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CESA's Comments on Joint Agency SB 100 Technical Workshop

Additional submitted attachment is included below.

December 2, 2019

Email to: docket@energy.ca.gov
Docket Number: 19-SB-100
Subject: CESA's SB 100 Technical Workshop Comments

Re: Comments of the California Energy Storage Alliance (CESA) Following the November 18, 2019 Senate Bill Technical Workshop

The California Energy Storage Alliance (CESA) appreciates the opportunity to comment on the Technical Workshop held in support of the Senate Bill (SB) 100 Joint Agency Report development. CESA recognizes the leadership of the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and the California Air Resources Board (CARB) in assembling a vast group of stakeholders to share their expertise on technologies and pathways that can enable the State's transition to a zero-carbon electric grid by December 31, 2045. This workshop is timely since it allows the State to better understand the technological options, as well as their costs and operational challenges, available to achieve a reliable and fully decarbonized grid for all Californians.

CESA is a 501(c)(6) organization representing over 85 member companies across the energy storage industry and is involved in a number of proceedings and initiatives that energy storage is positioned to support a more reliable, cleaner, and more efficient electric grid. With our background and expertise, CESA hopes to help inform the Joint Agencies staff on how all energy storage technologies can enable California to achieve SB 100's goals while providing reliable power and value for ratepayers.

General Feedback on the Technical Workshop

CESA is pleased with the wide array of technologies and applications discussed in the Technical Workshop held by the Joint Agencies. Given the colossal effort the decarbonization of the energy sector represents, it is essential for the Joint Agencies to consider how different technologies can be optimally deployed to support the State's goals. Thus, CESA would like to reiterate its recommendation that the Joint Agencies consider energy storage, in all its forms and applications, to assist the development of a robust, clean, and sustainable grid. In the following paragraphs, CESA offers comments on the materials and proposals presented during the November 18, 2019 Technical Workshop.

First, CESA commends parties for highlighting the future need for long-duration arbitrage of electrical generation. In their presentation, Energy + Environmental Economics (E3) showed that a projected 2045 system could face reliability constraints during winter months due to low

solar irradiation. As currently modeled, the Californian grid will be heavily dependent on solar generation and battery storage; nevertheless, different storage resources with distinct applications and arbitrage timeframes will be required to maintain grid reliability during extended cloudy periods or in areas with limited generation and/or transmission. According to E3's estimates, the need for long-duration storage is a directly inverse function to the availability of gas-powered generation in the grid. This observation is consistent with the findings shared during the Technical Workshop by UC Davis' researchers and the Green Hydrogen Council. In this sense, CESA believes that early action on the deployment of long-duration energy storage is warranted since it would provide a path towards decarbonization by enabling the timely retirement of a fraction of all gas-powered plants. Different energy storage technologies are suited for such an application; nonetheless, reforming market participation rules is necessary to properly value their capacity and reliability contributions to the system. CESA thus exhorts the Joint Agencies to collaborate with the California Independent System Operator (CAISO) and consider, jointly, the reformation of qualifying capacity rules in order to incentivize the deployment of long-duration storage assets. This modification, along with the information now provided in CAISO's Local Capacity Requirements (LCR) Studies relative to local energy needs, can ensure the procurement of long-duration assets where needed.

Second, CESA recognizes that SB 100, as currently interpreted within the modeling done for the CPUC's Integrated Resource Planning (IRP) proceeding, does not require a total phase-out of fossil-fueled generation by 2045. Since a considerable portion of fossil-fueled resources will be needed up to and beyond 2045, it is imperative that the Joint Agencies consider technologies that minimize the impact of said resources. Energy storage retrofits for existing thermal generation can improve the operational characteristics of those plants and minimize the emissions associated with electrical generation while maintaining the capacity and reliability provided to the system. In line with this, CESA supports policies that facilitate retrofitting current thermal generation and reduce the adverse environmental effects of these assets.

Third, CESA appreciates the inclusion of demand-side solutions in the Technical Workshop. As mentioned by the Lawrence Berkeley National Laboratory (LBNL) and Southern California Edison (SCE), demand-side resources can reshape the load of the State, minimizing costs and curtailment in the process. CESA is fully supportive of the consideration of demand-side solutions within the SB 100 Joint Agency Report. California's experience with the Self Generation Incentive Program (SGIP) shows that targeted actions yield consistent adoption results. Thus, CESA supports the inclusion of emerging behind-the-meter (BTM) technologies, such as automated demand response (DR) assets and electric space and water heaters, in such schemes. Considering customers that adopt distributed energy resources (DERs) and BTM solutions have significant energy savings relative to non-adopters, CESA encourages the Joint Agencies to consider the expansion of rebate and incentive programs for technologies that can shape and/or shift the load of end-customers. This approach could complement the investments made for utility-scale solutions.

Modeling Considerations

CESA generally agrees with the modeling approach presented by the CEC, with minor caveats. CESA supports the CEC's vision to reform the RESOLVE model to include greater geographical granularity. The inclusion of balancing areas beyond CAISO is fundamental to better understand the interactions within the State's energy sector. Nevertheless, CESA is concerned by the timeframe of the optimization process performed by RESOLVE, which evaluates capacity expansion decisions and reliability metrics based on the dispatch resources make during 37 independent days. These days represent different weather conditions and are weighted differently. CESA believes that an optimization with non-consecutive days is likely to overlook the need and value of resources that are able to arbitrage energy for large timeframes.

Hence, CESA recommends that the CEC and the Joint Agencies evaluate modifying the optimization timeframe within RESOLVE. In addition, CESA supports the CEC in its decision to evaluate different sensitivities to the scenarios proposed; in particular, CESA is supportive of running this modeling with several cost estimates for different resources. This would be particularly helpful for utility-scale solar PV and lithium-ion battery storage, the candidate resources that dominate new resource selection within the IRP process and the 2045 Framing Study. Evaluating different cost scenarios for those resources can shed light into the potential needs and opportunities for risk minimization within the selected portfolio.

Furthermore, CESA recommends the inclusion of production cost modeling within the Joint Agency Report. As noted in the most recent IRP cycle, RESOLVE only approximates reliability with its reserve margin module. This has shown to be inconsistent with the industry standard of using loss of load expectation (LOLE) analysis. CESA thus suggests including LOLE estimations to the modeling analysis to mitigate the risk of obtaining outcomes that could later be deemed unreliable or suboptimal.

Finally, CESA recommends expanding the candidate resources available for selection within the optimization conducted by RESOLVE. Hydrogen, for example, is included as a load but not as a candidate resource for generation, limiting its value within the model. Similarly, compressed air energy storage (CAES), which is a long-duration storage resource that LADWP plans to utilize, has unique costs and operating characteristics that are not included in the RESOLVE model. Including emerging technologies with their most updated learning curve projections can provide insights relative to the future diversification of storage assets.

Conclusion

In conclusion, CESA is supportive of the Joint Agencies and their efforts to consider a broad array of technologies to comply with SB 100 in a timely manner. CESA believes that energy storage, in all its forms and applications, is a resource class capable of providing reliability and ratepayer value while furthering the integration of renewables, allowing the phaseout of gas-fired

generation, and maintaining the lights on regardless of weather variations. Storage is a no-regrets investment that increases the optionality and flexibility of the grid.

CESA appreciates the opportunity to provide these comments and feedback on the Joint Agency Report's Technical Workshop. We look forward to collaborating with the CEC, CPUC, CARB, and other stakeholders in this proceeding.

Sincerely,

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