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SEIA CALSSA Title 24 - 2019 BEES 45 Day Language Comments

Additional submitted attachment is included below.

February 20, 2018

Commissioner Andrew McAllister
Energy Commission Staff
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Docket 17-BSTD-01 2019 Building Energy Efficiency Standards Pre-Rulemaking: 2019 Residential Standards: Residential Solar Photovoltaic, Storage, Energy Design Rating and Grid Impacts;

Dear Commissioner McAllister and staff:

I. INTRODUCTION

The Solar Energy Industries Association (SEIA®) and the California Solar & Storage Association (CALSSA) [formerly the California Solar Energy Industries Association (CALSEIA)] continue to appreciate the efforts of the California Energy Commission (Commission) to promote energy efficiency and to promote the development of renewable energy in striving towards Zero Net Energy (ZNE) goals.

SEIA and CALSSA have submitted joint comments in response to previous CEC Workshops and appreciate the opportunity to continue to provide input and guidance to the Commission.

II. ZNE, SOLAR & STORAGE

Both SEIA AND CALSSA strongly encourage that the 2019 standards should take California all the way to Zero Net Energy for new homes - as has been the goal for almost a decade - and simultaneously maximize developers' options on how to achieve the most cost-effective energy reductions to meet the CEC's goals.

As stated in our previous comments, SEIA and CALSSA encourage the Commission to carry through all the way to ZNE goals with the 2019 development cycle so as to maximize the benefits of bringing solar and other renewable energy into the power portfolio of California.

SEIA and CALSSA recommend that the compliance credit for photovoltaic (PV) systems be maintained in the 2019 standards, as modified by a PV plus storage strategy.

SEIA and CALSSA continue to strongly support flexibility for the builder to choose the most cost-effective solution that leads to ZNE. We support a holistic approach, where energy

efficiency (EE) and renewable energy (RE) measures are fully integrated into a whole-building compliance model, such that EE and RE have equal importance and equal standing.

As previously commented, we recommend the Commission transition the existing PV compliance credit into a PV-plus-storage compliance credit. PV paired with battery storage provides a benefit at the meter that is similar to an efficiency measure.

III. NEWLY CONSTRUCTED BUILDINGS

Section 150.1(b)1 states:

> Newly Constructed Buildings. The Energy Budget for newly constructed buildings is expressed in terms of the Energy Design Rating, which is based on TDV energy. The Energy Design Rating (EDR) has two components, the Energy Efficiency Design Rating, and the Solar Electric Generation and Demand Flexibility Design Rating. The Solar Electric Generation and Demand Flexibility Design Rating shall be subtracted from the Energy Efficiency Design Rating to determine the Total Energy Design Rating. **The Proposed Building shall separately comply with the Energy Efficiency Design Rating and the Total Energy Design Rating.**

We recommend a final review of the language in 150.1(b)1 to ensure it does not preclude compliance credit for PV + ESS [demand flexibility] toward a portion of the EE design rating for grid harmonization efforts.

Considering sizing of PV systems in Section 150.1(c)14 is based on a dwelling's estimated annual electrical usage for the mixed-fuel case, we further recommend additional compliance credit for sizing of PV systems greater than the mixed-fuel estimate of electrical usage – when paired with appropriately sized battery storage – especially for the all-electric case. A full compliance credit for PV sizing with ESS would provide an attractive option for building all-electric homes in this code cycle without negating the option for mixed-fuel homes, and many of those homes could reach true ZNE in this code cycle.

IV. SECTION 150(c)14 PV MINIMUM QUALIFICATION REQUIREMENTS

Section 150.1(c)14 states:

> "Photovoltaic Requirements. All low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output **equal to** the dwelling's annual electrical usage as determined by Equation 150.1-C:"

The annual electrical usage should be a <u>minimum</u> PV system size requirement, not an "equal to" requirement. PV panels have a discreet amount of electrical output for each panel, so the minimum possible size would be the next whole panel or module that satisfies the annual electrical usage.

V. JOINT APPENDIX 11 (JA11) PV Systems

SEIA and CALSSA appreciate the updated revisions from the Commission and the opportunity to continue collaboration on improving the language.

JA11.3.1 Minimal Shading Criterion - As indicated previously, SEIA and CALSSA concur that setting performance criteria rather than prescriptive constraints for system orientation would provide the great yield in the overall context of solar's benefits to grid harmonization. We do respect, however, that the Commission has indicated its preference to deliver specific requirements for the prescriptive path, leaving other considerations for the compliance path. We do note that advancements in inverter technology or module level power electronics will mitigate the effects of minimal shading. Most inverters on the market can handle shade from telephone poles and chimneys without considerable production losses of the system. We also contend that solar providers that offer third-party-owned system financing usually offer solar output guarantees such that production is monitored to ensure system performance which encourages the proper design of systems, including shading considerations.

In addition, systems installed with third-party owned contracts (e.g., solar power purchase agreement (PPAs) typically come with production guarantees. Furthermore, in those agreements, customers commit to pruning vegetation that causes shading. There should be no arbitrary assessment of future tree heights. Measuring tree heights is arbitrary because they can be trimmed at install, removed over time or grow.

Typical chimney is 6ft tall and this requirement would put a 12 feet diameter no go zone around it, again not accounting for MLPE. This would restrict system size for many home owners given the azimuth restrictions and fire setbacks.

Finally, two-story homes should not require a smaller system size. Again, rather than restricting system size, shade restrictions should be lowered to enable larger systems (with minimal loss of production).

We appreciate that the Commission will continue to collaborate with industry to further improve the standards to take into consideration the continued evolvement of such technology.

JA11.4 Solar Access Verification – We would like to reiterate that requirement for Solar Access Verification should be removed as the purpose or use of the data obtained is unclear. The process of obtaining this data, as well as the administrative requirements for filing will result in higher installation costs since an additional site visit would be requirement to obtain the information. Similarly, this requirement would mandate every solar company to figure out how to build sun eye measurements into their IT systems, processes and procedures, further adding cost without clear value. The design process of a new community accounts for shading from both the roof characteristics and adjacent shading.

It is unclear if the solar HERS verifications will be required if 11.4 is enacted. We believe that confirmation of this would be needed to provide comments on this topic.

JA11.7 Certificates and Availability – We would like to request more clarification behind this requirement and at what point is the certification / inspection required. It may be that a HERS inspection could address the concerns or this certificate could substitute for a HERS verification.

VI. JOINT APPENDIX 12 (JA12) Energy Storage Systems

SEIA and CALSSA appreciate the updated revisions from the Commission and the opportunity to continue collaboration on improving the language. We have some specific comments on control requirements to ensure flexibility and grid benefit.

JA12.2.3 Control Requirements - We believe more flexibility is needed in setting the timing requirement. The control requirements will be adequate to ensure grid benefits and that the storage operator is utilizing the device for functions other than for backup capability.

Regarding demand response export capability, current DR rules and regulations do not allow for storage export. We agree bi-directional DR should be a future use-case and remain as an optional control strategy, but the capability to export may currently be prevented by both DR rules and non-export relays installed on certain systems over 10kW.

JA12.2.3.1 Basic Control
The current language as written would require that the battery can **only** charge when the PV production is greater than load, and that it **must** discharge any time the PV production is less than the load. To allow for customer flexibility and other uses of the storage device we suggest a language clarification.

We suggest the following changes to basic control:

> *To qualify for the Basic Control, the battery storage system shall be installed in the default operation mode to allow charging only from an on-site or community photovoltaic system ~~when the photovoltaic system production is greater than the on-site electrical load.~~ The battery storage system shall **prioritize** discharge when the photovoltaic system production is less than the on-site electrical load.*

JA12.2.3.2 TOU Control
The current language for TOU Control could be read to imply that the only charging that's allowed is from grid, and only during non-peak hours. The language should be updated to allow for a TOU optimization schedule that takes into account on-site solar charging.

We suggest the following changes to TOU control:

> *To qualify for the TOU Control, the battery storage system shall ~~allow~~ **prioritize** grid charging ~~only~~ during non-peak TOU hours, and ~~begin~~ **prioritize** discharging to the dwelling and/or the grid only during the peak TOU hours. The operation schedule shall be preprogrammed from factory, updated remotely, or programmed during the installation/commissioning of the system.*

In addition, we would like to request the following language be added to the requirements to allow for storage to provide other grid benefits:

> **JA11.2.3.5** ***Flexible Control***
> To qualify for Flexible Control, the battery storage system shall be operated in a manner that increases self-consumption, responds to utility rates, responds to demand response signals, and/or other strategies that align with EDR value.

VII. Subchapter 2 – Demand Management Requirement

SEIA and CALSSA appreciate the updated revisions from the Commission and the opportunity to continue collaboration on improving the language.

Section 110.12 describes the mandatory requirement for demand management systems, stating:

> All demand responsive controls shall be ~~capable of functioning as~~ an OpenADR 2.0a or OpenADR 2.0b Virtual End Node (VEN), as specified under Clause 11, Conformance, in the applicable OpenADR 2.0 Specification.

This section appears to create a requirement to use OpenADR 2.0 for all types of demand responsive (DR) controls for any such technology including that of battery storage systems. While we understand the goals of having one common protocol, we express to the Commission that it is still very early to tie requirements to a specific protocol given that the storage industry itself is relatively new. A mandate on the specific communication protocol, such as OpenADR, may not achieve the intent of facilitating DR at lower costs and complexity. Further improvements in device and demand response technologies may result in an even better protocol than OpenADR, and other standards are being required in different applications. For instance, the CPUC has adopted Smart Energy Profile (SEP) 2.0, which is a competing standard for distributed energy resources (DER), for monitoring and control requirements. It is important to note that the aggregator can also be the Virtual End Node (VEN), not the device necessarily. We encourage the Commission to make this section's requirement flexible in communications standard implementation. **Therefore, we recommend striking 110.12(a)1 and if necessary, adapt current code language under JA 5.3.1 that provides optionality in open based standards for DR signals to apply to all demand responsive controls.**

VIII. Solar Thermal – Subchapter 8

SEIA and CALSSA disagree with the provision for multiple dwelling units that would downsize the solar water heating system if a drain water heat recovery system were installed. **We recommend retaining the original B(iii) language:**

> A solar water-heating system meeting the installation criteria specified in Reference Residential
> Appendix RA4 and with a minimum solar savings fraction ~~of either a or b below~~ of 0.20 in Climate Zones 1 through 9 or a minimum solar savings fraction of 0.35

in Climate Zones 10 through 16. The solar savings fraction shall be determined using a calculation method approved by the Commission.

IX. CONCLUSION

Considering the 45-day language and request by the Commission for comments earlier than the official deadline, we do submit these above comments for your consideration. We do expect that we will have additional comments to submit by the official March 5, 2018 deadline and ask for your equal consideration of those as well.

SEIA and CALSSA would like to thank Energy Commission staff on their continued effort to ensure the 2019 Title 24 moves California toward meeting the 2020 ZNE goal and allows builders the flexibility to utilize the best fit combination of energy efficiency and renewable energy measures under the performance pathway.

Solar and storage have a critical role to play in the building standards compliance going forward and must therefore be valued accordingly with the compliance pathways. We look forward to continuing to provide input to staff as the final 2019 code is developed.

Sincerely,

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