DOCKETED	
Docket Number:	24-BSTD-01
Project Title:	2025 Energy Code Rulemaking
TN #:	256318
Document Title:	California Solar & Storage Association Comments - CALSSA Comments on 45 Day Language for the 2025 Building Standard Update
Description:	N/A
Filer:	System
Organization:	California Solar & Storage Association
Submitter Role:	Public
Submission Date:	5/13/2024 11:45:05 AM
Docketed Date:	5/13/2024

Comment Received From: California Solar & Storage Association
Submitted On: 5/13/2024
Docket Number: 24-BSTD-01

CALSSA Comments on 45 Day Language for the 2025 Building Standard Update

Additional submitted attachment is included below.

CALIFORNIA SOLAR + STORAGE ASSOCIATION
smart local energy

Docket No. 24-BSTD-01

May 13, 2024

California Energy Commission
715 P Street
Sacramento, CA 95814
docket@energy.ca.gov

RE: Comments on California Energy Commission's Proposed Changes for the 2025 Building Energy Efficiency Standards, Express Terms, 45-Day Language

CEC Commissioners and Staff,

CALSSA applauds the Commission for its commitment to world-leading building standards and for the extensive work that led to release of the 45-day language for the 2025 update to the standard. We offer the following comments.

1. Battery Operating Modes

CALSSA appreciates work by Commission staff to create reasonable assurances that batteries receiving energy efficiency credit are operated in a way that achieves the anticipated energy reduction. The new requirement in JA12.3.3 (d) to require residential systems to restore settings to the committed amount of cycling capacity every 72 hours is a good approach. Other associated requirements have the right intentions, but some of the language needs to be refined as recommended below.

A. Aggregator specification

JA12.3.3 (b) and JA12.4.4 require a storage system to be capable of discharging on command for demand flexibility. The entities named that may issue a dispatch signal are "the local utility or a third-party aggregator." Depending on the location and the program, it may be the equipment manufacturer or the installer that issues a command. Also, a local utility may have specific integration rules for a limited program that are not intended for everyone to be able to adhere to. This requirement should be stated more generally, requiring a system to be able to receive a signal from "an entity managing the system for a demand flexibility program or tariff."

B. Communications protocol

Demand flexibility programs have evolved significantly from traditional demand response programs. The requirement in Section 110.12 that demand response signals be communicated via OpenADR is outdated and is not appropriate for customer-sited batteries. Proxy demand response programs do not allow exports to the grid from customer-sited batteries due to CAISO concerns about the feasibility of deliverability studies. CAISO should support program reform to allow exports from customer-sited batteries, which would make those programs more successful,

but this will not happen via Title 24 requirements. The Commission must recognize that demand flexibility programs involving customer-sited batteries do not use OpenADR, including the Commission's own Demand Side Grid Support program. A requirement that OpenADR be programmed into storage systems for JA12 compliance would add cost with no benefit.

The reference in JA12.4.3 to Section 110.12 (a) should be deleted. That section was written for HVAC controls, lighting controls, and other load controls. It does not translate to customer-sited batteries. Simply requiring that a storage system be capable of changing its charge and discharge timing in response to a demand flexibility signal is sufficient to validate his operating mode.

C. Weather and demand flexibility allowances

In a common battery operating mode known as solar self-consumption, the battery charges when there is available solar and discharges when there is not enough solar generation to meet onsite load. Typically, this mode includes the ability to switch away from that behavior in advance of severe weather and grid shutoffs or for participation in demand flexibility programs. JA12.3.3 indicates that the Commission is supportive of allowances for severe weather, but that section is intended for manual changes to the reserve level by the customer. JA12.4.1, which defines solar self-consumption mode, should include the allowances.

Further, the allowance should include demand flexibility programs. If a day-ahead discharge signal is issued and the battery is not fully charged due to cloud cover or any other reason, allowing the battery to charge from the grid will enable greater participation in grid services and can help customers meet program obligations. The following language in JA12.4.1 would offer clarity. "In advance of a severe weather advisory, Public Safety Power Shutoff event, or demand response event, the BESS may depart from the default operation mode to charge from the electric grid and reserve the full charge for a potential interruption of service."

D. Specification as default

JA12.4.2, on TOU control, requires the mode to be "installed in the default operating mode." However, JA12.3.3 (c) clarifies that systems should be capable of switching between all of the control strategies of JA12.4. TOU control should not be defined as a default operating mode at the time of installation.

E. Grid charging in TOU mode

JA12.4.2 should allow grid charging when solar charging is insufficient to fill the battery. Because the battery will be discharged during TOU peak hours, charging from the grid during off-peak hours will have an energy efficiency benefit. The benefit of solar charging is greater, so charging from available solar should be a requirement, but if there is battery capacity beyond available solar, off-peak grid charging adds to that benefit. This will be particularly important in the winter months, when shorter daylight hours and cloudy skies can cause a battery to be less than fully charged in a day if it is relying exclusively on solar.

Interconnection rules prevent customers from discharging energy that was drawn from the grid back onto the grid, so there is not a problem with violating tariffs by allowing batteries to be charged from both solar and the grid. Under existing interconnection rules, if the customer engages in grid charging, they can only discharge their system for onsite load. If they want the

ability to export, they cannot charge from the grid. TOU mode does not require the ability to export, so grid charging should be allowed when there is insufficient solar to charge the battery, with the understanding that the energy from the grid will only be used for onsite load.

CALSSA recommends requiring that a battery "shall charge from an on-site photovoltaic system when the photovoltaic system production is greater than the on-site electrical load." This would require solar charging but allow grid charging to supplement solar charging when needed.

F. Start point of storage charge

For stand-alone storage, customers are committing to discharge a certain amount of energy daily, with that discharge happening during the TOU peak hours if there is enough onsite load to use all of the required discharge amount during those hours. It is not necessary, nor is it desirable, for all customers to start charging as soon as the off-peak hours begin, as long as the battery can fully charge for its compliance cycling capacity during the period. JA12.4.4 should be amended to remove language about starting the activity "at the onset" of a TOU period.

Proposed Language

Following are proposed changes to incorporate the points above. The following language is based on accepting the Commission's proposed 45-day language, with redlines to add CALSSA's recommendations.

JA12.3.3 General Control Requirements

The requirements below are applicable to all control strategies.

(a) The BESS shall have the capability of being remotely programmed to change the charge and discharge periods.

(b) ~~During discharge, t~~The BESS shall be programmed to ~~first meet~~discharge in amounts that follow the electrical load of the property. If during the discharge period the electrical load of the property is less than the maximum discharge rate, the BESS shall have the capability to discharge electricity into the grid upon receipt of a demand flexibility signal from an entity managing the system for a demand flexibility program or tariff.

(c) At the time of enforcement agency inspection, the BESS shall be installed and commissioned to meet one of the control strategies in JA12.4 below. The BESS also shall have the capability to remotely switch to the other control strategies.

JA12.4.1 Basic Control

When combined with an on-site solar photovoltaic system, to qualify for the Basic Control, the BESS shall be installed in the default operation mode to allow charging only from an on-site photovoltaic system when the photovoltaic system production is greater than the on-site electrical load. The BESS shall discharge whenever the photovoltaic system production is less than the on-site electrical load. In advance of a severe weather advisory, Public Safety Power

Shutoff event, or demand response event, the BESS may depart from the default operation mode to charge from the electric grid and reserve the full charge for a potential interruption of service.

JA12.4.2 Time-of-Use (TOU) Control

When combined with an on-site solar photovoltaic system, to qualify for the TOU Control, the BESS shall ~~be installed in the default operation mode to allow charging only~~charge from an on-site photovoltaic system when the photovoltaic system production is greater than the on-site electrical load. The BESS shall begin discharging during the highest priced TOU hours of the day. The operation schedule shall be preprogrammed from the factory, updated remotely, or programmed during the installation/commissioning of the system. At a minimum, the system shall be capable of programming three separate seasonal TOU schedules, such as spring, summer, and winter.

JA12.4.3 Advanced Demand Flexibility Control

When combined with an on-site solar photovoltaic system, to qualify for the Advanced Demand Flexibility Control, the BESS shall be programmed by default as Basic Control as described in JA12.4.1 or TOU control as described in JA12.4.2. The BESS shall ~~meet the demand flexibility control requirements specified in Section 110.12(a). Additionally, the BESS shall~~ have the capability to change the charging and discharging periods in response to signals from ~~the local utility, or a third-party aggregator, or another~~ an entity managing the system for a demand flexibility program or tariff.

JA12.4.4 Controls for Separate Battery Energy Storage Systems

When installed separate from (not in combination with) an on-site solar photovoltaic system, including when the building is served by a community solar PV system, to qualify for the compliance credit, the BESS shall be programmed ~~by default~~ to:

1. ~~Start Charging~~Charge from the grid ~~at the onset of~~during the lowest priced TOU hours of the day and start discharging at the onset of highest priced TOU hours of the day, or
2. ~~Meet the demand flexibility control requirements specified in Section 110.12(a), and shall h~~Have the capability to change the charging and discharging periods in response to signals from an entity managing the system for a demand flexibility program or tariff~~the local utility or a third-party aggregator~~.

2. Labeling

JA12.5 requires specific information to be written on a label on the storage device. This includes the “CEC JA12 kWh Cycling Capacity” as distinct from the system’s nameplate “Total ESS kWh Capacity.” This is a problem for systems that are programmed remotely. The installer may not know how much of the battery is dedicated to CEC compliance cycling. The installer knows the nameplate capacity, but that is already on a label on the device.

The compliance cycling capacity will be stated on the energy compliance form submitted to the Commission as part of the overall Title 24 compliance demonstration. This is not a value that can be verified onsite by the local inspector, but it is a value the Commission will know from the Title 24 submittal of the property developer. CALSSA recommends deleting JA12.5.

3. System Sizing for Multimeter Nonresidential Properties

The proposed 2025 update recognizes that the virtual net billing tariff adopted by the California Public Utilities Commission for the investor-owned utilities eliminates onsite netting for nonresidential accounts, and solar systems will therefore need to be interconnected to individual services rather than having a single interconnection at the property with virtual credits applied to individual units. This creates a cost-effectiveness challenge for smaller units. The same situation exists for publicly-owned utilities.

CALSSA members that specialize in nonresidential multimeter properties have determined that 2000 square feet is a threshold below which the viability of individual solar systems is not certain. Depending on site conditions, units smaller than that may still be viable, but this cannot be assumed. This aligns with Exception 5 to Section 140.10 (a), which removes the projected consumption for units less than 2000 square feet that have their own HVAC from the sizing calculation for the site.

Although systems will be interconnected to individual units, it is important to maintain the solar and storage sizing requirements as aggregate values across the property. This gives property developers flexibility in sizing the separate interconnections to optimize tenant value.

CALSSA supports the sizing calculation, including Exception 5, as proposed.

4. Pool Heating

A. Hybrid solar and heat pump systems

Section 110.4 (c) requires solar heating systems for commercial pools to have collector area at least 65 percent of the pool surface area if there is another heating source. That is reasonable if the backup heating source is gas, but if solar is installed in combination with a heat pump there should be no minimum size.

Solar heating systems for commercial pools have historically been installed to reduce the cost of running gas heating systems. Outdoor pools are expensive to heat if they are used beyond the core summer months. This is especially true of fifty-meter pools, which are Olympic-sized pools for competitive training. Properties that install heat pumps will have even more of a price incentive to also use solar heating than there has been for traditional properties that used gas heating. A smart property developer installing a heat pump pool heater will get as much of the heat as they can from solar, even if they do not have enough roof space for collectors that total 65 percent of the pool surface area. They will do this for economic reasons, but it will have an energy efficiency benefit and should be encouraged. The Commission should allow hybrid heat pump and solar systems with a smaller heat pump sizing requirement and no minimum size for solar.

B. Residential pool covers

Section 110.4 (b)(3) would require all outdoor pools to have pool covers. This is an unreasonable requirement for single-family residential pools heated by solar. It would add cost without an energy efficiency benefit. Opting against a pool cover means the pool will not be as well heated outside of the hottest months, but it is not reasonable for the Commission to mandate a certain amount of heating for residential pools. In CALSSA's experience, many single-family residential pool covers go unused because the homeowner values being able to use the pool quickly over having the pool well heated during the shoulder months. If a homeowner chooses to heat their pool with solar and does not retain the captured heat as well as they could, there is no loss in building energy efficiency. This requirement should be eliminated for single-family residential pools.

CALSSA appreciates that opportunity to submit these recommendations and is available for further clarification if needed.

Respectfully,

/s/ Brad Heavner
Brad Heavner
Policy Director
California Solar & Storage Association