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 WORKSHOP REPORT ON FINAL PROPOSALS FROM REFORM TRACK PHASE 2 WORKSTREAMS 1 – 3 SUBMITTED BY PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)

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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 *Workshop Report on Final Proposals from Reform Track Phase 2 Workstreams 1 – 3 Submitted by Pacific Gas and Electric Company (U 39 E)* ("Report"), submitted and filed in Rulemaking ("R.") 21-10-002 on November 15, 2022.

I. <u>INTRODUCTION</u>.

CESA appreciates the opportunity to provide comments to the Report prepared by parties to this proceeding. The Report is the result of months of diligent work from a diverse cast of stakeholders invested in the future of California's energy sector. Through weeks of conversation and engagement, parties to this proceeding have sought to provide the Commission with an outline of the alternatives available to move forward in the implementation of the slice-of-day ("SOD") paradigm, as well as the issues that remain unresolved. As the length and depth of the Report attest, the task of reforming the Resource Adequacy ("RA") Program poses significant questions and challenges. As the Commission evaluates the proposals and alternatives presented in the Report and in the opening and reply comments to it, CESA urges the Commission to do so with consideration of other proceedings, programs, and markets that are interrelated with the RA paradigm.

With this in mind, CESA's comments can be summarized as follows:

- The energy storage cycling assumptions considered to populate the RA Master Resource Database merit revision.
- For energy storage resources, the maximum power output ("Pmax") of the asset should continue to be used as the single monthly qualifying capacity ("QC") value.
- Any inclusion of temporal charging constraints to the charging sufficiency verification element of the load-serving entity ("LSE") showing tool is unnecessary and contrary to the RA framework.
- For variable energy resources ("VERs"), the Commission should favor using the 12-season approach proposed by the Public Advocates Office ("Cal Advocates"), with consideration for technological and geographical diversity.
- For paired resources, the Commission should clearly affirm that the deliverability status of the VER component is irrelevant for the purposes of supplying the storage component.
- CESA's proposed seasonal charging scheme should be adopted as it will bridge a
 gap in the SOD framework by incenting the development and contracting of long
 duration energy storage ("LDES") assets.
- The Commission should carefully consider the tradeoffs and complexities associated with requiring full capacity deliverability status ("FCDS") resources to meet each LSE's charging sufficiency verification.
- If the Commission moves forward with requiring FCDS for resources to meet the charging sufficiency verification, the commission should consider instituting an initial system-wide test prior to requiring sufficiency to be determined at the LSE level.
- The Commission should refrain from considering an unforced capacity ("UCAP")light methodology at this time given the lack of development during the Workstream process.

• For the 2024 Test Year, the Commission should allow LSEs to count standalone energy storage resources as Category 4 within the maximum cumulative capacity ("MCC") if they pass the energy sufficiency test in their SOD test year showing.

II. THE ENERGY STORAGE CYCLING ASSUMPTIONS CONSIDERED TO POPULATE THE RA MASTER RESOURCE DATABASE MERIT REVISION.

In the Report, parties describe the discussions around the development of the Master Resource Database ("MRD"), a dataset that seeks to represent the physical capabilities of all RA-providing assets. After underscoring that confidentiality and accuracy concerns eliminated the possibility of sourcing data for the MRD from the California Independent System Operator's ("CAISO") Master File, the Report notes that Energy Division ("ED") has opted to use default values to populate the initial MRD and will issue a request to generators to provide any corrections. During the Workstreams, ED argued that the use of conservative default values will incent generators to respond to the request for corrections. For energy storage resources, the Report enumerates four assumptions for the default values:²

- 1. All batteries will be assumed to be 4-hour, one cycle per day.
- 2. Maximum daily energy will be 4 times August Net Qualifying Capacity ("NQC")
- 3. Storage efficiency will be set at a conservative value of 0.8
- 4. First and last hour available are assumed to be 1 and 24 for most resources.

Generally, CESA understands the logic and intent of ED's proposal. Given that sourcing information for the MRD from other datasets such as the Master File is not desirable, the usage of default values and the inclusion of an opportunity for generators to correct the values assumed are reasonable proposals. While assumptions 2, 3, and 4 are both reasonable and conservative enough to incent corrections, CESA does not support one of the elements considered under assumption 1. Namely, CESA does not support the inclusion of an assumption that storage assets that provide RA are limited to provide one cycle per day.

¹ Report at 13.

² *Ibid*.

As noted elsewhere in the Report, energy storage resources may face manufacturer warranty conditions that limit the number of daily cycles they are to perform. Importantly, these conditions are evolving: the use of yearly cycles is growing, and some resources may opt to not adhere to warranty conditions. Today, said warranty conditions do not govern what is offered into CAISO, such that today's RA storage assets can be and are dispatched in excess of one cycle per day. As such, these conditions cannot be considered physical limitations and storage assets should be assumed to be able to be shown for multiple cycles per day. CESA believes that this change is reasonable as it is aligned with both the status quo of RA operations and the goals of the SOD framework. In its consideration of how to represent storage resources within the MRD, the Commission should also note that, for some storage assets, the charge and discharge rate are not identical. This means that some storage assets are able to, for example, charge at a much faster rate than they can discharge. This is important to consider in this context as it has the potential to affect the number of cycles an asset can perform.

Finally, the Commission should underscore that having an asset denoted as being able to perform multiple cycles within the MRD does not impact its ability to comply with procurement orders designed to incent the development of LDES able to continuously discharge for over eight or more hours. Making this distinction is essential to clearly communicate to buyers and sellers of RA that development of emerging and long lead time ("LLT") resources will bolster diversity and reliability.

III. FOR ENERGY STORAGE RESOURCES, THE PMAX OF THE ASSET SHOULD CONTINUE TO BE USED AS THE SINGLE MONTHLY QC VALUE.

In the Report's discussion of the MRD, Southern California Edison Company ("SCE") suggests retaining the single monthly QC until CAISO completes any applicable stakeholder process to choose a new representation of resource reliability contributions.³ For most resource types, SCE argues, the single monthly QC value will be equal to the maximum counting value in the Commission's 24-hour framework.⁴ This issue is discussed elsewhere in the Report, where the CAISO notes that either a maximum value or a peak showing value could be used for their QC

³ *Ihid.* at 14.

⁴ *Ibid*.

value.⁵ In that section of the Report, SCE again underscores their proposal for the CAISO to continue to use a single showing value from LSEs and suppliers, the 'System RA MW' value, to represent the same single monthly QC value for resources as today.⁶ CESA supports this proposal, which would retain the use of an energy storage asset's Pmax for the purposes of establishing said single monthly QC value.

IV. ANY INCLUSION OF TEMPORAL CHARGING CONSTRAINTS TO THE CHARGING SUFFICIENCY VERIFICATION ELEMENT OF THE LSE SHOWING TOOL IS UNNECESSARY AND CONTRARY TO THE RAFRAMEWORK.

In the section discussing the LSE Showing Tool, Clean Power Alliance ("CPA") presented an alternative tool that incorporates a temporal charging and minimum power output ("Pmin") component with the goal of ensuring an LSE's excess energy needed to charge any storage resource would match the resource's actual charging parameters, among other changes. CESA does not support this proposed alternative as it places an unnecessary burden in a showing tool intended to serve as an accounting check, not a daily dispatch schedule.

While CESA understands the arguments in favor of incorporating some form of charging sufficiency verification to the RA program given the accelerating procurement and deployment of energy storage resources, it is essential to understand that the RA Program serves the purpose of ensuring that the CAISO will have sufficient capacity to depend on when serving load, whereas the CAISO's day-ahead and real-time markets will optimize the dispatch the energy of RA capacity resources. These processes, the CAISO's markets, which are much more detailed and complex than any of the tools discussed in the Report, should continue to be the key determinants of when and how RA-providing resources will participate in the provision of energy and ancillary services ("AS"). In this context, the LSE Showing Tool, while more sophisticated than the current showing materials, is intended to be a simplification of a single LSE's portfolio, not a fully comprehensive dispatch schedule that ignores the benefits of participating in an organized market such as the CAISO. Thus, the Commission should reject any inclusion of temporal charging constraints to the charging sufficiency verification element of the LSE showing tool.

⁵ *Ibid.* at 144.

⁶ *Ibid*, at 145.

⁷ *Ibid.* at 17.

V. FOR VERS, THE COMMISSION SHOULD FAVOR USING THE 12-SEASON APPROACH PROPOSED BY CALADVOCATES, WITH CONSIDERATION FOR TECHNOLOGICAL AND GEOGRAPHICAL DIVERSITY.

In the Report, several parties detail their proposals for solar and wind accounting under the SOD paradigm. The Report includes a useful chart to distinguish all of these proposals by sorting them based on their use of exceedance, their calibration method, and the profiles that would be used. Overall, CESA is supportive of exceedance profile-based proposals that are calibrated using high-load-day profiles. During the Workstreams, CESA expressed support for Pacific Gas and Electric Company's ("PG&E") top 5 days approach, as it focuses on a sample of days within the period that can reasonably relate to the conditions the RA program should provide a hedge against. Three proposals fall under this category: (1) Solar Energy Industries Association's ("SEIA") 50% exceedance proposal for solar resources; (2) PG&E's two-season approach for both wind and solar; and (3) Cal Advocates' four- and twelve-season approaches for both wind and solar.

CESA believes that Cal Advocates' 12-season approach, calibrated using PG&E's top 5 days methodology, is the only approach that fully leverages the flexibility of the SOD paradigm to recognize the year-round fluctuation of VER output in a manner aligned with reliability and ratepayer value. This is because Cal Advocates' approach seeks to quantify the difference between the estimated exceedance value and the observed value in the set of days used to calibrate, and minimize that difference, both positive (overestimation) and negative (underestimation), to find the ideal exceedance value applicable for the season. PGE's two-season approach, alternatively, seeks to only minimize positive difference (overestimation), thus yielding more conservative values from the same data. This focus on minimizing positive differences, or "positive error", also impacts the perceived value of increased granularity in the methodology. By focusing on minimizing overall error, not just positive error, Cal Advocates' method takes advantage of the flexibility of the SOD framework. In this context, it is simply inexcusable to utilize a single value for the whole year or even a two-season approach when the SOD framework allows for the development of a twelve-season approach that will minimize estimation error every single month.

⁸ See Report at 56.

⁹ *Ibid.* Notably, Cal Advocates' proposal can apply any calibration approach.

¹⁰ *Ibid.* at 46.

¹¹ *Ibid*, at 27.

While CESA clearly supports the 12-season approach proposed by Cal Advocates for both solar and wind resources, it is essential to underscore that, regardless of the methodology the Commission ultimately opts for, consideration of geographic and technologic diversity is essential to communicate proper market signals to buyers and sellers of RA, as well as to better link said program with long-term planning venues such as the Integrated Resource Planning ("IRP") proceeding. As such, CESA urges the Commission to adopt methodologies that recognize the regional and technological categories identified as a consensus item within the Report. 12

VI. FOR PAIRED RESOURCES, THE COMMISSION SHOULD CLEARLY AFFIRM THAT THE DELIVERABILITY STATUS OF THE VER COMPONENT IS IRRELEVANT FOR THE PURPOSES OF SUPPLYING THE STORAGE COMPONENT.

In the section regarding hybrid and co-located resources (also referred to herein as "paired" resources), the Report outlines a non-consensus item regarding the treatment of the VER component of these resources. As the Report details, CESA has proposed that, regardless of whether a paired resource charges from the grid or not, the deliverability of the VER component (or lack thereof) should not pose a limitation to comply with the internal sufficiency check. In other words, if the VER component is not deliverable, it may support the energy storage for the internal charging sufficiency verification, but it may not provide any additional RA value. Both PG&E and SCE agree to this treatment when the paired resource is charging exclusively on-site, but disagree with this approach for a resource that is able to charge from the grid. The CAISO, taking a position that is different from any other party in that section, doubts whether any of these approaches are feasible given its rules.

CESA urges the Commission to clearly affirm that, for all paired resources, the deliverability status of the VER component is irrelevant for the purposes of supplying the storage component. This clarification is urgent given the fact that a significant share of paired resources have successfully integrated energy storage assets by reallocating deliverability from a VER asset to an energy storage asset. Moreover, this is reasonable given the fact that, regardless of whether

¹² See Report at 76.

¹³ *Ibid*, at 81.

¹⁴ *Ibid.* 80 and 83.

¹⁵ *Ibid*, 82-83.

the storage component can charge from the grid or not, the ability of the VER component to provide energy to the storage component both bolsters the reliability of the storage component and is irrespective of the ability of the VER component to inject power to the broader CAISO system.

If the Commission fails to clearly affirm that deliverability status of the VER component is irrelevant for the purposes of supplying the storage component, CESA expects that a significant number of projects that could support California's reliability needs will be unable to do so without new deliverability being made available and/or network upgrades being built. In the current context of potential near-term capacity shortfalls, significant market transformation, severely limited deliverability availability, and increasingly difficult and costly transmission development, the Commission's rejection of CESA's proposed affirmation would introduce significant risks for developers, sellers, and buyers of RA. As such, CESA requests the Commission to clearly affirm that, for all paired resources, the deliverability status of the VER component is irrelevant for the purposes of supplying the storage component.

VII. CESA'S PROPOSED SEASONAL CHARGING SCHEME SHOULD BE ADOPTED AS IT WILL BRIDGE A GAP IN THE SOD FRAMEWORK BY INCENTING THE DEVELOPMENT AND CONTRACTING OF LDES ASSETS.

The Report summarizes CESA's proposal to allow for a better representation of LDES resources of durations above 10 hours. CESA's proposal is based on three facts. First, the SOD framework currently seeks to reduce or simplify a full month to a single "day", the target load shape utilized for the LSE showing. Second, there are energy storage resources that can be represented with relative ease within said framework (*e.g.*, 4-hour batteries), but there are other technologies, which are increasingly needed, whose competitive advantage is to perform arbitrage over periods of time longer than 24 hours, thus limiting their ability to be adequately represented in the simplified SOD paradigm. Third, provided that the transition to the SOD framework resources results in the elimination of the MCC buckets, the SOD paradigm provides no explicit incentive for the procurement of storage resources with durations in excess of 4 hours. ¹⁶ Given these facts, CESA concludes that the SOD paradigm requires some mechanism that can both

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¹⁶ Note that, while the SOD paradigm will recognize the value of storage resources with durations in excess of 4 hours, the paradigm does not currently include an incentive or requirement of any kind for LSEs to secure capacity that can dispatch continuously for longer.

enable the representation of a broad gamut of technological solutions while incentivizing their development and contracting.

To this effect, CESA proposes that, if an LSE has energy storage assets that would take longer than 24 hours to complete a full cycle, it should be able to make use of the "seasonal charging scheme" – a mechanism that would allow LSEs to take excess hourly capacity from one showing period (*i.e.*, a month) to another. This would capture the dynamic of moving springmonth overgeneration to provide charging sufficiency for energy storage assets shown in summer or winter months. This solution would allow for the carryover of excess energy to be used in future showings for storage charging. In essence, this would not set a "use it or lose it" approach for excess generation and allow for "banking" of these RA attributes across different showing periods.¹⁷

CESA recognizes that some enhancements to the LSE Showing Tool might be required for such a mechanism to be implemented. For one, the LSE Showing Tool would need some form of tracking of the excess hourly capacity that is being carried over from one showing to a future showing. Some parties during the Workstream meetings suggested that such a mechanism would be something akin to a rudimentary SOC tracker of the LDES asset that essentially counts how many MWh of excess hourly capacity from one period are being 'banked' to the next period. This tracker would only be necessary to ensure that the LSE is not 'banking' more excess hourly capacity than the asset can reasonably arbitrage. CESA does not oppose such a mechanism, insofar as it is clear that said tracking is only for the accounting purposes of the LSE Showing Tool's charging sufficiency verification, and that the storage asset's real-time SOC will be determined by its bids in the CAISO's markets.

This proposal should be adopted by the Commission or, at minimum, directed for further development. While this would ease compliance with the charging sufficiency verification, it would only be available to an LSE with energy storage assets that have an operational timeframe in excess of 24 hours. Thus, this mechanism creates the incentive for LSEs to procure these emerging technologies that bolster multi-day reliability while recognizing that they are specifically poised to provide weekly and even seasonal arbitrage.

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¹⁷ Report at 86.

VIII. THE COMMISSION SHOULD CAREFULLY CONSIDER THE TRADEOFFS AND COMPLEXITIES ASSOCIATED WITH REQUIRING FCDS RESOURCES TO MEET EACH LSE'S CHARGING SUFFICIENCY VERIFICATION.

During the Workstreams, CESA and other parties raised some concerns regarding the interpretation that any and all resources that could contribute to meet the charging sufficiency verification of standalone storage resources must have FCDS. Parties representing the renewable industry as well as CESA noted that this interpretation may run afoul with both assumptions ingrained in the IRP's Planning Track, the guidance provided in the Mid-Term Reliability ("MTR") Procurement Decision (D.21-06-035), and the material experience of developers and asset owners that have seen a trend in favor of reallocating deliverability from existing renewable generation to newly added energy storage assets that are paired on-site. Since the latter experience has been discussed in Section VI of these comments, CESA focuses on the first two arguments within this section.

First, the IRP Planning Track assumes significant levels of VERs that will be Energy-Only ("EO") resources that are assumed to require off-peak deliverability. This means that only a fraction of the GWs of VERs that are expected to come online will have FCDS since the IRP and the CAISO's Transmission Planning Process ("TPP") are mostly planning for the off-peak deliverability need. This is a desirable policy outcome since we want to minimize VER curtailment in off-peak hours to allow charging to be aligned with marginal greenhouse gas ("GHG") emissions; however, this outcome would not be possible if only FCDS resources can support the charging sufficiency verification. If that were the case, the IRP process would need to communicate portfolios with significantly higher levels of FCDS VERs, unduly raising costs to all ratepayers.

Second, guidance provided in the MTR Procurement Decision noted that paired (*i.e.*, hybrid or co-located) resources that are either physically or contractually paired could provide capacity for the replacement of the Diablo Canyon Power Plant ("DCPP"). This language does not

¹⁸ CPUC, Proposed Electricity Resource Portfolios for the 2023-2024 Transmission Planning Process, October 20, 2022, at 39. Available at:

https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energydivision/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycleevents-and-materials/2023-2024-tpp-portfolios-and-modeling-assumptions/23-24tpp_portfolios_workshopslides.pdf.

account for deliverability explicitly and creates a limbo for sellers and buyers given the other issues being discussed in the Report.¹⁹

In sum, requiring FCDS just because the Commission has apparently opted to equate supporting the charging verification requirement with providing RA will have significant effects beyond this program and could severely limit the amount of deliverability available in the foreseeable future. The Commission should look beyond the confines of this proceeding to understand the impact of this determination in order to properly assess the tradeoffs linked to it.

IX. IF THE COMMISSION MOVES FORWARD WITH REQUIRING FCDS FOR RESOURCES TO MEET THE CHARGING SUFFICIENCY VERIFICATION, THE COMMISSION SHOULD CONSIDER INSTITUTING AN INITIAL SYSTEM-WIDE TEST PRIOR TO REQUIRING SUFFICIENCY TO BE DETERMINED AT THE LSE LEVEL.

In the context of the previous section, the Report summarizes a proposal made by CESA to minimize the likelihood of individual LSEs failing their individual charging sufficiency verification checks due to lack of transactability in the current SOD framework, even though the system might be, on a collective basis, sufficient. CESA's initial proposal was to establish an initial energy test ("IET") to determine if charging sufficiency verification for standalone storage is warranted on an LSE-by-LSE basis. CESA's original concept, presented at the August 10, 2022 workshop, suggested to first estimate the energy output of all standalone EO VERs via the same exceedance methodology applicable to their RA-providing counterparts (*i.e.*, those with FCDS). Using this method, if the sum of said hourly output is expected to be enough to cover the charging requirements of all standalone storage shown for RA, no further individual LSE charging sufficiency test would be needed. If the sum of the expected hourly output is insufficient, a sufficiency test per LSE would be conducted. If this occurs, the individual test will need to be passed using RA-providing excess hourly capacity with FCDS above the hourly capacity requirements to charge the energy storage fleet.²⁰ If the Commission determines that requiring FCDS for the purposes of charging sufficiency verification is necessary, CESA continues to

¹⁹ See also Resolution E-5234 at 13-14 that approved an energy-only PV contract executed by SCE from its MTR RFO as contractually paired with FCDS energy storage to comply with D.21-06-035. Its approval does not make findings explicitly clarifying guidance, but the EO nature of the PV contract was nonetheless found compliant with D.21-06-035.

²⁰ Report at 87.

recommend some form of IET to minimize the likelihood of LSEs failing the charging sufficiency verification due to the lack of transactability in the current SOD framework.

X. <u>THE COMMISSION SHOULD REFRAIN FROM CONSIDERING AN UCAP-LIGHT METHODOLOGY AT THIS TIME GIVEN THE LACK OF DEVELOPMENT DURING THE WORKSTREAM PROCESS.</u>

In the Report, parties note that the UCAP-light methodology was not sufficiently developed to be included in the Report or to provide any basis for a Commission decision. UCAP-light was discussed briefly and only as it would apply to conventional resources. No discussion of how UCAP-light could be applied to energy storage resources took place during the Workstreams, nor was it included in the Report. In this context, CESA requests the Commission recognizes that there is not sufficient record for consideration of adoption of a UCAP-light or UCAP methodology at this time. Thus, aligned with CESA's comments in Section III above, Pmax should continue to be the basis for the QC determination for energy storage resources.

XI. FOR THE 2024 TEST YEAR, THE COMMISSION SHOULD ALLOW LSES TO COUNT ENERGY STORAGE RESOURCES AS CATEGORY 4 WITHIN THE MCC IF THEY PASS THE ENERGY SUFFICIENCY TEST IN THEIR SOD TEST YEAR SHOWING.

The Report details a proposal by SCE to create a bridge between the current RA construct and the SOD paradigm. Specifically, SCE proposed to count standalone energy storage resources in MCC Bucket or Category 4 in 2024 if they pass the energy sufficiency test. SCE argues that this is desirable since many LSEs are expected to be long on standalone energy storage resources, making MCC Bucket 4 treatment for storage as necessary to avoid over-procurement under existing MCC rules. SCE proposes to retain all other MCC bucket rules without the daily limitations for the 2024 Test Year.²³ CESA supports SCE's proposal for the test year as it will minimize potential reliability impacts of transitioning to the SOD framework and it aligns with the goal of moving towards SOD in a timely fashion.

²¹ *Ibid*, at 24.

²² See Report at 89-93.

²³ *Ibid.* at 138.

XII. CONCLUSION.

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

Respectfully submitted,

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CALIFORNIA ENERGY STORAGE ALLIANCE

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