program until the IRP procurement program can address the need for both retention of existing and addition of new resources in near-, medium-, and long-term. (Objective modified by the CAISO.)

As explained in response to Question 4, the IRP procurement program should be the sole forum for considering Commission footprint-wide planning, procurement requirements, need allocation, compliance, and enforcement of system, flexible, and local capacity requirements across a rolling 10-year horizon. Option 2, with the CAISO's proposed enhancements, can provide a pathway for accomplishing this objective.

Objective 6: Complement the RPS program to meet GHG goals through 2030 and beyond.

Option 2 can support meeting state policy goals by considering the entire portfolio and identifying additional resources as needed. Expanding the procurement horizon and advancing procurement well ahead of the need will allow the Commission and LSEs to ensure Renewables Portfolio Standard (RPS) and GHG goals can be met in the manner and timeframe of the requirements.

Objective 7: Ensure LSE procurement responds to evolving demand forecasts (reflecting high electrification, extreme climate impacts, and load migration among LSEs).

The annual updates from LSEs described in Option 2 coupled with close alignment with the IRP planning track will meet this objective. Additionally, expanding IRP procurement across a rolling 10-year horizon, at minimum, and establishing procurement requirements well ahead of

the need will ensure LSEs can plan procurement to meet increasing demand forecasts in future years.

Objective 8: Ensure reasonable competition for both supply- and demand-side procurement solutions to fill long-term needs.

By expanding the IRP procurement program scope to include both existing and incremental resources across a minimum rolling 10-year horizon, Option 2 allows the Commission and LSEs to make trade-offs among a broader set of procurement solutions, both new and existing.

Objective 9: Ensure existing resources persist and new resources get built such that reliability can be predictably maintained (including new resources to address retirements and load growth) or allow for corrective action such as ordering backstop capacity. (Objective modified by the CAISO.)

As described in response to Question 4, Option 2, with the CAISO's proposed enhancements, provides stability, predictability, and a holistic view of system needs which can be planned for well ahead of time.

Objective 10: Allow for some resource-specific procurement action to occur in parallel with the program (e.g., central procurement of large and/or long lead-time resources).

As described in response to Question 4, Option 2 allows for resource-specific procurement while promoting a programmatic approach.

Objective 11: Co-optimize transmission planning with procurement, including directing procurement to address locational needs on the grid and ensuring the procurement plans are reliable, actionable, and minimize the need for CAISO backstop. (Objective modified by the CAISO.)

As described in response to Question 4, Option 2 can meet this objective because it provides a holistic view of system needs which can be planned for well ahead of time. Option 2 with enhancements to consider local needs will allow the IRP program to co-optimize transmission planning with procurement, including consideration of trade-offs between generation and transmission expansion, especially in local capacity areas.

/

Objective 12: Recognize retail choice and allocate requirements and costs fairly.

As described in response to Question 14, Option 2 should start with LSE IRP filings, which reflects the individual LSE procurement preferences balanced with meeting state goals and reliability.

Objective 13: Mitigate risks of market power.

As noted in response to Question 1(a), this objective is unclear.

Objective 14: Fulfill the relevant objectives of the Environmental and Social Justice Action Plan.

As described in response to Question 4, Option 2, with the CAISO's proposed enhancements, provides stability, predictability, and a holistic view of system needs which can consider environmental and social justice goals.

Question 9: Should the new program's compliance showings should be combined with the current annual compliance reports required by the renewables portfolio standard program, filing of LSEs' individual IRPs, and/or other existing regular planning and procurement filings? Do you have any other suggestions to minimize the time and effort required of LSEs and staff?

The CAISO supports streamlining the compliance filings and consolidating critical functions where possible. As the CAISO suggested in response to Question 4, resource adequacy program requirements could be combined with IRP compliance showings. Over time the Commission should expand this to include other procurement activities such as compliance with the RPS program. This would provide a comprehensive assessment of procurement activities to ensure reliability and meet policy goals.

Question 10: Local reliability is raised briefly in Section 5.1.1 of Attachment A. Requirements are currently set for the near-term as part of the resource adequacy program. Are these sufficient, or should there be medium-to-long-term procurement requirements as well? If so, should they be part of the new program or should they be addressed on an order-by-order basis in parallel with the program? Explain your reasoning.

As noted in response to Question 4, the division of responsibilities between the resource adequacy program and IRP causes duplication, misalignment, and inefficiencies. In the example provided above about PG&E's battery storage procurement in the Kern-Lamont area, the back-and-forth between the IRP and resource adequacy proceeding highlights the need for a holistic

approach that would meet reliability needs in local capacity areas with sufficient lead-time for procurement. Local capacity areas in particular are complex because generator resource requirements must be carefully studied (*e.g.*, whether there is sufficient ability to charge new resources) and transmission expansion has traditionally been costly and challenging to execute. Although the CAISO produces local capacity technical studies in the 5- and 10-year forward timeframes, these are not used in the resource adequacy proceeding because these timeframes are beyond the program's scope. However, the best mitigation measure against challenges in local capacity areas is undertaking sufficiently forward analyses, planning, and procurement. Therefore, it is critical for the IRP proceeding with its longer-term planning and procurement horizon to consider near- through long-term needs (*e.g.*, on a 10-year rolling basis) to better assess options and tradeoffs between generation and transmission. Also critical to this discussion is a retention and retirement analysis of the thermal fleet, its impacts on disadvantaged communities, and achieving state policy goals like GHG reduction. The Commission should ensure local reliability is part of the procurement program and reduce reliance on piecemeal, order-by-order procurements that inefficiently transfer responsibility between the IRP and resource adequacy proceedings. *See also* response to Question 12. The CAISO recognizes specific procurement may still be needed to address the unique circumstances of large and/or long lead-time resources, including long lead-time transmission.

Question 11: How would the approaches described in Section 5.1.1 of Attachment A need to be amended or expanded in order to minimize local air pollutants and other GHG emissions in disadvantaged communities associated with location-specific procurement?

See response to Question 10.

Questions 12: D.22-02-004 ordered two storage projects be procured to mitigate the need for transmission upgrades and noted that the new procurement program may be able to address opportunities of this nature. Do you think that is appropriate? If so, explain why, and how the program design should consider this.

The CAISO agrees this first step was necessary because of the disconnect between the resource adequacy program and the IRP proceeding. As noted in prior comments, the CAISO believes the two storage projects offer a reliable alternative to transmission upgrades.⁴³ However, as explained in response to Question 10, the IRP procurement program should

⁴³ CAISO, Reply Comments on Proposed Decision Adopting 2021 Preferred System Plan, R.20-05-003, January 19, 2022, p. 1.

incorporate local capacity needs across a rolling 10-year horizon, leveraging the local capacity technical studies the CAISO produces. Doing so will reduce the need for piecemeal, order-by-order procurements and allow the Commission to consider more comprehensive solutions that may address multiple concerns. The CAISO recognizes that specific procurement may still be needed to address the unique circumstances of large and/or long lead-time resources, including long lead-time transmission.

Questions 13: Comment on the need to develop interim approaches to manage the risk of the preferred program design taking longer to implement.

The Commission should adopt an interim approach to provide affirmative guidance and manage the risk of implementation delays with the preferred program design. Based on the CAISO’s proposal, the IRP program would take on significant additional responsibilities including establishing procurement requirements for existing resources and resources in local capacity areas. To ensure “the Reliable and Clean Power Procurement Program [is] feasible to adopt and implement in 2023, and maintain thereafter, from a staff workload and stakeholder perspective,” the Commission should adopt the following prioritization.⁴⁴ First the Commission should establish procurement requirements for resource needs between T+1 through T+5 starting in 2023 based on LSEs’ 2022 IRP filings. The CAISO expects near-term needs largely will be satisfied by recent actions like the Mid-Term Reliability decision (D.) 21-06-035, but to the extent there are gaps, the Commission should use the resource-specific approach as discussed below to establish procurement requirements to ensure incremental resources have sufficient time to progress through down-stream processes in a timely manner. Second, the Commission should focus on large and/or long-lead time resources to ensure procurement requirements are established well ahead of the need. Third, the Commission should consolidate the footprint-wide planning, procurement requirements, need allocation, compliance, and enforcement for system, flexible, and local capacity requirements across a rolling 10-year horizon into IRP and away from the resource adequacy proceeding. The resource adequacy program can still oversee some aspects of individual LSE contracting and compliance within the year of compliance. Lastly, the Commission should integrate longer-term local capacity needs into the IRP where generation and transmission trade-offs can be considered. This will require additional modeling capability in the

⁴⁴ Staff Options Paper, p. 9.

IRP program to provide local capacity area-specific portfolios. The Commission may wish to “pilot” this approach in a few local capacity areas to define the process with stakeholders and validate the technical requirements. The CAISO notes that local capacity needs may overlap with consideration of large and/or long-lead time resources in which case local capacity needs may be considered sooner in the priority list.

Questions 14: Assess the interim options discussion in Appendix 10.3 of Attachment A. Include in your comments an assessment of the options against the program’s objectives listed in Section 3 of Attachment A.

As noted in response to Question 4, the CAISO supports the resource-specific option because it meets the program’s objectives listed in Section 3 of Attachment A as modified by the CAISO in response to Question 1(a). The resource-specific option also aligns with defining procurement subcategories as part of the need determination under the Staff Options Paper’s four key elements, *See* response to Question 2. The Commission should adopt this option as both the interim approach and as a formal part of the IRP procurement program, mandating that some significant percentage of forward contracting match the resource types detailed in individual IRP filings. The merits of the resource-specific option are compared to each program objective reproduced below and modified with CAISO’s suggested edits.

Objective 1: Support realization of the goals of Senate Bill (SB) 350 and SB 100, in particular regarding reliability and GHG-reduction, safely and equitably, and in light of the current market structure, historical procurement and procurement in progress, and the need to ensure a predictable and stable long-term transition of the electric fleet.

The resource-specific option, which is based on each LSE’s individual IRP filing should already meet state goals. The Commission should mandate some significant percentage of forward contracting match the resource types detailed in individual IRP filings to ensure that state goals can be met in the manner and compliance timeframe of the requirements.

Objective 2: Achieve economically efficient procurement considering both generation and transmission costs. (Objective modified by the CAISO.)

The resource-specific option can address the efficient procurement of generation and transmission because IRP needs are met through the articulation of actual resources with resource characteristics, including GHG attributes and locations on the grid that correspond with the IRP planning process. As explained in response to Question 1(a), the Commission should

ensure procurement takes place in geographical locations consistent with resource planning conducted by the LSE and approved by the Commission and the CAISO's transmission planning. Requiring LSEs to procure consistent with planning ensures the resource characteristics studied in reliability analyses are supported by actual capacity that is located in areas where transmission is readily available, limited transmission expansion is required, or where there will be necessary transmission expansion consistent with the CAISO's transmission planning. This approach is superior to the attribute-based approach, which is largely focused on GHG benchmarks.

Objective 3: Incentivize compliance through a predictable and orderly program design that enables LSEs to anticipate, understand, and comply with their obligations while also making it difficult and burdensome to avoid compliance.

The resource-specific option is already based on individual IRPs filed with the Commission and likely used in developing the Preferred System Plan. The resource-specific approach has the benefit of utilizing existing compliance filings without the need to modify current templates as envisioned under the attribute-based approach.

Objective 4: Complement the IRP planning track, while transitioning away from the current order-by order procurement paradigm for new resources.

As noted above, the resource-specific option is already based on individual IRPs filed with the Commission, which are used in developing the Preferred System Plan. Procurement requirement should be based on the Preferred System Plan and subsequent procurement should align with the individual IRPs. Wide variations between the IRP filings and actual procurement undermine the effectiveness of the IRP planning track and subsequent reliability modeling.

Objective 5: Coordinate with the RA program until the IRP procurement program can address the need for both retention of existing and addition of new resources in near-, medium-, and long-term. (Objective modified by the CAISO.)

The resource-specific option is sufficient to meet the needs of near-term procurement to address system, local, and flexible capacity needs and to retain existing resources because it requires compliance based on physical resources. As noted above, requiring LSEs to procure based on the specific resource types listed in their individual IRP filings will also allow the Commission to assess meeting GHG and other state goals, making the attribute-based option redundant.

Objective 6: Complement the RPS program to meet GHG goals through 2030 and beyond.

As noted above, the resource-specific option, which is based on each LSE's individual IRP filing should already meet state goals. The Commission should mandate some significant percentage of forward contracting match the resource types detailed in individual IRP filings to ensure RPS and GHG goals can be met in the manner and timeframe of the requirements.

Objective 7: Ensure LSE procurement responds to evolving demand forecasts (reflecting high electrification, extreme climate impacts, and load migration among LSEs).

The resource-specific option produces a portfolio that can be evaluated in reliability modeling against evolving demand forecasts. The attribute-based option largely focuses on meeting GHG goals and does not explicitly consider evolving demand needs across all 8,670 hours.

Objective 8: Ensure reasonable competition for both supply- and demand-side procurement solutions to fill long-term needs.

As noted above, the resource-specific option accounts for physical resources based on individual IRP filings, which can be used to evaluate both supply- and demand-side procurement options. Moreover, the physical portfolio with resource characteristics and physical locations can be evaluated in transmission planning. This would not be possible with the attribute-based option.

Objective 9: Ensure existing resources persist and new resources get built such that reliability can be predictably maintained (including new resources to address retirements and load growth) or allow for corrective action such as ordering backstop capacity. (Objective modified by the CAISO.)

The resource-specific option meets this objective because it accounts for physical resources based on individual IRP filings that include existing and new resources and collectively should meet reliability and state goals, including GHG mandates. The Commission should mandate some significant percentage of forward contracting match the resource types detailed in individual IRP filings for new resources. If there are delays in new resource development, the Commission will have sufficient notice and lead time to address them or take corrective action such as ordering investor-owned utility backstop. Under the attribute-based option, one GHG-free resource could be replaced with another on paper but present unique

resource characteristics that may require additional capacity procurement to maintain reliability or operate effectively within a specific portfolio. Similarly for retirements (planned or unplanned), LSEs can be assured that replacing the resource with another unit of the same resource type and characteristics could in most cases meet reliability standards. Therefore, the resource-specific option will provide actionable feedback under changing conditions.

Objective 10: Allow for some resource-specific procurement action to occur in parallel with the program (e.g., central procurement of large and/or long lead-time resources).

The resource-specific option would complement this objective. Both the resource-specific option and resource-specific procurement action for large and/or long lead-time resources could be appropriately evaluated in reliability and transmission modeling.

Objective 11: Co-optimize transmission planning with procurement, including directing procurement to address locational needs on the grid and ensuring the procurement plans are reliable, actionable, and minimize the need for CAISO backstop. (Objective modified by the CAISO.)

As noted above, the resource-specific option accounts for physical resources based on individual IRP filings, which can be used to evaluate resource characteristics and physical locations in transmission planning. This would not be possible with the attribute-based option.

Objective 12: Recognize retail choice and allocate requirements and costs fairly.

The resource-specific option is derivative of individual LSE IRP plans. In this way, each LSE is allowed to present its own procurement preference while meeting reliability and state goals. If the Commission mandates some significant percentage of forward contracting match the resource types detailed in individual IRP filings, that would still leave some flexibility for LSEs to find superior or more economic options while balancing portfolio certainty and stability.

Objective 13: Mitigate risks of market power.

As noted in response to Question 1(a), this objective is unclear.

Objective 14: Fulfill the relevant objectives of the Environmental and Social Justice Action Plan.

As noted above, the resource-specific option can address state goals, and it provides more benefits and optionality than the attribute-based option.

Questions 15: Do you recommend adopting either of the interim options in Appendix 10.3 of Attachment A? If not, what do you recommend? Explain your rationale.

As noted in response to Question 2, Question 4, and Question 14, the CAISO supports the resource-specific interim option because it meets the IRP procurement objectives including modifications from the CAISO. The Commission should adopt the approach in the interim and then retain it for the ultimately adopted IRP procurement program. The Commission should mandate that some significant percentage of forward contracting match the resource types detailed in individual IRP filings. This allows for some flexibility balanced with the assurance that modeled portfolios in the Preferred System Plan do not deviate greatly from procurement. As discussed in response to Question 14, both reliability and transmission planning modeling require specific and detailed assessment of resource characteristics and their location on the grid. Significant deviations will render the modeling moot, could undermine reliability, and cause significant inefficiencies delaying new or retention of critical capacity.

IV. Conclusion

The CAISO appreciates the opportunity to comment on the Staff Options Paper and looks forward to working with Energy Division staff and parties to enhance the IRP procurement framework.

Respectfully submitted

By: /s/ Marissa Nava

Roger E. Collanton

General Counsel

Anthony J. Ivancovich

Deputy General Counsel

William H. Weaver

Assistant General Counsel

Marissa Nava

Counsel

California Independent System

Operator Corporation

250 Outcropping Way

Folsom, CA 95630

Tel: 916-963-0521

Fax: 916-608-7222

Email: mnav@caiso.com

Date: December 12, 2022