

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

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

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

**REPLY COMMENTS ON CEC SUPPLY SIDE
DEMAND RESPONSE WORKING GROUP REPORT
OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

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Dated: March 22, 2022

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I. Introduction

The California Independent System Operator Corporation (CAISO) provides its reply comments on the California Energy Commission's (CEC) Qualifying Capacity of Supply-Side Demand Response Working Group Report (Interim Report).

II. Discussion

The CAISO provides reply comments urging the Commission to adopt the Load Impact Protocol (LIP) Informed Effective Load Carrying Capability (ELCC) methodology because it appropriately values demand response. If this methodology cannot be implemented for resource adequacy year 2023, the Commission should adopt the California Large Energy Consumers Association's (CLECA's) Loss of Load Probability- (LOLP-) Weighted LIP proposal as a backup. Lastly, the Commission should not retain the status quo LIP or adopt the California Efficiency + Demand Management Council's (CEDMC's) proposal.

A. The LIP Informed ELCC Methodology Appropriately Values Demand Response's Contribution to Reliability.

In opening comments, the DR Coalition argues the Interim Report "provides no explanation for why or how an ELCC-based methodology better reflects the DR contribution to reliability relative to the LIPs or the other DR QC proposals that were discussed in the Working

Group.”¹ The CAISO disagrees. The Interim Report cites the ELCC study prepared by Energy + Environmental Economics (E3), which explains how the methodology uses a loss of load expectation (LOLE) model to calculate a resource’s impact on system loss of load probability, *i.e.*, the capacity amount the resource contributes without increasing the probability of a loss of load event.² Resources are represented in the ELCC study by a capability profile that represents their capability across varying weather conditions, seasons, and time of day. The ELCC methodology translates capability into a quantified reliability contribution.³

The CAISO/PG&E jointly proposed LIP Profile Informed ELCC methodology inputs a demand response resource’s LIP Profile to approximate its availability under different weather conditions and assesses its contribution to reliability across all hours of the year or seasons as a variable-output resource, considering the resource’s interactive effects with other similarly-situated resources. The CAISO therefore supports adopting a resource adequacy availability incentive mechanism (RAAIM) exemption for demand response resources using the LIP Profile Informed ELCC methodology. The Commission should adopt the LIP Profile Informed ELCC for the investor owned utilities (IOUs) for 2023 as proposed by the CEC. To the extent Energy Division staff can support conducting an ELCC study for third party providers for data testing purposes, as suggested by OhmConnect, the CAISO supports conducting such studies to provide additional information.⁴

Several comments critical of the ELCC methodology argue it is inappropriate for demand response programs. For example, CLECA cites the Final Root Cause Analysis, noting that solar is “overvalued later in the evening after sunset”⁵ and concludes that “[s]ince ELCC does not work well for diurnal solar, it does not make sense to expand its use to DR, which can also vary with temperature across the day.”⁶ Furthermore, parties raise concerns that an ELCC methodology evaluates resources across all hours of the year whereas Commission guidance for demand response availability is limited to a 4 p.m. to 9 p.m. window.⁷ The CAISO disagrees.

¹ DR Coalition Opening Comments, p. 3.

² Interim Report, PDF p. 19.

³ *Id.*

⁴ OhmConnect Opening Comments, p. 3.

⁵ California Independent System Operator, California Public Utilities Commission, California Energy Commission, Final Root Cause Analysis: Mid-August 2020 Extreme Heat Wave (FRCA), January 13, 2021, p. 44. This was cited in CAISO’s Opening Testimony, R.20-11-003, p. 3 and cited by CLECA in Opening Comments.

⁶ CLECA Opening Comments, p. 6.

⁷ SDG&E Opening Comments, p. 5. CLECA Opening comments, p. 7.

A resource's ELCC will only be negatively affected by reduced capabilities during hours of nonzero loss of load probability (LOLP). The ELCC methodology evaluates resources across all hours of the year to ensure the LOLE model can holistically evaluate the system across varying conditions. The methodology does not, as parties imply, extraneously derate resources' ELCC value based on reduced availability at non-peak hours of the day (*e.g.*, the middle of the night) if there is a zero probability that a loss of load event will occur at that hour.

Today nonzero LOLP hours occur during the net peak period and coincide with the Availability Assessment Hours (AAH) from 4 p.m. to 9 p.m. Results of the 2021 ELCC refresh study performed by E3 show that 99% of LOLP falls within the 4 p.m. to 9 p.m. window and is thus aligned with current Commission guidance on demand response program design.⁸ As a result, the LIP Profile Informed ELCC methodology does not derate demand response resources' capacity values based on lack of capability outside the 4 p.m. to 9 p.m. window.

B. The Commission Should Consider CLECA's LOLP-Weighted LIP Proposal as a Backup Only if the LIP Profile Informed ELCC Methodology Cannot be Implemented for Resource Adequacy Year 2023.

The CAISO reiterates its recommendation that if LIP Profile Informed ELCC proves infeasible to implement for IOUs for resource adequacy year 2023, the Commission should direct IOUs to use CLECA's LOLP-Weighted LIP proposal in the interim as a backup. DR Coalition supports this position.⁹

The CLECA LOLP-Weighted LIP proposal should only be used as a backup because it has several shortcomings. First, the methodology does not account for availability limitations. Unlike the LIP Profile Informed ELCC methodology, CLECA's proposal is based on a 1-in-2 (*i.e.*, average) weather condition over one year, without considering availability under various weather conditions. This may cause over- or under-counting demand response capability. In contrast, the LIP Profile Informed ELCC examines demand responses' availability over a larger

⁸ See "Supplemental Data Pursuant to Stakeholder Request" (.xlsx file), available at: <http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=2D59FEB8-0CE6-4914-8080-4AE0C7C1E309>. This file contains the LOLP results by hour by month from E3's 2021 study. There is one nonzero LOLP value in the column "lolp (2020)" occurring 9 p.m. -10 p.m. in September. All other nonzero LOLP values fall within 4 p.m. – 9 p.m. The September 9 p.m. – 10 p.m. LOLP constitutes 1% of the total LOLP (sum of "lolp (2020)"). Therefore, 99% of LOLP for modeled year 2020 falls within the 4 p.m. – 9 p.m. window.

⁹ DR Coalition Opening Comments, pp. 17-18.

period of historical weather conditions. Depending on the program, the model uses either 1-in-2 or 1-in-10 conditions, over the period of 1998-2017 (*i.e.*, the weather years modeled in SERVVM).

The CLECA LOLP-Weighted LIP proposal also does not account for demand response use and availability limitations because it does not consider the number or duration of calls. In contrast, the LIP Profile Informed ELCC methodology considers both the number and duration of calls. Lastly, the LOLP-Weighted LIP proposal does not look at interactive effects considered by the LIP Profile Informed ELCC method.

Despite these shortcomings, CLECA’s proposal does weight LIP profiles by LOLE results to approximate contribution to reliability. Accordingly, the CAISO views the CLECA proposal as an improvement over the status quo LIP.

C. The Commission Should Not Retain the Status Quo LIP or Adopt CEDMC’s Proposal.

The Interim Report explains that the status quo LIP “prescribe[s] a set of guidelines for estimating the impact on load resulting from demand response activities... [the LIP guidelines] did not specify how load impacts should be applied for resource adequacy...” On the other hand, CEDMC’s proposal calls for “demand response providers [to] estimate the capability of their resources and claim a corresponding capacity value.”¹⁰ This incentive-based proposal then relies on penalties to discipline performance. As the Interim Report explains, “the incentive-based approach proposed by CEDMC essentially adopts the same counting method for *ex post* evaluation as the load impact protocols process uses for *ex ante* qualifying capacity valuation.”¹¹ In other words, both the status quo LIP and CEDMC’s proposals focus on capability rather than contribution to reliability. The CAISO emphasizes capability is not the same as a contribution to reliability or the qualifying capacity value, which is the reliability benefit a resource provides to the grid. Like wind and solar, the load drop that demand response can produce (*i.e.*, capability) is less than its reliability benefit due to its variable and use-limited nature.

Though some parties advocate for retaining on the status quo LIP,¹² the CAISO has concerns the LIP overvalues demand response resources based on planning assumptions and the findings from the CAISO Department of Market Monitoring (DMM) regarding demand response

¹⁰ Interim Report, PDF p. 36.

¹¹ *Id.*, p. 37.

¹² SDG&E Opening Comments, p. 13.

performance.¹³ The LIP values demand response resource capacity based on what the resource can provide at peak; however, demand response resources are variable (*i.e.*, provide shaped bids and responses), use-limited (*i.e.*, have call limitations), and availability-limited (*i.e.*, do not bid in all hours). Therefore, the demand response resource cannot always bid and deliver its maximum qualifying capacity (QC) value like a conventional resource. The CAISO’s proposed LIP Profile Informed ELCC methodology is a necessary enhancement that adjusts demand response resource qualifying capacity values to account for actual availability. As the CAISO’s DMM observed in its *Report on Demand Response Issues and Performance*, during the August and September 2020 extreme weather events, “[u]tility demand response in particular appeared to be over-counted in terms of these resources’ contribution toward meeting resource adequacy requirements.”¹⁴ The DMM’s key recommendation was to reexamine demand response counting methodologies “to better capture the capacity contribution of demand response whose load reduction capabilities vary across the day, depending on load profiles.”¹⁵

Some parties advocate for adopting CEDMC’s proposal.¹⁶ However, the CAISO shares other parties’ concerns that the CEDMC proposal’s penalty structure is insufficient both in magnitude and under what conditions the penalties can be administered.¹⁷ Finally, the CAISO agrees with Cal Advocates that the CEDMC proposal would require the Commission to set up an entirely new penalty structure and take on new administrative functions to collect collateral and administer penalties. Cal Advocates explains that “CEDMC’s proposal would require Energy Division staff to learn and evaluate an ever-increasing number of forecasting models capped only by the number of [demand response providers] DRPs seeking to sell [resource adequacy] RA.”¹⁸

¹³ CAISO Department of Market Monitoring, *Demand Response Issues and Performance*, January 12, 2022, p. 8. <http://www.caiso.com/Documents/Demand-Response-Issues-Performance-Report-Jan-12-2022.pdf>

¹⁴ CAISO Department of Market Monitoring, *Demand Response Issues and Performance*, February 25, 2021, p. 3.: <http://www.caiso.com/Documents/ReportonDemandResponseIssuesandPerformanceFeb252021.pdf>

¹⁵ *Id.*

¹⁶ CESA Opening Comments, p. 17; OhmConnect Opening Comments, p. 7; Sunrun Opening Comments, p. 1; DR Coalition Opening Comments, p. 13.

¹⁷ PG&E Opening Comments, p. 3; SCE Opening Comments, p. 3; CalAdvocates Opening Comments, p. 23. See CAISO Opening Comments, p. 5.

¹⁸ CalAdvocates Opening Comments, p. 26.

III. Conclusion

The CAISO appreciates the opportunity to comments on the Interim Report and urges the Commission to adopt the LIP Profile Informed ELCC methodology.

Respectfully submitted

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