February 22, 2022

Email to: docket@energy.ca.gov
Docket Number: 21-RPS-02
Subject: The Joint Parties' Comments on the Staff Workshop on
RPS Requirements for Energy Storage Devices

Re: Comments of the California Energy Storage Alliance and Clean Power Alliance Regarding the February 8, 2022 Staff Workshop on Renewable Portfolio Standard Requirements for Energy Storage Devices

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Dear Sir or Madam:

The California Energy Storage Alliance ("CESA") and Clean Power Alliance ("CPA") (together, "the Joint Parties") appreciate the opportunity to comment on the Staff Workshop on Renewable Portfolio Standard ("RPS") Requirements for Energy Storage Devices ("Workshop") held on February 8, 2022. The Joint Parties recognize the California Energy Commission's ("CEC") initiative to assemble a vast group of stakeholders to evaluate long overdue revisions to the RPS Guidebook.

CESA is a 501(c)(6) organization representing over 100 member companies across the energy storage industry. CESA is both technology and business model neutral. CPA is a community choice aggregator ("CCA") that partners with local leaders to help bring access to clean power to 32 communities across Los Angeles and Ventura counties.

I. <u>INTRODUCTION & SUMMARY</u>.

The Joint Parties appreciate the CEC hosting this workshop and seeking to address the interplay between the rising usage of energy storage, California's deep decarbonization targets, and the RPS program. As noted by CESA and other stakeholders during the Workshop, revisions to the treatment of energy storage within the RPS framework are warranted. When the RPS Program was first established in 2002, energy storage was nascent and a technological novelty; however, today, it represents a mainstream resource that has been widely procured, deployed, and identified as necessary for our long-term decarbonized future. With almost 4 GW of grid-connected storage to date, California's electric sector is experiencing the transformation necessary to achieve its ambitious energy and climate goals. In this context, revisiting and rethinking the RPS eligibility criteria, requirements, and accounting mechanisms for energy storage is timely. As such, the Joint Parties' comments are focused on the following areas:

- **The energy sector has changed dramatically since RPS was first adopted:** When the RPS was adopted California sought to incent the deployment of renewable generation. Today, California is planning to fully decarbonize all energy delivered.

- **The current treatment of storage under the RPS Guidebook does not align with the needed incentives to ensure decarbonization:** Currently, RPS does not incent paired arrangements due to the way renewable energy credit ("REC") accounting treats roundtrip efficiency ("RTE") losses. This creates inconsistent accounting constructs and could result in suboptimal land use in some areas, as well as increased ratepayer costs.

- **Treatment of storage merits revision to incent cost-effective deployments that can enable deep decarbonization and ensure all energy delivered to the grid comes from renewable sources:** The storage of renewable energy is independent from generation and should not be penalized in any configuration via REC accounting. This should apply to a vast set of storage technologies and applications, including vehicle-to-grid ("V2G") and electrolytic hydrogen.

II. COMMENTS.

1. The energy sector has changed dramatically since RPS was first adopted.

During the Workshop, CEC staff asked stakeholders how the energy landscape has changed as a result of the increasing use of energy storage devices. From the Joint Parties' perspective, the energy sector is decidedly different today relative to when the RPS Program was first introduced. According to the CEC's data, when the RPS was adopted in 2002, only 4,397 GWh, about 2.4% of all generation, came from intermittent renewable resources (wind, solar PV, and solar thermal). By 2020, this figure had increased tenfold, to 43,154 GWh, or 22.6% of all generation.[1] The RPS Program has undoubtedly contributed to this substantial increase in intermittent renewable generation. The creation of the REC market paired with significant investments in the research and development ("R&D") of better and cheaper generating assets have made variable energy resources ("VERs") unprecedentedly economic. The transformation of the capabilities and economics of these generation technologies have significantly contributed to the state in continuously updating RPS targets, from 20% by 2017 to 60% by 2030. As such, it is due to the success of policies that have sought to maximize the generation of renewable energy that California has set its aims to more ambitious goals.

Today, California's most significant climate commitment comes in the form of Senate Bill ("SB") 100, which calls for the total decarbonization of all the electricity sold at retail by December 31, 2045. This policy goal denotes a sharp change in focus as, in contrast with the RPS framework and targets, the goals of SB 100 are not framed in terms

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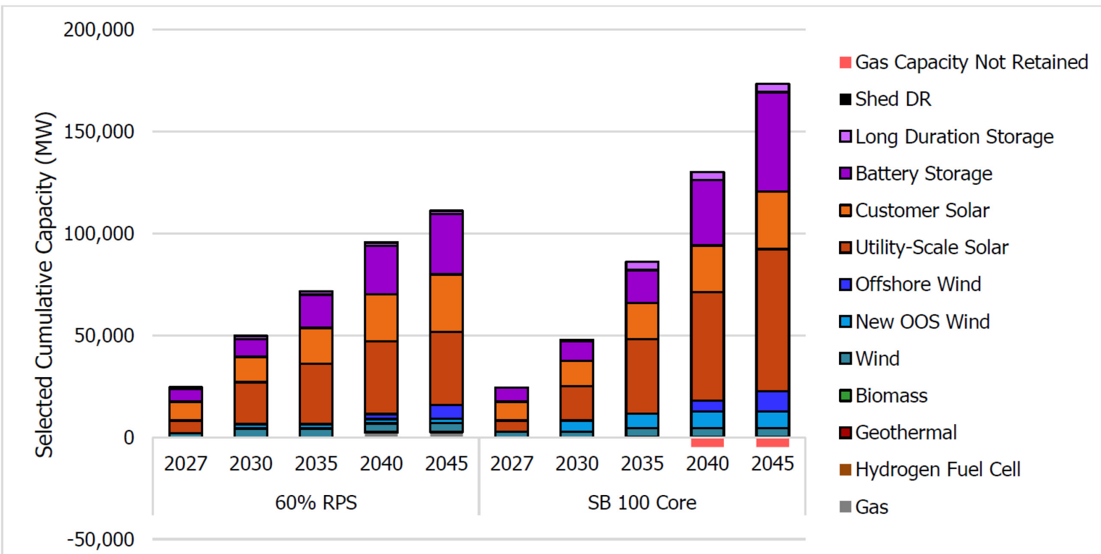
[1] *See* CEC, *Electric Generation Capacity and Energy*, available at https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/electric-generation-capacity-and-energy

of energy generated, but in terms of energy served. To meet this goal, the CEC is collaborating closely with the California Public Utilities Commission ("CPUC") and the California Air Resources Board ("CARB") (jointly, the "Joint Agencies") to identify a suite of incremental resources that can ensure delivery of carbon-free electricity for millions of Californians within the next 25 years. The most recent SB 100 Joint Agency Report ("JAR") highlights that California will require 145 GW of incremental utility-scale capacity additions by 2045, including 70 GW of solar PV, 4 GW of pumped storage, and 49 GW of battery storage.[2] These figures demonstrate that meeting our policy targets is directly contingent on the use of energy storage as a means to ensure all energy delivered comes from a renewable source. In other words, the modeling in the 2021 SB 100 JAR indicates that the most cost-effective way of further integrating VERs and ensuring compliance with our policy targets is through the mass deployment of energy storage.

Figure 1: Cumulative Capacity Additions for SB 100 Core Scenario and RPS Reference Scenario[3]



Source: CEC staff and E3 analysis

Figure 1 illustrates the portfolios associated with meeting a 60% RPS by 2030 only (left, "60% RPS") and meeting a 60% RPS by 2030 plus full decarbonization of all electricity sold at retail by 2045 (right, "SB 100 Core"). These portfolios clearly demonstrate that our current policy focus, SB 100, goes significantly beyond RPS requirements. The fact that these portfolios differ by over 60 GW of incremental capacity demonstrates that the binding constraint for resource selection in an SB 100 context is not the percentage of renewable generation but the need to arbitrage it from when it is produced to when it is required. As a result, any policy geared towards furthering renewable integration must align with this increasing need to arbitrage it to the hours of demand.

[2] 2021 SB 100 JAR, at 75.
[3] *Ibid* at 10.

2. The current treatment of storage under the RPS Guidebook does not align with the needed incentives to ensure decarbonization.

During the Workshop, CEC staff asked stakeholders about the impacts of current RPS requirements on energy storage development. CESA noted that current RPS rules provide significant disincentives to pairing energy storage with eligible renewable facilities, an outcome that may hinder local reliability and increase ratepayer costs, ultimately jeopardizing decarbonization efforts. The Joint Parties elaborate on this outcome and its implications further in this section.

Today, the RPS Guidebook recognizes energy storage technologies as additions or enhancements to eligible renewable facilities. The RPS Guidebook notes that storage can be either integrated into the facility or directly connected to the facility. The core difference between integrated and directly connected energy storage resources is whether they are able to charge exclusively from the onsite eligible renewable resource (integrated) or whether they can charge from additional energy sources, such as the grid or a non-eligible facility.[4] Importantly, in either of these cases the storage device is considered part of the eligible facility and any losses related to its use must be subtracted or netted from the generation of RECs via the formulae shown in Figure 2. Critically, the definition of these two pairing methods is inconsistent with the RPS Program's treatment standalone energy storage.

Figure 2: Formulae to Estimate Renewable Generation for Eligible Facilities with Storage Devices [5]

1. Measurement of energy resource integrated into the facility:

$$\textit{Renewable Generation} = \sum(\text{MWh})_{\text{electricity from an eligible renewable facility}} - \sum(\text{MWh})_{\text{losses from energy storage}}$$

2. Measurement of energy resources directly connected to the facility:

$$\textit{Renewable Generation} = \sum(\text{MWh})_{\text{electricity from an eligible renewable facility}} - \sum(\text{MWh})_{\text{losses from energy storage}} - \sum(\text{MWh})_{\text{additional electricity}}$$

Currently, the RPS Program does not consider standalone storage as an eligible technology since it does not generate electricity and is defined only as a potential addition or enhancement to eligible renewable resources. In this context, the RPS Guidebook does not attempt to quantify the effects of standalone storage assets on renewable generation that is separately interconnected. This creates an uneven playing field for paired generation and energy storage resources behind the same point of interconnection ("POI").

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[4] RPS Guidebook, at 40.
[5] *Ibid* at 41.

As mentioned during the Workshop, current RPS rules would treat two resource configurations with the same components in significantly different ways. Figure 3 seeks to illustrate how two assets, a solar PV generator and storage resource, would be treated differently under the same conditions and dispatch instructions just because they happen to share a point of interconnection ("POI"). In Scenario A, a 100 MW solar resource and a 100 MW storage resource are electrically independent, with separate POIs. In Scenario B, the same assets share a point of interconnection in an arrangement akin to a co-located resource. Notably, under these two arrangements, each of the components would be visualized and issued dispatch instructions independently due to the current ISO rules for standalone assets (Scenario A) and co-located resources (Scenario B). Figure 3 shows a scenario in which each of the components are issued identical dispatch instructions which, when followed, result in the same net outcome from a grid perspective, yet produce a different number of RECs. Suppose an afternoon hour in which the solar component is forecasted to output 50 MW and the storage asset, by virtue of its bid curves, is instructed to charge (*i.e.* consume) 40 MW. As noted in Figure 3, Scenario B results in fewer RECs due to the rules outlined in Figure 2 despite the fact that both scenarios would be equivalent from a grid perspective. In the most extreme hypothetical where the standalone energy storage resource is sited at a separate POI but just adjacent to the RPS-eligible generation facility, this dichotomous REC treatment with paired generation with energy storage is underscored as unreasonable.

Figure 3: Comparison of Configurations and Respective REC Productions [6]

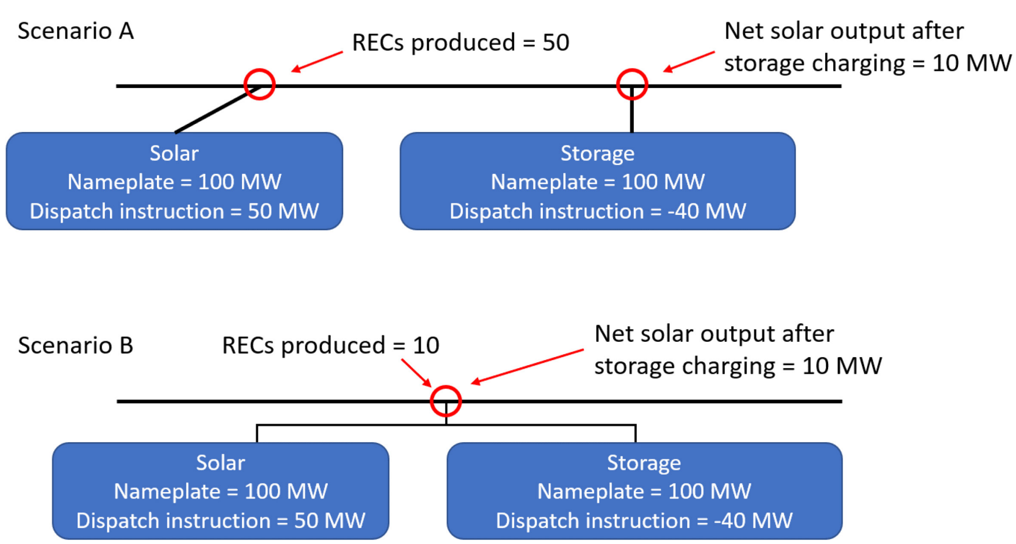

Figure 3 shows that the current RPS rules penalize the REC production of paired configurations. This outcome has significant implications as the sole difference between the scenarios outlined in Figure 3 is that the assets represented happen to share a POI in Scenario B. The current RPS rules thus disincentivize the pursuit of paired configurations

[6] *Ibid* at 41.

that may be more cost-effective in sharing interconnection facilities, or optimal in certain cases, such as in local reliability areas ("LRAs") where land is a premium and transmission into the LRA is constrained or limited. The RPS Guidebook should avoid creating incentives that do not support economic efficiencies and intelligent land use.

To this end, the Joint Parties recommend that the CEC modify REC accounting to occur at the RPS-eligible generation or production meter, without accounting for the energy storage technology as an "addition or enhancement" and/or netting out RTE losses. It would be consistent to put energy storage-related RTE losses in the same way as how the state's RPS policies do not net out or account for transmission and distribution line losses in REC accounting.

3. Treatment of storage merits revision to incent cost-effective deployments that can enable deep decarbonization and ensure all energy delivered to the grid comes from renewable sources.

As explained above, energy storage is a critical resource class that will enable the California's deep decarbonization goals by 2045. Unfortunately, the current RPS structure fails to incent adequate storage development by narrowly focusing on its impact on renewable generation and ignoring its crucial nature as an arbitrage asset. To this end, the Joint Parties recommend that the CEC recognizes that energy storage is not an upgrade or addition to eligible renewable facilities, but an enabler of the utilization of the electricity said facilities generate. Moreover, it is fundamental that the CEC amends the RPS Guidebook to recognize that the use of storage resources, be it paired or standalone, is independent from the act of generation undertaken by the eligible renewable facilities. In other words, storage resources are more akin transmission assets.

Today, the CEC's RPS program does not discount the effect of transmission on generation or REC minting. The same treatment should be applied to energy storage, regardless of configuration. As such, energy storage resources should be considered beyond the scope of the RPS and REC accounting, with the losses associated to the act of storing energy not being incorporated into REC accounting. This treatment is consistent with the goals of the RPS Program as it would continue to foster and incent development of renewable assets, is consistent with the level of development needed to attain California's goals, and aligns with the current level of commercial interest in these types of assets. Without this modification, the CEC creates inconsistent rules and could inadvertently incent suboptimal resource deployment, inefficient land use, and increased ratepayer costs. By recognizing the nature of storage assets as separate from the act of generation, the CEC would be able to continue to manage the RPS Program in a manner aligned with California's broader policy goals.

To do so, the Joint Parties recommend recognizing energy storage in all its forms, including V2G and electrolytic hydrogen, in the RPS Guidebook while noting that the standalone or paired use of storage does not affect the act of generation which is the conduit of REC minting. Given the downstream impacts of the RPS Guidebook as establishing eligibility of energy storage in various RPS-related or tangential procurement programs, tariffs, or contracts, the CEC should also further explore with stakeholders and consider whether and how energy storage should be specified in the RPS Guidebook to not deter generation and storage pairings while not incorporating energy storage for REC accounting purposes.

III. CONCLUSION.

The Joint Parties appreciate the opportunity to provide these comments and feedback on the Workshop. We look forward to collaborating with the CEC and other stakeholders in this docket.

Respectfully submitted,

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