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Comments of the California Energy Storage Alliance Regarding Midterm Reliability Analysis & Incremental Efficiency Improvements

Additional submitted attachment is included below.

CESA
CALIFORNIA ENERGY STORAGE ALLIANCE

September 7, 2021

Email to: docket@energy.ca.gov
Docket Number: 21-ESR-01
Subject: Midterm Reliability Analysis & Incremental Efficiency Improvements to Natural Gas Power Plants

Re: Comments of the California Energy Storage Alliance Regarding Midterm Reliability Analysis & Incremental Efficiency Improvements to Natural Gas Power Plants

Dear Sir or Madam:

The California Energy Storage Alliance ("CESA") appreciates the opportunity to comment on the Midterm Reliability Analysis on Incremental Efficiency Improvements to Natural Gas Power Plants Workshop held on August 30, 2021. CESA recognizes the leadership of the California Energy Commission ("CEC") in considering this important topic. Moreover, CESA recognizes the CEC's support of the decision-making process at the California Public Utilities Commission ("CPUC") in determining the optimal resource mix to support the state's continued efforts to decarbonize its electric grid while maintaining reliable service.

CESA is a 501(c)(6) organization representing over 100 member companies across the energy storage industry. CESA is involved in a number of proceedings and initiatives in which energy storage is positioned to support a more reliable, cleaner, and more efficient electric grid. Moreover, CESA has actively engaged in first-in-class capacity expansion modeling studies to better understand the need and opportunity for energy storage, including for long duration energy storage ("LDES") given the decarbonization targets included in Senate Bill ("SB") 100, and other applicable legislation. As such, CESA's background and experience providing technical and policy insights are of particular relevance to this subject.

I. INTRODUCTION & SUMMARY.

CESA appreciates the CEC's expeditious analysis of California's expected resource buildout over the next five years to determine if incremental fossil-fueled capacity is needed to maintain a reliable electric grid. As the state continues its energy and environmental efforts, anthropogenic climate change has complicated the planning processes and methodologies the sector has relied on for a number of years. Rapidly refining methodologies to better understand the value of different resources is essential to determine the likelihood, timing, and magnitude of potential resource shortfalls. While current conditions require expedited analysis, CESA urges the CEC and other agencies and regulators to consider the learnings from this process and evaluate potential

modifications to long-term planning processes in order to minimize the need for urgent incremental analyses in future years.

With these considerations in mind, CESA offers the following comments on the analyses presented during the workshop held August 30th, 2021:

- The CEC is correct in assessing the potential need for incremental capacity considering the resource buildout implied by the proposed preferred system portfolio ("PSP").

- The net qualifying capacity ("NQC") difference between the proposed PSP and Procurement scenarios implies a significant need to accelerate incremental capacity integration for 2022.

- CEC staff should publicly release the workbooks associated with these analyses in order to, among other things, clarify how modeled years were analyzed, the optimization horizon per year, the significance of "double duty" and "single" runs, and the correlation between load, renewable supply, and weather.

- The CEC's analysis lacks consideration of the specific reliability and cost benefits associated with certain preferred resources like LDES.

II. COMMENTS.

1. The CEC is correct in assessing the potential need for incremental capacity considering the resource buildout implied by the proposed PSP.

Given the ever-changing nature of planning processes or needs, CESA is grateful for the CEC's evaluation of different scenarios regarding the expected resource buildout. With about 13 GW of outstanding procurement from D.19-11-016 and D.21-06-035 and a proposed PSP issued only two weeks prior to the workshop, CESA understands the need to consider a wide array of procurement futures to evaluate the potential benefits of incremental capacity.

In the workshop, staff noted that the LOLE analyses performed indicate that the California Independent System Operator ("CAISO") footprint would pass the reliability test *(i.e.*, LOLE < 0.1) for all the years studied if resource buildout expected in the proposed PSP is realized. In contrast, the "Procurement" scenario, which only assumes the addition of the capacity considered in D.19-11-016 and D.21-06-035, fails the LOLE test in 2022. In this context, CESA considers that the scenarios that consider the proposed PSP offer a more appropriate representation of the magnitude and type of resources that will integrate to the CAISO system in the 2021-2026 period.

The proposed PSP has been developed by the CPUC by aggregating the individual integrated resource plans ("IRPs") submitted by all CPUC-jurisdictional load-serving entities ("LSEs") on September 1, 2020. After the aggregation of these plans, the Commission layered on the resources directed by D.21-06-035 and then performed capacity expansion and production cost modeling to ensure the resulting portfolio is both compliant with the state's environmental goals and reliability requirements. The result of this process is a portfolio that represents current market dynamics, commercial interest, and deployment realities faced by LSEs. Moreover, the CPUC has noted the reliability metrics associated with the proposed PSP comply with the 0.1 LOLE target in all years, providing further assurances of its adequacy. Given these considerations, CESA agrees with the usage of the proposed PSP as a basis for analysis and supports the use of this case as a basis for further policy action.

2. The NQC difference between the proposed PSP and Procurement scenarios implies a significant need to accelerate incremental capacity integration for 2022.

In reviewing the results shared at the workshop, CESA noted substantial differences in the amount of incremental NQC expected to come online under the PSP and Procurement scenarios. These differences are the most significant in 2022, as this is the only year for which the CEC's analysis of the Procurement scenario yielded a LOLE value greater than 0.1. As Table 1 illustrates, the total NQC difference between both scenarios equals 1,683 MW in 2022. CESA requests clarification to this difference, as it implies a significant need to accelerate incremental capacity integration for 2022.

Table 1: Comparison of 2022 Scenario Additions in the MTR Analysis (MW)

Resource Type	PSP Scenario	Procurement Scenario	Difference
Geothermal	0	8	-8
Biomass	19	7	12
Shed DR	151	34	117
Wind	1,310	242	1,068
Solar	2,211	780	1,431
4-hr Energy Storage	2,159	936	1,221
Total	5,850	2,007	3,843
NQC	2,753	1,070	1,683

In our review of these scenarios, CESA noted that the need to ensure the timely addition of incremental capacity could be addressed in the IRP proceeding by requiring LSEs to procure the resources contained in their individual IRP filings, in addition to the outstanding procurement related to D.19-11-016 and D.21-06-035. CESA recognizes that there are significant complexities and barriers beyond the control of buyers and sellers of these resources that could hinder the deployment pace of these assets. Hence, CESA recommends the CPUC and CEC, to the extent of their jurisdictions, consider providing incentives to ease the expedited integration of these assets, which given the composition of the PSP scenario is likely to come from intermittent generation coupled with energy storage.

As such, given the difference between the PSP and Procurement Scenarios totals 1,683 MW NQC, CESA recommended in the Emergency Reliability proceeding the CPUC consider incenting the acceleration of at least 2 GW of incremental NQC to be online by August 1, 2022, but also with additional or accelerated resources coming online by August 1, 2023. The magnitude and timing of this procurement acceleration seeks to balance the need to ensure reliability during the net peak period with the interconnection and commercial realities of the Californian electric power sector. While these actions are pertinent, it is essential to underscore that, for a number of reasons as presented by CESA on the Energy Storage Reliability panel at the workshop, the ability to accelerate online dates for energy storage to this level is challenging, if not impossible, including supply chain constraints, interconnection, and upgrade delays, etc.

3. **CEC staff should publicly release the workbooks associated with these analyses in order to, among other things, clarify how modeled years were analyzed, the optimization horizon per year, the significance of "double duty" and "single" runs, and the correlation between load, renewable supply, and weather.**

CESA kindly requests the CEC to expand on how each year and scenario was run. Specifically, CESA seeks to understand if years were modeled separately or continuously. The materials shared during the workshop seem to indicate that the scenarios referred to as "single runs" only modeled one year of interest (*i.e.* 2026). However, in CESA's view, the single-year runs might produce sub-optimal results since the chronological nature of energy supply and demand is not considered. On a similar note, CESA requests some clarification on the significance of the set of scenarios labeled as "double duty".

In addition, CESA urges the CEC to clarify the temporal scope of the scenarios. The materials related to the inputs used in these analyses do not mention if the model runs capture each hour of the entire May-October period, if they focus on the peak period of each of the aforementioned months, or if they include the entire year. Moreover, some of the inputs were provided at different timescales and there is no clear explanation of how they were combined or adapted. For example, the technology factor is presented in a monthly fashion, but just for the months of May to October without a clear explanation why. Similarly, solar and wind profiles were normalized to the monthly available capacity, but staff has not offered an explanation as to whether this was done for the same months as the technology factors or for the entire year.

Finally, while CESA generally agrees with the linking variable renewable output to historical data from existing power plants, these generation profiles should also be linked to demand assumptions since both are highly correlated with weather conditions. In short, both load and supply conditions are and will increasingly be weather-dependent.

In sum, in order to address the methodological questions noted in this section, CESA respectfully requests that the CEC release and share the full workbooks and associated

modeling documentation that detail the assumptions and analyses conducted as part of the workshop. In this way, CESA can provide more meaningful feedback to the CEC's analysis.

4. The CEC's analysis lacks consideration of the specific reliability and cost benefits associated with certain preferred resources like LDES.

As an important follow-up to the workshop, CESA recommends an increased focus on the incremental reliability benefits that could be achieved from other non-emitting assets, such as LDES. Staff noted that the analysis does not identify an urgent need for LDES assets by 2026, suggesting that the analysis does not identify that LDES is required by 2026 to attain a LOLE below 0.1. Nevertheless, the CEC's presentation demonstrated significant reliability benefits of including these assets.

According to CEC staff, a subset of the scenarios analyzed considered the inclusion of 2,000 MW (NQC) of LDES assets in 2026, above the similar build. These results were shared as "2026a" in the materials shared at the workshop. CESA's evaluation of 2026a results relative to 2026 results indicate a substantial reliability benefit: LOLE values, for example, drop by approximately 83% when LDES is incorporated in the S9 scenario. It is essential to highlight that this benefit is realized despite the fact that current modeling does not capture multi-day optimization or assess for multi-day reliability risks, nor co-optimize system and local reliability-focused procurement, which would provide significant insight on the value of LDES. Despite said limitations, the LOLE metrics shared by the CEC still record significant reliability benefits related to procuring LDES.

In addition, CESA recommends that the CEC report on the cost of the different resource buildouts assumed by scenario. While it is feasible to attain a reliable electric system with a wide array of resource permutations, the essential nature of electricity requires that regulators and parties strive to identify the least-cost portfolio that and yield the desired level of reliability. The lower level of LDES in the PSP as compared to the CPUC's Reference System Portfolio ("RSP") points to individual LSE preferences that may not necessarily be cost-optimized from a system perspective. As a result, CESA recommends the CEC expand on this topic in future versions of this analysis.

III. CONCLUSION.

CESA appreciates the opportunity to provide feedback on the workshop and looks forward to collaborating with the CEC and all stakeholders in this docket.

Respectfully submitted,

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