



September 19, 2019

Email to: docket@energy.ca.gov

Docket Number: 19-SB-100

Subject: CESA's SB 100 Joint Agency Report Comments

Re: Comments of the California Energy Storage Alliance (CESA) Following the September 5, 2019 Senate Bill 100 Joint Agency Report Workshop

The California Energy Storage Alliance (CESA) appreciates the opportunity to comment on the development of the Joint Agency Report required by Senate Bill (SB) 100. CESA recognizes the leadership of the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and the California Air Resources Board (CARB) in the development of an assessment that will facilitate the State's transition to a zero-carbon electric grid by December 31, 2045. The development of this Report is timely since it allows the State to better understand the technological investments, operational challenges, and societal benefits needed to achieve a fully decarbonized grid for all Californians.

CESA is a 501(c)(6) organization representing over 80 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 Joint Agency Report

CESA believes the development of a Joint Agency Report as required by SB 100 is a fundamental step in the process towards a zero-carbon electric grid. By acknowledging the potential for regional resource shuffling and cross-sector emission shifting, SB 100 requires the Joint Parties to analyze this issue with a panoramic scope. Due to the complexity of this matter, CESA recommends that the Joint Agencies consider the relevance and importance of energy storage, in all its forms and applications, to support the path towards a cleaner, more reliable grid.

First, CESA encourages the Joint Agencies acknowledge that energy storage is a wide resource class, containing many technologies in addition to battery solutions based on a lithium-ion chemistry. While it is true that, in recent years, procurement of lithium-ion storage solutions has grown substantially, there is a broad array of storage technologies with different comparative advantages and potential applications. Given that SB 100 not only requires achieving a zero-carbon electric grid but also further integration of both utility-scale and distributed variable

energy resources, it is highly likely that California will eventually require assets that allow for the arbitrage of energy in different timescales, quantities, and magnitudes. Thus, the Joint Agencies should keep an open mind in their consideration of energy storage as a broad asset category, encompassing technologies based on electrochemical, kinetic, gravitational, thermal, and other energy conversion methods.

Second, it is fundamental to establish market rules and valuation approaches that enable energy storage resources to maximize the services delivered to the grid and, as a result, deliver increased value to ratepayers. Since energy storage is a wide resource class, different technologies can provide services at several levels of the electric grid. The output variation inherent to renewable generators will require the distribution grid to be agile and respond to voltage and frequency imbalances and may even require seasonal energy arbitrage at the system-wide level. In order to guarantee that these services are available, the Joint Agencies must evaluate if current policies allow for their proper valuation and compensation.

To do so, CESA urges the Joint Agencies to examine current market participation rules and valuation approaches to determine whether the pathways and incentives are in place to procure and deploy the types of resources, including various energy storage technologies, needed to achieve the State's SB 100 vision. Otherwise, the State may encounter a scenario where certain technologies and services are needed but will not be available because of the lack of market mechanisms and incentives to encourage their deployment and operations.

For example, the valuation of storage resources that provide system and/or local capacity are based on a four-hour duration. In a renewable-heavy grid, the system is likely to require longer-duration reliable capacity, especially in contingency situations, as well as seasonal energy arbitrage. To achieve SB 100 goals and objectives, the Joint Agencies should then assess and refine existing market mechanisms that recognize the value provided by longer-duration energy storage resources – *e.g.*, value and compensate storage for their ability to shift energy output for multiple hours, days, or weeks at a time.

Third, CESA appreciates the Joint Agencies' consideration of the interplay between the electric sector with other sectors (*e.g.*, transportation, building, gas) and recommends further inquiry on these interactions.

- At the September 5, 2019 workshop, both the CEC and the CPUC mentioned that decarbonization of the transportation sector is key in the path towards decarbonization. Given California's EV deployment goals, the Joint Agencies should evaluate pathways and mechanisms that would allow EVs to provide additional value to the grid as mobile storage resources that provide aggregated capacity, ancillary services, and distribution deferral, which ultimately serve to encourage even further and accelerated adoption of EVs.
- In the building sector, CESA encourages the Joint Agencies to consider the role that energy efficiency and thermal storage systems (*e.g.*, ice storage systems, grid-interactive electric water heaters) in decarbonization. Building sector

electrification and load flexibility via thermal storage systems provide a major opportunity to decarbonize this sector.

- Furthermore, considering the significant investments already made in natural gas infrastructure, CESA believes that the Joint Agencies should also consider the potential for super bulk storage capabilities from renewable hydrogen storage. As discussed above, a renewable-heavy grid is likely to face energy and capacity imbalances throughout the year. Using otherwise curtailed renewable energy to generate hydrogen via hydrolysis and store it in the natural gas pipelines presents a potential opportunity to create a bulk storage system that delivers energy when the grid needs it the most. As decarbonization advances, hydrogen could overtake natural gas as the main fuel within the system.

In sum, energy storage is a wide and diverse resource class that can offer value in different sectors and applications. Therefore, when the Joint Agencies consider the technological requirements for a zero-carbon grid and seek to reduce cross-sectoral greenhouse gas (GHG) emissions, energy storage in all its forms must be regarded as a feasible option.

Finally, the Joint Agencies should consider energy storage as a no-regrets investment that increases the optionality and flexibility of the grid. Energy storage assets are able to respond and adapt to changing grid conditions, allowing operators to use these resources in a variety of ways, thereby increasing the flexibility, reliability, and resiliency of the overall system. Energy storage resources are modular, scalable, and capable of multiple-use applications. These resources can be deployed in standalone or hybrid configurations or be deployed at the transmission level or behind the customer meter. Energy storage resources can be paired with variable generation to smooth or shift output or with conventional thermal generators to improve their operational characteristics (*e.g.*, startup time, ramping) and efficiency and support the transition and retirement of the gas fleet, which serve to reduce GHG emissions. Additionally, energy storage resources can cost-effectively defer transmission and distribution upgrades, saving ratepayers money and supporting increased DER deployment. Altogether, greater penetrations of storage resources of all kinds increase the grid's flexibility and optionality and represents a smart investment in the State's SB 100 future.



Conclusion

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

Sincerely,

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