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

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Forward Resource Adequacy Procurement Obligations.	Rulemaking 19-11-009 (Filed November 7, 2019)

COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON TRACK 3B.1, 3B.2, AND 4 PROPOSALS

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission" or "CPUC"), the California Energy Storage Alliance ("CESA") hereby submits these comments on the Track 3B.1, 3B.2, and 4 Proposals, submitted by the Commission Energy Division staff and parties on January 28, 2021. These comments are being timely filed and served pursuant to the schedule established in *Assigned Commissioner's Amended Track 3B and Track 4 Scoping Memo and Ruling* ("Scoping Memo") issued on December 11, 2020 by Assigned Commissioner Liane M. Randolph.

I. INTRODUCTION.

California's Resource Adequacy ("RA") Program stands at a crossroads. As the electric grid evolves, its changing composition presents new challenges that require a careful consideration of the rules in place and the incentives they create. The Commission, by virtue of the establishment of Tracks 3B.1, 3B.2, and 4, is cognizant of the need to reform the RA framework. As outlined in the Scoping Memo, the issues considered in the aforementioned tracks range from timely near-term adjustments to the current RA structure to substantial structural overhauls that would prepare the program for an increasingly decarbonized grid. At the same time, the volume of reforms and multiple iterations of revised proposals submitted by parties have created some level of uncertainty to buy- and sell-side participants of the RA Program.

In this context, it is fundamental for the Commission consider all proposed modifications, regardless of the track they are scoped, in a holistic fashion. That is, CESA recommends the

Commission consider how near- and long-term reforms can, singly and jointly, strengthen the RA Program and provide sellers and buyers of RA the necessary incentives and assurances to invest in the portfolio California requires to maintain reliability while achieving its environmental targets.

To this end, the Commission should review proposal with the following guiding principles in mind. First and foremost, the RA structure should **provide a reasonable degree of regulatory certainty to all market participants while ensuring the safe and reliable operation of the grid**. In the near term, this means ensuring resources that have been contracted for or are in development are allowed to participate as they have planned to, providing reasonable vintaging, as appropriate. In the long-term, this means minimizing the number and frequency of disruptive changes and standardizing the pace and nature of reforms to the program. Only by providing certainty regarding the expected requirements and revenues associated to the RA framework will market participants be willing and able to invest in the resource development necessary in light of the state's ambitious climate targets. As a result, the Commission should focus on reforms that ease the transition to a decarbonized grid, served primarily by zero-carbon generation resources and energy-limited resources.

This ties with the second principle: **consider the compatibility with existing planning goals, policies, and programs**. The Commission's RA Program does not exist in isolation; the decisions adopted within this proceeding significantly impact investments and resource development decisions. As such, the Commission must recognize the RA Program's significance in the attainment of the goals upheld in other proceedings – namely, though not limited to, the Integrated Resource Planning ("IRP") and Emergency Reliability proceedings. The RA Program must be aligned with new resource procurement and investments needed to transition the current RA fleet to one that also supports the state's decarbonization objectives. The IRP has a role to play in identifying the optimal portfolio that balances these many competing objectives, but the RA Program must also provide sufficient incentives and clear market signals to support load-serving entities ("LSEs") in the evaluation of new resource procurement by appropriately counting and valuing the capacity, energy, and availability attributes of these resources in the RA Program. For behind-the-meter ("BTM") resources, the importance of compatibility, coordination, and alignment may be even more significant given the multi-jurisdictional and cross-agency nature of issues that must be addressed to advance greater BTM participation from resources, including to deliver RA capacity; however, this complexity should not deter action, where timely action on

RA-specific matters can support a domino effect of issues and barriers being subsequently addressed in other proceedings and venues.

Finally, the Commission must **strike a balance between granularity and precision of meeting RA needs with a reasonable level of simplicity and transactability**. Track 3B.2 is tasked with addressing an emerging issue of meeting hourly energy and capacity requirements, where a narrow focus on the single gross peak may no longer be sufficient as the state relies increasingly on variable energy resources ("VERs") and various forms of energy storage and demand response ("DR") resources. The August and September 2020 heat waves and outages represent one such data point that highlights how the RA Program must increasingly focus on the net load peak period, but a focus on capacity needs outside of these hours will also be needed as the state transitions away from the existing fossil fleet to meet 2030 and 2045 decarbonization goals. At the same time, while accurate representation of hourly energy and capacity needs and the establishment of capacity contracting requirements and accounting accordingly is important, a reasonable level of simplicity of the RA structure as a whole is also needed to ensure fungibility of RA products and financeability of new resource investments. This entails maintaining a reasonable number of showings per year, allowing for comprehensive bilateral trading of RA products and characteristics, and providing a degree of predictability regarding the pace and nature of program updates.

With these principles in mind, CESA recommends that the Commission create a roadmap or pathway to transition from the adopted Track 3B.1 proposal to the adopted Track 3B.2 proposal. In other words, the near-term and longer-term reforms must be coordinated and include certain common elements that minimize the disruptive impacts of adopting a near-term proposal that does not reasonably transition to or is substantially different from the longer-term restructuring of the RA Program. Specifically, in these comments, CESA recommends that the Commission focus on the long-term RA reform proposal by Southern California Edison Company ("SCE") and California Community Choice Association ("CalCCA"), referred to herein as the Joint Parties, for further consideration, which best balances each of the guiding principles above. We detail our views in support of the Joint Parties' proposal below. CESA also sees merit in the slice-of-day ("SOD") proposal by Pacific Gas and Electric Company ("PG&E"), though we see certain limitations or areas for improvement that leads CESA to favor the Joint Parties' proposal. As a result, in the June 2021 Decision, the Commission should provide directional guidance that this proceeding will focus on additional program design and implementation details for the Joint Parties and PG&E proposals, weighing the pros and cons of each proposal and considering key threshold issues that must be addressed.

Taking into account the direction of long-term reforms to the RA Program, CESA recommends that the Commission identify incremental short-term reforms, among those presented in various parties' Track 3B.1 proposals, that will improve the program's ability to better reflect resource characteristics and capabilities, address near-term challenges with ensuring reliability, and align with the new resource investments required as directed through IRP and Emergency Reliability procurement. Any near-term reform proposal should be incremental in nature that does not detract from or create near-term disruptions to the longer-term reforms that will be necessary to address challenges around ensuring hourly capacity and sufficient energy.

CESA appreciates the opportunity to provide feedback to and collaborate with parties and the Commission. In this document CESA offers comments related to several Track 3B.1, 3B.2, and 4 proposals. Moreover, CESA revises its Track 3B.1 proposal in light of the recommendations put forth by other parties. As such, CESA's comments can be summarized as follows:

Our comments on Track 3B.2 proposals can be summarized as follows:

- PG&E's contract hedge proposal should not be adopted due to its inability to fully reflect the varying marginal costs of energy-limited resources.
- PG&E's SOD proposal substantially contributes to the discussion of RA reform, although it may create long-term risks as its elements could require constant updates, thus introducing financial risks. Furthermore, it does not provide clear upfront clarity on the requirements for resources with energy durations greater than four hours as currently proposed, which could result in under-procurement of these resources despite a near-term benefit to the system.
- San Diego Gas & Electric's ("SDG&E") proposal does not resolve the issues PG&E's proposal poses and segments the RA market in a way that favors conventional resources and hinders California's environmental goals.
- Energy Division's ("ED") proposals do not address energy requirements, and instead mostly focus on financial risks and shifting them to suppliers.

- The Joint Parties' proposal offers the most certainty once implemented and complies with the criteria of effectively integrating use- and energy-limited resources into the RA structure. CESA supports the Joint Parties' two-phase approach to address the temporal concern. The Joint Parties' proposal should include a compliance step that allows load-serving entities ("LSEs") to net or trade excess energy.

Our comments on Track 3B.1 proposals can be summarized as follows:

- BTM energy storage exports must be valued for RA capacity if Saturday availability is added to the Category DR and Category 1.

- The increase in the monthly 100-hour availability requirement is reasonable, so long as the Commission does not implement a bid cap proposal.

- Category 2 should be maintained because the fact that this bucket is "rarely used" is due to the lack of a capacity counting methodology for 8-hour energy storage resources. Moreover, the bucket is "rarely used" in practice due to the lack of a stable and transparent framework that would underwrite the ability to procure these resources effectively. Despite this, the initial signal with the current MCC buckets has worked as, LSEs are initiating procurement in anticipation of this need for energy storage resources with durations above four hours for RA requirements (*e.g.* the Joint Community Choice Aggregators' 2020 Long Duration Storage RFO).

- CESA's revised Modified Maximum Cumulative Capacity ("MCC") bucket proposal aims to support the development of reliable portfolios in the interim without too much disruption and until longer-term reforms are adopted and implemented.

- The zero marginal effective load carrying capability ("ELCC") for new solar contracts along with vintaging is reasonable.

- The proposal of the Center for Energy Efficiency and Renewable Technologies ("CEERT") to utilize the direct current ("DC") rating of the solar array when determining the qualifying capacity ("QC") methodology for a DC-coupled hybrid should be adopted. Approval of this proposal is merited since it is clearly in the scope of Track 3B.1, represents a minor yet impactful modification to the RA framework, and enables a clearer consideration of the contributions of hybrid assets. Project-specific QC considerations of hybrid and co-located resources should be utilized to incentivize optimal configurations and accurate recognize their reliability contributions.

- The Solar Parties' proposal to modify the definition of the QC of storage resources to account for (1) the MWh of stored energy and (2) the minimum-to-maximum MW range over which the MWh of stored energy can be discharged could ease procurement compliance and should be examined by the Commission.

Our comments on Track 4 proposals can be summarized as follows:

- Minimally, the Commission must adopt and affirm a baseline qualifying capacity ("QC") valuation for BTM energy storage, including its export capacity, to mirror that for in-front-of-the-meter ("IFOM") energy storage.
- The Commission should advance the development of the market-informed pathway by establishing specific data and information requirements to include in the CEC demand forms.

II. PG&E'S TRACK 3B.2 SLICE OF DAY AND CONTRACT HEDGING PROPOSALS.

To facilitate resources with limited availability during the day to collectively meet demand in all hours without increased administrative burden, PG&E proposed a SOD proposal where LSEs would need to show RA resources for several intra-day slices for a particular showing period (*e.g.*, seasonal). In this framework, a resource's ability to produce during a particular slice of the day, as measured using the exceedance methodology, would determine how much RA it would count for that slice. This framework allows LSE flexibility in the compliance of RA requirements, while considerably incorporating the particularities of energy- and use-limited resources. Moreover, by transitioning from monthly to seasonal showings, PG&E seeks to manage the number of showings and maintain administrative burdens reasonable.

Generally, CESA views good potential in PG&E as a long-term reform proposal and thus believe it should "remain on the table" as an option if the Joint Parties' Track 3B.2 proposal is determined to later have certain key threshold issues and implementation challenges to be difficult to address. At the same time, CESA highlights one key concern related to PG&E's proposal, as discussed further below.

A. PG&E's contract hedge proposal should not be adopted due to its inability to fully reflect the varying marginal costs of energy-limited resources.

PG&E's contract hedge proposal ties compensation for capacity to the unit's performance in the energy market, on an *ex post* basis. This proposal would essentially require RA suppliers to include a proxy of their variable operating costs in their RA contracts in order to determine a rebate of revenues in excess of those costs to the purchasing LSE, regardless of whether or not the energy is transacted in the CAISO's wholesale market. CESA understands that PG&E's intention is to ensure that RA contracted resources bid energy into CAISO market in a manner consistent with their marginal costs, as to minimize ratepayer costs. Despite its intention, this proposal is not well-equipped to represent the particularities or resources distinct from conventional thermal assets.

In essence, the method proposed by PG&E could work seamlessly for thermal resources by modifying their responsibility to a tolling agreement because thermal assets have marginal costs based mainly in their own generation inputs and requirements. Nevertheless, for energy-limited resources such as energy storage, marginal costs also incorporate an opportunity cost, which necessarily varies given the conditions of the grid, as well as expected price trends and the potential for resource degradation. These issues have been identified and analyzed by the CAISO in its development of a default energy bid ("DEB") but the complexity of incorporating them due to their inherent variance adequately remains to be addressed. As such, due to its inability to fully reflect the varying marginal costs of energy-limited resources, CESA opposes the adoption of this proposal.

B. PG&E's proposal substantially contributes to the discussion of RA reform, although it may create long-term risks as its elements could require constant updates, thus introducing financial risks.

As noted above, CESA appreciates the thought-work behind PG&E's proposal, as it balances the need to consider hourly capacity and energy requirements with a framework that is flexible, easily understandable, and based on current needs and conditions. Notably, under PG&E's framework, a resource would be counted and compensated for its ability to meet load during specific seasons and slices.[1] In this context, it is fundamental to understand how slices and seasons can be constructed, as these determinations will define the revenues RA assets would realize.

In their revised Track 3B.2 proposal, PG&E further defined the means to assess season and slice options. To do so, PG&E relied on a series of criteria including reliability, the integration of variable and energy-limited resources, and reasonable administrative burden for showing LSEs. Based on this set of criteria, PG&E used the 2019 California Energy Commission ("CEC") Integrated Energy Policy Report ("IEPR") for the California Independent System Operator ("CAISO") system mid-mid hourly forecast (1-in-2), 2018-2019 CAISO OASIS Resource Generation Data, and the 2021 CAISO Net Qualifying Capacity ("NQC") list to define season and slice options.[2] To establish seasons, hourly load data was used to identify the maximum load value for each hour across the month. These maximum hourly values are aggregated into a single load curve per month. The results of this exercise, according to PG&E, indicate two seasons already exist (*i.e.*, there are two groups of months with very similar levels of maximum hourly load): July through September and November through April.[3] The months of May, June, and October fall in between these groups. Further analysis of load data suggested to PG&E that June should be included in the Summer season (July-September), which leaves May and October as

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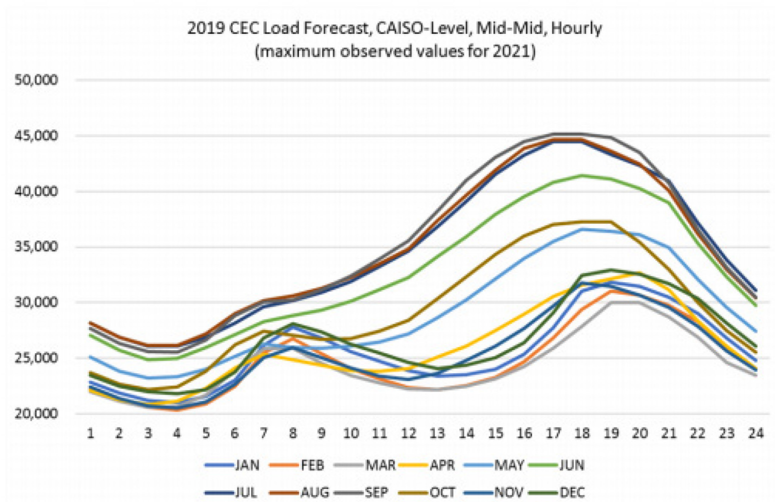
[1] PG&E, "Second Revised Track 3B.2 Proposals of Pacific Gas & Electric Company (U 39 E)", filed under this proceeding on February 26th, 2021, at A1-17 – A1-18.

[2] *Ibid,* at A1-4.

[3] *Ibid,* at A1-5 – A1-6.

"shoulder months".[4] The figure below shows the data analysis shared by PG&E within its revised Track 3B.2 proposal.

Figure 1: 2021 Load Forecast Analysis from PG&E's Revised Track 3B.2 Proposal



PG&E's review of generator data confirmed that it would be adequate to include June into the Summer season as it is the month with the highest solar production. With these considerations in mind, PG&E proposes the season options shown in the table below. With regard to slices, and to ease the counting of existing resources, PG&E recommends adopting a structure composed of six 4-hour slices, as exemplified by the figure below.

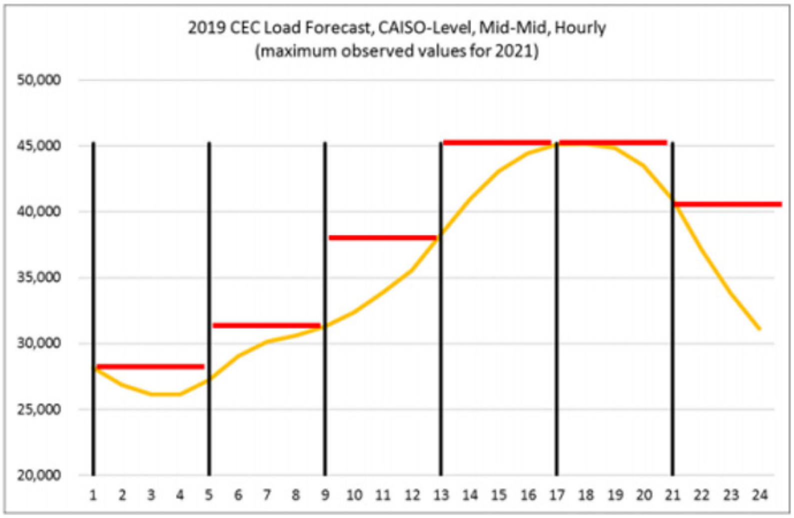
Table 1: Set of Season Options as include by PG&E in its Revised Track 3B.2 Proposal[5]

	Season 1	Season 2	Season 3
Option 1	Summer: June-September	Winter: November-April	Shoulder: May and October
Option 2	Early Summer: May-July	Late Summer: August-October	Winter: November-April
Option 3	Summer: May-August	Winter: November- April	Fall: September-October

[4] *Ibid,* at A1-6.

[5] *Ibid,* at A1-12.

Figure 2: Slice Examples as included in PG&E's Revised Track 3B.2 Proposal[6]

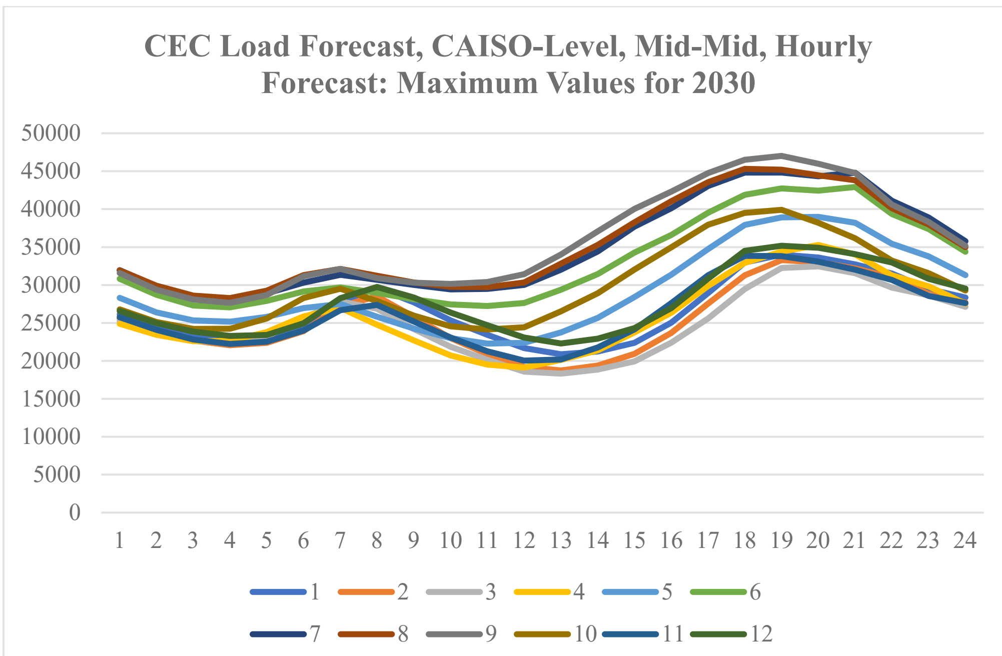


In order to analyze the robustness of these recommendations and assess whether PG&E's proposal is future-proof, CESA replicated the methodology followed by PG&E. This is relevant as CESA is concerned this proposal has the risk to necessitate updates that could modify or erode the value of previously contracted resources. For example, a four-hour storage resource that was procured and contracted for a very valuable slice of the day (say, 5-9pm) on a long-term basis would face similar risks as class-wide effective load carrying capability ("ELCC") approaches if the slice requirements widen (*e.g.*, 4-10pm) or shift (*e.g.*, 6-11pm). Similarly, the initial PG&E proposal provides little to no upfront certainty as to the requirements for longer-duration resources, and how this may evolve, which will lead to an under-procurement of longer-duration resources even though they would be providing substantial near-term benefits to the system. It is unclear how these changing needs would be treated for contracted resources. To identify the framework's potential need for updates, CESA utilized 2030 data to evaluate if determinations made based on 2021 data would withstand the changes expected on the grid. These analyses resulted in two key findings, which are summarized in Figure 3, below. First, CESA's analysis of the 2019 CEC IEPR CAISO System mid-mid hourly forecast (1-in-2) for 2030 suggest that the currently apparent grouping of months in seasons becomes less clear as time goes by. In essence, the figure below suggests that, as California advances to meet its

[6] *Ibid,* at A1-15.

environmental targets, the intra-day differences in maximum load across seasons is lower in the periods with the highest demand. This, in turn, results in the possibility of seasons being redefined as grid needs evolve, potentially affecting the revenues associated with assets being shown for specific slices and compliance periods. Moreover, it is worth highlighting that these trends are based on an extrapolation of the current state of the electric grid. As such, it is plausible that the differences perceived between these graphs are exacerbated as California moves more aggressively to comply with its environmental and climate goals.

Figure 3: CESA's 2030 Load Forecast Analysis using Methodology from PG&E's Revised Track 3B.2 Proposal



Second, CESA's analysis also indicates that there will be substantial changes in the load observed in particular hours. By normalizing 2021 and 2030 maximum managed load values, CESA created a heatmap on Table 3 that demonstrates load is expected to shift away from the period of hour-ending ("HE") 9 to HE 16, and towards the HE 21 to HE 1 period. These results are aligned with the expected impact of VERs on load. Nevertheless, they also indicate that a structure based on static slices may require continuous revisions, at least every five to ten years. As a result, and considering the fact that under this proposal resources are compensated based on their ability to serve load within a particular slice and season, CESA considers PG&E's proposal does not provide sufficient regulatory certainty to buyers and sellers of the RA program. Its potential for constant revision could substantially hinder the RA program's ability to signal the need to invest in necessary resources, potentially affecting the reliability of the electric system.

Table 2: Comparative Heatmap of Normalized Maximum Hourly Load Forecasts (2021-2030)

Comparative Heatmap of Normalized Maximum Hourly Load Forecasts (2021-2030)												
HE	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
1	5.0%	5.2%	5.0%	4.0%	4.7%	5.6%	5.6%	5.6%	5.8%	4.6%	5.2%	4.7%
2	3.7%	4.0%	3.8%	2.8%	3.4%	4.1%	4.0%	4.1%	4.2%	3.3%	4.0%	3.4%
3	2.5%	2.7%	2.6%	2.0%	2.5%	3.1%	3.0%	3.0%	3.1%	2.5%	2.7%	2.2%
4	1.7%	1.9%	2.0%	1.4%	1.9%	2.3%	2.2%	2.3%	2.3%	1.9%	1.9%	1.3%
5	1.1%	1.4%	1.3%	1.2%	1.7%	1.9%	1.9%	2.0%	2.1%	1.8%	1.3%	0.7%
6	0.9%	1.2%	1.6%	1.6%	1.6%	1.9%	2.1%	2.3%	2.4%	2.1%	1.0%	0.5%
7	1.3%	1.5%	2.0%	1.2%	0.4%	0.5%	1.1%	1.5%	1.8%	2.0%	1.3%	0.8%
8	1.4%	1.4%	-0.1%	-2.3%	-2.6%	-2.2%	-1.5%	-1.3%	-1.2%	-0.6%	0.8%	1.1%
9	-0.3%	-1.4%	-2.8%	-5.6%	-5.7%	-5.0%	-4.5%	-4.7%	-4.4%	-3.8%	-1.8%	-0.2%
10	-2.8%	-4.3%	-5.4%	-8.8%	-8.8%	-8.3%	-8.0%	-8.1%	-7.5%	-7.0%	-4.3%	-2.1%
11	-4.9%	-6.7%	-7.6%	-11.2%	-11.2%	-11.1%	-10.8%	-10.9%	-10.4%	-9.4%	-6.5%	-3.8%
12	-6.6%	-8.7%	-9.6%	-12.6%	-12.5%	-12.6%	-12.9%	-12.5%	-11.9%	-10.9%	-8.5%	-5.4%
13	-7.4%	-9.2%	-10.1%	-12.7%	-12.8%	-13.1%	-13.4%	-13.0%	-12.3%	-10.8%	-9.3%	-5.8%
14	-6.9%	-8.6%	-9.5%	-12.2%	-12.4%	-12.7%	-13.3%	-12.7%	-11.8%	-9.9%	-8.6%	-5.1%
15	-5.5%	-7.0%	-8.8%	-10.3%	-10.7%	-11.1%	-11.9%	-11.4%	-10.3%	-7.8%	-6.4%	-3.6%
16	-2.8%	-4.1%	-6.0%	-8.0%	-8.5%	-9.6%	-10.5%	-9.8%	-8.4%	-5.2%	-2.5%	-1.1%
17	0.2%	-0.8%	-2.9%	-4.1%	-4.6%	-6.3%	-6.9%	-6.3%	-4.7%	-1.2%	0.9%	1.2%
18	1.4%	1.5%	1.1%	0.1%	-0.4%	-2.6%	-3.1%	-2.5%	-1.1%	1.6%	1.7%	1.7%
19	1.8%	2.2%	2.2%	2.1%	2.1%	-0.1%	-0.5%	-0.5%	0.7%	2.4%	2.3%	2.0%
20	1.9%	2.4%	2.7%	2.7%	3.0%	1.2%	0.5%	0.6%	1.5%	2.8%	2.5%	2.2%
21	2.1%	2.6%	3.6%	3.4%	4.0%	5.0%	4.7%	4.5%	5.0%	3.9%	2.7%	2.3%
22	2.9%	3.3%	3.6%	3.8%	4.3%	5.5%	5.3%	5.3%	5.5%	4.3%	3.5%	2.9%
23	3.4%	3.7%	6.5%	5.8%	6.4%	7.9%	7.8%	7.8%	8.1%	6.3%	3.9%	3.2%
24	5.4%	5.7%	5.8%	5.3%	5.9%	7.4%	7.2%	7.1%	7.4%	5.8%	5.8%	5.1%

Finally, CESA ideally seeks a long-term RA reform proposal that has the potential to fit into supporting the fungibility and transactability of meeting Local RA needs. Currently, Local RA needs are guided by the CAISO's Local Capacity Technical Studies, which inform energy requirements and charging limitations, but they do not translate these technical limitations and considerations into RA products. Under PG&E's proposal, unless addressed through further revisions, CESA sees some limitation in PG&E's proposal in being adaptable to this context. Specifically, if slices are established in different ways and at different periods of the day at the system and local levels, it could lead to additional showing and compliance requirements and/or lead to inefficient procurement of siloed system versus local procurement, instead of combined procurement of both attributes from the same resources. Furthermore, it would be preferable to find a way to clarify the differentiated need for four-hour and longer duration resources upfront in the methodological approach to provided needed clarity and consistency for the market to respond appropriately.

In sum though, CESA sees some potential in PG&E's proposal and thus support its continued examination. Until additional improvements or modifications are made, however, CESA favors the Joint Parties' proposal at this time.

III. SDG&E'S TRACK 3B.2 FIXED AND DYNAMIC LOAD PROPOSAL.

SDG&E first introduced its Track 3B.2 proposal to the record of this proceeding on February 26, 2021, largely based on PG&E's proposal. SDG&E seeks to build off the SOD concepts developed by PG&E and further ease the compliance with RA requirements by: (1) separating "fixed load" ("FL") from "dynamic load" ("DL"); and (2) translating slice-specific energy requirements into a stack of capacity requirements. While appreciative of the insight and thoughtful consideration, CESA sees some critical limitations of this proposal.

A. SDG&E's proposal does not resolve the issues PG&E's proposal poses with regards to certainty in asset valuation.

One potential risk related to the adoption of PG&E's SOD proposal is the possibility of having a season and slice structure that requires constant updates due to material changes in load conditions. This, in turn, could result in the modification or erosion of the RA value of a specific asset. SDG&E's proposal does not mitigate these risks, as it fails to directly account for the characteristics of RA resources and instead uses a proxy variable, the "slice multiplier" ("SM"), to account for an asset's potential to meet DL across the day.[7]

Notably, the SM is based on an asset's ability to meet load across a specific slice, set at a length of four hours. SDG&E argues this length is adequate due to the widespread use of four-hour resources to comply with RA requirements.[8] CESA recognizes this reasoning as valid; however, it fails to account for a means to properly value resources of all durations. This omission is substantial, as it is possible future load conditions do not clearly align with four-hour slices and may instead necessitate six- or eight-hour slices due to the flattening and extension of the peak period. As a result, SDG&E's proposal would need to reevaluate both the length of the slices and the SM concept if load conditions change, adding risk and complexity to the RA framework instead of establishing a counting and valuation methodology that is prepared for an increasingly decarbonized system.

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[7] *See* SDG&E, "San Diego Gas & Electric Company (U 902 E) Second Revised Track 3B.2 Proposal", filed under this proceeding on February 26th, 2021, at A-1 – A-2.

[8] *Ibid,* at A-4.

B. SDG&E's proposal segments the RA market in a way that favors conventional resources and hinders California's environmental goals.

One of the key distinctions between the proposals made by PG&E and SDG&E is the latter's differentiation of FL and DL within an LSE's total RA requirements. In their Track 3B.2 proposal, SDG&E notes that the FL need would be set by the minimum load of the load forecast for compliance period, be it the month, quarter, or season.[9] Conversely, the DL would be the portion above the minimum load to the peak of the load forecast, represented by the maximum load per each 4-hour slice.[10] CESA understands one of the benefits of this approach is the potential to stack RA needs in a way that retains a single compliance metric in the process, the net qualifying capacity ("NQC"). However, SDG&E additionally states that FL needs must be met solely with 24x7 resources that are not energy-limited.[11] In contrast, both 24x7 assets and energy-limited resources can be used to meet the DL need.

This fragmentation of the RA market differs substantially from what is proposed by PG&E. While PG&E's proposal allows LSEs to flexibly pick which resources are used to comply with the totality of a slice's RA need, SDG&E's approach is not designed to facilitate a transition away from conventional assets. From CESA's perspective, SDG&E's proposal reserves a substantial share of the market for mostly thermal resources. While some parties could argue this is reasonable in the near-term, particularly considering the overlaps with Local RA, this structure is not adequate to incent the resource development and procurement activities needed to meet the directives recently derived from the IRP proceeding. Moreover, a proposal that would tie the RA program to fossil-fueled assets could materially hinder California's chances to comply with targets such as those of SB 100. As a result, CESA recommends the Commission declines to adopt this proposal.

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[9] *Ibid,* at A-4 – A-5.

[10] *Ibid,* at A-5.

[11] *Ibid*.

IV. ENERGY DIVISION'S TRACK 3B.2 BID CAP AND FIXED-PRICE FORWARD CONTRACT PROPOSALS.

During workshops held on February 8-10, 2021, ED presented two proposals: (1) the Bid Cap proposal; and (2) the Standardized Fixed-Price Forward Contract ("SFPFC") proposal. While understanding of the Commission's intent in these proposals, CESA believes that these proposals are overly complex and/or disruptive to the RA Program, without necessarily addressing the issues identified in Track 3B.2 or addressing them in the most optimal way, where the CAISO markets and IRP procurement each play a role. Furthermore, any presumed problems of the lack of energy delivery in the CAISO market does not necessarily have to be resolved by the RA Program. There is some coordinated role that the RA Program can play versus what the CAISO market can do (*e.g.*, through default energy bids). CESA provides comments on these proposals below.

A. The Bid Cap proposal is contrary to market principles and may result in an increase in the cost of RA for ratepayers.

In their December 2020 filing, ED recommended the application of a bid cap to RA resources within their contracts which would be equal to the higher of $300/MWh or the resource's DEB.[12] ED reiterated this proposal in the RA Workshop held February 10, 2021. As CESA has noted previously, imposing a contractual bid cap provision as the one proposed by ED would have a disruptive effect on the RA market. This proposal has the potential of creating significant market inefficiencies as well as increasing the cost Californian ratepayers pay for the maintenance of a reliable electric system. This proposal should not be pursued by the Commission.

Given the Commission's jurisdiction, a bid cap provision for RA contracts could solely be directed to be included in the contracts associated with Commission-jurisdictional entities and balancing areas. As a result, if this proposal were to be adopted, RA providers would face a marketplace with disparate requirements and opportunities for cost recovery. First, it is worth highlighting the effect this proposal would have during periods of supply scarcity. In these periods, the grid is able to signal the need for additional supply through scarcity pricing. If such a bid cap were to be applied in a subset of the BAs that an RA

[12] Energy Division, "Addendum to Energy Division Issue Paper and Draft Straw Proposal for Consideration in Track 3B.2 of Proceeding R.19-11-009", filed under R. 19-11-009 on December 21, 2020*,* at 16.

resource could potentially serve, this resource would face limited incentives to enter into RA contracts with load-serving entities ("LSEs") located in a BA where the bid cap provision is in effect. This is due to the fact that said resource's energy revenues would be substantially hindered by the price cap, particularly during times of grid stress and supply scarcity. Hence, ED's proposal has the potential to utilize supply inefficiently and reduce the overall amount of RA supply, outcomes that would hinder the reliability of the state's electric system.

Second, as resources under the proposed bid cap would have limited opportunities to recover some of their costs through the provision of energy at times when scarcity pricing is in effect, these assets would require other revenue streams to ensure they are able to cover all the costs associated with their development and operation. In the context of RA provision, it is likely resources would increase their RA contract prices to make up for the loss of opportunities to recuperate some of these costs through the energy market. As such, ED's proposal could increase the costs Californians pay to maintain a reliable grid. The impact of an increase in RA contract prices should not be overlooked by the Commission, as it could jeopardize the Commission's ability to comply with its mandate to maintain electricity rates at reasonable levels. Therefore, CESA does not recommend adopting ED's recommended bid cap provision.

B. The SFPFC proposal does not fully integrate use- and energy-limited resources and introduces risks by relying on the spot market to fill energy provision gaps.

On December 21, 2020, Administrative Law Judge ("ALJ") Debbie Chiv issued a Ruling containing an addendum to the ED's Issue Paper and Draft Track 3B.2 Straw Proposal based on Frank A. Wolak's paper, "Long-Term Resource Adequacy in an Intermittent Renewable and Import Dependent Future in California." In addition to providing these updates to the proposal, the Commission held a workshop on ED's forward energy requirements proposal on January 8, 2021, and another on February 10, 2021. Based on the conversations among parties regarding this proposal, ED issued an Addendum to Staff Draft Straw Proposal for Consideration in Track 3B.2 of the present proceeding on February 26, 2021. CESA appreciates the work of Professor Wolak and the Commission to enhance parties' understanding of this proposal. Nevertheless, CESA continues to oppose its adoption as it is heavily focused on the financial responsibilities associated with the RA Program rather than the incorporation and representation of diverse resource characteristics in said framework.

In the aforementioned papers, Professor Wolak notes that a supplier (*i.e.*, a seller of RA) with the ability to serve demand at a reasonable price may not do so if it has the ability to exercise unilateral market power in the short-term energy market. If said supplier has entered into a fixed-price forward contract obligation, the supplier would find it profit-maximizing to minimize the cost of supplying this forward contract quantity of energy.[13] As a result, establishing forward energy requirements with the possibility for financial hedging would convert a previously perverse incentive into one that guarantees load coverage by incenting a behavior which would maximize the expected profit of a supplier. In essence, a supplier would have a strong incentive to hedge against potentially unfavorable prices at the time of delivery as established by the forward contact since the spot market prices could fall below the supplier's marginal cost. Since this supplier has a guaranteed revenue dictated by the fixed price of the forward contract, it would have an incentive to maximize profit by covering its requirement with the cheapest possible generation.[14]

As CESA understands it, this proposal hinges on a series of assumptions regarding market participants' level of risk aversion, the availability of additional generation in the real-time (or "spot") market, and the incentives derived from the possibility to hedge against unfavorable prices in the market. First, this proposal assumes that suppliers are generally risk averse and will find it beneficial to *ad minimum* partially hedge their positions considering the probability of spot prices falling below their marginal costs. CESA does not agree with this assumption, as the proposal does not offer empirical evidence and does not take into account that risk aversion is directly related to the penalties attached to a failure to comply.

[13] Wolak, "Long-Term Resource Adequacy in an Intermittent Renewable and Import Dependent Future in California", at 27.

[14] *Ibid.*

Second, this proposal assumes that if actualized demand exceeds the demand a supplier, or set of suppliers, can provide during a particular interval, they will have the ability to turn to the spot market in order to cover their position. However, this proposal does not remedy a situation in which, despite the best forecasting efforts, demand rises in a way which could severely hinder the reliability of the broader system. Moreover, this proposal ignores the fact that load in specific areas or sub-areas cannot be met any resource available, but only by resources that have transmission access to local load pockets. Thus, this proposal assumes a paradigm that favors import reliance over one that incents sufficient capacity to be built and available. As Wolak notes, this reliance could be surpassed if the state were to build additional controllable generation or make substantial investments in energy storage assets.[15] However, instead of proposing the latter two solutions, the paper goes on to assume import reliance is unavoidable and puts forth placing the forecasting and risk management responsibility on suppliers that could erroneously assume prices will exceed their marginal costs or sufficient generation will be available through the real-time market. It is worth noting that the assumption of import reliance fails to take into account the potential for declining available capacity across the Western Electricity Coordinating Council ("WECC") as numerous Western states have adopted policies similar to California around the Renewable Portfolio Standard ("RPS").

Third, this proposal's hedging component does not limit the possibility of hedgers further securing their positions by having forward contracts of their own. It could be the case that Supplier A hedges its position by establishing a forward contract with Supplier B. Supplier B, being a profit-maximiser itself, would have the incentive to hedge its own position.[16] This would further dilute the physical responsibility of covering demand, potentially replacing it with a set of convoluted financial responsibilities. While this case could be considered an edge case, it is easily arguable that, if the same risk aversion and profit-maximizing assumptions are to be applied to all suppliers, Supplier B would have the incentive to hedge its position fully.

[15] *Ibid.*

[16] *Ibid.*

Fourth, the incentive to cover load with least-cost assets creates risks that do not advance the attainment of California's ambitious environmental and energy targets.[17] While securing least-cost solutions is an optimal strategy to maximize supplier profit, it does not directly correlate with the current emphasis the Commission has placed on integrating preferred resources, many of them use- or energy-limited, that curb GHG emissions, air quality impacts, and local pollution. Instead, this component, paired with the proposal's intention to award multi-year forward contracts, could enable otherwise sub-optimal thermal generation to remain in the market despite its adverse climate impacts.

In sum, CESA does not believe this proposal is properly equipped to resolve the current challenges of the electricity sector as it: (1) assumes risk-averse behavior that is not proven or easily generalized; (2) fails to incent new generation assets from developing; (3) negates the possibility of robust investment in in-state resources; and (4) could hinder California's opportunity to achieve its environmental goals. Moreover, this proposal places much of the forecasting and risk-bearing responsibility on non-regulated suppliers rather than the LSEs regulated by the Commission. As such, CESA does not support this proposal and urges the Commission to focus its attention on other suggestions within this proceeding.

V. JOINT PARTIES' TRACK 3B.2 BOTTOM-UP NET QUALIFYING ENERGY PROPOSAL.

SCE and CalCCA, collectively the "Joint Parties," submitted a long-term reform proposal to determine RA needs based on a bottom-up, non-coincident net peak approach.[18] As such, this proposal would convert all deliverable VER resources to RA-reducing assets, eliminating the need to calculate and update ELCC values.[19] Moreover, the Joint Parties' proposal would incorporate energy requirements to the RA construct by representing the overall RA need in both terms of capacity and energy, the latter with the inclusion of the net qualifying energy ("NQE") attribute.[20]

[17] *Ibid,* at 28.

[18] *See* Joint Parties, "Southern California Edison Company (U 338-E) and California Community Choice Association's Second Revised Track 3B.2 Proposal", filed under this proceeding on February 26th, 2021, at A-6 – A-7.

[19] *Ibid*.

[20] *Ibid,* at A-10.

The framework proposed by the Joint Parties represents a positive and promising evolution of the RA Program, as it ensures the framework will evaluate the value of energy- and use-limited assets in a more complete manner, considering characteristics such as duration and beyond the simplification of the FHR. As the composition of the Californian grid evolves, the need for long-duration energy storage ("LDES") will become greater. This has been noted by the Commission in the recent IRP Mid-Reliability Ruling,[21] in the Reference System Portfolio ("RSP") developed in the IRP proceeding,[22] and in the Joint Agency Report developed in the context of SB 100 by the Commission, the CEC, and the California Air Resources Board ("CARB").[23] Furthermore, this trend has been confirmed by third-party studies, such as "Long Duration Energy Storage for California's Clean, Reliable Grid", a report commissioned by CESA which estimates a need of between 45 and 55 GW of energy storage of different durations by 2045.[24] As such, the valuation of duration within the RA proceeding is crucial, as it provides certainty to developers and buyers that said characteristic will be valued and transactable.

Moreover, by virtue of its design, which assumes a high penetration of VERs and an increasing reliance on assets capable of shifting VER generation, the Joint Parties proposal offers the most regulatory certainty to buyers and sellers alike. This proposal clearly notes that all MWh will be treated equally, regardless of their source. For energy storage, the proposal also avoids the arbitrary class-wide approaches to capacity valuation with some discrete "n-hour" rule and instead explicitly recognizes energy attributes, thus allowing for flexible approaches to more granularly capture the value of energy storage of all types of durations. With energy being accounted in RA requirements and with NQE being tradable between LSEs, CESA also views any transition risk of recently contracted energy storage to potentially be minimized – an important consideration since significant amounts of energy storage is being procured for near-term reliability needs. Finally, with a smart focus on energy attributes through an NQE construct, CESA sees potential to apply

[21] *See* CPUC, "Administrative Law Judge's Ruling Seeking Feedback on Mid-Term Reliability Analysis and Proposed Procurement Requirements", filed under Rulemaking ("R.") 20-05-003 on February 22nd, 2021.

[22] *See* CPUC, "2019-2020 Electric Resource Portfolios to Informa Integrated Resource Plans and Transmission Planning", Filed under R. 16-02-007 on April 6th, 2020, at 41.

[23] *See* California Energy Commission ("CEC") *et al,* "Draft 2021 SB 100 Joint Agency Report", December 2020. Available at https://efiling.energy.ca.gov/getdocument.aspx?tn=235848

[24] *See* Strategen Consulting, "Long Duration Energy Storage for California's Clean, Reliable Grid", December 2020.

the Joint Parties' proposal not only at the system level but also at the local level, leading to potential efficiencies and ratepayer savings in procurement of resources to meet both needs without conflicting or inconsistent requirements for System versus Local RA.

In sum, the Joint Parties' proposal has been developed for the grid of the future, not the past. CESA, just as the Joint Parties, acknowledges that the implementation of this proposal could require active participation of all involved parties over a series of workshops. There are critical threshold issues that have yet to be addressed, including whether LSE-specific bottoms-up forecasting is actually implementable by LSEs and the CEC alike, whether the proposal hinges on CAISO portfolio analyses on a regular basis, and if so, whether the CAISO is able to perform such studies on a regular basis. Until such threshold questions can be answered and addressed, CESA sees value in keeping the PG&E SOD proposal in consideration for long-term reforms (subject to addressing the concerns noted above), though we voice our preference for the Joint Parties' proposal among those presented in Track 3B.2 of this proceeding.

Notwithstanding these outstanding issues, CESA views the Joint Parties' proposal as the most promising and future-proof proposal that addresses each of the issues identified in the RA Scoping Memo for Track 3B.2 of this proceeding. In this section, CESA offers comments and feedback relative to a series of issues noted by the Joint Parties and other stakeholders in this proceeding.

A. CESA supports the Joint Parties' two-phase approach to address the temporal concern.

In their February 2021 filing, the Joint Parties offer a two-phase approach to address the temporal concern parties have pointed out within their Track 3B.2 proposal.[25] In their understanding of the temporal concern, it is possible for an LSE to comply with all NQC, NQE, and charging requirements with a selected portfolio of resources while still failing to provide the desired level of reliability due to the timing of energy production. This issue is directly related to the fact that the Joint Parties' proposal is based on a rearrangement of the target load shape to identify the total energy requirement and the total excess energy.

[25] Joint Parties, "Southern California Edison Company (U 338-E) and California Community Choice Association's Second Revised Track 3B.2 Proposal", filed under this proceeding on February 26th, 2021, at 3.

As such, any solution to the temporal concern must be designed as an additional instrument for RA compliance, rather than a revision of the requirement-setting methodology.

Given the challenges presented by the temporal concern, CESA shares the Joint Parties' view that an initial study to determine the likelihood, magnitude, and timing of this potential shortfall is prudent and smart to assess the scope and magnitude of this risk. Said analysis, as described within the Joint Parties Second Revised Track 3B.2 proposal, should be the first step to determine if further action is needed.[26] Generally, CESA hypothesizes that if sufficient energy is procured and contracted, the CAISO wholesale markets could, in theory, resolve or considerably mitigate the temporal concern. Furthermore, clarifying differentiated requirements, according to the forecasts, between four-hour and longer-duration resources will also help to mitigate the temporal concern. As such, CESA supports the Joint Parties' recommendation for the Commission to collaborate with the CAISO in the development of this study.

In their February 2021 filing, the Joint Parties put forth a series of potential solutions for the temporal concern that could be considered if the initial study indicates further action is needed. Among those options, the Joint Parties include the establishment of Minimum Availability Categories ("MACs") and the assignment of MOOs for specific hours, rather than on a 24x7 basis.[27] Both of these options should be evaluated further by the Joint Parties, as they could ease the counting practices and operations of energy-limited resources such as energy storage. CESA elaborates on the MACs and their potential in subsequent subsections.

B. The Joint Parties should consider incorporating the MACs to their proposal in order to provide certainty with regards to the value of LDES assets.

Currently, the Joint Parties proposal would assign energy storage assets with two attributes that signal their value and capabilities: the NQC and the NQE. The Joint Parties proposal would base the NQE values on the physical attributes of the resource (*i.e.*, its maximum power output and duration). The NQC value, nonetheless, would continue to be based on the FHR and dependent on the availability of excess energy within the LSE's

[26] *Ibid,* at 3-5.
[27] *Ibid,* at 5-8.

portfolio, unless the study related to the temporal concern indicates further action is needed. This arrangement is suboptimal, as it fails to properly resolve the contradictory market signals buyers would be subjected to. In essence, under this arrangement it is possible to find two resources with identical NQC values and widely different NQE values.

In order to address these counting issues and mitigate confusion, CESA considers the Joint Parties proposal to institute MACs to be valuable and should thus be considered regardless of the outcome of the initial study designed to address the temporal concern. The MACs, as described by the Joint Parties, would require minimum showings of resources that, singly or in combination, can deliver energy during strips of net load hours to meet specific threshold of dispatch (4-, 8-, 16, or 24-hour).[28] Under this proposal, an LSE would count the capacity contributions of energy-limited resources based on the energy duration it is designed to serve. As such, a 10 MW 4-hour storage device that can output at that level for four hours would be counted at 10 MW if shown in the MAC for a 4-hour duration device; but, if it is in the 8-hour MAC, the maximum capacity would need to be 5 MW. Conversely, an LSE needing to meet an 80 MWh energy need over an 8-hour period could choose a single 8-hour 10 MW/80 MWh storage device or could choose two 4-hour 10 MW/40 MWh storage devices, both counting at the same NQC.[29] CESA believes this approach to treat different durations under the MAC approach should be part of the Commission's specific consideration and study with CAISO, and we look forward to contributing to this process. This proposal has substantial merit, and we believe design considerations could include minimizing the need for vintaging, retaining value of procured resources based on clear signals, and assigning NQC values in a manner consistent with the capabilities of the resource and the needs it meets, rather than an arbitrary rule determined by the operation of a primarily fossil-based grid. Moreover, the MAC proposal can clearly demonstrate the equal value of any MW and MWh, regardless of its source. This creates a fair and level playing field for all storage technologies, allowing LSEs to flexibly decide which resources are better suited to serve their load.

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[28] *Ibid,* at 5-6.

[29] *Ibid.*

As such, CESA recommends the Joint Parties integrate this concept to their proposal and base the NQC value of energy-limited assets on these assumptions. CESA believes its Modified MCC Track 3B.1 proposal could serve as a bridge towards the implementation of the MACs, as it too values NQC based on the category in which an asset is shown. Thus, CESA urges the Commission to consider both these proposals in conjunction, noting the certainty they would provide by establishing clear rules relative to the counting of LDES resources.

C. The Joint Parties should consider including a compliance step that nets the excess energy of all LSEs for the purposes of verifying the NQC of energy storage resources.

In their proposal, the Joint Parties note that the NQC attribute of an energy storage resource could be derated based on the availability of excess energy within the particular LSE's portfolio.[30] As CESA understands it, this element has been included due to the bottom-up nature of this proposal, as well as a means to corroborate that storage resources, themselves incapable of generating electricity, will count with sufficient energy for eventual dispatch. This element of the proposal, while generally consistent with the methodology to derive and determine RA requirements, fails to consider the actual interactions of the energy markets coordinated by the CAISO. In essence, as the penetration of VERs increases across the CAISO footprint, more energy will be available for storage charging throughout the state. VERs, contrary to dispatchable resources, have an incentive to inject as much energy as possible into the grid as they generate it. As a result, it is unreasonable to assume the energy generated by deliverable VERs will not be transmitted to other LSEs' territories, allowing for the charging of storage assets.

In this context, CESA recommends the Joint Parties reconsider the compliance mechanism they included in their Revised Track 3B.2 Proposal, filed December 2020.[31] Specifically, CESA considers that an additional step should be included:

> "12. Portfolio is assessed to see if there is sufficient energy available from the resources (including storage resources but net of energy

[30] *Ibid,* at A-16 – A-17.

[31] *See ibid,* at A-17.

> required to charge storage) to meet the net load needs of the LSE during the hours of positive net load.
>
> 13. If there is storage in the LSE portfolio, the energy need above is assessed to determine if there is excess energy necessary to fully charge the storage to deliver the necessary capacity.
>
> *14. If after assessing the relationship between the LSE's excess energy and the storage included in the LSE's portfolio a fraction of excess energy remains unused, it shall be allocated to a collective pool in case other LSEs result to be deficient.*"

This modification is acceptable for three reasons. First, the current Joint Parties' proposal does not offer a way to trade NQC and NQE as separate RA characteristics.[32] While this omission could be cured in future implementation workshops, it is possible that the bottom-up nature of this approach limits transactability. Second, it is complex to allow LSEs to directly trade excess energy, as it is not associated with valued and monetized RA characteristics; quite the contrary, as most of it will relate to the generation of RA-reducing assets (*i.e.*, VERs). Third, while this modification could create leaning concerns initially, the overall RA structure has created the incentives for LSEs to procure resources that allow them to utilize increasing shares and volumes of energy-limited assets, thus incenting the development of additional VER generation and/or hybrid and co-located assets. As such, the addition of this modification, at least until follow-up workshops are scheduled, is reasonable and should be incorporated.

D. The Joint Parties should consider the implications of requiring full deliverability for VERs in order to net them from the total RA requirement.

In their February 26, 2021 filing, the Joint Parties comment on the deliverability requirements applicable for VERs under their proposal.[33] Specifically, the Joint Parties note that deliverability will be required for VER resources to be netted from the total RA requirement of an LSE. Moreover, the Joint Parties highlight that the Commission and the CAISO should collaborate to determine it the current on-peak and off-peak deliverability

[32] *Ibid,* at A-20 – A-21.

[33] *Ibid,* at 13.

standards are sufficient to guarantee the reliable operation of this framework and the grid as a whole.[34]

In our view, these requirements are at odds with the operating conditions of the grid, particularly as they relate to the consideration of BTM VERs. The requirement for full deliverability might significantly understate the amount of excess energy an LSE has within its portfolio. While a conservative outlook on VER generation is supported on the grounds of reliability, this could be accomplished by using conservative forecasts derived from the IRP and Renewable Portfolio Standard ("RPS") proceedings, rather than by ignoring the thousands of MWh from BTM resources that lack deliverability inject daily to California's grid. Thus, CESA urges the Joint Parties to include the issue of deliverability to the list of concerns to be addressed in the implementation phase of this proposal.

VI. ENERGY DIVISION'S TRACK 3B.1 PROPOSALS TO ADJUST MAXIMUM CUMULATIVE CAPACITY BUCKETS AND MARGINAL ELCC FOR NEW SOLAR CONTRACTS.

Energy Division staff proposed two changes to the MCC Buckets ("Proposal A"): (1) require Monday through Saturday availability for all MCC buckets; and (2) increase minimum availability of Category 1 resources from 40 to 100 hours per month between 4pm and 9pm, year-round. In addition, Energy Division staff proposes to eliminate Category 2 on the basis that this bucket is "rarely used."

A. Behind-the-meter energy storage exports must be valued for RA capacity if Saturday availability is added to Category DR and Category 1.

Whether IFOM or BTM, energy storage resources are capable of being used and useful on a daily basis, where a change to the operational requirements for all MCC buckets to add Saturday availability is reasonable and can be fulfilled by energy storage. However, this could pose a major problem for BTM energy storage resources that are "load limited" – *i.e.*, they are unable to export their energy storage capacity to the grid and are not valued and compensated for these exports. If energy storage resources are operating as Proxy

[34] *Ibid.*

Demand Resources ("PDRs"), which is the most readily available way for BTM energy storage resources to participate in the RA Program, their RA capacity is measured and settled for customer load reductions to zero; any energy deliveries involving "negative load reductions" (*i.e.*, exports) are not recognized, valued, and compensated.

As a result, the addition of Saturday availability for Category DR and 1 will have material impacts on BTM energy storage resources unless the export capacity problem is resolved. BTM energy storage resources for commercial and industrial ("C&I") customers in particular will be significantly disadvantaged in the RA Program as a result of this change, if adopted as proposed by staff, since C&I loads are typically lower on the weekends, thereby limiting the RA capacity that could be delivered to customer load within the PDR construct. Consequently, BTM energy storage resources will need to reduce their estimated QC to be consistent across the Monday through Saturday days of the month.

If the Commission adopts this proposal, CESA believes that the Commission must take the proposal submitted by CESA along with other parties (Sunrun, California Solar and Storage Association ["CALSSA"], Tesla, CEERT, Vote Solar, and Enel X North America) to address the RA capacity valuation issues for hybrid solar and storage and standalone storage resources, especially regarding the valuation of export capacity. CESA thus conditionally supports this proposal *if* action is taken in tandem regarding the Joint DER Parties' Track 4 proposal to allowing and valuing export capacity in the interim. Otherwise, CESA opposes this proposal.

B. The increase in the monthly 100-hour availability requirement is reasonable, so long as the Commission does not implement a bid cap proposal.

CESA conditionally supports the monthly 100-hour availability requirement, as proposed by Energy Division staff, which essentially means that Category 1 resources are expected to cycle daily for at least four hours per day. However, the Commission should consider the interdependencies of the various proposals submitted by parties and staff. As discussed further below, Energy Division staff raises a question to parties on whether the Commission should adopt maximum bid prices, which will have significant impacts on whether a resource will be able to be made available and dispatched for more than 100 hours.

C. Category 2 should be maintained because the fact that this bucket is "rarely used" is due to the lack of a capacity counting methodology for 8-hour energy storage resources.

CESA opposes the elimination of the MCC Category 2 bucket. The elimination of MCC Category 2 is problematic and could materially harm the incentives to procure long-duration resources to meet LSE-specific RA obligations. Furthermore, CESA does not find merit in the arguments used by ED in favor of this modification. During the RA Workshop held by the Commission on February 18, 2021, ED staff noted their proposal to eliminate Category 2 rested upon the fact that LSEs seldom procure resources with durations above four hours but below sixteen hours. In essence, ED considers Category 2 should be eliminated due to the lack of procurement of these types of resources. CESA does not agree with this conclusion. Rather, this modification would effectively erode the sole incentive LSEs currently have to procure energy-limited resources with durations in excess of four hours. This effect would considerably hinder California's chances of meeting its ambitious energy and climate goals.

Within the IRP proceeding, the Commission's own analysis has identified the need for between 973 and 1,600 MW of long-duration energy storage assets, defined as energy storage resources with durations above eight hours. These results have been confirmed by other studies, such as the Joint Agency Report on the implementation of Senate Bill ("SB") 100,[35] and more recently in the Commission's Ruling regarding mid-term reliability analysis and proposed procurement.[36] The CAISO's recently-published 10-year Local Capacity Technical Study also underscore the need for longer-duration storage that would likely fall within the current MCC Category 2, where local areas and sub-areas on average show maximum discharge hours ranging from 7 to 13 hours to achieve a MW-for-MW

[35] *See* California Energy Commission ("CEC") *et al,* "Draft 2021 SB 100 Joint Agency Report", December 2020. Available at https://efiling.energy.ca.gov/getdocument.aspx?tn=235848

[36] *See* CPUC, "Administrative Law Judge's Ruling Seeking Feedback on Mid-Term Reliability Analysis and Proposed Procurement Requirements", filed under Rulemaking ("R.") 20-05-003 on February 22nd, 2021.

reduction of existing generation.[37] As such, the Commission and other state agencies are well aware of the need for such assets.

Unfortunately, LSEs have not procured these resources at the pace necessary for compliance with SB 100 and other targets. CESA believes that elements other than the MCC framework itself are the main drivers behind the LSEs' hesitance to invest in such assets. Namely, the sub-utilization of Categories 2 and 3 are a result of the current valuation methodology used by the Commission to count for the capacity value provided by storage assets. As CESA has noted previously, the four-hour rule ("FHR") limits the valuation of energy storage resources by capping its capacity value at the maximum power output an asset can sustain for four or more hours.[38] This, in turn, negates any incentives an LSE might have to contract for storage assets with longer durations. Given this counting methodology, LSEs would only be incented to seek contracting storage assets with durations above four hours once they have exhausted the proportion of System RA they cover with Category 1 assets. As a result, the inclusion of Categories 2 and 3 represents a modest requirement-based "incentive" for LSEs to procure or develop needed assets, despite the fact these resources would not currently be valued for the incremental arbitrage they can offer compared to their four-hour counterparts.

Thus, the elimination of Category 2 will not serve the goal of preparing California or the RA program for the achievement of its environmental goals. Instead, this modification would eliminate any incentive to procure storage with durations above four hours but below 16 hours, furthering the role conventional thermal resources play in the provision of capacity. In order to future-proof the RA program and ensure LSEs have the incentives to contract for resources the Commission knows necessary, CESA urges the Commission to adopt its Modified MCC proposal as presented below, or as a minimum maintain the current MCC configuration. This revised structure incorporates two of the three reforms proposed by ED in Proposal A, without eliminating Category 2. Moreover, as detailed in the January 28th, 2021 filing, CESA's proposal would also revise the QC

[37] *See* Appendix G: 2030 Local Capacity Technical Study at 23-24 from the CAISO's 2020-2021 Draft Transmission Plan.

[38] *See* Decision ("D.") 14-06-050, issued under Rulemaking ("R.") 11-10-023 on July 1, 2014; and CAISO Tariff, Section 40.8.1.16 (b).

counting rules for storage assets to correspond with the MCC buckets for which it is shown. CESA explores this element of its proposal in the context of Track 3B.2 in subsequent sections of this document. Jointly, these modifications would create the incentives for LSEs to construct a diverse portfolio of energy storage assets to ensure reliability and prepare California for the decarbonization its citizens have established through the State Senate.

Table 3: Example of the Potential Modifications to the Current MCC Framework[39]

Category	**Status Quo Availability**	**CESA's Proposed Availability**
DR	Varies by contract or tariff provisions, but must be available Monday – Friday, 4 consecutive hours between 4 PM and 9 PM, and at least 24 hours per month from May – September.	Varies by contract or tariff provisions, but must be available Monday – **Saturday**, 4 consecutive hours between 4 PM and 9 PM, and at least 24 hours per month from May – September.
1	Monday – Friday, 4 consecutive hours between 4 PM and 9 PM, and at least 40 hours per month from May – September.	Monday – **Saturday**, 4 consecutive hours between 4 PM and 9 PM, and at least **100 hours per month**
2	Every Monday – Friday, 8 consecutive hours that include 4 PM – 9 PM.	Every Monday – **Saturday**, 8 consecutive hours that include 4 PM – 9 PM **or** **Every Monday – Saturday, 8 non-consecutive hours that include 5 AM – 9 AM and 5 PM – 9 PM**
3	Every Monday – Friday, 16 consecutive hours that include 4 PM – 9 PM.	Every Monday – **Saturday**, 16 consecutive hours that include 4 PM – 9 PM **or** **Every Monday- Saturday, 16 non-consecutive hours that include 5 AM – 9 AM and 5 PM – 9 PM**

[39] It should be noted that CESA's Track 3B.1 proposal for revised MCC buckets does not represent a consensus view among CESA members. The proposal has been provided to enable a bridge solution that would mainly serve to connect Track 3B.1 with Track 3B.2, notably the comments included herein and for subsequent consultations on RA implementation in California. Some CESA members find the current MCC methodology to be an acceptable bridge solution.

4	Every day of the month. Dispatchable resources must be available 24 hours.	Every day of the month. Dispatchable resources must be available 24 hours.

D. The zero marginal ELCC for new solar contracts along with vintaging is reasonable.

Based on the Final Root Cause Analysis ("FRCA") Report and the recent effective load carrying capability ("ELCC") studies conducted by the investor-owned utilities ("IOUs"), staff proposed that all solar resources that reach commercial online date ("COD") after December 31, 2020 receive a QC value of zero, unless they were contracted before the date of the forthcoming Track 4 Decision in this proceeding, where such contracts along with existing solar resources would continue to receive average ELCC values ("Proposal B"). CESA generally supports this proposal where the appropriate vintaging is applied to minimize disruptive impacts to contracting. Similar vintaging considerations should be top of mind as the Commission considers long-term RA reforms as well.

VII. MISCELLANEOUS TRACK 3B.1 PROPOSALS.

In the following section, CESA comments in support on the miscellaneous proposals in Track 3B.1 submitted by CEERT and the Solar Parties.

A. CEERT's proposal to utilize the DC rating of the solar array when determining the QC methodology for a DC-coupled hybrid should be adopted.

In their revised Track 3B.1 proposal, CEERT notes that the current counting methodology for hybrid resources omits consideration of DC-coupled hybrid resources. CEERT argues that by using the DC rating rather than the alternating current ("AC") rating of the solar array the Commission will have a clearer understanding of the energy available to charge the storage component of the hybrid and, therefore, a more accurate capacity value for it.[40]

[40] CEERT, "Track 3B.1 proposal of Center for Energy Efficiency and Renewable Technologies", filed under this proceeding on January 28, 2021, at 3.

This proposal is based on the fact that most hybrid resources are DC coupled and share an inverter with a single AC rating capped at the point of interconnection ("POI"). As such, the current methodology, which assumes distinct AC ratings does not properly represent the real operation of hybrid resources. Moreover, this methodology results in a loss of value, as energy produced by the solar component may exceed the AC injection limit but still be utilized for on-site charging due to the benefits of DC coupling. To address this deficiency, CEERT proposes utilizing the DC rating of the solar array when determining the QC methodology for a DC coupled hybrid. CESA supports this proposal, as it is clearly in the scope of Track 3B.1, it represents a minor yet impactful modification to the RA framework, and it enables a clearer consideration of the contributions of hybrid assets. CESA therefore urges the Commission to adopt the aforementioned modification. It also points to how project-specific QC considerations of hybrid and co-located resources should be utilized to incentivize optimal configurations and accurate recognize their reliability contributions.

It is relevant to note that while this proposal addresses issues related to hybrid resources more broadly, additional details regarding the QC evaluation of hybrid resources that do not charge exclusively from on-site generation must be resolved. In particular, the Commission must collaborate with parties to determine a fair QC methodology for resources that claim investment tax credit ("ITC") benefits but charge partially from the grid. CESA and other parties have referred to this case previously as the "75-99% case" given the thresholds for ITC compliance. To this end, CESA urges the Commission to establish a working group process in its June decision that will derive in a methodology applicable for future RA years.

B. The Solar Parties' proposal to modify the definition of the QC of storage resources could ease procurement compliance and should be examined by the Commission.

Within their Track 3B.1 proposal, the Solar Energy Industries Association ("SEIA"), the Large-Scale Solar Association ("LSA"), and Vote Solar (collectively, the "Solar Parties") propose modifying the definition of the QC of storage resources from the current single metric of 'MW capacity with a 4-hour duration' to a more flexible definition with two metrics: (1) the MWh of stored energy and (2) the minimum-to-maximum MW range over which the MWh of stored energy can be discharged.[41] The Solar Parties note that this methodology is similar to the one used currently for hydroelectric resources and more accurately recognizes the range of RA capacities and storage durations that a battery can provide. This methodology is promising and should be closely considered by the Commission. While it could significantly ease the procurement and valuation of different types of energy storage, CESA recommends that the Commission guard against outcomes where resources could get both higher QC and energy values without sufficient compliance checks. A thorough review of hypothetic assets and their applications could demonstrate the proposal's ability to minimize gaming risks. As described above, CESA believes it is important for the RA Program to signal and incentivize LSEs to contract for RA resources that accurately meet the capacity and energy requirements.

Noting the aforementioned considerations, CESA supports this proposal and considers it could be applied to ease the valuation of assets in light of the Commission's directives signaling the need for long-duration energy storage.

VIII. JOINT DER PARTIES' TRACK 4 PROPOSAL BEHIND-THE-METER ENERGY STORAGE CAPACITY.

The Joint DER Parties submitted a Track 4 proposal on January 28, 2021 that outlines barriers, issues, and solutions across both market-informed and market-integrated pathways for enabling BTM capacity from hybrid solar and storage capacity, which can be similarly extended to standalone stationary energy storage as well as mobile storage in the form of vehicle-to-grid ("V2G") resources. We address QC valuation, dispatch requirements, must-offer obligations, dispatch triggers, incrementality, deliverability, and retail-wholesale estimation issues across these pathways, and they warrant deeper examination in this and other Commission proceedings.

Understandably, many of the issues require coordination with the CAISO, CEC, and Commission and may require actions to be taken in the appropriate Commission proceedings. For these reasons, CESA has previously advocated for a new Multiple-Use Applications ("MUA") proceeding to tackle each of these issues in a holistic and coordinated way, without having to defer

[41] Solar Parties, "Proposals of the Solar energy Industries Association, the Large-Scale Solar Association and Vote Solar in Track 3B.1 of the Commission's Resource Adequacy Program", filed under this proceeding on January 28, 2021, at 5.

issues in a piecemeal way until the entire framework is put together. However, until such a proceeding is put into place, the RA proceeding has a role to play in establishing a baseline QC valuation for BTM energy storage, including its export capacity – a threshold issue that can be readily addressed in this proceeding.

A. Minimally, the Commission must adopt and affirm a baseline QC valuation for BTM energy storage, including its export capacity, to mirror that for IFOM energy storage.

As outlined in the Joint DER Parties' Track 4 proposal, existing market pathways for BTM storage capacity is limited by load within the traditional DR construct, thus leading to stranded export capacity that could be delivered to meet RA needs and having implications on how BTM storage projects are ultimately developed and contracted to meet must-offer obligations. On the latter issue, for example, to ensure that the full QC of the BTM storage resource or aggregation is made available in line with their must-offer obligations, capacity may be contracted in conservative ways to set the QC of the resource or aggregation to the load reduction potential as opposed to the combination of the load potential *and* export potential. This represents an inefficient outcome for BTM energy storage resources and underutilizes their capabilities. Without a valuation for the full BTM energy storage capacity potential, which entails a valuation of the export capacity as well, BTM energy storage resources will continue to be sized and contracted in sub-optimal ways. Additionally, this is one of the key issues for why there is insignificant or no participation in the Distributed Energy Resource Provider ("DERP") model.

In the Emergency Reliability proceeding, R.20-11-003, progress was made on this front with the issuance of a Proposed Decision ("PD") that would establish a new Emergency Load Reduction Program ("ELRP"). Among other things, the proposed ELRP would make Rule 21 exporting distributed energy resources ("DERs") such as energy storage and V2G resources eligible for participation and would direct the development of an exporting counting methodology relative to some baseline by introducing a new concept known as incremental load reductions ("ILR"). This is a significant develop for which CESA commends the Commission, where methodologies arising out of the ELRP could be leveraged for the purposes of measuring RA capacity from exporting DERs like energy storage. At the same time, the proposed ELRP operates outside of the RA framework and only compensates resources for after-the-fact performance on an energy-only basis, not for its RA capacity.

With export counting methodologies developed as part of the implementation of the proposed ELRP and with sub-metering approaches available technologically and adopted as one of the eligible CAISO baseline methodologies, the pieces will be in place to enable both *ex ante* and *ex post* valuation of the RA capacity of BTM energy storage resources, whether hybridized or standalone, or whether stationary or mobile. However, a baseline QC valuation for BTM energy storage is needed by which such direct measurement and incrementality rules could potentially be applied to avoid double-counting capacity in planning and operational forecasts. Though incrementality and deliverability are considerations that may require additional follow-up discussion and workshops, CESA believes a starting point must be established with a baseline QC that recognizes the full range of load reduction and exports from BTM energy storage resources.

Fundamentally, the baseline QC valuation for BTM energy storage should match that of IFOM energy storage, where the former should similarly be able to provide, at minimum, four hours of continuous dispatch with a particular focus on the availability assessment hours ("AAH") of 4-9pm. Just because a BTM energy storage may serve onsite customer load in whole or in part in addition to serving the grid makes little difference in CESA's view for differentiating QC valuation for BTM energy storage resources relative to IFOM energy storage resources – either way, customer load is being served. Direct measurement via sub-metering approaches further facilitates the valuation of the QC of these resources. In sum, at minimum, the Commission should affirm this fact in the June 2021 Decision.

Finally, CESA cautions the Commission against deferring or waiting for developments in R.20-11-003 as a replacement or priority over addressing these matters in this proceeding. The ELRP is proposed as a voluntary, energy-only pilot program intended to address truly emergency capacity tied to extreme-weather driven risks, as experienced in the August and September heatwaves and outages. In other words, R.20-11-003 is not tackling the issues and questions around how to actualize BTM energy storage for regular, everyday capacity. Limiting BTM energy storage and/or their exports to emergency reliability events would be a major under-utilization of these resources and their potential to support the grid under blue-sky, normal operating conditions.

B. The Commission should advance the development of the market-informed pathway by establishing specific data and information requirements to include in the CEC demand forms.

CESA urges the Commission to continue the development of the market-informed pathway as an alternative means to realize BTM energy storage potential. The existing market-integrated pathways, with modifications and improvements as identified in the Joint DER Parties' proposal, still represents a valuable means to operationalize these resources in the CAISO market, but there are certain efficiencies that could be gained through the development of a market-informed pathway, which if structured correctly, can be designed to deliver reliable, used and useful, and measurable capacity for LSEs who seek to reduce their RA obligations.

However, CESA sees some threshold issues around how to reflect such market-informed resources in the CEC forecast. Our takeaway from the November 24, 2020 workshop was that the CEC and Commission would need to collaborate to develop the specific data requirements for LSEs to include in the IEPR demand forms as well as on the specific operational requirements (*e.g.*, dispatch triggers) that would provide assurances to both agencies that the market-informed resource warrants peak-related load forecast adjustment credits. This may involve agreed-upon methodologies to value this RA-reducing effect prior to operation to include in the forecast and then to adjust this effect over time as these resources operate in accordance with these requirements, which presumably would be reflected in these demand forms and would result in adjustments to these credits.

Since these issues will likely not be resolved over the course of the next few months, CESA recommends that the Commission direct inter-agency working groups as part of the June 2021 Decision that would produce a report with recommendations for the Commission's future consideration in a Track 5 of this proceeding or in a successor proceeding. This is an issue that will likely require some determination made in the RA proceeding, not in any other Commission proceeding, so CESA finds this direction to be imperative to advancing progress on the development of a market-informed pathway.

IX. <u>CONCLUSION</u>.

CESA appreciates the opportunity to submit these comments on the Track 3B.1, 3B.2, and 4 Proposals and looks forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

Jin Noh
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CALIFORNIA ENERGY STORAGE ALLIANCE

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