

**DOCKETED**

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June 4, 2021

The Honorable Karen Douglas  
California Energy Commission

Re: Joint Agency Workshop on Next Steps for SB 100 Resource Build

Vote Solar appreciates the opportunity to offer comments following the productive June 2, 2021 Joint Agency Workshop on the Next Steps to plan for SB 100 Resource Build. We wish to commend Liz Gil and other California Energy Commission (Commission) staff for the excellent presentation summarizing the SB 100 Report to the Legislature. We noted in the presentation that there was a slide (Number 11) that listed the zero-carbon resources that were included in the modeling for the Core and Study scenarios developed by the Commission.

We were surprised to see that “Solar Thermal” was included in the modeling only to the extent that there are existing projects in the resource mix rather than it being considered as a future candidate resource that could be deployed for meeting the SB 100 goals. The solar thermal power plants that were built in the US over the past 30 years are not indicative of current concentrating solar power (CSP) technologies and of the potential of incorporating thermal energy storage (TES) to meet California’s future energy needs. We recommend including CSP with TES in future studies related to SB 100 based on recent data regarding costs and performance.

We are submitting these comments to provide the Commission and other energy policy makers with more up-to-date information about concentrating solar

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power coupled with long duration thermal energy storage (CSP + TES). We are also requesting that CSP + TES technologies be considered as discrete candidate resources in future modeling by the Commission. The inputs and assumptions for the Commission modeling need to account for the performance of CSP+TES plants in various possible dispatch modes and must use current estimates of capital and operating costs.

CSP + TES technologies have developed into a mature and well understood set of technologies. There are about 100 CSP plants in operation today around the globe, totaling over 6 gigawatts of generation capacity. Forty-seven of those power plants have TES with an energy storage capacity of 25 gigawatt hours. On the average each CSP + TES plant has 8 hours of energy storage. Currently, the CSP + TES plant with the longest duration storage can provide full power from the stored energy for 17.5 hours and generate electricity 24 hours per day. We are appending to these comments a Powerpoint presentation that describes in detail the status of CSP power plants in operation worldwide with a focus on their performance and dependability.

Long-duration storage technologies have been recognized by California energy policymakers as critically important resources that will need to be integrated into a zero-emitting portfolio of clean power resources to achieve SB 100 goals. CSP + TES power plants should be considered as an important option for long-duration storage. CSP + TES power plants can be designed to provide 24 hours of continuous service, or they can be designed to provide full power only during nighttime hours when electricity from PV power plants is not available.

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CSP uses synchronous generation which can provide a wide range of critical reliability services. They can be designed to be dispatchable resources that can be used to meet ramping requirements and follow grid load. Costs are declining and are expected to continue to decline as deployment increases. CSP plants can be hybridized with photovoltaics, batteries, hydrogen production and other power technologies.

No single technology can meet California's need for reliable zero-carbon electricity. Instead, a diverse portfolio of resources will be needed. CSP + TES needs to be considered as one important technology within the suite of technologies that the Commission is modeling in future planning under SB 100.

We appreciate the opportunity to present the above information and look forward to participating in future CEC activities.

Respectfully submitted,

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