

## **IBEW-NECA LMCC Response to Feb. 23, 2022 CALSSA Letter**

**SUMMARY:** CALSSA continues to claim that C-46 contractors should be allowed install all but the largest utility-scale energy storage systems without any considerations of whether these systems are “separate systems,” “necessary for the installation of a solar system,” or even “incidental and supplemental” to the installation of a solar system. Furthermore, rather than entering into these discussions in good faith, CALSSA misrepresents the universe of BESS thresholds relied upon in the California Buildings Standards Code. CALSSA then outrageously proposes to further expand the scope of the C-46 license to allow installation of energy storage projects as stand-alone projects that are installed years or even decades after a solar system is installed. CALSSA’s proposals go so far beyond the realm of the “incidental and supplemental” exception that applies to specialty contractors as to render that exception meaningless. Finally CALSSA seeks to adopt such a vague and broad definition of energy storage that it would allow them to argue later down the road that they have the authority to install EV systems, solar-connected HVAC systems, and any other system connected to a solar or energy storage system. CALSSA’s proposals are outrageous and should be rejected out of hand.

**(1) CALSSA’S PROPOSED CHANGE TO THE DEFINITION OF “BATTERY ENERGY STORAGE SYSTEM” APPEARS INTENDED TO ALLOW C-46 CONTRACTORS TO FURTHER EXPAND THEIR SCOPE OF WORK BEYOND THE SOLAR SYSTEM TO OTHER SYSTEMS THAT MAY CONTAIN BATTERY COMPONENTS.**

Under the proposed changes, any equipment with a battery could be considered a BESS for purposes of this regulation, including “EV chargers” and “air conditioners.” CALSSA’s proposed changes appears to be an attempt to set up further expansion of the scope of the C-46 contractors license into other equipment systems.

**(2) CALSSA INCORRECTLY CLAIMS THAT THE CALIFORNIA FIRE CODE BESS THRESHOLDS RELIED UPON FOR THE IBEW-NECA LMCC PROPOSAL ARE OUT OF DATE.** The 2021 International Fire Code, upon which the California Fire Code is based, updated its ESS chapters which resulted in changes to section numbers and table numbers. However, the BESS threshold quantities that IBEW-NECA propose for adoption have neither been eliminated nor increased. The thresholds remain at 20 kWh for lithium-ion and flow batteries and 70 kWh for lead-acid, nickel-cadmium and nickel metal hydride batteries. What has changed is that **the Fire Code has lowered the threshold** for capacitor BESS and other electrochemical ESS technologies from 10 kWh to 3 kWh and has adopted a new lower threshold of 1 kWh for residential occupancies. (California Fire Code Table 1206.1 and section 1206.11.) Rather than acknowledging that these thresholds have been lowered, CALSSA attempts to characterize these thresholds as “out of date.” Such a characterization is disingenuous at best.

**(3) CALSSA SEEKS TO SET A THRESHOLD AT THE MAXIMUM ALLOWED SIZE OF BESS INSTALLATIONS AND FAILS TO ACKNOWLEDGE THE NUMEROUS OTHER, MUCH SMALLER BESS SIZE THRESHOLDS RELIED UPON IN THE STATE CODE AND NATIONAL STANDARDS.** CALSSA proposes setting a threshold of 600 kWh which is the “maximum allowable” size of a lithium-ion BESS allowed under the Fire Code installation provisions as set forth in California Fire Code Table 1206.5. Anything over 600 kWh is considered outside of the scope of the California Fire Code installation and safety provisions and requires both a large-scale fire test and a comprehensive hazards mitigation analysis in order to be considered for approval by a local fire code official. (California Fire Code Section 1206.5.2.) Furthermore, the “maximum allowable” size of capacitor batteries or “other electrochemical ESS technologies” under Table 1206.5 is just 20 kWh. CALSSA’s proposed threshold would allow installation of certain BESS technologies that will exceed the “maximum allowable” size.

In attempting to encompass the entire, non-utility scale BESS market, CALSSA fails to acknowledge the numerous other much smaller BESS size thresholds relied upon in the State Code and National Standards. The universe of BESS thresholds contained in the California Building Standards Code include the following:

- The 50V/60V Threshold used in the Article 706 of the California Electrical Code California Electrical Code
- The 1 kWh threshold for BESS located in residential occupancies set forth in California Fire Code Section 1206.11
- The California Fire Code Table 1206.1 thresholds that range from 3 kWh to 70 kWh depending on the type of technology
- The California Fire Code Section 1207.5.1 50 kWh aggregate grouping threshold (which requires large-scale fire testing to exceed).
- The “maximum allowable” size threshold set forth in California Fire Code Table 1206.5 which includes a 600 kWh threshold for lithium ion batteries and a 20 kWh threshold for capacitor batteries or “other electrochemical ESS technologies”.

CALSSA’s proposal ignores all but the very largest safety threshold and would allow C-46 contractors with not other applicable licenses to install all but the very largest utility-scale projects without using certified electricians.

**(4) SUBSTANTIAL EVIDENCE SUPPORTS SETTING A SIZE THRESHOLD ABOVE WHICH A BESS SHALL BE CONSIDERED A SEPARATE SYSTEMS THAT IS NOT INCIDENTAL AND SUPPLEMENTAL TO THE INSTALLATION OF A PV SYSTEM.** The record before the CSLB includes substantial evidence that the fire and life safety risks of BESSs increase with larger systems.<sup>1</sup> “Larger cells exhibit slower heat transfer to their exteriors, and they usually have higher capacities. Thus, they have the potential to convert more electrical energy to internal heat.”<sup>2</sup> The San Francisco Fire Department says that “lithium-ion batteries in buildings with capacities larger than 20 kilowatt-hours must comply with city and California fire codes for stationary battery systems” in order to mitigate the risks of these higher capacity systems.<sup>3</sup> “Generally higher battery energy storage capacities have a higher risk of arc flash.”<sup>4</sup> The graphs below illustrate the positive correlation between kWh capacity and the risk and intensity of a fire.<sup>5</sup>

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<sup>1</sup> [Exhibit 7] Exponent Failure Analysis Associates, Inc., *Lithium-Ion Batteries Hazard & Use Assessment*, Fire Protection Research Foundation, pp. 61–62.

<sup>2</sup> *Id.*

<sup>3</sup> M. Chediak, *Big-Battery Boom Sparks City Fears*, L.A. Times (June 7, 2018), [https://enewspaper.latimes.com/infinity/article\\_share.aspx?guid=01f277ed-aaf5-494a-8d13-e1bb3f459391](https://enewspaper.latimes.com/infinity/article_share.aspx?guid=01f277ed-aaf5-494a-8d13-e1bb3f459391).

<sup>4</sup> [Exhibit 2] Letter from former San Jose Fire Captain Matthew Paiss (Feb. 20, 2018), p. 1.

<sup>5</sup> [Exhibit 8] B. Ditch, D. Zeng, Development of Sprinkler Protection Guidance for Lithium Ion Based Energy Storage Systems, FM Global (June 2019), Figure 7-4.

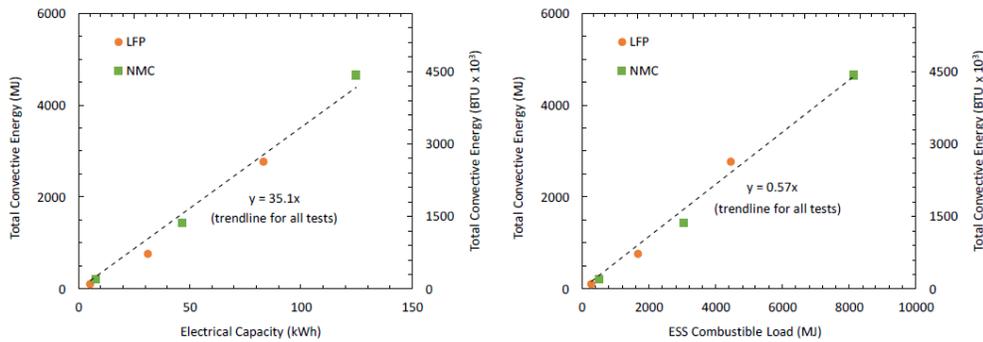


Figure 7-4: Total convective energy as a function of electrical capacity (left) and combustible load (right) for the LFP and NMC tests.

The evidence that the fire and life safety risks posed by BESS increase with the size of the system supports setting a size threshold above which installation of an BESS should no longer be considered incidental and supplemental to the installation of PV systems by C-46 contractors. As seen by the graphs above, fire risks increase greatly even going from 10 kWh to just 20 kWh.

**(5) CALSSA’S PROPOSES ALLOWING C-46 CONTRACTORS TO PERFORM “INCIDENTAL AND SUPPLEMENTAL” WORK YEARS OR EVEN DECADES AFTER THE INSTALLATION OF A SOLAR PV SYSTEM, IGNORING LONGSTANDING LIMITATIONS ON SPECIALTY CONTRACTOR WORK IN GENERAL AND C-46 WORK IN PARTICULAR.** Not only does CALSSA propose a facially preposterous threshold, CALSSA now seeks to have its C-46 contractor license scope amended to allow it to bootstrap in the installation of a BESS project in any building that already has a PV system, even when the BESS is installed years or even decades after installation of the solar PV system. This should be rejected out of hand. CALSSA is seeking an entirely different set of rules for C-46 contractors than what other specialty contractors are required to follow. Specialty contractors are limited to performing work directly within their scope with an exception for work that is “incidental and supplemental” to the project. Because C-46 contractors overlap with other specialty contractor scopes, they are even further restricted on what work they can perform. Their license only allows performance of work “required to install a thermal or photovoltaic solar energy system.” Once a PV system is installed, there is no logical argument for claiming that installing a BESS years later is either incidental and supplemental to the original PV installation or is “required to install” the PV system.

**(6) CALSSA’S CLAIM OF INDUSTRY DISRUPTION IS NOT SUPPORTED BY THE FACTS.** Without providing the underlying data, CALSSA claims that a 20 kWh threshold would leave only 64% of the residential BESS market open to the few C-46 contractors that do not already hold additional contractor licenses that would allow the installation of BESS of any size. While this number is a bit lower than the 80% number IBEW-NECA LMCC calculated using SGIP data, it still doesn’t support any argument that this threshold would cause market disruption.

As discussed in our prior comments, there are only 341 C-46 contractors who do not currently also have a C-10 or A and B license compared to the over 26,000 C-10 and C-46 contractors that can already install both PV and battery energy storage systems. Whether a 20 kWh threshold would represent 64% or 80% of the residential BESS market, there will be plenty of BESS work for those 341 C-46 contractors who refuse to obtain an additional contractor’s license. And almost two thirds of the 1,244 C-46 contractors in the state would continue to be able to install BESS of any size since they already have the additional licensure needed. Finally, our proposal would clarify that those 341 C-46 contractors who refuse to obtain an additional contractor’s license are allowed to subcontract out the

BESS work. This means that all C-46 contractors may still sell and enter into a contract for installation of a combined PV/BESS project over the 20 kWh threshold.

**(7) CALSSA’S REQUEST FOR CSLB TO ALLOW C-46 CONTRACTORS WHO ALSO HOLD A C-10 LICENSE TO IGNORE CERTIFIED ELECTRICIAN REQUIREMENTS IS BEYOND THE SCOPE OF THE CSLB’S JURISDICTION.** The certified electrician requirement for holders of a C-10 license is a statutory requirement and cannot be changed by the CSLB. Such a change would require legislative action. As C-46 contractors with a dual C-10 license begin performing more BESS work, they will need to hire more certified electricians. But their current workers who are not certified electricians will continue to be able to perform work. As noted in CALSSA’s comments, there are plenty of installation requirements for BESS that do not involve electrical work and thus do not require use of a certified electrician even for C-10 contractors.