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Draft 2019 Building Energy Efficiency Standards - CBIA Comments

Additional submitted attachment is included below.

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To: California Energy Commission – Docket No. 17-BSTD-01

Re: Draft 2019 Building Energy Efficiency Standards

General Comments

The California Building Industry Association (CBIA) would like to extend our thanks to both Commissioner McAllister and to the CEC Staff for the inclusive process in the development of the 2019 Standards. There has been and continues to be a general desire to work with the interested parties and seek collaborative solutions to a host of issues.

This update is especially challenging as the building industry is trying to simultaneously learn how to implement the current 2016 Residential Building Energy Efficiency Standards (BEES) while recovering from the severe economic downturn and at the same time working with CEC staff and interested parties in the development of the 2019 Update to the same set of building standards. Both Standards represent large changes in established construction design practice and both represent historically large increases in initial construction costs.

Specific Comments

Definition: Habitable Space

The definition of habitable space proposed needs to agree with the definition in the California Building Code (Title 24, Part 2, Chapter 2 Definitions):
"HABITABLE SPACE" is defined as "*A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces."*

High Performance Walls (HPW)

As stated in previous comments, CBIA cannot support the proposed reduction in "U-Value" from 0.051 to 0.043 for Climate Zones 11-14. There still exists serious concern that the cost of the 2016 HPWs exceeds the CEC's estimates by two to three times, meaning HPWs are not cost effective and will be even less cost-effective at the proposed U-value level of 0.043 included in the 2019 draft language. Due to this issue and difficulties transitioning the building industry to 2x6 framing, the industry needs a prescriptive solution that will allow builders to continue to use 2x4 framing. Using R-15 batts with an R-7.5 XPS exterior, a U-value of 0.051 can be achieved with 2x4 framing; therefore, CBIA recommends that the prescriptive requirement remain at 0.051 for the 2019 standards.

Community Shared Solar/Battery Storage Offset

Section 10-115 (a):

- CBIA strongly supports the option allowing community shared solar and/or battery storage as a partial or total offset to on-site solar. All projects vary from one to another. There are many production builders who have access to significant areas of clear space on the top of commercial buildings or on neighboring land not suitable for dwelling construction which could be used for a community shared solar "farm." In addition, depending on the project, this option could prove less expensive to build than individuals PV systems on each dwelling in the project. Having this option available helps provide industry with important design flexibility.

- The term "***may** be approved*" seems to be at odds with the final sentence which states "*to be approved……the system **shall** meet the following requirements.*" We feel it would be clearer to change the "may" to "shall".

Section 10-115(a)(1): Enforcement Agency:

- It would be informative for the CEC to provide a few examples of what is considered "development entitlements". This could be done with the addition of a sentence stating "*Development entitlements include, but are not limited to*……".

Section 10-115(a)(4) Durability:

- Question: How was the period of "20 years" chosen?

- The establishment of a time period (*no less than 20 years*) seems to establish a precedent in the building standards (Title 24) that has largely been left to statute and to the appliance efficiency regulations (Title 20) in the past. For example, do windows and HVAC systems have a similar requirement in Title 24 building standards?

Section 10-115(1)(5) Additionality:

- The first sentence needs some clarity. Reference is made to "*the dedicated building*". This could be misinterpreted to mean that the "solar farm" can only supply electrical power/credit to one residential dwelling or to one multifamily building. It would provide more clarity to say "to the residential dwellings within one contiguous project" or "to the multifamily buildings within one contiguous project"?

Section 10-115(b) and (c):

These sections state the requirements for Commission approval of community shared systems. Well in advance of 1/1/20, it will be critically important to have access to:

- Very precise administrative language regarding what type of information is needed (and not needed) in the documentation to be provided to the CEC. Along those lines, it would be very informative for the CEC to provide a few working examples of what is considered appropriate documentation for both single-family and multifamily projects.

- It will also be critical for the CEC to establish the process and related timelines associated with documentation submission, review and approval well in advance of the effective date of January 1, 2020.

CEC Proposal regarding energy storage, renewable energy and the EDR:

For the reasons stated below, CBIA strongly supports a robust compliance credit for energy storage technology for use in both the energy efficiency and renewable energy components of the energy design rating calculation. We urge the Commission to consider establishing an energy storage compliance credit for the 2019 Residential BEES.

In addition, and for the five reasons stated below, CBIA strongly supports significant compliance credit for use in both the energy efficiency and renewable energy components of the EDR for renewable energy for levels of PV which exceed the level required by the standards and when used in conjunction with energy storage:

1) **The Building Industry needs to familiarize itself with energy storage tech…. NOW**
   The building industry needs to get very familiar with small-scale energy storage technology in a VERY short period of time. Unlike PV technology in 2014 (when we were developing the 2016 Update), the building industry is extremely unfamiliar with energy storage at the present time.

   Currently, the most promising opportunity to promote rapid acceptance of energy storage technology will be through the establishment of substantial compliance credit. In addition to providing this offset in the EE component of the EDR, the building industry would strongly suggest the energy storage compliance credit be equivalent to the entire set of additional energy efficiency measures being sought in the 2019 update of the Residential BEES (i.e.: the 2019 HPA and HPW improvements beyond the 2016 levels, QII, windows, etc.). The result of this limited credit may be a heavily insulated house with a modest sized PV system and storage that is grid harmonized.

2) **Grid harmonization and distribution system impact mitigation**
   Over the past nine months, the CEC Staff presentations have been placing an increasing emphasis on the rather "ominous" need for future updates of the standards (starting with 2019) to address grid harmonization issues. Also, behind the meter batteries will help mitigate the impact of the new PV systems on the local utility distribution system and transformers. The building industry fully agrees with the CEC staff on this observation. Residential roof-top solar units will produce the lion-share of its daily power production during the hours of 10am-4pm, a time when anticipated home energy load will be small and the potential exists for sending unused power production out into the local utility grid…at a time of day when it's not needed and cannot be stored. This will prove problematic for grid operators during the mid-day hours of spring and fall. Finding a way to keep this excess power on-site for later use during the peak-load hours of the day will prove immensely beneficial for grid harmonization and greenhouse gas reduction. A robust compliance credit for energy storage will play a critical role in achieving that goal.

3) **Time-of-use-rates and consumer benefit**
   California utility rate payers will be making the shift to time-of-use rates within the next 2½ years. Starting in 2020, new homes will be sending excess "low cost" electricity into the grid during the middle of the day and then paying the utility for high-cost electricity during peak load hours in the late-afternoon and early-evening. It is highly probable that many utility ratepayers, including those with rooftop solar, will experience a monthly billing "shock"

when they start receiving their monthly utility bill during the hot summer months. It would be very beneficial for the consumer to be able to save that low-cost electricity on-site for use when the highest utility rates kick in during the hours of 4pm-8pm. On-site energy storage will help tackle this problem head on and will provide the builder with a highly marketable tool for use in selling the home.

In terms of "operational affordability," on-site energy storage (and on-site energy storage used in conjunction with addition PV beyond that required by the CEC) has the greatest potential for reducing that monthly utility bill. In addition, increased installation of energy storage systems will help reduce compliance costs in the same manner that the cost of rooftop solar PV systems decreased with increased market saturation.

4) **TDV basis of the standards**
Today's energy storage technology is advancing rapidly and the related costs are dropping. Since storage technology allows for the gathering of low cost PV energy around the middle of the day and keeps it on-site for use during peak load periods in the late-afternoon and early-evening, from an EDR/TDV perspective, this has the same (or significantly better) impact on home energy use as a highly efficient air conditioning system.

In short, CBIA believes that energy storage (and on-site energy storage used in conjunction with addition PV beyond that required by the CEC) should be modeled like an extremely efficient appliance, as the impact of PV plus batteries on energy usage is virtually indistinguishable from energy efficiency measures. After all, the CEC's "time dependent valuation" based regulations are now designed to give greater levels of compliance credit to those measures which reduce peak load power demand. What better way to reduce peak load power demand than have something on-site (i.e.: storage plus solar) which slashes (or eliminates) a home's power demand on the grid during peak hours.

5) Builders need more compliance options
Over the past several Title 24, Part 6 updates, many of the compliance options that builders have relied upon for compliance have become prescriptive measures and therefore are not accessible anymore including tankless water heaters, efficient window systems and QII. Additionally, many production builders use the 4-orientation compliance approach where the worst orientation (the one with the most glazing) will be facing west. Without additional compliance options, such as this storage credit, the 4-orientation compliance approach may become very difficult or even impossible.

CEC staff stated that a proposal for a potential compliance option allowing energy efficiency credit for batteries will be published in the next few weeks. CBIA looks forward to reviewing the proposal and will provide input and assistance as needed to ensure the solution is workable for the building industry.

In order to allow for this storage credit as proposed by CEC staff and supported by CBIA, the current definition of Final EDR will need to be amended to allow for more flexibility. The current definition locks storage compliance credit into the renewable category and, left as is, this definition will prevent the use of batteries for compliance for both energy efficiency and renewable EDR targets.

Joint Appendix JA 11 – New Specifications for Battery Storage Systems

On-site battery storage is a new product in residential construction. Battery storage is critical to allowing renewable energy generated on site to be effectively integrated into the grid. CBIA supports the comments made by battery manufacturers to make the proposed minimum performance requirements practical and reflect current manufacturer's performance descriptors. CEC staff acknowledged that the control requirements will be edited and CBIA strongly suggests working with battery manufacturers to allow maximum consumer flexibility on the use and discharge of batteries.

Section 110-10 - Solar Ready Requirements

CBIA would like to discuss with staff in further detail the necessity of Solar Ready Requirements (when the solar prescriptive requirement will be introduced with the 2019 Standards). The inclusion of two solar sections with potentially conflicting and/or duplicative requirements and exceptions will cause confusion for both the building industry and the enforcement community. CBIA believes that most, if not all, of the residential Solar Ready Requirement language is duplicative and can be eliminated or reformatted in combination with the proposed solar prescriptive requirements. CBIA will work with CEC staff to clarify this language.

Mandatory Lighting Controls

CBIA is concerned if the proposed language for mandatory lighting controls in hallways and common areas conflicts with the California Building Code, the California Residential Code, or the California Fire Code. CBIA will work with CEC staff to clarify language to prevent code conflicts.

Air Filtration

The CEC is proposing a minimum 2" depth for MERV 13 filters. CBIA is concerned that small HVAC units used in multi-family housing will not be able to meet this requirement. These units are installed as fan coil in a drop-down ceiling and space is extremely limited. Our experience is that these units come with 1" or less filters. CBIA is exploring with manufacturers whether or not there is room for a 2" filter. A solution could be a larger filter size without increasing the depth of the filter. This is a significant issue as over half of the dwelling units being built are multi-family, many of which are high rise units with limited space. CBIA will inform CEC staff of their findings.

Air-Handling Unit Fan Efficacy

CBIA is concerned that the value of 0.45 W/CFM for gas furnace air handling units is unreasonably difficult to achieve in today's market. CBIA has surveyed the HERS raters servicing the production builder market and all have said that this will be an extremely difficult value for builders to meet in the field. CBIA would like to provide input and work with staff to determine how this measure will be implemented effectively and with minimal cost.