

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

Order Instituting Investigation pursuant to Senate Bill 380 to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon natural gas storage facility located in the County of Los Angeles while still maintaining energy and electric reliability for the region.

Investigation 17-02-002  
(Filed February 9, 2017)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON THE E-MAIL RULING SETTING NOVEMBER 3, 2021 WORKSHOP**

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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 in response to the *E-Mail Ruling Setting November 3, 2021 Workshop* (“Ruling”), issued by Administrative Law Judge (“ALJ”) Zhen Zhang on September 30, 2021.

**I. INTRODUCTION.**

CESA appreciates the opportunity to comment on the Aliso Canyon Order Instituting Investigation (“OII”) Phase 3 Workshop held on November 3, 2021. CESA recognizes the leadership of the Commission in assembling a vast group of stakeholders and listening to their concerns and proposals regarding the future of the Aliso Canyon natural gas storage facility in light of the state’s transition to a zero-carbon electric grid by 2045.

CESA recognizes the effort the Consulting Team put into formulating the scenarios as an important step to better understand the pathways towards reduced reliance on Aliso Canyon. The use of updated generator and cost assumptions data from the latest Transmission Planning Process (“TPP”), for example, is a welcome modification. While CESA appreciates the information provided, there are still key assumptions and results that parties require a more thorough understanding of to provide substantial feedback. Importantly, the workshop did not provide enough details on the differences between the achieved reliability levels on all scenarios studied, the assumptions used when considering preferred resources, and the rationale behind some of the

sensitivities studied. The one-week turnaround from the workshop and then to submit comments also limited the due diligence of parties to vet the inputs, assumptions, and scenarios – making it imperative that this Phase 3 work continue with increased transparency.

Notwithstanding the specific modeling inputs, assumptions, and scenarios, Commissioner Guzman-Aceves sought feedback from parties on some near-term actions that could be taken to advance the broad objective of starting to reduce reliance on Aliso Canyon, even as further modeling and portfolio solution development takes time to ascertain. Given the intersections and complexities of the role of Aliso Canyon, the Commission may need additional evidence and record development to pursue complete elimination of Aliso Canyon, but we agree with Commissioner Guzman-Aceves that some near-term actions can be taken today to incentivize and/or direct electrification programs, distributed energy resource (“DER”) deployment,<sup>1</sup> and preferred and energy storage resources to the Los Angeles Basin.

In the meantime, CESA urges the Commission to continue to refine and iterate on the Aliso Canyon Phase 3 modeling, with tight coordination with the California Independent System Operator’s (“CAISO”) Local Capacity Technical Studies (“LCTS”) process and the Commission’s Integrated Resource Planning (“IRP”) process. These detailed study processes play an important role in informing how the system-wide portfolio mix is optimized to achieve another key statutory requirement pursuant to Senate Bill (“SB”) 380 to reduce or eliminate reliance on Aliso Canyon between 2027 and 2035. Currently, the IRP models evaluate the least-cost resource mix at a system level and then map resources to specific locations based on commercial interest as a primary factor, among others, leading to potentially sub-optimal resource mixes if not co-optimized for local area needs (*e.g.*, lower levels of long-duration energy storage, mapping sufficient generation and storage to specific busbars) as well. In the next IRP planning cycle or track of R.20-05-003, it should be a priority for the Commission to coordinate with this OII and conduct important modeling sensitivities to this end since the Phase 3 modeling at hand is unable to conduct capacity expansion modeling – a role that the IRP can more effectively serve.

Taking into account all of the above, CESA’s comments can be summarized as follows:

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<sup>1</sup> For example, in the Self-Generation Incentive Program (“SGIP”), some preferential treatment in claiming incentives was given to projects sited in the LA Basin.

- The Commission should share with parties the loss-of-load expectation (“LOLE”) associated with each of the scenarios studied, ensuring that the value is less than 0.1.
- The Commission should share solar and wind assumptions to ensure that hybrid systems are correctly modeled, particularly regarding the contributions of these resources during the peak-net peak period.
- The Commission should direct the evaluation of an additional cost sensitivity scenario that assumes the achievement of the Department of Energy’s (“DOE”) long-duration energy storage (“LDES”) cost goals.
- The Commission should reevaluate the peak-day gas demand assumptions.

**II. THE COMMISSION SHOULD SHARE WITH PARTIES THE LOSS-OF-LOAD EXPECTATION ASSOCIATED WITH EACH OF THE SCENARIOS STUDIED, ENSURING THAT THE VALUE IS LESS THAN 0.1.**

The base case scenario includes a generator portfolio that comes from the latest TPP dataset and is assumed to meet a LOLE of less than 0.1 per year. The Consulting Team updated the TPP portfolio by adding RESOLVE-selected resources, a modification that resulted in additions of over 7.4 GW of net qualifying capacity (“NQC”). Due to incremental capacity procurements associated with Decision (“D.”) 21-06-035, the Consulting Team added additional capacity to match that 11.5 GW requirement. Notably, the majority of those capacity additions came from hybrid resources, mainly solar-plus-storage, and standalone energy storage.<sup>2</sup> While CESA understands that these modifications have been done to align the baseline to the current regulatory reality, it is important to stress that the Consulting Team has not provided parties with a baseline LOLE value to evaluate the studied portfolios against.

The lack of a baseline LOLE leads to the concerning absence of LOLE results shown for any of the portfolios presented. While CESA understands that the issues considered in this OII have reach beyond the electric sector, the importance of LOLE metrics to understand the effects of capacity additions to electric reliability cannot be understated. It is by assessing reliability under stochastic conditions, such as an LOLE analysis, that the Commission can confidently conclude

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<sup>2</sup> Workshop Presentation, at 16.

that any portfolio is aligned with its service requirements. In addition, the impact of a resource's procurement on LOLE is essential to properly evaluate the merits of a portfolio with a cost-benefit approach.

As such, CESA recommends that the Commission direct the Consulting Team to calculate the LOLE associated with the baseline portfolio and each of the portfolios studied. By addressing this concern, the Commission will be able to understand the expected level of reliability associated with current policy decisions and identify the optimal portfolio of assets to retain said reliability. In essence, LOLE values are essential to fairly and effectively compare the different portfolios considered.

**III. THE COMMISSION SHOULD SHARE SOLAR AND WIND ASSUMPTIONS TO ENSURE THAT HYBRID SYSTEMS ARE CORRECTLY MODELED, PARTICULARLY REGARDING THE CONTRIBUTIONS OF THESE RESOURCES DURING THE PEAK-NET PEAK PERIOD.**

During the workshop, the Consulting Team noted that the wind and solar capacity factor profiles were created using the System Advisor Model (“SAM”) and the Wind Tool Kit.<sup>3</sup> Unfortunately, the system design and configuration assumptions were not found on the provided reference and were not explicitly shown during the presentation. In this context, the Consulting Team notes that solar capacity was excluded from the analysis of the contributions of incremental electricity additions for 2021 and 2035 since the peak occurs at midnight.<sup>4</sup> Because of this exclusion, it seems that hybrid solar-plus-storage resources are assumed to provide ***zero MWh*** during the peak hour.<sup>5</sup> Notably, the same is not assumed of wind-based hybrids, presumably because wind generation can take place during the peak hour. As such, the Consulting Team reported the contributions of wind-plus-storage hybrids by their components during the Workshop.<sup>6</sup> CESA seeks clarification on the assumptions behind hybrid configurations for both solar and wind. Specifically, CESA requests that the following operational assumptions are made available to parties: (1) the assumed location of the power plant; (2) the inverter-loading ratio of

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<sup>3</sup> Workshop Presentation, at 59.

<sup>4</sup> Workshop Presentation, at 60.

<sup>5</sup> *Ibid.*

<sup>6</sup> *Ibid.*

the PV system; (3) the state of charge of the battery during the peak day; and (4) the assumed limitations regarding charging for the storage component.

CESA recognizes that accurately modeling hybrid is a challenging task, yet due to the importance of the current proceeding and the share of incremental capacity that solar-plus-storage hybrids represent, the Commission must not shy away from representing this type of generator as realistically as possible. The Commission must understand that deficient representation of the capabilities of solar-plus-storage hybrids has the potential to skew results towards retaining polluting facilities for longer than necessary and/or overprocurement of incremental capacity, both being sub-optimal outcomes for Californian ratepayers. Today, hybrid resources are expected to provide significant capacity for the Commission’s Resource Adequacy (“RA”) program starting 2022. These resources will participate in the California Independent System Operator’s (“CAISO”) markets by optimizing their joint output through bids under 24-by-7 must-offer obligations (“MOO”). By virtue of their ability to arbitrage onsite generation and manage their state-of-charge (“SOC”) through bids, hybrid resources are able to optimize their output based on grid needs. As such, CESA does not agree with the simplified assumption that the dispatch of hybrid resources cannot be optimized and that solar-plus-storage resources are unable to provide energy once the sun sets. For the above-mentioned reasons, CESA recommends that the assumptions for the plants modeled should be explained and detailed in a thorough inputs and assumptions document within this proceeding.

**IV. THE COMMISSION SHOULD DIRECT THE EVALUATION OF AN ADDITIONAL COST SENSITIVITY SCENARIO THAT ASSUMES THE ACHIEVEMENT OF THE DEPARTMENT OF ENERGY’S LONG-DURATION ENERGY STORAGE COST GOALS.**

The Consulting Team noted that they have modeled the capacity additions considered in D.21-06-035 by adding incremental resources on top of the TPP portfolio. Among said additions is the inclusion of 1 GW of LDES by 2026. As many other modeling and planning efforts across the state, the Consulting Team explained that they have modeled LDES resources by proxy using pump hydro storage (“PHS”). CESA has pointed out the deficiencies of modeling by proxy across several comments to the Commission’s Integrated Resource Planning (“IRP”) proceeding and the Joint Agencies SB 100 Report process at the California Energy Commission (“CEC”). Overall, approximating a resource category as diverse as LDES using PHS limits the potential for selection

of these assets due to geographic limitations, skews resource selection, and ignores the wide variance of cost, efficiency, and duration available within the LDES environment.

**V. THE COMMISSION SHOULD DIRECT THE EVALUATION OF AN ADDITIONAL COST SENSITIVITY SCENARIO THAT ASSUMES THE ACHIEVEMENT OF THE DEPARTMENT OF ENERGY'S LONG-DURATION ENERGY STORAGE COST GOALS.**

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Previously, CESA has recommended a technology-neutral approach to consider a wide array of LDES options. This approach can be modeled from Strategen’s report, *Long Duration Energy Storage for California's Clean, Reliable Grid*.<sup>7</sup> For this effort, Strategen considered a series of technology-neutral LDES alternatives with different roundtrip efficiencies and costs per MW and MWh.<sup>8</sup> This method is viable and should be considered by the Consulting Team, as it will provide a more accurate picture of the potential LDES has in meeting needs related to the Aliso Canyon storage facility.

Even if the Consulting Team decides not to incorporate a technology-neutral approach for LDES, it should *ad minimum* consider a portfolio with a cost sensitivity in which LDES achieves the cost reductions associated to the DOE’s Long Duration Storage Shot, which has set the bold target of reducing cost of grid-scale 10-hour storage by 90% within a decade.<sup>9</sup> For this case to

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<sup>7</sup> See Strategen Consulting, [Long Duration Energy Storage for California's Clean, Reliable Grid](#), December 2020.

<sup>8</sup> *Ibid*, at 33.

<sup>9</sup> See DOE, [Long Duration Storage Shot Summit](#).

yield significant results, CESA recommends the Consulting Team at least: (1) evaluate the costs of LDES proxies with expected 90% cost reductions; and (2) eliminate the geographic limitation related to PHS since this asset is only a proxy for a whole class of resources.

**VI. THE COMMISSION SHOULD REEVALUATE THE PEAK-DAY GAS DEMAND ASSUMPTIONS.**

CESA seeks clarity in the updated peak-day gas demand for electric generation. From the previous results shown, there was a decreasing trend in terms of the amount of gas used during the peak day as the penetration of clean technologies increased going from 840 MMcf to 839 MMcf. However, the new results show an opposite trend that increases from 621 MMcf in 2027 to 682 MMcf by 2035.

The rationale for this trend is not immediately obvious considering the new NQC additions come primarily from clean technologies that include baseload generators (geothermal and LDES) and hybrid systems. Therefore, it is not clear why the updated base case shows a growing gas demand for electricity generation. As the workshop presentation states, “increasing the renewable storage build reduces the gas burn by electric generation during the peak day.”<sup>10</sup> As a result, CESA requests a more detailed account of the inputs and assumptions that have led the Consulting Team to consider a growing trend in the gas demand for electric generation ion the 2027-2035 period.

**VII. CONCLUSION.**

CESA appreciates the opportunity to provide these comments and feedback on the Phase 3 workshop. We look forward to collaborating with the Commission and other stakeholders in this docket.

Respectfully submitted,



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<sup>10</sup> Workshop Presentation, at 17.