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## On Single Family Grid Integration Draft CASE Report

*Additional submitted attachment is included below.*

CALIFORNIA SOLAR + STORAGE ASSOCIATION
smart local energy

June 24, 2020

California Energy Commission
1516 9th Street
Sacramento, CA 95814

Subject: Comments on the Single Family Grid Integration Draft CASE Report

Dear California Energy Commission,

Thank you for the opportunity to submit comments on the Single Family Grid Integration Draft CASE Report. The California Solar & Storage Association's comments are as follows:

**1) "Grid load peaks"**

The Energy Commission's proposal adds language to JA12.3.2 that requires battery storage systems under the time-of-use control to "begin discharging as determined by seasonally specific grid load peaks, as determined by TDV." The proposal also adds this language to section 2.1.5.4 of the Reference Manual and Compliance Manuals. According to Appendix D, "the discharge period is statically defined by the first hour of the expected TDV peak."

We are concerned that beginning discharge at the first hour of the expected TDV peak will prevent many batteries from discharging to the optimal level. Delaying discharge to 6pm, 7pm, or 8pm (the first hour of summer peak depending on climate zone according to Appendix D) could leave energy in the battery past peak demand. This would curtail environmental benefits and bill-savings benefits, making energy storage a less attractive purchase option.

**2) Round-trip efficiency**

The Energy Commission's proposal changes language in J.A.12.2.2 and section 7.5.1 of the Compliance Manual to require that battery storage systems have "single charge-discharge cycle AC to AC (round-trip) efficiency of at least 85 percent." We understand that the Energy Commission calculates round-trip efficiency (RTE) using the weighting factors for inverter AC Power Level set by Sandia National Laboratory.[i] Their weighting factors create a bias that disadvantages batteries with larger kW capacity because efficiency increases as the ratio of discharge rate to maximum power capacity decreases. We strongly urge the Energy Commission to address these concerns with this bias. An accurate RTE calculation must include consideration of the storage system capacity in relation to typical loads of the target customer sector. Possible solutions include:

- Allowing battery manufacturers to calculate the RTE of their batteries, using a methodology that can be reviewed and approved by the Commission.
- Creating weighting factors for different maximum power capacities.

**3) UL9540A**

The Energy Commission's proposal adds language in JA12.2.1 to require battery storage systems "be tested in accordance with the applicable requirements given in… UL9540A." We request the Energy Commission excise the UL9540A addition. UL9540A is not necessary for safety, does not create environmental benefits (such as those created by higher round-trip efficiencies), and is not required in the residential code for many installation configurations. Rather, battery systems that have undergone 9540A testing allow the installer to reduce the spacing requirements.

Thank you for your consideration of our comments.

Sincerely,
Benjamin Davis
Policy Associate

[i] https://pvpmc.sandia.gov/modeling-steps/dc-to-ac-conversion/cec-inverter-test-protocol/