DOCKETED	
Docket Number:	22-BSTD-01
Project Title:	2025 Energy Code Pre-Rulemaking
TN #:	253185
Document Title:	SPAN Comments on the 2025 Energy Code Pre-Rulemaking Express Terms
Description:	N/A
Filer:	System
Organization:	SPAN/Ryan Harris
Submitter Role:	Public
Submission Date:	11/17/2023 11:24:06 AM
Docketed Date:	11/17/2023

Comment Received From: Ryan Harris
Submitted On: 11/17/2023
Docket Number: 22-BSTD-01

SPAN Comments on the 2025 Energy Code Pre-Rulemaking Express Terms

Additional submitted attachment is included below.

SPAN

November 17, 2023

California Energy Commission
Re: Docket No. 22-BSTD-01
715 P Street
Sacramento, CA 95814
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California Energy Commission Commissioners and Staff:

Span, Inc ("SPAN") appreciates the opportunity to provide feedback to the California Energy Commission ("CEC") and its 2025 Energy Code Pre-Rulemaking Express Terms ("Energy Code") published on November 3, 2023 to Docket No. 22-BSTD-01 following a series of Pre-Rulemaking documents and workshops. SPAN is very supportive of California's continued efforts to electrify every home in order to meet its critical climate goals. We see the Energy Code as a critical foundation to set the State up for electrification success.

To spur an equitable and efficient transition to electrification, we strongly believe that the Energy Codes should encourage the use of technology such as smart panels to avoid expensive upgrades to electrical services or other home wiring, and future-proof the grid for the commensurate rise in electric demand. In the same way that the Energy Code now requires buildings to be storage-ready in order to mitigate electrification impacts and improve resiliency, smart panels can also support these same goals.

In these comments, we submit two recommendations to the CEC related to single-family residential buildings:

1. Encourage the installation of smart panels in new construction or renovations.
2. Update the Energy Code Section 150.0(s) (Energy Storage Systems (ESS) ready) to explicitly clarify compliance through the installation of a smart panel.

These recommendations, if adopted, will ease the transition towards electrification and avoid incurring additional costs borne by developers and homeowners.

About SPAN:

SPAN is a manufacturer of smart panels for single-family homes. Smart panels, such as the one developed by SPAN, serve as a one-for-one replacement of the traditional residential electrical breaker box. Intelligent hardware is included in smart panels that can enable whole-home

electrification, including the installation of rooftop solar, backup battery, heat pump heating, ventilation and air conditioning ("HVAC"), water heaters, induction cooking, and electric vehicle ("EV") charging without the need for expensive utility service upgrades. Specifically, smart panels like SPAN can support the same level of electrification that would normally require 200 amperes of service from a traditional panel on just 100 ampere service. Today it is likely that an estimated 60-70 percent of homes in California have electrical panels with ratings less than 200 amps.[1] Costs for a typical utility service upgrade to meet 200 amps could range between $2,850 to more than $30,000 without a smart panel like SPAN.[2]

Smart panels are also capable of facilitating customer participation in demand response and TOU-rates or other demand flexibility rate programs (such as the ones required by the Commission through the Load Management Standards) through control of each individual circuit, and revenue-grade measurement of load. Demand response will become an increasingly important resource as buildings electrify and further define and accentuate the load peak. The replacement of a gas appliance with an electric one will add more electrical load to the building, which when done to buildings without demand controls across an entire utility feeder has the potential to trigger upgrades of the utility distribution system, increasing the overall cost of the system. A Rewiring America study, using data provided by SPAN, found that the peak load of an electrified home could be 10-20 times higher than the home's average load post-electrification. By managing peaks via demand response facilitated by the intelligent, individual circuit control of a smart panel, overloads of the panel and the grid are avoided and upstream transmission and distribution costs are minimized.

Recommended Energy Code Modifications:

<u>Recommendation 1:</u>

SPAN recommends that the CEC consider the addition of language into the 2025 California Energy Code (Title 24, Part 6) that encourages the installation of smart panels in the place of traditional panels. In particular, we suggest that the CEC explore in the Rulemaking how smart panels could be incorporated as part of the performance standard detailed in Section 150.1(b) to further align builder incentives with the system benefits of smart panels. Similar to the other technologies in this section of the Code, a smart panel installed at construction becomes a permanent element of the home, and thus will provide benefits to the homeowner and community from day one of occupation, throughout its lifetime.

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[1] See Rewiring America's "Electrification won't break the grid, it will make it smarter", available at https://www.rewiringamerica.org/circuit-breakers-the-grid#5.

[2] See March 21, 2022 NV5 "Service Upgrades for Electrification Retrofits Study Draft Report," at p. 6.

We recommend this addition to the Energy Code because the deployment of smart panels in new construction can serve a dual purpose by avoiding immediate costs due to reduced service equipment and distribution wiring sizing, and future-proofing the grid for forthcoming electrification. As described above, service upgrades for existing homes can run up to $30,000, whereas many leading smart panels today retail for $3,500 or less. For new construction, there can be savings to developers in the costs of distribution wiring within communities as well as savings for all ratepayers through the avoidance of distribution upgrades.

By encouraging the permanent installation of a smart panel, California can ensure that there are proper mechanisms to find the lowest-cost solution that benefits both homeowners and the State as a whole. Builders will be properly rewarded for installing a measure that can help future-proof the grid by making every new home a flexible asset capable of participating in advanced forms of demand response. Developing this grid flexibility is particularly critical as the Inflation Reduction Act incentives proliferate electrification adoption.

We would propose that the CEC define smart panels similar to the existing language used in the California Electric Homes Program ("CalEHP")[3]:

Smart panel. *All single-family residences that include one or two dwelling units shall include a smart panel. A smart panel is defined as a wired main electrical service panel which is capable of:*

- *Measuring the electrical usage at each circuit load in the home*
- *Controlling the usage by turning the electrical usage on or off from a user interface, typically a mobile device*
- *Having the ability to integrate critical load management and backup power integration*

We also recommend the CEC further augment the CalEHP definition by clarifying that smart panels are devices that are permanently installed in the home. This update will ensure the devices will accrue future benefits as the home adds more load or electrifies further.

We are eager to collaborate with the CEC and other stakeholders to help craft new language that would define smart panels and incorporate them into the performance standards.

<u>Recommendation 2:</u>

SPAN recommends that the CEC update the 2025 Energy Code, Section 150.0(s) to clarify that an additional compliance pathway exists when a smart panel is used as a main panel for the home that could be supplied by an ESS in the future. Specifically, we would recommend the following language be added as a new list item 150.0(s)(1)(C):

[3] See "California Electric Homes Program Participant Handbook", at p. 16, available at https://caelectrichomes.com/wp-content/uploads/2023/08/CalEHP_TRC_Program-Handbook-V1.1-ADA.pdf.

C. A main smart panel capable of ESS interconnection that supplies the branch circuits in Section 150.0(s)(2) and meets the minimum busbar rating in Section 150.0(s)(3).

This change is justified because it clearly demonstrates to builders how a smart panel can be used to appropriately meet the ESS requirement. As a follow-on benefit, this change should lead to more smart panel deployment, which will make homes ready to support future load management on the distribution system.

Conclusion:

SPAN appreciates the consideration of our comments, and looks forward to continuing to work with the CEC and stakeholders as the 2025 Energy Code is developed. Please feel free to contact us with any questions.

Sincerely,

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