

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

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

Rulemaking 19-11-009
(Filed November 7, 2019)

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
REPLY COMMENTS ON TRACK 3B.1 PROPOSALS**

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I. Introduction

Pursuant to the December 11, 2020 *Assigned Commissioner’s Amended Track 3.B and Track 4 Scoping Memo and Ruling* (Amended Scoping Memo), the California Independent System Operator Corporation (CAISO) submits its reply comments on the final Track 3B.1 proposals.

II. Discussion

A. The CAISO’s Resource Adequacy Import Proposal Balances the Need for Reliability and Dependability Liquidity.

CAISO’s resource adequacy import proposal would implement requirements to improve import quality and dependability to meet grid needs in increasingly tightening west-wide supply conditions.¹ In particular, the CAISO has proposed resource adequacy imports (1) specify the source of generation, (2) provide high priority transmission, and (3) meet attestation

¹ WECC *August 2020 Heatwave Event Analysis Report*, p. 10 (March 19, 2021). Available at: <https://www.wecc.org/Reliability/August%202020%20Heatwave%20Event%20Report.pdf>. The WECC recognized that resource adequacy is one of the top reliability risks facing the western interconnection, driven by resource retirement and changes in the resource mix across the interconnection.

requirements to ensure they are committed to the contracting load serving entity.² Although the CAISO previously proposed resource adequacy imports be available 24 hours a day, 7 days a week (24x7), the CAISO revised its proposal to allow non-dynamic resource specific resource adequacy imports to provide a minimum availability of 16 hours a day, 7 days a week (16x7) during specific heavy load hours (*i.e.*, from 06:00 to 22:00).³ Under the Commission’s current maximum cumulative capacity (MCC) rules, jurisdictional load serving entities can procure resource adequacy imports with various contractual availability obligations below the CAISO proposed 16x7 minimum availability requirement. The CAISO has also proposed the Commission consider using 2022 as a transition year to implement aspects of the CAISO proposal by requiring load serving entities procure some resource adequacy imports under the CAISO’s proposed rules as a way to update procurement practices and signal to the market the import quality requirements in preparation for 2023, when the proposed requirements would fully take effect.

Several parties express concern the CAISO’s proposed requirements will decrease load serving entities’ ability to procure resource adequacy imports. The Utility Reform Network (TURN) raises concerns over the liquidity of 24x7 import contracts.⁴ Southern California Edison Company (SCE) and Pacific Gas & Electric Company (PG&E) raise the same concern. SCE and PG&E also claim the source specification requirement, high priority transmission and minimum attestation requirements will reduce load serving entities’ ability to secure imports, increase costs, and reduce load serving entities’ ability to rely on imports to meet California’s energy needs.⁵ These concerns are misplaced. As load serving entities across the west move to secure high quality imports—with the same or similar requirements as those proposed by the CAISO—there is a risk high quality import liquidity will decrease. This decreased liquidity will occur not due to supplier inability to meet the higher requirements, but because other load serving entities in the west will have already procured the available and excess firm energy and high priority

² Track 3B.1 Proposals of the California Independent System Operator Corporation, Resource Adequacy Import Requirements, p. 2 (January 28, 2021).

³ CAISO Opening Comments, p. 7.

⁴ The Utility Reform Network (TURN) Opening Comments, p. 3.

⁵ Southern California Edison Company Opening Comments, p. 28; and Pacific Gas & Electric Company Opening Comments, p. A1-4.

transmission.

Parties have not demonstrated or provided evidence that the CAISO's proposal will dramatically decrease resource adequacy import liquidity. Although the proposed requirements will be new to jurisdictional load serving entities, these requirements are not new in the western interconnection. Whether load serving entities procure imports through broker markets and standard products—such as WSPP Schedule Agreements—or through more traditional requests for proposals, transmission-related requirements and source identification are common contract terms parties negotiate

As explained in its March 12, 2021 comments, the CAISO has modified its proposal to require 16x7 availability and a commensurate must offer obligation for non-dynamic resource specific resource adequacy imports. This modification increases import duration and availability to serve load over the critical periods of the day compared to what the current MCC categories provide. The Commission should adopt the CAISO's proposed resource adequacy import requirements for the 2022 resource adequacy year to ensure load serving entities have sufficient time to adjust procurement accordingly.

B. CAISO's Transmission Requirement Increases Certainty of Performance and Delivery During Challenging West-Wide Conditions.

Under the CAISO's proposal, resource adequacy imports must be supported by, and delivered on, high priority transmission to the CAISO system. Specifically, resource adequacy imports would need to be delivered on firm transmission (7-F priority) on the last transmission leg to the CAISO system, and either Monthly Non-Firm (5-NM), Conditional Firm (6-CF), or Firm (7-F) on all other transmission legs. These higher, and specific, transmission requirements will help provide greater certainty that resource adequacy imports will be delivered to the CAISO under challenging west-wide grid conditions, thereby making resource adequacy imports more reliable and dependable. High priority transmission service is necessary because firm energy imports are only as firm as the transmission on which they are delivered.

The *pro forma* Open Access Transmission Tariff (OATT) explicitly cautions parties regarding the interruptible nature of firm power delivered on non-firm, low priority, transmission: “[p]arties requesting Non-Firm Point-To-Point Transmission Service for transmission of firm power do so with the full realization that such service is subject to

availability and to Curtailment or Interruption under the terms of the Tariff.”⁶ Continuing to rely on resource adequacy imports delivered on low priority transmission not only undermines the firmness of the energy contract—because energy firmness is irrelevant if the energy cannot be delivered—but it also undermines system reliability.

Delivering firm energy associated with a resource adequacy import on low priority transmission would make the import among the first transactions curtailed if there is transmission curtailment on any transmission systems across which the energy is delivered. The CAISO demonstrated it is common practice across the industry—including among other independent system operators, regional transmission operators, and transmission providers operating under the pro forma OATT—to require delivery of resource adequacy-type imports serving load on high priority transmission, particularly firm transmission.⁷

The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) argues firm transmission markets are illiquid and there are opportunities for exercise of transmission market power.⁸ Although CalCCA generally supports the CAISO’s proposal, it expresses similar concerns.⁹ Firm transmission service generally is more costly because it is more reliable and, thus, more valuable. Firm transmission service provides the highest reservation priority making it the last transmission service curtailed. As a result, firm transmission service provides the highest delivery assurance. The CAISO understands that other load serving entities in the western interconnection are actively securing firm transmission service as they seek to ensure they can rely on energy from other balancing authority areas to serve their load. The longer California load-serving entities delay securing firm transmission service, the less likely this highly dependable and reliable transmission service will be available

⁶ FERC Open Access Transmission Tariff, section 14.5 (2013).

⁷ Resource Adequacy Track 3.B.1/Track 4 Workshops, *Import RA: CPUC Workshop*, pp. 18-19 (February 25, 2021). Available at: https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Electric_Power_Procurement_and_Generation/Procurement_and_RA/RA/Track%204%20Track%203B1%20RA%20Workshop%20Slides%2020210225.pdf.

⁸ Public Advocates Office at the California Public Utilities Commission (Cal Advocates) Opening Comments on Track 3B.1 and 4 comments, p. 31.

⁹ CalCCA Opening Comments on Track 3B.1 and Track 4 proposals, p. 13.

to serve California load, and most acutely during tight supply condition periods.

The CAISO previously shared data indicating 20 entities hold long-term firm transmission rights across the California-Oregon Border (COB) and Nevada-Oregon Border (NOB) interties. Approximately half these entities are traditional resource adequacy import suppliers.¹⁰ Load serving entities can contract with these suppliers holding firm transmission rights for a resource adequacy product deliverable on the high priority transmission. Alternatively, they can (1) seek to procure via resale firm transmission from any party holding such rights to support delivery of a resource adequacy import procured from a different supplier, or (2) submit firm transmission requests into the transmission queues of the different transmission providers, which will indicate the need for expanding the transmission facilities and creating additional long-term firm transmission capacity. The CAISO expects that, to the extent the Commission adopts CAISO's proposal, suppliers offering their import products to load serving entities will take steps to secure the necessary transmission on a forward, long-term, basis so they can provide a competitive import product. Concerns regarding a specific entity's exercise of transmission market power across particular paths are premature and speculative, but if these concerns are realized parties should raise them with the OATT Transmission Provider or directly with FERC. Alternatively, load serving entities should procure resource adequacy imports sourced from other regions, and using different intertie points, where they can obtain dependable imports supported by high priority transmission. Neither the Commission nor the CAISO should be comfortable relying on resource adequacy imports delivered on low priority, non-firm, transmission to manage the grid reliably simply because firm transmission service is less readily available in certain regions than non-firm transmission service.

The Alliance for Retail Energy Markets (AREM) notes the *pro-forma* Open Access Transmission Tariff (OATT) does not require an off-system designated network resource to identify the source Balancing Authority Area (BAA) and the transmission arrangements to the

¹⁰ California ISO, *Resource Adequacy Enhancements Draft Final Proposal – Phase 1 and Sixth Revised Straw Proposal*, pp. 48-51 (December 17, 2020). Available at: <http://www.caiso.com/InitiativeDocuments/DraftFinalProposal-SixthRevisedStrawProposal-ResourceAdequacyEnhancements.pdf>

border. AReM argues the CAISO's proposed requirements may be contrary to Federal Energy Regulatory Commission (FERC) orders.¹¹ AReM ignores FERC has authorized other ISOs and RTOs to impose resource specification and firm transmission (and other) requirements on resource adequacy imports.¹² AReM further ignores Section 29.2(v) of the *pro forma* OATT (which is posted on FERC's website) requires a customer seeking network integration transmission service to provide a description of the Network Resource, which includes for each off-system Network Resource: "Identification of the Network Resource as an off-system resource," "Identification of the control area(s) from which the power will originate," and "Transmission arrangements on the external transmission system(s)". In any event, in the context of California's resource adequacy program and CAISO's proposal, it is critical the import dedicated to serving load be delivered on high priority transmission to ensure dependability and reliability.

C. Responses to Miscellaneous Comments on CAISO's Resource Adequacy Imports Proposal

SCE expressed concern the CAISO's proposed resource adequacy import requirements "may not guarantee delivery of power associated with an import resource adequacy resource during critical system conditions due to potential interaction with self-schedule wheels."¹³ The CAISO's proposal addresses the underlying qualities resource adequacy imports must have to reach the CAISO dependably and reliably. CAISO market scheduling priorities are a separate issue that does not obviate the need to ensure resource adequacy imports securely reach the CAISO BAA. CAISO market treatment of wheel through resources must not delay Commission adoption of these urgent resource adequacy import policies.

Nevertheless, the CAISO understands there is a separate need to address wheeling

¹¹ Alliance for Retail Energy Markets (AREM) Opening Comments on Track 3B.1 and Track 4 proposals, p. 3.

¹² California ISO, *Resource Adequacy Enhancements Draft Final Proposal Phase I and Sixth Revised Straw Proposal*, p. 39 (December 17, 2020). Available at: <http://www.caiso.com/InitiativeDocuments/DraftFinalProposal-SixthRevisedStrawProposal-ResourceAdequacyEnhancements.pdf>

¹³ Southern California Edison Comments on Track 3B.1, 3B2, and Track 4 Proposals, p. 27.

through priorities on the CAISO system. The CAISO is actively reviewing market scheduling priorities for market transactions, including wheel through transactions and internal load in its ongoing *Market Enhancements for Summer 2021 Readiness* initiative.¹⁴ On a longer term basis, the CAISO has commenced a new initiative to examine market scheduling priorities for wheel-through transactions, compared to other transactions, over the longer term.¹⁵

The Department of Market Monitoring (DMM) recommends the CAISO coordinate with other Western Electricity Coordinating Council (WECC) balancing authority areas to clarify export curtailment priorities to ensure that resource adequacy imports are truly dedicated to the CAISO.¹⁶ Similarly, PG&E recommends the Commission urge the CAISO to negotiate an agreement with other balancing authority areas on non-recallability of resource adequacy imports.¹⁷

The CAISO recognizes the need to ensure resource adequacy imports are dedicated to the CAISO and will not be interrupted or otherwise curtailed when a balancing authority area faces a supply shortage. Based on CAISO's discussions with western balancing authority areas, the practice across western areas is to interrupt internal load and not to recall or curtail firm power exports during a supply shortage. Balancing authority areas recognize recalling firm power in a supply shortage can adversely affect the importing balancing authority area and cause further cascading events across the western interconnection. This practice helps ensure host or intervening balancing authority areas will not interrupt firm energy resource adequacy imports to the CAISO. Although practices regarding interruptions driven by energy emergencies are generally not captured in transmission providers' OATTs, balancing authority areas typically memorialize this understanding in their emergency operating procedures required by the North American Electric Reliability Corporation (NERC) standard EOP-011-1.¹⁸ The emergency

¹⁴ CAISO's Market Enhancement Initiative for Summer 2021. Available at: <https://stakeholdercenter.caiso.com/StakeholderInitiatives/Market-enhancements-for-summer-2021-readiness>.

¹⁵ CAISO's Maximum Import Capability (MIC) Enhancements initiative. Available at: <https://stakeholdercenter.caiso.com/StakeholderInitiatives/Maximum-import-capability-enhancements>.

¹⁶ Department of Market Monitoring Comments on Track 3B.1 proposals, p. 3.

¹⁷ Pacific Gas and Electric Opening Comments on Track 3B.1 and Track 4 proposals, p. A1-4.

¹⁸ NERC Standard EOP-011-1 - *Emergency Operations* - requires that each Transmission Operator and Balancing

operating procedures are reviewed by the relevant reliability coordinator. In its recently published *August 2020 Heatwave Event Analysis Report*, the WECC recommended the development of guidelines to document best practices while in an energy emergency state.¹⁹ Once WECC establishes the technical committees to develop these guidelines, the CAISO expects to be an active participant. Capturing the practices regarding the treatment of load and exports during energy emergencies will be a critical component of this effort.

The AReM requests that the CAISO coordinate with other balancing areas in the Western Electricity Coordinating Council (WECC) to determine the need for the proposed changes and implement similar requirements WECC-wide.²⁰ The CAISO's resource adequacy imports proposal is generally consistent with industry practice in imposing higher requirements on imports dedicated and shown to serve load. During the February 25, 2021, Track 3B.1 proceeding workshop presentation, the CAISO shared a matrix showing organized markets across the country require the following in connection with their various resource adequacy constructs: (1) identification of the source of the generation supporting the import, (2) delivery to their system on firm transmission, and (3) a statement the import has not been committed to other parties or uses.²¹ Furthermore, as mentioned above, load serving entities choosing to designate off-system (import) network resources to serve load, in connection with network integration service must: (a) identify the source control area [balancing authority area], (b) identify the transmission arrangements on external transmission system(s)²², and (c) provide a

Authority Area develop operating plan(s) to mitigate operating emergencies. Particularly, section B(R2) requires that each Balancing Authority develop and implement emergency operating plans to mitigate capacity emergencies and energy emergencies within its Balancing Authority Area, and those operating plans are reviewed by the Reliability Coordinator.

¹⁹ WECC *August 2020 Heatwave Event Analysis Report*, p.5 (March 19, 2021). Available at: <https://www.wecc.org/Reliability/August%202020%20Heatwave%20Event%20Report.pdf>.

²⁰ Alliance for Retail Energy Markets (AREM) Opening Comments on Track 3B.1 and Track 4 proposals, p. 3 (March 12, 2021).

²¹ Resource Adequacy Track 3.B.1/Track 4 Workshops, *Import RA: CPUC Workshop*, pp. 18-19 (February 25, 2021). Available at:

https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Electric_Power_Procurement_and_Generation/Procurement_and_RA/RA/Track%204%20Track%203B1%20RA%20Workshop%20Slides%2020210225.pdf.

²² In Order 890, paragraph 1091, FERC clarified the requirements regarding demonstration of upstream transmission

signed attestation the resource is not committed for sale to other parties.²³ These higher quality requirements imposed, throughout the industry, on import resources serving load to ensure they provide a high level of certainty, reliability, and dependability.

The Sierra Club and California Environmental Justice Alliance (CEJA) generally support the CAISO's resource adequacy import proposal, but note the CAISO should not require any provider to supply energy if it would violate an air quality permit or other federal or state requirement.²⁴ In particular, Sierra Club and CEJA express concern with the element of CAISO's proposed attestation statement requiring the provider to attest the import can only be interrupted "for reliability reasons as determined under the host balancing authority area's tariff, a transmission curtailment, or a plant outage."²⁵

The CAISO agrees a resource that cannot perform because it would violate an air quality permit or other federal or state requirements should not be deemed to violate the proposed attestation statement. To that end, the CAISO expects an import resource would submit a plant outage to the CAISO to indicate its unavailability due to these federal or state requirements. The CAISO outage management processes support submission of outage cards for a variety of natures of work, including environmental restrictions. A plant outage submission, and the associated plant unavailability, is consistent with the explicit exception delineated in the attestation statement.

arrangements requiring that these be firm or conditional firm – "The Commission will allow conditional firm point-to-point service to qualify as firm service that supports the designation of network resources imported from other control areas." FERC further clarified in Order 890-A, paragraph 867, that upstream transmission should be demonstrated from the point where the buyer, load serving entity, takes title to the power – "[i]f an off-system power purchase is sufficiently firm to satisfy the designation requirements, then the transmission provider need not be concerned with the upstream transmission leg(s) from the generator(s) to the point where the buyer takes title of the firm power."

²³ Federal Energy Regulatory Commission (FERC) *Pro Forma* Open Access Transmission Tariff, section 29.2(v), (viii) (2013).

²⁴ California Environmental Justice Alliance (CEJA) and Sierra Club Opening Comments on Track 3B.1, Track 3B.2, and Track 4 Proposals, p. 11.

²⁵ *Id.*

D. Effective Load Carrying Capacity Methodology for Variable Output Demand Response

In Track 3B.1 of this proceeding, the CAISO proposed the Commission adopt an effective load carrying capacity (ELCC) methodology to determine demand response qualifying capacity values. PG&E, SCE, Middle River Power (MRP) and Calpine generally support an ELCC methodology for demand response²⁶ and the Joint Parties do not oppose further exploration. Both PG&E and SCE support a modified counting methodology for demand response using an ELCC informed by the load impact protocols.²⁷ The CAISO understands the load impact protocols can be modified to produce hourly load reduction profiles at different times and under different weather conditions beyond what is currently used to establish the qualifying capacity value.

The ELCC study performed by Energy + Environmental Economics (E3) used CAISO market bids as the input into the ELCC model to represent the demand response resource load reduction profiles included in the study. The E3 study used bids because they represent all demand response available to the market throughout the year. Using bids as the input will also incentivize demand response providers to bid their full capability because their bids would inform the ELCC value they receive in future years. Although the CAISO used bids as the input, alternatively the Commission could leverage the load impact protocols as an input into an ELCC model, which may capture more weather conditions than bids from the prior year. The CAISO notes, however, the load impact protocol-simulated profiles must be consistent with what is bid into the market under the same conditions. The CAISO recommends that if the Commission uses load impact protocols as the input into the ELCC, the Commission should develop a process to validate consistency between the load impact protocol-simulated profiles and the bids into the

²⁶ Pacific Gas and Electric Opening Comments on Track 3B.1 and Track 4, p. A1-7; Southern California Edison (SCE) Opening Comments, p. 3; Middle River Power (MRP), p. 13, and Calpine Corporation, p. 11.

²⁷ Pacific Gas and Electric Opening Comments on Track 3B.1 and Track 4, p. A1-7 and Southern California Edison (SCE) Opening Comments, p. 3.

market. This will ensure demand response providers actually offer up to the amount used to establish their capacity value.

PG&E notes an ELCC methodology could take substantial time to develop, and suggests an interim methodology for the 2022 compliance year.²⁸ The CAISO agrees with PG&E that it will take further vetting in 2021 and 2022 to apply an ELCC methodology to demand response. Until an ELCC is implemented, the CAISO proposes an interim approach of derating the qualifying capacity value for demand response resources for resource adequacy compliance year 2022 to better reflect the dependable capacity these resources can provide. An appropriate and interim derating methodology could be informed by the ELCC study performed by E3 for the 2022 transition year. An appropriate derate will allow demand response to be shown on supply plans consistent with PRR 1280, while addressing investor owned utility and Energy Division staff concerns with potential resource adequacy availability incentive mechanism (RAAIM) exposure associated with resource adequacy status.

PG&E also suggested implementing a working group process to address various topics regarding a “permanent” ELCC methodology such as, “(1) the appropriate metrics for a new methodology including the level of granularity (program versus portfolio), consistency (consistency between the loss of load expectation (LOLE) hours and the resource adequacy assessment hours to inform new program hours); and (2) administrative timeline steps that could impact program hours or program design in the upcoming 2023 [demand response] DR Application.”²⁹ The CAISO does not oppose establishing a working group to discuss such questions with the concrete objective to establish an ELCC methodology for the 2023 resource adequacy year. The CAISO responds to the initial set of topics posed by PG&E below:

- **Granularity:** Stakeholders in the CAISO’s Energy Storage and Distributed Energy Resources (ESDER) 4 stakeholder initiative process expressed a strong interest in more granular ELCC values. In response to those questions, E3 demonstrated a potential methodology to allocate the DR portfolio ELCC to different programs based on their maximum number of calls and duration and

²⁸ Pacific Gas and Electric Opening Comments on Track 3B.1 and Track 4, p. A1-7.

²⁹ *Id.*

load impacts at peak. The Joint Parties, who are open to discussing an ELCC methodology state, "... if an ELCC methodology is ultimately adopted, it should allow for multiple ELCC factors at the program-, resource-, and DRP-level to reflect the significant variation in the availability of DR programs and underlying resource types."³⁰ The working group will need to balance the desire for granularity with the complexity of adopting such an approach. For example, it may be feasible to establish ELCCs on a program level, but it is likely infeasible to do so at an individual resource level due to the magnitude of individual resources and the potential changes in resource composition year over year.

- **Consistency loss of load expectation (LOLE) hours and demand response program hours:** This is a key benefit of an ELCC methodology. As the E3 study shows, currently most LOLE hours align with most demand response program hours (4pm to 9pm). However, as the penetration of solar and storage increases, LOLE hours shift later and later in to the night.³¹ Assessing demand response under an ELCC methodology will assess how well demand response can meet changing grid needs and inform demand response program hours as those needs evolve.
- **Administrative Timeline:** The CAISO stresses its commitment to see all demand response on supply plans by resource adequacy year 2022 and an ELCC methodology adopted by resource adequacy year 2023.

San Diego Gas and Electric (SDG&E) and California Large Energy Consumers Association (CLECA) do not support an ELCC methodology to determine the qualifying capacity of demand response.³² SDG&E and CLECA claim an ELCC is inappropriate because demand response is only designed to reduce load during peak conditions. The CAISO disagrees. The Final Root Cause Analysis indicated a large divergence between awarded demand response bids and actual delivered load drop during gross and net peak demand hours.³³ In light of the August heat wave events, these observations warrant further consideration on the metrics used to evaluate demand response. It is clear demand response has not performed to its design to

³⁰ Joint Parties Opening Comments on Track 3B.1 and Track 4 proposals, p. 4.

³¹ Demand Response ELCC presentation by Energy + Environmental Economics, p. 18. Available at: <http://www.caiso.com/InitiativeDocuments/E3DemandResponseELCCStudy-EnergyStorage-DistributedEnergyResourcesPhase4.pdf>.

³² San Diego Gas and Electric Opening Comments on Track 3B.1, p. 9 and California Large Energy Consumers Association Opening Comments, p. 2.

³³ Final Root Cause Analysis Mid-August 2020 Extreme Heat Wave, page 56. January 13, 2021. Available at: <http://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>.

“reduce load during peak condition,” as argued by SDG&E and CLECA. The CAISO understands there are unique characteristics associated with demand response that limit its use such as production schedules, duty cycles, availability, seasonality, temperature, occupancy, and many other factors.³⁴ The CAISO continues to believe an ELCC methodology is best suited to capture such use-limitations and is, therefore, an appropriate and suitable capacity valuation methodology.

SDG&E also states it is unclear why the E3 ELCC model yielded lower results than the load impact protocols.³⁵ The CAISO clarifies the E3 study assessed lower capacity values for two main reasons: (1) maximum aggregate bids are lower than net qualifying capacity net of transmission and distribution line loss and planning reserve margin adders in all hours, and (2) resources do not produce at their maximum bid values in all hours.³⁶ Both of these factors indicate a need to reevaluate how demand response is currently valued. Both entities also expressed concerns using the E3 study to establish demand response capacity values, saying the study did not include all demand response programs. SDG&E and CLECA also assert there has not been enough vetting of the study. As stated by the CAISO in the working group process, the CAISO has not proposed the specific numbers from the E3 study be used to quantify demand response capacity heretofore. Rather the study served as a clear demonstration that an ELCC methodology can readily be performed on demand response resources and should be adopted as the preferred method to appropriately capture and value the variable and use-limited nature of demand response. By adopting the ELCC approach, the Commission will help focus and motivate the vetting process among interested parties and create the path to properly assess the capacity value of demand response as a variable energy resource. The CAISO supports the working group process proposed by PG&E, and believes that is the right venue to develop and inform the details and assumptions that go into the ELCC model to be implemented.

³⁴ CAISO’s Track 3B.1 Proposal, p. 18.

³⁵ San Diego Gas and Electric Opening Comments, p. 9.

³⁶ Demand Response ELCC presentation by Energy + Environmental Economics, p. 39. Available here: <http://www.caiso.com/InitiativeDocuments/E3DemandResponseELCCStudy-EnergyStorage-DistributedEnergyResourcesPhase4.pdf>.

E. The CAISO’s Stack Analysis and Resultant Planning Reserve Margin Are Appropriate Until Longer-Term Changes are Implemented

The CAISO disagrees with parties claiming the CAISO stack analysis is not robust enough to support an increase in the planning reserve margin (PRM). The CAISO acknowledges the benefits of a loss of load expectation (LOLE) analysis.³⁷ However, such analyses are significantly more complex, and contain many more input assumptions, which can increase uncertainty. The integrated resource planning proceeding (IRP), where Energy Division staff and parties such as the CAISO already conduct LOLE analyses, is a more appropriate proceeding for such an effort.³⁸

In contrast, the CAISO stack analysis is transparent and provides the individual components of the planning reserve margin (PRM). Using a stack analysis is appropriate to assess system resource adequacy requirements and reserve margin sufficiency because the resource adequacy program essentially utilizes a resource stacking methodology to ensure reliability. Determining compliance with the monthly and annual system resource adequacy sufficiency occurs through a straightforward comparison of the resource adequacy obligation (*i.e.*, the demand forecast plus planning reserve margin) with the shown resource adequacy resource net qualifying capacity “stack.” The CAISO’s stack analysis also adds value by focusing on a critical hour of need after sunset that the resource adequacy program does not directly address. The increased PRM should serve as an interim measure to maintain reliability prior to implementing other more permanent proposals, particularly the CAISO’s Unforced Capacity (UCAP proposal), which is targeted for 2023 implementation.³⁹

³⁷ AReM Opening Comments, on Track 3B.1 and 4 proposals, p. 5; CEJA and Sierra Club Opening Comments on Track 3B.1 and 4 proposals, p. 15; SCE Opening Comments on Track 3B.1 and 4 proposals, p. 30; Vistra Opening Comments on Track 3B.1 and 4 proposals, p. 3; Western Power Trading Forum Opening Comments on Track 3B.1 and 4 proposals, p. 8.

³⁸ See CAISO, Comments of the California Independent System Operator Corporation, R. 20-05-003, October 23, 2020.

³⁹ See CAISO UCAP proposal in Track 3B.2 proposals.

F. Clarifying the CAISO's Stack Analysis and Planning Reserve Margin

Calpine Corporation sought clarification (1) whether the CAISO's proposed increase PRM is intended to apply to gross and net demand peak periods and (2) whether the allowance for 6% operating reserves includes the need for regulation up, regulation down, and generation control.⁴⁰

The CAISO's proposed PRM would apply both to the gross and net demand peak periods. The CAISO performed the stack analysis at the net peak to illustrate the impact of the loss of solar generation. But it was not meant to exclude the current practice of applying the PRM to the gross peak hour. Second, the allowance for six percent operating reserves does not include the need for regulation up, regulation down, and generation control, which the CAISO must also procure.

The Public Advocates Office at the California Public Utilities Commission's (Cal Advocates') proposal to adjust the net qualifying values for thermal resources is unclear.⁴¹ As described in detail in the CAISO's reply comments, the Commission should reject this proposal.⁴² Although Cal Advocates⁴³ supports changing the IEPR forecast from today's standard 1-in-2 forecast, the CAISO's proposed change in PRM is meant to be interim. This interim PRM increase is necessary until the IRP or resource adequacy proceeding establish policies that supersede this interim PRM increase, as noted in the Summer OIR's second proposed decision.⁴⁴

⁴⁰ Calpine Corporation Opening Comments, p. 2.

⁴¹ Public Advocates Office at the California Public Utilities Commission (Cal Advocates) Opening Comments on Track 3B.1 and 4 proposals, p. 8.

⁴² CAISO Reply Comments on Track 3B.2, pp. 5-6.

⁴³ Cal Advocates Opening Comments on Track 3B.1 and 4 proposals, pp. 4-6.

⁴⁴ Order Instituting Rulemaking to Establish Policies, Processes, and Rules to Ensure Reliable Electric Service in California in the Event of an Extreme Weather Event in 2021, Second Proposed Decision, p. 38.

G. Availability Limited Resource Procurement

The CAISO responds to PG&E's and SCE's requests for additional details and clarification on the CAISO's Availability Limited Resource Procurement Proposal.⁴⁵ The CAISO's availability-limited resource analysis in the local capacity requirement (LCR) reports contain details about the overarching need and combined energy limitations for each area and sub-area, where this issue is pertinent, in order to inform overall procurement. Specifically the CAISO analysis estimates the characteristics (MW, MWh, discharge duration) required from battery storage technology to seamlessly integrate in each local area and subarea.⁴⁶ Incorporating this information into the procurement process will greatly improve today's uncoordinated process where individual load serving entities may procure storage for local capacity areas without knowing the consequences of their procurement ahead of time. Furthermore, the availability of this analysis for all local capacity areas and sub-areas will provide greater transparency and forward procurement signals to facilitate planning and situational awareness. Because the CAISO's analysis is not load serving entity-specific, the central procurement entity is in the best position to evaluate this data and be aware of any potential limitations. The CAISO strongly urges the Commission to direct the central procurement entities to consider the CAISO's availability limited resource analysis. The CAISO is committed to working with all stakeholders on these guidelines to make sure they are implemented reliably.

⁴⁵ PG&E Opening Comments on Track 3B.1 and 4, p. A1-5; SCE Opening Comments on Track 3B.1 and 4, p. 30.

⁴⁶ For more details on methodology and analysis results, *see* Attachment C, Section 2.4: Estimate of Battery Storage Needs due to Charging Constraints in both the 2021 and 2025 Local Capacity Technical Studies: <http://www.caiso.com/Documents/Final2021LocalCapacityTechnicalReport.pdf> and <http://www.caiso.com/Documents/Final2025Long-TermLocalCapacityTechnicalReport.pdf>.

III. Conclusion

The CAISO appreciates this opportunity to submit reply comments on the Track 3B.1 proposals.

Respectfully submitted,

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