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California Energy Alliance Comments on Demand Response in 2019 T24 45 Day Language

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Additional submitted attachment is included below.

February 20, 2018

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814
via payam.bozorgchami@energy.ca.gov

RE: Docket 17-BSTD-02
2019 Building Energy Efficiency Standards 45 Day Language, §110.12

The California Energy Alliance appreciates the opportunity to provide feedback to the California Energy Commission on the Title 24 45 Day Express Language, specifically the new section covering Demand Management and Demand Response - §110.12.

Demand response is an important topic to our membership, which is why we previously sent a letter to the CEC with suggestions on improving the current code language. We're very pleased to see that OpenADR is being adopted by the CEC as the "Lingua Franca" for demand response, which was a key suggestion in our letter.

Before covering code language specifics, we would like to be clear as to why Automatic Demand Response (ADR) is so important. Like all other mandatory code requirements, it had to pass muster and meet the three key requirements for any requirement to appear in the code:

1. Meet a minimum payback requirement as defined by the CEC.
2. Can be met with technology readily available in the marketplace during the lifetime of the code cycle.
3. Should "Move the needle" toward delivering energy savings in California.

But ADR is unique amongst all lighting requirements in the code because it allows real-time response within the permitted area of construction from an inheritor agency, which may include utilities, developers, owners, operators, tenants, and end-users. This helps assure the stability of the power grid itself.

While other code sections provide for lower overall power consumption in a building, none have this capability to respond to a remote signal. Unfortunately, we fear the current language allows more sites

to be exempted from ADR requirements which, in a practical sense, exempts a significant part of the built environment from fully embracing this control strategy.

Having reviewed the Title 24, 45-Day language, we hope our comments on the code will be helpful, the first of which involve proposed language in §110.12(a)1 and 2 (45 Day Language shown below):

(a) Demand responsive controls.

1. **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.**
2. **All demand responsive controls shall be capable of using one or more of the following for communications that occur within the building: Wi-Fi, ZigBee, BACnet, Ethernet, or hard-wiring.**

As currently written, we feel these sections are confusing and overly limiting. We appreciate the use of OpenADR version 2.0 as a communication protocol from the Grid Operator to their customers (especially since it is the communication protocol that all Grid Operators in California use). It is CEA's position that the code should allow for OpenADR version updates that will likely arise during the current code cycle and as we head into the next.

In the second line, we believe that while the CEC should describe the functional ability of ADR, it should not specify the location where communication should happen, or specific methods used to achieve the desired result.

The current language mixes communication protocols and communication media, software and hardware, essentially putting CEC in the position of picking "winners and losers" in the marketplace. While the market has already adopted several of the currently identified protocols, other protocols (both open and proprietary) are currently being used to successfully communicate between systems or devices, meeting the same goal. Others are in development. CEA advocates robust, proven, and repeatable solutions to a defined set of problems and would encourage and support CEC in doing the same.

Additionally, the phrase "shall be capable of" has been confusing in the past and should be edited to indicate that a response shall be required and quantifiable by means readily accessible to Acceptance Testing Technicians given the current training curricula.

Lastly, we were worried that during a presentation that Gabe Taylor provided for the OpenADR alliance, he commented that none of the existing cloud-based solutions currently used in California today to initiate demand response would meet the requirements as set forth in the code. Proposing code language that eliminates those who've managed to make it work currently seems like a misstep by the CEC.

Accordingly, we suggest it would be best to rewrite these lines to the following:

1. **A Virtual End Node (VEN) shall be used to communicate with Grid Operators via OpenADR 2.0a, OpenADR 2.0b or later version as specified under Clause 11, Conformance, in the applicable OpenADR 2.0 Specification.**
2. **All demand responsive control systems shall communicate with the building's OpenADR-compliant VEN, wherever it may be located (physical or virtual), and each system's devices shall respond to it automatically utilizing any desired communication protocol between the systems or individual control devices.**

Regarding the CEA's worry about future buildings being exempted from the Demand Response section (and the "Capable of" comment previously mentioned), we would hope that edits could be made that:

1. Eliminates the phrase "capable of"

2. Reduce the 10,000 sqft minimum to 5,000 sqft, where the bulk of the environment gets built.

3. Clarify the .5W/sqft lighting power density as applicable to only those spaces that are not normally occupied. CEA would expect this value to be better aligned with where lighting power densities are currently, and where they will be when the 2019 Energy Code takes effect in 2020. To be clear, most occupancies can currently be engineered away from ADR measures. That condition would likely persist as the mean efficacy of individual luminaires increases and the code does not evolve to embrace it.

The CEA realizes that several of our latter suggestions for §110.12(c) might be an issue for the CEC, but we again point to the benefits for California in ensuring that a significant portion of its total building stock can respond automatically to critical grid power events and automatically change the amount of power it's using at that moment. Hopefully, the importance of the overall grid stability can be weighed and measured in some yet undetermined ROI formula.

CEA welcomes the opportunity to inform that discussion.

We also appreciate the opportunity to provide comments to the CEC, and if further discussion with the CEC is warranted we would ensure that key members of our organization would be available.

Best Wishes,

Charles Knuffke
Technical Lead
California Energy Alliance