

**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)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON THE  
ADMINISTRATIVE LAW JUDGE'S RULING ON LOSS OF LOAD EXPECTATION  
STUDY AND SUPPLY-SIDE DEMAND RESPONSE REPORT, AND SETTING  
COMMENT SCHEDULE**

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the California Energy Storage Alliance (“CESA”) hereby submits these comments on the *Administrative Law Judge’s Ruling on Loss of Load Expectation Study and Supply-Side Demand Response Report, and Setting Comment Schedule* (“LOLE/SSDR Ruling”), issued on February 18, 2022 by Administrative Law Judge (“ALJ”) Debbie Chiv. Our comments to the Loss of Load Expectation (“LOLE”) Study and Supply-Side Demand Response (“SSDR”) Report are included in different sections below.

Subsequently, ALJ Chiv issued the *Administrative Law Judge’s Ruling Seeking Comments on the Future of Resource Adequacy Working Group Report and the Local Capacity Requirement Working Group Report* (“LCR Ruling”) on March 4, 2022 that set the comment schedule for the Local Capacity Requirement (“LCR”) Working Group Report and allowed for comments to this report to be combined with those sought in response to the earlier LOLE/SSDR Ruling. Accordingly, CESA also includes our comments on the LCR Working Group Report in a separate section below as well.

**I. INTRODUCTION AND SUMMARY.**

A wide range of issues are currently being assessed and evaluated as part of both the Implementation and Reform Tracks of the Resource Adequacy (“RA”) proceeding. The RA

Program represents a critical means to ensure reliability through the contracting of needed resources, which are impacted by many of the proposals being considered here.

First, CESA appreciates the Energy Division (“ED”) staff’s efforts to produce a long-awaited Loss-of-Load Expectation (“LOLE”) Study, but we find the present LOLE Study as not being appropriately designed and not offering immediately applicable insights regarding the planning reserve margin (“PRM”) that should be utilized in the current or future RA framework. With this in mind, our responses to the specific questions posed in the LOLE/SSDR Ruling can be summarized as follows:

- The Commission should use Scenario C as the basis for LOLE and effective load carrying capability (“ELCC”) analyses included in the LOLE Study.
- The valuation approach energy storage and hybrid resources in the LOLE Study should utilize installed capacity (“ICap”) and unforced capacity (“UCAP”) values, in line with current valuation approaches, the treatment of all other dispatchable assets, and the CAISO’s preliminary UCAP assessments.
- Energy storage and hybrid resources should not be valued utilizing an ELCC approach given their dispatchability, sensitivity to underlying inputs and assumptions, and potential misalignment with the broader SOD reforms, as well as due to the financeability impacts to contracting.
- Despite CESA’s opposition to the use of ELCC for energy storage and hybrid resources, more information should be provided regarding the dispatch assumptions utilized to derive the ELCC estimates included in the LOLE Study.
- The use, frequency, and process for ELCC studies and planning reserve margin (“PRM”) is heavily contingent on slice-of-day (“SOD”) reforms being considered.
- The meaning of full deliverability in the RA framework requires reassessment because the circumstances implied in the deliverability assessments do not reflect economic operation and are unlikely to occur on a grid with heavy penetration of renewable and energy storage resources.

In addition to our comments above on the LOLE study, CESA also offers our perspective on the Demand Response (“DR”) Qualifying Capacity (“QC”) Working Group Report. Generally,

as the Commission and California Energy Commission (“CEC”) embark on longer-term QC methods discussion, CESA emphasizes the enhanced attributes of storage-backed DR, which provides load reduction and modifying capabilities that is highly dispatchable/flexible and minimizes customer attrition concerns as compared to direct load curtailment. DR portfolios are becoming more sophisticated and advanced, with additional customers gaining access to behind-the-meter (“BTM”) energy storage and other DR-enabling technologies, such as smart thermostats and other smart devices, such that QC methodologies should also adapt to the changing DR landscape and not assume all DR resources are “dumb” or variable. To this end, CESA provides the following key comments:

- Optionality of QC methods is appropriate for RA year 2023.
- The DR QC methodology for RA year 2024 and beyond is appropriately deferred to follow-on working group processes and should align with broader reforms toward SOD frameworks.
- There are a number of outstanding questions related to the applicability and implementability of ELCC to DR resources, particularly storage-backed DR.

Finally, CESA offers our comments on the Local Capacity Requirements (“LCR”) Working Group Report, which is helpful in summarizing the discussion at the workshop and preliminarily identifying key areas of potential enhancements but did not produce any recommendations for the Commission’s consideration in Rulemaking (“R.”) 21-10-002. Despite this lack of recommendations, our comments here focus more on key considerations for coordination with the Commission’s planning and procurement activities, as well as how distributed energy resources (“DERs”) can be better accommodated to meet LCR needs.

- Greater and more granular information should be provided on resource effectiveness factors to inform new resource procurement and siting.
- The CAISO should conduct LCR sensitivity studies and coordinate with the Commission to ensure that procurement guidance and orders mitigate near- or mid-term local capacity shortfall risks.
- Potential pathways to redefine system attributes of BTM hybrid and energy storage capacity should be explored.

## **II. COMMENTS ON LOSS OF LOAD EXPECTATION AND EFFECTIVE LOAD CARRYING CAPABILITY STUDY.**

CESA appreciates the Commission's and ED's efforts to produce a detailed LOLE study that can help inform discussions around updates to the PRM used within the RA Program. As noted in the *Loss of Load Expectation and Effective Load Carrying Capability Study Results for 2024* ("LOLE Study"), Decision ("D.") 20-06-031 and D.21-06-029 directed ED to perform a LOLE study and provide updates and refinements to the ELCC values used in the RA framework. Specifically, D.20-06-031 ordered ED to "to facilitate a working group to develop a set of assumptions for use in a [LOLE] study to support review of the planning reserve margin"<sup>1</sup> and D.21-06-029 ordered ED to "develop regional effective load carrying capability (ELCC) values for wind resources for the ELCC update in 2022 for the 2023 Resource Adequacy compliance year."<sup>2</sup>

After reviewing the LOLE Study, CESA concludes that ED has only partially complied with the Commission's orders as the analyses presented fail to provide increased granularity for the ELCC values of variable energy resources ("VERs"). Moreover, CESA has significant methodological concerns regarding the applicability of the PRM findings of this study as ED has not utilized currently-used counting conventions, instead utilizing ELCC approaches for a number of technologies despite the fact that this was not ordered or contemplated in the aforementioned Decisions. In this context, CESA offers responses to the questions posed in the LOLE Study seeking to improve the methodology and applicability of these analyses.

**Question 1: Which portfolio scenario (Base, A, B, C or D) best represents the likely portfolio in 2024? Which set of technology ELCC values should be assumed in selecting the short term average ELCC values?**

In the LOLE Study, ED uses five different resource portfolio assumptions for 2024. These assumptions are particularly important for ELCC estimates as the penetration of preferred assets is a key driver of the ELCC calculations. The LOLE Study describes the five different scenarios as follows:

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<sup>1</sup> D.20-06-031 at 92.

<sup>2</sup> D.21-06-029 at 79.

- **Base Scenario:** Assumes existing generation plus the mix included in the Integrated Resource Plan's ("IRP") Preferred System Plan ("PSP") for the 2024 time period, based on filed IRP plans and RESOLVE capacity expansion modeling (43,773 MW).
- **Scenario A:** Assumes only existing generation (27,905 MW).
- **Scenario B:** Assumes existing generation plus 50% of the capacity assumed in the 2024 PSP (33,801 MW).
- **Scenario C:** Assumes existing generation plus 100% of the capacity assumed in the 2024 PSP (39,696 MW).
- **Scenario D:** Assumes existing generation plus 100% of the capacity assumed in the 2023 PSP (35,698 MW).

Overall, as CESA details in responses to Questions 2, 6, and 8, the present LOLE Study is not appropriately designed and does not offer immediately applicable insights regarding the PRM that should be utilized in the RA framework. That being said, CESA favors the use of aligned and updated portfolio assumptions across all proceedings in order to bolster the robustness of reliability analyses. Since the IRP proceeding's PSP incorporates the most recent individual IRP filings, as well as the requirements of the mid-term reliability ("MTR") procurement, the PSP should serve as the basis of the LOLE Study. While the LOLE Study notes that the 2024 PSP portfolio was derived from the individual IRP filings submitted in 2020, ED fails to explain in detail how the individual IRPs, the PSP, and the MTR procurement ordered in D.21-06-035 were all considered to develop the aforementioned scenarios. As a result, it is complex for parties to provide specific feedback on the utilization of these scenarios.

The lack of clarity regarding how ED applied RESOLVE modeling selections and MTR procurement is essential, considering that the sole difference between the Base Scenario and its closest alternative, Scenario C, is that the former includes an incremental 4,077 MW of battery storage. Based on the text of D.22-02-004, the decision adopting the 2021 PSP, CESA assumes that this 4-GW difference relates to the assumptions the Commission made to approximate the resource mix that will ultimately fulfill the

requirements of D.21-06-0365, the MTR procurement decision.<sup>3</sup> As CESA noted in the IRP proceeding, the Commission’s assumption that only 4-hour battery storage will be utilized to meet MTR procurement creates a significantly storage-heavy portfolio that is not aligned with the CPUC’s MTR procurement decision and results in a rapid saturation of this resource. Moreover, when evaluating which scenario to consider, the Commission must consider if there are tangible risks that may delay the deployment of expected assets.

There are significant risks regarding the timely deployment of expected resources in the 2024 period. The current status of the California Independent System Operator’s (“CAISO”) interconnection process and queue, the various reported delays in transmission buildout and construction, and other concerns such as supply chain risks represent some of these significant challenges. The Commission would be amiss in expecting capacity beyond what is reflected in the LSE plans, let alone utilizing the assumption that only 4 GW of standalone battery storage will be used to meet 2024 MTR procurement requirements. As such, CESA recommends the Commission to use Scenario C as the basis for LOLE and ELCC analyses included in the LOLE Study. Critically, as further detailed in CESA’s responses to Questions 2, 6, and 8, the ELCC values derived from this exercise should only be applicable in the RA space for variable energy resources (“VERs”) (wind and solar photovoltaic [“PV”] generation) for the 2023 RA Year. The application of these values for RA Year 2024 and onward should be dependent on the Commission’s decision regarding the SOD proposals that are being considered within this proceeding’s Reform Track.

**Question 2: What, if any changes should be made to the assumptions used to perform the LOLE study?**

Overall, CESA does not consider that the methodological approach utilized by ED to perform the LOLE Study is adequate or robust. The changes CESA recommends with regards to the LOLE Study fall within four categories: (1) portfolio mix assumptions (*see* CESA’s response to Question 1); (2) resource counting assumptions; (3) resource configuration and dispatch assumptions; and (4) outage assumptions.

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<sup>3</sup> D.22-02-004, at 83.

As noted in our response to Question 1, CESA recommends the Commission utilize Scenario C for the purposes of portfolio mix assumptions. Additionally, the next area that merits methodological revisions relates to resource counting assumptions. In the LOLE Study, ED notes that the results contained therein should be used to help guide discussions regarding what assumptions should be utilized in setting PRM levels beginning with the 2024 RA compliance year, refresh ELCC values for wind and solar beginning with the 2023 RA compliance year, and think about ELCC values for storage, hybrid, solar and wind in 2024 and beyond.<sup>4</sup> Unfortunately, the consideration of ELCC values for energy storage and hybrid resources effectively undermines the study's efforts to establish a viable PRM value to be used in the RA framework. This is due to the fact that the PRM is only determined with two frameworks in mind:

- Current net qualifying capacity (“NQC”) counting for most types of resources, with new portfolio ELCCs that set the effective capacity for wind, solar, storage, and hybrid resources; and
- Current NQC counting with forced outage derates (applied to resources whose NQC is not determined by historical performance or ELCC), plus new portfolio ELCCs that set the effective capacity for wind, solar, storage, and hybrid resources.

As shown above, in both of these scenarios, energy storage and hybrid resources are the only asset classes that are not counted using their current RA counting convention, without any significant explanation. Instead, ED has unilaterally decided to employ an ELCC methodology, despite the fact that this was not required in neither D.20-06-031 nor D.21-06-029. Perhaps more strikingly, ED decided to estimate ELCC values for energy storage and hybrid resources rather than timely developing regional wind ELCC values, as clearly directed in Ordering Paragraph (“OP”) 15 of D.21-06-029.<sup>5</sup>

Furthermore, while ED recognizes the effect that considering an UCAP could have on the PRM, it has decided against considering said framework for energy storage resources, despite the fact that the CAISO's UCAP methodology can be applied to energy

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<sup>4</sup> LOLE Study, at 2.

<sup>5</sup> D.21-06-029, at 79.



storage and the fact that the CAISO's preliminary findings suggest storage is a more dependable technology class relative to natural gas-fueled resources.<sup>6</sup> Opting to model energy storage and hybrid resources in a manner distinct from current convention discredits the PRM estimates included in the LOLE Study. Similarly, declining to consider storage and hybrid resources in UCAP calculations, despite their dispatchability, limits the insights that can be drawn regarding the effect of this approach on the PRM.

Given these flaws, CESA does not support the valuation approach utilized for energy storage and hybrid resources in the LOLE Study and recommends modifying it by using ICap and UCAP values, in line with current valuation approaches, the treatment of all other dispatchable assets, and the CAISO's preliminary UCAP assessments. In fact, the consideration of ELCC in general should be reassessed for future iterations of this study, considering SOD reform proposals. Since the ELCC is a single monthly value (percentage), it does not provide any insight regarding the expected contribution of a resource during a particular time or point of the day, making it incompatible with some SOD proposals currently being considered in the Reform Track. ED should consider the applicability of this analysis to that framework once the Commission provides further clarity on the future of the RA Program.

As stated above, CESA does not believe that energy storage and hybrid resources should be valued utilizing an ELCC approach given their dispatchability. ELCC is, in essence, a metric that seeks to measure the coincidence between the expected output of an asset (or a class of assets) and the hours with loss-of-load probability ("LOLP"). Any measure of coincidence must assume a degree of independence between the two events it seeks to evaluate (*i.e.*, LOLP and output from the resource or resources under evaluation). While this paradigm generally works for VERs since their output is non-dispatchable and dependent on another set of factors unrelated to LOLP (*e.g.*, solar irradiance, wind patterns), CESA is not convinced ELCC is a methodologically-sound counting metric for dispatchable resources, as they can maximize the degree of overlap between their output

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<sup>6</sup> See CAISO RA Enhancements Draft Final Proposal and Sixth Revised Straw Proposal Presentation on January 5, 2021 at 70. Available at:

<http://www.caiso.com/InitiativeDocuments/Day1Presentation-ResourceAdequacyEnhancements-DraftFinalPropsoal-SixthRevisedStrawProposal.pdf>

and LOLP (*i.e.*, these are not independent events). By virtue of their dispatchability, energy storage assets should not be evaluated in a manner that assumes their output is disconnected from the periods of grid stress (*i.e.*, LOLP). In fact, as storage resources are in essence pure arbitrage products, such that their response to price signals positions them quite well to align their output with LOLP.

Moreover, the LOLE Study notes that hybrid resources in this analysis represent all co-located resources sharing an interconnection, with only a portion of them having a charging restriction in place.<sup>7</sup> CESA welcomes this representation based on the ratios identified in the individual IRP filings; unfortunately, the LOLE Study fails to provide data related to the dispatch assumptions of these resources, as well as that for standalone energy storage. For these reasons, CESA requests more information regarding the dispatch assumptions utilized to derive the ELCC estimates included in the LOLE Study.

Finally, the LOLE Study should consider ambient derates in any UCAP methodology. In the study, ED notes that their UCAP derate does not consider ambient derates, a methodological decision that stands in contrast to the CAISO's UCAP proposal. ED does not elaborate on the rationale behind this decision. The CAISO's own data demonstrates that ambient derates are an essential component of UCAP evaluation that should not be neglected. Not considering these derates significantly overcounts the reliability contributions of conventional thermal assets relative to dispatchable preferred and energy storage resources. According to the CAISO's preliminary UCAP data, which evaluates the frequency of forced and urgent outages across the top 20% of hours with the tightest supply cushion, battery storage has a peak weighted seasonal average availability factor ("WSAAF") of 96.4%; in contrast, the peak WSAAF of gas assets is 87.5%. Thus, CESA recommends that the UCAP methodology inclusive of ambient derates is applied to all dispatchable assets, including energy storage and hybrid assets.

**Question 3: Is a LOLE study appropriate to calculate RA obligations for: 1.) a peak RA capacity framework, 2.) a slice of day reliability construct?**

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<sup>7</sup> LOLE Study at 16.

CESA does not offer comments at this time but reserves the right to do so in reply comments.

**Question 4: How should planned outages be treated in calculating an RA PRM using an LOLE study?**

Please see CESA's answer to Question 10 below.

**Question 5: Would removing deliverability restrictions in the NQC calculation be an accurate translation of the way that resources provide reliability value to the California Independent System Operator ("CAISO") in most instances, outside of particularly constrained times? Would it be possible that certain resources would avoid making transmission upgrades because they have less of an incentive? Do parties have any other arguments pro or con about deliverability restrictions in the QC calculation?**

CESA welcomes the Commission's consideration of potential revisions to the understanding of deliverability within the RA framework. The major structural reforms the Commission is considering for the RA program would transform this paradigm from one designed around a single peak hour to one that can ensure that energy needs are met in all hours, particularly in all evening peak hours, as well as under more extreme conditions. While this focus is aligned with the principles outlined by the Commission in D.21-07-014, this new focus is at odds with the CAISO's deliverability assessment methodology.

Currently, the CAISO's deliverability assessment focuses on a very limited set of hours with unlikely, outlier conditions. The On-Peak Deliverability Assessment methodology is designed around two operating scenarios. The first scenario, High System Need ("HSN"), includes three system conditions that are assumed to be occurring simultaneously: an N-2 condition;<sup>8</sup> system dispatch conditions where all generation in a particular area is operating almost at NQC; and a "peak-net-load condition" where the system is most likely to experience a generation shortfall. The second operating scenario, called Secondary System Need ("SSN"), represents similar assumptions regarding system outages and generation dispatch but gross load (not peak load) is assumed to be at or near its peak level and energy production from both wind and, particularly, solar resources with

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<sup>8</sup> N-2 refers to nominal minus two crucial elements (generation and/or transmission).

FCDS and PCDS status are assumed to be significantly higher than their NQC levels and in the HSN scenario, along with all other resources at full NQC output.

In a grid run by a significant penetration of energy-limited resources, the underlying assumptions and basis for the current On-Peak Deliverability Assessment methodology warrants reassessment. It is, for example, highly unlikely for all energy-limited resources to be dispatched simultaneously in the way that the current methodology assumes since this is not economically rational and could be physically impossible.<sup>9</sup> The Commission should coordinate with the CAISO and stakeholders to evaluate whether and how these assumptions could be reasonably relaxed, consistent with the purpose of the structural reforms being pursued by the Commission through the RA Reform Track, specifically considering SCE's 24-hourly SOD framework. The anticipated modifications to the RA structure merit consideration of whether reformed conditions should be used to determine deliverability for all resources for each of the new slices of the day. This outstanding topic is crucial as it will greatly influence the resources that can contribute to RA as well as the costs to customers.

Taking the above into account, the CAISO's current deliverability assumptions may cause roadblocks (*e.g.*, overbuilding upgrades to support deliverability, timelines associated with building of such upgrades) and may not be tuned to building the evolving system that will be dominated by widely dispersed, relatively small, variable energy and storage resources, as outlined in SCE's SOD proposal. CESA thus welcomes consideration of ways to reassess the meaning of full deliverability in the RA framework because the circumstances implied in the deliverability assessments do not reflect economic operation and are unlikely to occur as the penetration of renewable assets and energy storage resources continue.

**Question 6: How often should staff perform LOLE studies for RA obligations and ELCC values? Are there problems with performing RA studies and ELCC studies together simultaneously as is done in this proposal?**

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<sup>9</sup> For example, it is likely impossible for a portfolio of four-hour energy storage resources to all be simultaneously dispatched in peak or net peak conditions given their energy-limited nature.

In general, CESA supports ED conducting LOLE studies on a regular basis, once every two to three years. The regularity of ELCC studies, on the other hand, shall be dependent on the direction the Commission opts to adopt regarding the future of the RA Program. Under CESA's preferred approach, Southern California Edison's ("SCE") 24-hourly SOD proposal, the calculation of ELCC values would no longer be necessary. As such, CESA does not believe the Commission must commit to a regular ELCC study schedule prior to it providing more direction and/or making determinations relative to this proceeding's Reform Track. CESA is concerned with the simultaneous production of LOLE and ELCC studies as this process does not allow parties to actively engage and vet the assumptions utilized. Moreover, the approach utilized in this LOLE Study seems circular as updated values are used in the estimation of LOLP by hour. Ideally, if more ELCC studies need to be done, the Commission should first perform a LOLE study using the counting methodologies applicable at that time, publish the results for feedback, recalibrate the LOLE study, and then use those LOLP findings to inform updates to ELCC values.

**Question 7: Do parties have comments on the revised ELCC methodology which assign diversity benefits via a series of marginal ELCC studies at different portfolio penetration points? Or do parties prefer the older method of calculating a capacity weighted average method of assigning diversity benefit?**

CESA does not offer comments at this time but reserves the right to do so in reply comments.

**Question 8: Should storage and hybrid resources be valued using an ELCC methodology?**

No, the ELCC methodology employed in the LOLE Study is not an adequate means of assigning value to dispatchable assets such as standalone energy storage and hybrid resources. First, as a methodological matter, ELCC ignores that energy storage assets can maximize the degree of overlap between their output and LOLP and implies that the production cost modeling performed is better at assessing economic signals and incentives than storage operators will be (*see* CESA's response to Question 2). Second, as a financeability matter, ELCC represents significant risks for the contracting of resources.

Third, as a procedural matter, the consideration of ELCC in the LOLE Study is not aligned with the developments of this proceeding's Reform Track and discounts the perspectives shared by parties over six months of workshops and a substantial Future of RA Working Group Report.

ELCC values, particularly rolling average and marginal estimates, are highly variable and are fundamentally determined by the assumptions that go into their calculations. The volatility of these values creates a complex landscape for project financing, especially as the State considers other reforms in the RA realm. Currently, RA revenues represent the most dependable revenue stream for new resources. The bankability of RA revenues is a cornerstone to the financing of the thousands of MWs of energy storage that the Commission expects to come online in the coming years, supporting grid reliability and enabling the transition to a decarbonized electric grid. Since the CAISO commenced consideration of the UCAP framework in its own RA Enhancements Initiative, CESA members have increasingly encountered language regarding valuation or regulatory risk in contracts for incremental storage capacity. The treatment of these risks differs across LSEs, but the inclusion of "regulatory risk" language has only increased since the Commission signaled its intention to deeply reform the RA framework. In this context, even insinuating the potential transition to an ELCC methodology only adds more uncertainty. Even if the issue of project financing could be easily resolved, a transition to ELCC as envisioned in the LOLE Study has the potential to drastically increase costs and supply chain concerns as more materials would be required to meet the requirements set in the RA program.

From a procedural perspective, the suggestion of utilizing ELCC for storage and hybrid resources within the LOLE Study undermines the Commission's goals in the Reform Track, and it comes without having considered the perspectives that parties have developed through six months of an engaged workshop process. As it stands, parties in the Reform Track have coalesced around two SOD proposals, with one of them completely eliminating the need to perform ELCC calculations. In this context, the implication that ELCC might be used to value storage and hybrid resources seems to prescribe the solution mere days before the filing of the Reform Track's final Future of RA Workshop Report.

If, despite CESA's arguments, the Commission is persuaded by the arguments of other parties in favor of estimating ELCC values for storage and hybrid resources, CESA requests that, *ad minimum*, the Commission consider the impact of duration across ELCC calculations. Data from other jurisdictions and academic studies suggests that the duration of storage assets is a key factor in estimating the ELCC of these resources. As such, CESA recommends the Commission calculate ELCC values for 4-, 8-, and 12-hour energy storage, as well as estimate the duration necessary to achieve 100% ELCC.

**Question 9: Should the PRM be static across the year or vary monthly (or seasonally)? How should PRM and ELCC values be allocated across months? Via month specific studies or via some allocation method?**

CESA supports the application of a monthly PRM value but this determination should be assessed once the Commission provides more clarity on the future of the RA framework. Overall, there are no evident barriers to the application of a monthly PRM within CESA's preferred reform alternative, SCE's 24-hourly SOD proposal. If monthly PRMs are adopted, CESA is supportive of month-specific studies. CESA also favors month-specific studies for ELCC values, but as noted in our response to Question 6, the need for ELCC studies beginning RA year 2024 will be largely dependent on the future of the RA framework.

**Question 10: Should forced outage rates on thermal resources be included in setting their QC value? In other words, should the PRM be set using a UCAP or ICap framework? If a UCAP framework is used should the forced outage also include ambient derates?**

CESA is supportive of applying the UCAP framework to all dispatchable resources, including standalone energy storage and hybrid resources. As noted in our response to Question 2, UCAP should be inclusive of ambient derates.

**III. COMMENTS ON SUPPLY-SIDE DEMAND RESPONSE QUALIFYING CAPACITY WORKING GROUP REPORT.**

CESA appreciates the time and effort that the CEC staff and various stakeholders put into the DR QC Working Group to facilitate discussions on QC principles and methods and to produce the final report. Notwithstanding several concerns regarding how the report arrived at or described certain findings and recommendations or attempted to address matters outside of QC

methodologies,<sup>10</sup> the report captures well the working group discussions and the stakeholder proposals submitted. Unfortunately, due to underestimated time constraints for the DR QC Working Group process, stakeholders were not able to spend as much time on the development of long-term QC methodologies for DR resources and had to instead pivot toward identifying an interim method for RA year 2023, pursuant to the direction provided by the Commission.<sup>11</sup> To this end, the core of the final report was to recommend optionality of QC methods for RA year 2023 and to defer the long-term QC methods in continued meetings within the DR QC Working Group.

However, in the Commission’s review of the final report’s recommendations, CESA urges that the Commission keep three key considerations in mind. First, CESA does not believe that the Commission must adopt an interim method for RA year 2023, with D.21-06-029 only *requesting* that the CEC submit recommendations that the Commission will *consider*. Second, DR resources will play a unique and critical role in meeting the emergency reliability and capacity needs in the upcoming summers because of their relatively quick lead time to operations, such that short-term disruptions or barriers should be avoided/minimized. Given the timing of any major QC changes and the importance of maximizing the use of DR ahead of the upcoming summer seasons, the CEC’s recommendation to provide optionality achieves both ends while providing an opportunity to test new methods that could inform long-term QC methods discussions. Considering that the “future of RA” discussions are still in need of further development and direction from the Commission over the next several months, this “keep things rolling” and “improve around the edges” approach is appropriate and smart to afford time and opportunity to align the DR QC Working Group discussions with the broader SOD framework rather than having siloed and out-of-sync proposal development.

While supporting the optionality as recommended by the CEC in the final report, CESA members report that the current Load Impact Protocol (“LIP”) methodology for determining QC poses a barrier to DR participation in RA. As highlighted by the California Efficiency + Demand Management Council (“CEDMC”), the LIP process is costly and requires a lot of time to create the models and conduct the analysis, which is only further exacerbated by the lack of qualified

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<sup>10</sup> CEDMC and CESA Comments on CEC Draft DR QC Methodology Working Group Interim Report submitted on February 4, 2022 in CEC Docket No. 21-DR-01.

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=241423&DocumentContentId=75378>

<sup>11</sup> D.21-06-029 at OP 11.



consultants that can conduct LIPs.<sup>12</sup> CEDMC shares how this can lead to performance data input to LIPs being “from up to two years prior” to RA delivery year, at which point the data no longer reflects the updated DR portfolio.<sup>13</sup> Moving away from LIP could allow for DR participation from additional demand response providers (“DRPs”) and customers to contribute to the state’s grid reliability goals. For storage-backed DR, LIPs also do not appear to accommodate sub-metering and direct measurement approaches or value exports, thus limiting their full-range potential and capabilities. With this in mind, the optionality recommendation should be adopted for DRPs to either: (1) allow DRPs to proceed with and complete the LIP process at least for RA year 2023 despite its challenges, limitations, or flaws as a long-term QC method; or (2) test out new QC methods (such as CEDMC’s claimed, verified, and contracted capacity proposal) that have the potential to both inform the longer-term QC methods discussion and present a simple and feasible means to procure incremental capacity over the upcoming RA year(s) in support of near-term emergency and mid-term reliability.

In sum, CESA believes that the CEC’s final report provides a useful overview of different methodologies for RA year 2023 and makes the right recommendations to allow for optionality in QC methodology for 2023 and continue the CEC-led working group to develop QC methodologies for 2024 and beyond. However, as further elaborated below, caution should be taken when applying ELCC methodologies to DR.

#### **A. Optionality of QC methods is appropriate for RA year 2023.**

CESA supports the CEC recommendation to offer optionality for DRPs (both IOUs and third parties) to choose between the existing LIP process and the recommended alternative methodologies. While LIP is not an optimal methodology for the reasons stated above, many DRPs have already started the LIP study process for RA year 2023 and may wish to continue with a familiar process and avoid creating sunk costs. Additionally, DRPs may not believe the alternative approaches of LIP-informed ELCC, the Incentive-Based PJM/NYISO Approach, or LOLP-weighted LIP are the best fit to value their DR resources.

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<sup>12</sup> *CEDMC Comments on the Integrated Energy Policy Report Commissioner Workshop on Supply-Side Demand Response* in CEC Docket No. 21-IEPR-04 at 3.

<sup>13</sup> *CEDMC Comments on the Integrated Energy Policy Report Commissioner Workshop on Supply-Side Demand Response* in CEC Docket No. 21-IEPR-04 at 2.

Additionally, by having multiple models be tested in 2023 on an interim basis, valuable insights can be drawn on when developing a long-term methodology for RA year 2024. For example, CESA believes that the PJM/NYISO approach proposed by CEDMC and recommended by the CEC for third-party DRPs offers a promising and less burdensome way of calculating QC that the CEC accurately describes as an approach “that could allow more demand response capacity to materialize in a relatively short time frame.”<sup>14</sup> This flexible approach will facilitate near-term procurement in support of emergency grid reliability and is also a pathway that could also be extended to other BTM resources, as suggested by the Joint DER Parties in their proposal for a QC methodology for exporting BTM DERs.<sup>15</sup> Having this methodology approved on an interim basis for RA year 2023 can provide additional identification of implementation barriers that can be addressed in a more permanent QC calculation methodology for 2024 and beyond.

**B. The DR QC methodology for RA year 2024 and beyond is appropriately deferred to follow-on working group processes and should align with broader reforms toward slice-of-day frameworks.**

CESA agrees with the CEC’s recommendation to defer the adoption of any long-term or singular QC methodology at this time. Currently, the Commission is in the middle of significant changes to RA program as a whole with the implementation of a SOD framework. The move to SOD will likely require modifications, of varying degrees, to current QC counting methodologies for many resources. For example, resources using ELCC methodologies for QC may need to calculate values on a per-slice basis instead of having a single monthly value or otherwise go through significant reform to fit within the SOD framework. Additionally, CESA has raised the need to change the front-of-meter QC calculations for energy storage in line with SOD.<sup>16</sup>

Given this large change, the QC methodology of DR should also be considered in line with SOD. It became clear in the CEC-led working group that this larger reform would need consideration and discussion beyond a 2023 methodology and that, since a final SOD

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<sup>14</sup> CEC Report at 38.

<sup>15</sup> *Joint DER Parties Reply Comments* filed on February 24, 2022 in R.21-10-002, Attachment A: Revised Proposal of the Joint DER Parties.

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M454/K865/454865256.PDF>

<sup>16</sup> *CESA’s Informal Comments on Slice of Day Workshops* submitted on February 7, 2022 in R.21-10-002.

framework has yet to be picked, additional time will be needed to create a DR QC methodology for RA year 2024 and beyond. The CEC has led a robust and comprehensive stakeholder process that has allowed for parties to discuss and come to consensus and developed the interim methodologies. CESA supports having the CEC lead a follow-on working group process to develop QC methodologies that fit in the SOD framework for RA year 2024 and beyond.

**C. There are a number of outstanding questions related to the applicability and implementability of ELCC to DR resources, particularly storage-backed DR.**

In general, ELCC is applied to determine reliability contributions of VERs that are not dispatchable. Applying ELCC can make sense for renewable energy resources, such as solar and wind, whose outputs are limited by the availability of sun or wind and whose dispatch cannot be controlled to align with hours of highest LOLP. However, shaped and dispatchable DR capacity is not a variable resource. Storage-backed DR, in particular, is not weather sensitive in most cases, and especially if capacity for exports is enabled, considerations about customer load weather sensitivity becomes increasingly irrelevant. There were discussions about the characterization of DR as inherently variable in the CEC's Principles Working Group that was paused after October 2021, with many parties disputing this characterization by the CAISO and parties reaching no consensus.

Given that different types of DR are backed by different technologies and have different reliability considerations, there are questions surrounding how these ELCC values will be calculated and allocated to different resources. For example, more reliable storage-backed DR that performs well in high LOLP peak hours may be penalized in a broader portfolio that has use limitations due to the nature of a particular DR program or customer. ELCC is also a methodology that is highly dependent on modeling inputs and assumptions, requiring routine updates to reflect the shifting grid portfolio. Such sensitivities are mitigated to a degree if ELCC is applied on a current-year or one-year forward basis since inputs and assumptions are much less subject to forecast uncertainty, but without a focus on long-term capacity value, it will likely be difficult for LSEs to understand their portfolio positions and for developers to finance projects with an uncertain long-term capacity count, which is particularly challenging for more capital-intensive investments such as BTM

hybrid and energy storage projects that require greater certainty on future revenues. Importantly, in our observations of ELCC modeling runs, CESA has questions not only about the lack of granularity of ELCC modeling to better recognize individual resource attributes but also on the feasibility of annual ELCC modeling runs, which would be needed to ensure DR portfolios are accurately valued based on current resource portfolio mixes.

Moreover, ELCC as a methodology may not will fit well with future SOD reforms. The current ELCC methodology leads to a single LOLE-modeled QC value, but the month-hour slice-related SOD reforms, as proposed by SCE, align capacity value to a resource’s capabilities (*e.g.*, contract capacity) for the shown slices of the day. ELCC methodologies may fit well with some proposals for SOD implementation, such as Gridwell’s proposal for a two-slice model, which relies on ELCC approaches for most or all resource counting methodologies, but it would be at odds with SCE’s version of the SOD proposal, which instead relies on exceedance approaches for VERs that better capture hourly capacity contributions. Thus, the adoption of any ELCC QC methodology for RA year 2024 and beyond would be premature and disruptive until and after the adoption of the SOD proposal.

#### **IV. COMMENTS ON LOCAL CAPACITY REQUIREMENTS WORKING GROUP REPORT.**

Pursuant to D.20-06-031 and D.21-06-029, the Commission directed a working group process to tackle a list of issues related to LCR study criteria, timeline, process, energy storage limits, and resource accounting rules. The co-leads, California Community Choice Association (“CalCCA”) and Pacific Gas and Electric Company (“PG&E”), submitted the Final LCR Working Group Report on February 28, 2022, and comments were sought in response to the ALJ’s LCR Ruling on March 4, 2022. Overall, the LCR Working Group Report is helpful in summarizing the discussion at the workshop and preliminarily identifying key areas of potential enhancements, such as the use of emergency line ratings to better inform charging energy needs and the consideration of off-peak capacity and charging needs (*e.g.*, winter) in local areas where applicable (*e.g.*, reliance on solar generation).<sup>17</sup> We welcome discussion on these potential enhancements, which will inform how to address LCR needs with resources like energy storage. Over the years, the Local Capacity

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<sup>17</sup> LCR Working Group Report at 7 and 10.

Technical Studies (“LCTS”) have been directionally helpful in specifying the charging energy requirements, the energy storage duration requirements to replace existing local generation, and the maximum MW quantity of four-hour 1-for-1 replacement.

However, we observe that the LCR Working Group Report did not produce any recommendations for the Commission’s consideration in R.21-10-002. As a result, the LCR Working Group Report is mostly informational. In many ways, the lack of recommendations is likely tied to the fact that any recommendations to address the LCR study assumptions or resource effectiveness factors are best or more appropriately addressed in CAISO stakeholder processes; to this end, CESA has and will continue to participate and provide our input accordingly. At the same time, improved coordination and alignment is needed from the Commission’s Integrated Resource Planning (“IRP”) process and the CAISO’s LCR and Transmission Planning Process (“TPP”) study processes to better guide new resource procurement decisions and help the transition away from fossil generation in local areas to one supported mostly by clean generation and energy storage resources. Absent this tight coordination and feedback loops, CESA fears lost opportunities for more cost-effective resource procurement to address both system and local needs as opposed to one that leads to duplicative procurement for system and local needs in siloes.

Our specific and more detailed comments on the study inputs, assumptions, and methodology will be reserved for the appropriate CAISO stakeholder processes, such as in the development of the next LCTS Manual, so our comments here focus more on key considerations for coordination with the Commission’s planning and procurement activities, as well as how DERs can be better accommodated to meet LCR needs.

**A. Greater and more granular information should be provided on resource effectiveness factors to inform new resource procurement and siting.**

In discussing the factors impacting the Greater Bay Local Area, the CAISO highlighted how the relative effectiveness factors of existing resources in different sub-areas as contributing to the observed increase in LCR needs.<sup>18</sup> As part of the LCTS, the CAISO also publishes effectiveness factors for existing generators at specific buses,<sup>19</sup> which is helpful to understand existing conditions but could benefit from further

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<sup>18</sup> LCR Working Group Report at 7.

<sup>19</sup> See, e.g., Attachment B of 2021 Final Local Capacity Technical Study.

enhancements to translate these effectiveness factors to facilitate the siting of new local generation and energy storage at or near those same buses. Given that effectiveness factors measure a unit's output increase and all other online units' output decrease after applying the contingency(s), it is not immediately clear what the resulting effectiveness factors would be for existing units and for the new generation and energy storage resources in any area. Similar to how the CAISO reports the charging energy and storage duration requirements for replacing existing generation as well as the maximum amount of 4-hour energy storage that can count toward 1-for-1 replacement, more granular information at key buses can provide greater and more actionable procurement guidance.

Overall, such information, if feasible in some form, will reduce uncertainty in the procurement and contracting process of these new-build resources. Load-serving entities ("LSEs") will better evaluate generation and/or energy storage resources in their solicitations by understanding their effectiveness in addition to their impact on LCR reductions and decarbonization efforts to replace local fossil generation. Developers will also better understand how to site and position their resources to be most effective in meeting LCR needs, taking into account not only available deliverability but also charging energy needs. As the next round of the IRP and TPP get underway, this information may also guide how to map system-optimized generation and energy storage resources to simultaneously address LCR needs as well.

**B. The CAISO should conduct LCR sensitivity studies and coordinate with the Commission to ensure that procurement guidance and orders mitigate near- or mid-term local capacity shortfall risks.**

Along the same lines of aligning LCR needs assessments with IRP and TPP processes, CESA believes that the LCR studies can be enhanced with sensitivities conducted to identify potential near- or medium-term local capacity shortfalls in addition to potential risk factors, such as delays in approved transmission upgrades that may result in LCR needs not being addressed as planned. Similarly, the CAISO has developed UCAP methodologies as part of their RA Enhancements Initiative, where, if UCAP is applied to existing local generation, it could highlight earlier than expected or greater than estimated levels of LCR need. While the UCAP framework is still being contemplated and is yet to be adopted, it may still be worthwhile to conduct such sensitivity studies to better

understand and assess LCR shortfall risks, which could inform the Commission’s Central Procurement Entity (“CPE”) procurement or IRP-related procurement guidance and direction, such as by hedging against such risk factors with least-regrets procurement of replacement or supplemental resources.

**C. Potential pathways to redefine system attributes of BTM hybrid and energy storage capacity should be explored.**

Given the unique benefits of and potential for DERs to leverage the built environment in supporting Local RA needs, combined with today’s environment of significant local capacity constraints, the Commission and the CAISO should deeply consider the merits and potential of the Joint DER Parties’ Implementation Track Phase 2 proposal addressing the eight barriers identified in D.20-06-031 and D.21-06-029. Among the solutions and recommendations submitted, the Joint DER Parties – to which CESA is a member – raised the possibility of “unbundling” system and local attributes from BTM hybrid and energy storage resources, particularly as it relates to ensuring deliverability from the exports of these resources to be able to count the export portion of the resources’ capabilities in the QC value, not just the load reduction capabilities.<sup>20</sup>

The Joint DER Parties’ proposal goes to great lengths to explain the challenges around the current interconnection and deliverability study process for BTM hybrid and energy storage resources while charting a potential path forward to clarify the study methodology and modify the process to reasonably accommodate BTM hybrid and energy storage resources. As an alternative to accommodating BTM hybrid and energy storage resources in the existing deliverability study and allocation process, the Joint DER Parties raised the question of whether deliverability to the bulk electric system is indeed necessary in all cases for the export capacity of BTM hybrid and energy storage resources, which, from a power flow perspective where there is sufficient hosting capacity at a particular location, may have its exports serve load of nearby customers on feeders and circuits in close proximity. Local customer load is not only load that must be served for meeting LCR needs but also necessary to serve from a system perspective. As such, we raised the

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<sup>20</sup> *Joint DER Parties Reply Comments* filed on February 24, 2022 in R.21-10-002, Attachment A: Revised Proposal of the Joint DER Parties at 76-79.

question of whether BTM hybrid and energy storage resources indeed need to pursue a lengthier deliverability study process and incur additional costs related to system deliverability upgrades if local hosting capacity or “deliverability” is sufficient. If this alternative path is viable and reasonable, it could present the CAISO and Commission a more immediate opportunity to bring significant BTM export capacity online in a much more cost-effective and efficient timeline.

The CAISO explains that the Commission’s rules and the CAISO’s tariff requires that each RA-eligible resource have a single QC value (*i.e.*, not one value for system and one value for local) and how the only reason a resource counts for local is because it is located inside a local area.<sup>21</sup> Recognizing these rules and definitions in place, CESA does not believe that BTM hybrid and energy storage resources need a separate accounting mechanism for its system versus local value but rather a redefinition of what it means to be a System RA resource when located in an LCR area. That is, so long as there is sufficient distribution hosting capacity and customer load (“sinks”) that needs to be served at particular locations, there may not need to be a need to deliverability study requirements for such resources. Local load served would translate to less system load needed to be served, thus addressing both needs from the same resources. System and local attributes would remain bundled, and system and local accounting rules would remain the same. We acknowledge that this may result in limited fungibility or “tradability” of these BTM hybrid and energy storage resources as System RA resources with other LSEs or in terms of substituting capacity in RA supply plans if needed, but these issues do not appear to be insurmountable barriers and could be addressed through further discussion on this potential pathway in a follow-on process in this proceeding.

## V. **CONCLUSION.**

CESA appreciates the opportunity to submit these comments on the Rulings and looks forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

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<sup>21</sup> CAISO’s LCR Working Group presentation at February 3, 2022 workshop at Slide 24.



A handwritten signature in black ink, appearing to read 'Jin Noh', with a stylized, cursive script.

Jin Noh  
Policy Director  
**CALIFORNIA ENERGY STORAGE ALLIANCE**

Date: March 14, 2022