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## CESA's Comments on Clean Alternatives Workshop

*Additional submitted attachment is included below.*

November 10, 2022

Email to: docket@energy.ca.gov
Docket Number: 21-ESR-01
Subject: Lead Commissioner Workshop on Clean Energy Alternatives for Reliability

**Re: Comments of the California Energy Storage Alliance on Lead Commissioner Workshop on Clean Energy Alternatives for Reliability**

Dear Sir or Madam:

The California Energy Storage Alliance ("CESA") appreciates the opportunity to comment on the Lead Commissioner Workshop on Clean Energy Alternatives for Reliability ("Workshop") held on October 28, 2022. CESA acknowledges the efforts of the California Energy Commission ("CEC") to better understand the risks California's electric grid faces today, the actions the state intends to take in the near-term to mitigate said concerns, and the different alternatives available to the sector in the coming years.

CESA is a 501(c)(6) organization representing over 120 member companies across the energy storage industry. CESA member companies span the energy storage ecosystem, involving many technology types, sectors, configurations, and services offered. As the definitive voice of energy storage in California, CESA is involved in a number of both near-term emergency reliability and long-term planning proceedings and initiatives in which energy storage is positioned to support a more reliable, cleaner, and more efficient electric grid. CESA has actively engaged in first-in-class modeling studies to better understand the need and opportunity for energy storage of all types and durations given Senate Bill ("SB") 100 targets. As such, CESA's background and experience in providing technical and policy insights are of particular relevance to this matter.

## I. INTRODUCTION AND SUMMARY.

During the Workshop, CEC staff presented on the current state of long-term planning within California, and the near-term reliability and market risks that these venues seek to understand and mitigate. While significant action has been taken by the state and its key agencies to shore up electric reliability in recent years, CEC staff underscored that there are key outstanding legislative requirements that must be addressed in the near term. Among this myriad of requirements, additional analyses are required pursuant to SB 846 and SB 423 regarding the potential for a portfolio of emerging clean resources that can provide capacity in lieu of existing generation facilities such as the Diablo Canyon Power Plant ("DCPP").

To properly answer this question, California needs thorough, regular, and increasingly sophisticated modeling. This is evidenced by the magnitude and detail of work undertaken by the

staff of the California Public Utilities Commission ("CPUC") within the Integrated Resource Planning ("IRP") proceeding (R.20-05-003), and by the CEC within its efforts to assess the role of long-duration energy storage (21-ESR-01, 20-MISC-01). These planning processes and models produce robust results due to their reliance on stakeholder engagement and industry-vetted inputs and assumptions, particularly regarding costs. While the methods currently used merit improvements, such as including a wider gamut of candidate resources and modeling longer timeframes to capture the likelihood of multi-day reliability risks, the lessons learned in these venues should be acknowledged and leveraged rather than ignored in favor of the establishment of a new and largely duplicative effort. In this context, CESA's comments can be summarized as follows:

- The CEC should consider the findings and recommendations of the University of California ("UC") Merced within 20-MISC-01 when developing the resource comparison framework, as well as recent improvements to the CPUC's IRP process.
    - The proposed framework to identify a portfolio that helps meet clean energy goals while cost-effectively replacing DCPP is largely duplicative of existing efforts.
    - The proposed framework ignores existing technologies that are commercially available and that have been considered in other planning and modeling efforts led by the CEC and the CPUC.
- The CEC should, as a general rule, rely on publicly-available cost data for the purposes of the proposed quantitative analysis.
    - Having the CEC independently develop cost estimates is largely duplicative and has the potential to yield results misaligned with those from other relevant planning venues.

The Workshop also discussed program development for the Distributed Electric Backup Assets ("DEBA") Program, a new program directed per Assembly Bill ("AB") 205 to be administered by the CEC. According to AB 205, DEBA will "incentivize the construction of cleaner and more efficient distributed energy assets that would serve as on-call emergency supply or load reduction for the state's electrical grid during extreme events."[1] DEBA funding can be allocated to: (1) efficiency upgrades, maintenance, and capacity additions to existing power generators; or (2) deployment of new zero- or low-emission technologies, including, but not limited to, fuel cells or energy storage, at existing or new facilities. At its core, DEBA is designed to provide funding for the deployment of incremental physical assets that can then be called upon during times of grid need, although flexibility is given to how these assets would be accessible to the California Independent System Operator ("CAISO") or other balancing authorities.

[1] AB 205 Energy. Article 2, Section 25791(a).

As the CEC embarks on developing the DEBA Program Guidelines, CESA recommends the following principles for the CEC to follow when assessing different aspects of program design, such as customer eligibility, incentive levels, and program administration:

- **Simplicity:** The CEC should seek to minimize complexity given the goal to launch the program before Summer 2023 to help meet near-term capacity needs.

- **Universal accessibility:** DEBA should be designed to be accessible to as many customers as possible, including from different geographies, income levels, and load-serving entities ("LSEs"), and should be inclusive distributed in-front-of-the-meter ("IFOM") resources.

- **Clean energy deployment:** The CEC should prioritize the deployment of clean resources within DEBA to advance the achievement of California's long-term climate and air pollution goals.

Soon after the Workshop, the CEC released a Request for Information ("RFI") on November 7, 2022 on Clean Energy Resources for Reliability, which included questions on DEBA focused on aspects of program design. Questions cover the types of resources and customers that should be targeted by DEBA, incentive structures, and measurement and verification requirements. Additional questions are also asked about the Resource Comparison Framework. CESA plans to timely provide a response the RFI by November 30, 2022 with recommendations on the Resource Comparison Framework and specific DEBA Program design elements.

## II. THE CEC SHOULD CONSIDER THE FINDINGS AND RECOMMENDATIONS OF THE UC MERCED WITHIN 20-MISC-01 WHEN DEVELOPING THE RESOURCE COMPARISON FRAMEWORK, AS WELL AS RECENT IMPROVEMENTS TO THE CPUC'S IRP PROCESS.

During the Workshop, CEC staff noted that SB 846 and SB 423 have placed additional analytical requirements on the CEC. Namely, these bills require the CEC, in consultation with other agencies, to identify what portfolio of incremental resources could achieve the states' clean energy goals, as well as whether it is cost-effective to replace DCPP. While CESA understands that the CEC is bound to comply with the letter of the law, it is worth underscoring that these analyses have been carried out already in other planning venues, such as the CPUC's IRP proceeding. In this context, CESA is concerned with the apparent omission of important lessons learned from the CPUC's IRP and the CEC's Assessing the Role of Long Duration Storage Docket (20-MISC-01). In this context, CESA urges the CEC to reconsider the resource options proposed for the proposed resource comparison framework, in line with the approach, inputs and assumptions, and processes of the aforementioned proceedings and dockets. Rather, the CEC should strive to build on and enhance the existing modeling and resource assessments in complying with SB 846 and SB 423 requirements.

First, CESA requests a significant expansion of the pool of supply options considered in the preliminary list, particularly of energy storage assets. Currently, the preliminary list only includes three types of energy storage: pumped hydro; energy storage with durations below eight hours; and energy storage with durations above eight hours. Crucially, the preliminary list does not say what type of energy storage technology is assumed in the latter two options, an important piece of information as it would affect the expected roundtrip efficiency, costs, capabilities, footprint, location, and more. Comments from staff during the Workshop indicate that the assumed technology for those options is lithium-ion battery storage, making it so that the preliminary list only considers two technologies. The omission of other forms of energy storage is unwarranted and inconsistent with developments in other planning venues, especially as these other energy storage technology types represent the very type of resources that could effectively replace DCPP at the end of its extended operations.

In the IRP proceeding, for example, the CPUC's Energy Division ("ED") has moved forward with the inclusion of new candidate resources that will be considered in this IRP cycle, including adiabatic compressed-air energy storage ("A-CAES"), iron-air batteries, and storage via green hydrogen and synthetic natural gas.[2] While CESA expressed concern regarding the elimination of previously considered candidate resources, such as flow batteries, as well as the exclusion of proven and commercially available technologies, like thermal energy storage (TES), the inclusion of these technologies could be easily achieved by considering the data included in the Pacific Northwest Nation Laboratory's ("PNNL") Energy Storage Cost and Performance Database. [3]

Alternatively, if the CEC considers that there is limited publicly available information to include each and every one of these additional storage technologies, CEC staff should *leverage the work performed by E3 and the UC for the CEC to add a technology-neutral variable-cost LDES option* as well. Recognizing CESA's recommendation to develop a technology-neutral parameter-centered modeling approach, UC Merced proposed the establishment of variable-cost storage candidate resources that would capture different performance parameters. UC Merced proposed including new storage candidate resources with a defined minimum duration and RTE, but with variable total costs.[4] The creation of these candidate resources would allow the model to better capture the tradeoffs between energy storage assets and the cost "tipping points" by duration and RTE. In addition, this approach would allow for expedited sensitivity analyses as only one variable needs to be modified.

Overall, CESA favors the approach proposed by UC Merced. The proposed approach is consistent with the one employed by Strategen Consulting in CESA's *Long Duration Energy Storage*

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[2] *See* CPUC, "Inputs and Assumptions Modeling Advisory Group Webinar", September 2022, at 28. Available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/iamag09222022.pdf

[3] *See* PNNL, Energy Storage Cost and Performance Database, available at https://www.pnnl.gov/ESGC-cost-performance and https://www.pnnl.gov/sites/default/files/media/file/ESGC%20Cost%20Performance%20Report%202022%20PNNL-33283.pdf

[4] UC Merced, Materials for Long Duration Energy Storage Public Workshop #3, July, 2022, available at https://efiling.energy.ca.gov/GetDocument.aspx?tn=244120

*for California's Clean, Reliable Grid* (2020) study. Moreover, the proposed approach will provide important insights for both public and private investments regarding the price points LDES should strive for in the coming years. While supportive of the proposed methodology, CESA recommends that the variable-cost LDES candidate resources modeled consider RTEs in addition to those presented in the Workshop. If the CEC staff adopts this route, CESA recommends modeling RTEs across the 35%-85% range, as this better represents the diversity and heterogeneity of existing and emerging LDES technologies.

## III. THE CEC SHOULD, AS A GENERAL RULE, RELY ON PUBLICLY AVAILABLE COST DATA FOR THE PURPOSES OF THE PROPOSED QUANTITATIVE ANALYSIS.

As noted above, several planning venues across the state already make use of cost forecasts and assumptions to identify a cost-effective suite of incremental resources that can meet load reliably in the coming years. Many of these venues rely on data published by the National renewable energy laboratory ("NREL") via their yearly-updated Annual Technology Baseline ("ATB"). In California, the CPUC has regularly used Lazard's Levelized Cost of Storage ("LCOS") study to forecast future storage costs.[5] In this context, CESA is concerned with the CEC staff's proposal to perform a quantitative analysis on the potential resource options that would require the development of levelized cost estimates across several ranges.[6] This described effort is ambiguous and largely duplicative, resulting in less transparent results and unnecessarily creating misalignment among planning venues that are all trying to answer the same or very similar questions. As such, CESA recommends that the CEC and all other relevant agencies, as a general rule, continue using publicly-available cost data and only resort to calculating their own levelized cost trends when public data is demonstrably limited (*e.g.,* CEC staff is trying to better understand the cost of an emerging technology with limited representation in aggregated datasets) or otherwise inapplicable to the California context (*e.g.,* the costs of a particular technology are region-specific or geographically dependent).

## IV. IN DESIGNING THE DEBA PROGRAM, CESA RECOMMENDS PRINCIPLES OF SIMPLICITY, UNIVERSAL ACCESSIBILITY, AND CLEAN ENERGY DEPLOYMENT.

As explained above, CESA will be providing additional feedback and proposals for DEBA program design in our response to the Clean Energy Resources for Reliability RFI. In these comments, CESA shares three overarching principles that should guide DEBA program design.

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[5] *See* CPUC, "Inputs and Assumptions Modeling Advisory Group Webinar", September 2022, at 14. Available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/iamag09222022.pdf

[6] Workshop materials, at 60.

**A. <u>Simplicity</u>: The CEC should seek to minimize complexity given the goal to launch the program before Summer 2023 to help meet near-term capacity needs.**

As highlighted at the Workshop, California has near-term reliability needs that DEBA was created to support. With the recent memory of the heat wave and near-outages, the CEC should work to launch DEBA quicky and efficiently to allow assets or upgrades to be purchased and installed before September 2023 and Summer 2024. In order to allow for sufficient time for implementation and marketing of the program, the CEC should focus on simplicity as a guiding principle, especially for the first phase of DEBA.

Fortunately, distributed assets, particularly behind-the-meter ("BTM") and fast-track IFOM assets can be deployed relatively quickly. For example, Net Energy Metering ("NEM") projects can receive interconnection permissions in as little as 10 days for residential customers and two weeks for non-residential customers.[7] Permitting for these types of solar + storage resources is also often streamlined, and installation can occur within months. IFOM projects and larger or more complex BTM projects generally take longer to interconnect and build, which adds additional urgency around a quick rollout of DEBA's first phase so that projects can come online as soon as possible. Therefore, program application processing time should be minimized in order to allow for resources to be deployed before September 2023 and Summer 2024.

During the Workshop, CEC staff highlighted how DEBA will likely be rolled out in phases, with modifications made to the program as lessons are learned and additional technologies become more widely accessible and ready for larger-scale deployment. As DEBA evolves, the program will likely become more complex to allow for wider participation and maximize value from resource receiving DEBA funding. However, CESA would caution the CEC that attempting to create a complex program at this time will likely lead to a delayed program launch, followed by cascading delays in resource deployment. Therefore, the guiding principle of simplicity, with the goal of allowing for participation in 2023, should be the primary focus at this time. Additional stakeholder dialogue and program design can then continue through next year to allow DEBA to evolve in 2024 and beyond. Relying on existing mechanisms and/or programs to "operationalize" these on-call emergency resources can facilitate this process, so long as the DEBA program incentives are designed to quickly mobilize resources.

**B. <u>Universal accessibility</u>: DEBA should be designed to be accessible to as many customers as possible, including from different geographies, income levels, and LSEs, and should be inclusive of distributed IFOM resources.**

During the workshop, there was discussion of the difference between DEBA and the Demand Side Grid Support ("DSGS") programs. It was highlighted that DEBA is designed

[7] Calculated based on NEM interconnection data as of September 30, 2022. Available at: https://www.californiadgstats.ca.gov/downloads/

to provide incentives to cover the costs of physical DERs. There would then be requirements for these assets (or customers owning these assets) to enroll in other programs to serve as on-call emergency resources. There was discussion during the workshop around whether DSGS enrollment should be required. CEC staff said that they were open to feedback on DR or other program or market enrollment requirements.

In response to the RFI, CESA will provide additional recommendations on programs customers or assets receiving DEBA incentives should enroll in. However, as a general principle, the CEC should strive to allow as many customers as possible to participate in DEBA, including customers from all utility and LSE territories. Given that LSEs have a wide variety of programs that they run and not all LSEs may participate in a particular program, CESA believes that the CEC should consider program participation requirements that allow as many customers as possible from all California LSEs to access DEBA.

This principle can impact other elements of DEBA program design as well, including program administration, incentive levels, and incentive distribution. Other programs administered by the CEC, CPUC, and LSEs can provide insights into how to design programs that are accessible to a wide range of customers, including low-income, disadvantaged, and vulnerable customers that face the acute impacts of electric outages and air pollution from backup generators. As highlighted at the workshop, DEBA should be accessible to as many of these customers as possible, and consideration should be given to making DEBA universally accessible from a socioeconomic perspective as well.

Finally, considering nothing in AB 205 excludes IFOM resources, CESA recommends that the CEC affirm the eligibility of distributed IFOM resources for the DEBA Program. Such community energy storage projects, whether standalone or hybrid, can deliver on-call emergency capacity at scale. CESA will offer further recommendations in our RFI response on how such resources could be operationalized as emergency capacity.

**C. <u>Clean energy deployment</u>: The CEC should prioritize the deployment of clean resources within DEBA to advance the achievement of California's long-term climate and air pollution goals.**

The Legislature will allow DEBA funding to be used for efficiency upgrades for existing generators, including existing diesel backup generators and other fossil fuel units. While upgrading these units can unlock incremental capacity in the near-term, allocating most of the funds towards fossil generation, or doing so prior to advancing clean energy resources, does not align with California's future clean energy and climate goals, resulting in stranded investments in the medium to long term. Therefore, CESA recommends that the CEC prioritize clean energy deployment as a principle for DEBA program design.

As discussed above, clean energy solutions, especially distributed clean generation and energy storage, can be deployed in a timely manner. Therefore, even while deploying resources that meet DEBA's purpose to provide emergency supply or load reduction during

extreme events, investments can be made in appropriate clean energy solutions that can provide these services. On top of this, clean resources can not only be used during grid emergencies but also during normal day-to-day operations to help reduce the need for the fossil fuel fleet.

## V. CONCLUSION.

CESA appreciates the opportunity to provide these comments and feedback on the Workshop and looks forward to collaborating with the CEC and other stakeholders in this docket.

Respectfully submitted,

Jin Noh
Policy Director
**California Energy Storage Alliance**

Sergio Dueñas
Policy Manager
**California Energy Storage Alliance**

Grace Pratt
Policy Analyst
**California Energy Storage Alliance**