DOCKETED	
Docket Number:	19-BSTD-03
Project Title:	2022 Energy Code Pre-Rulemaking
TN #:	235368
Document Title:	Joe Cain Comments - SEIA Comments In Favor of Expanding Prescriptive PV Requirements
Description:	N/A
Filer:	System
Organization:	Joe Cain
Submitter Role:	Public
Submission Date:	10/20/2020 4:38:28 PM
Docketed Date:	10/21/2020

Comment Received From: Joe Cain
Submitted On: 10/20/2020
Docket Number: 19-BSTD-03

SEIA Comments In Favor of Expanding Prescriptive PV Requirements

Additional submitted attachment is included below.

October 20, 2020

California Energy Commission
Sacramento, CA

Subject: 19-BSTD-03, 2022 Energy Code Pre-Rulemaking

Commissioners and Commission Staff:

Thank you for the opportunity to submit comments regarding the CECs October 6th Workshop on Electrification and Photovoltaic topics for the Pre-Rulemaking process for the 2022 Building Energy Efficiency Standards (BEES). We appreciate the openness of the CECs public workshops.

SEIA fully supports the Commission's stated course of development of the 2022 BEES to help meet California's carbon-reduction goals, and submit the following comments for consideration.

EXPANDING PRESCRIPTIVE PV REQUIREMENT

We strongly support expanding the prescriptive PV requirement to additional occupancies such as multifamily, office, and others. As seen in the case of the residential prescriptive PV requirement, California is a standout leader setting an example for others to emulate.

By installing PV with original construction in additional occupancies, building owners and occupants will enjoy the reduced cost of installation and reduction of monthly energy bills beyond energy efficiency alone, as well as energy independence from future utility price increases.

COST OF PV SYSTEMS USED FOR COST-EFFECTIVENESS STUDIES

We are concerned that the cost data developed by NORESCO is much higher than the data developed by Wood Mackenzie. For the second quarter of 2020, Wood Mackenzie indicates national blended average cost of PV is $1.39 per Watt DC for commercial rooftop systems. This is a blended average cost estimate for the U.S., and is not California-specific. It is based on a

number of assumptions, including a PV system size of 250 kW installed on a low-slope roof (and other assumptions based on available data).

It is important to note this blended average cost of $1.39 kW DC is for PV systems added as a retrofit to existing buildings, and that PV systems installed on new buildings with original construction will be less costly and therefore more cost-effective. We are unaware of a statistically significant database of cost data for new commercial rooftop PV systems installed with original construction. It is possible that a survey could be attempted, but it is unlikely to be completed within the timeline of development of the 2022 BEES. Some reasonable assumptions could be made to characterize these reduced costs, but those assumptions might be anecdotal.

https://seia.org/research-resources/solar-market-insight-report-2020-q2

EXCEPTIONS TO RESIDENTIAL PRESCRIPTIVE PV REQUIREMENT

We appreciate the CEC's efforts to clarify and consolidate the existing list of exceptions to 2019 BEES Section 150.1(c)14. This section in the 2019 BEES is challenging to understand as written, as there are some confusingly similar terms and dual usage of terms. We agree the language should be simplified to help with implementation and enforcement.

We also understand more study and diligent effort is needed to develop appropriate treatment of the prescriptive PV requirement in areas with very high snow load. We understand these concerns, as raised by the petitioners, require technical consideration and we do offer to work with the CEC staff to develop solutions that can be applied to the affected areas. We acknowledge that Commission staff has spent considerable time and effort studying these important issues, and has very reasonably determined there is no singular snow load threshold that should serve as an exemption threshold for all regions of California, or for all roof slopes or other physical conditions of installation. As PV modules and mounting systems can be tested to any load desired by the manufacturers, above what is currently required for certification, we believe there are more options available. We will strive to work with staff to develop information and resources needed to arrive at reasonable exception language and design guidance.

EXEMPTION BASED ON SMALL PV SYSTEM SIZE, INCLUDING ADU's

SEIA understands the cost-effectiveness issues with very small PV systems. A portion of the installed cost of a PV system is the soft costs, and a portion of soft costs are fixed costs such as customer acquisition, and permitting & inspections. As PV system size becomes smaller, the soft costs become a larger percentage of overall cost to be offset by power production.

However, SEIA cannot support using a threshold of 2kW DC as an exemption from the prescriptive residential PV requirement. We are not yet convinced that there should be any exemption based on PV system size alone, and believe further study is warranted.

As discussed during the October 6th Workshop, additional loads associated with electrification will increase the electrical demand, as will EV chargers if installed. It will be important to give careful consideration to any threshold used a complete exemption for the prescriptive PV requirements. We do not yet know the loads included in the determination of PV system size at it might be applied to an exemption. Is this electrical load for a mixed-fuel home? Electrical load for a fully electrified home?

Accessory Dwelling Units can be as large as a small tract home, so we believe this is a "slippery slope." From one definition of ADU: "Maximum size must be at least 850 square feet for attached and detached studio and one-bedroom ADUs and at least 1,000 square feet for two or more bedrooms. In practice, an ADU might be limited to less than these minimum maximums by the application of development standards, such as lot coverage and floor-area ratio." We would call attention to the following brief and article that has translated how ADUs and Junior ADUs can be treated to help alleviate California housing situation. Given this, we think more examination should be done.

https://www.jdsupra.com/legalnews/california-paves-way-for-more-adus-70995/#:~:text=Maximum%20size%20must%20be%20at,coverage%20and%20floor%2Darea%20ration

http://www.modative.com/adu-blog/the-12-most-critical-2020-adu-rule-changes-for-california

COMMUNITY SHARED SOLAR AND STORAGE

As a prescriptive PV requirement is expanded to commercial occupancies, there is a strong likelihood that some commercial buildings will not have enough rooftop space to accommodate solar PV systems meeting the electrical demand of the building. This will be especially true for high-rise buildings, which have a relatively low building footprint and corresponding rooftop space. As high-rise buildings are usually built in urban centers, they are more likely to have underground parking and fewer opportunities for PV support structures over parking lots on grade. These buildings will need to have access to offsite PV as a compliance alternative.

SEIA recognizes some important issues surfaced during the process of review of the first Community Shared Solar application in the State of California, as initiated by Sacramento Municipal Utilities District (SMUD). We believe the lessons learned from this experience should be incorporated into a comprehensive rewrite of Section 10-115, such that all readers and users of the 2022 BEES have a clear understanding of the requirements, and to reduce or eliminate unintended consequences.

In short, SEIA fully supports community solar and believes putting sensible limits on the size, location and market share of community solar projects avoids the unintended consequence of undercutting the significant progress the homebuilding industry has made in establishing on-site residential solar as a standard feature of new California homes. The California Energy Commission can continue to build upon the success of the New Solar Homes Partnership, which facilitated billions of dollars of clean-energy investment over the past decade, and ensure onsite solar that makes California homeowners an integral part of the state's energy solution. We appreciate that there are future discussions that can help explore to come to workable solutions for all solar applications.

EXPANDED COMPLIANCE CREDIT FOR PV AND BATTERY STORAGE

SEIA appreciates the Commission's continued emphasis on grid integration and grid compatibility. As energy efficiency envelope measures are "max'd out," some of those efficiency measures will land somewhere on a curve of diminishing returns. No matter what is done with envelope measures, they have an effect on only two energy end uses – space heating and space cooling. As we heard during the 2019 BEES development cycle, we recognize that space heating and space cooling have been reduced to an extent that other end uses (such as lighting loads, plug loads, miscellaneous loads) are now often larger than space heating and space cooling combined for certain occupancies and in certain climate zones.

Efficiency measures become *less cost-effective* as they move along the curve of diminishing returns. Generation from PV becomes *more cost-effective* with larger PV system size, owing to better returns as the soft cost (including some fixed cost such as permitting and inspection) becomes a smaller percentage of overall PV system cost. We encourage the Commission to study these curves simultaneously to arrive at the optimized intersection of the cost curves.

We believe that an optimized wholistic view of all systems and components should result in increased compliance credit for PV systems installed with battery storage systems.

SOLAR DOMESTIC WATER HEATING

SEIA supports continuation of the prescriptive solar thermal domestic water heating requirement for multifamily. For high-density housing such as multifamily and hotel/motel, domestic hot water demand as one energy end use is a larger percentage of overall demand than for other occupancies. We encourage the Commission to consider these and other hot-water intensive occupancies for continuation of compliance credit for solar thermal systems in these occupancy classes that can provide multiple benefits to owners, customers, and the entire solar industry.

RESIDENTIAL STORAGE-READY REQUIREMENTS

We strongly support the Commission's efforts to establish mandatory measure requirements for residential storage readiness. We look forward to further discussion of this topic and development of final language for the 2022 BEES. We understand the challenges mentioned during the October 6th workshop regarding builders' choices for circuits that could result in main panel sizes greater than 200 Amps for some new homes. We look forward to working with CEC staff, manufacturers, and other stakeholders to resolve some of these challenges.

CONCLUSION

SEIA remains very grateful and supportive of efforts by the State of California and staff of the California Energy Commission to contribute to statewide carbon-reduction goals by focusing on the built environment and solar's integral role in those goals. We believe it is possible to find a cost-effectiveness balance with full and wholistic integration of renewable energy generation & storage, EV charging, electrification, and energy efficiency measures, powered by sunlight.

Thank you for consideration of our comments.

Sincerely,

Joe Cain, P.E.
Joe Cain, P.E.
Director, Codes & Standards
Solar Energy Industries Association
E-mail: jcain@seia.org

Evelyn M. Butler
Evelyn M. Butler
Sr. Director, Codes & Standards
Solar Energy Industries Association
E-mail: ebutler@seia.org

Rick Umoff
Rick Umoff
Sr. Director & Counsel, California
Solar Energy Industries Association
E-mail: rumoff@seia.org