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SkyCentrics Comments on BUILD program

Additional submitted attachment is included below.

September 30th, 2021

Docket Number 20-DECARB-01
California Energy Commission

Comments from NEEA on the Design for the Building Initiative for Low-Emissions Development (BUILD) Program
Docket Number 20-DECARB-01
Submitted: September 30, 2021
Submitted by: Tristan de Frondeville, President
SkyCentrics

On behalf of SkyCentrics, we respectfully submit the following recommendation specific to the connectivity section of the proposed Building Initiative for Low-Emissions Development (BUILD) Program guidelines following the California Energy Commission's (CEC) Staff Workshop on September 15, 2021. SkyCentrics has one recommendation we would like to suggest. (Found in Table 4.1)

$100/HPWH CTA-2045 Wi-Fi module

We strongly support the CTA-2045-B standard and requirements, and incentives for grid-flexibility as a means to further reduce building emissions and develop the market for grid-flexibility technology. However, instead of requiring a "CTA-2045 Wi-Fi module", the CEC should just require CTA-2045-B compliance; specifically, a certified CTA-2045-B port and protocol implementation. NEEA's Advanced Water Heater Specification 7.0 includes this requirement for products Tier 3 and higher.

This would be in line with the CA Title 24 JA13 specification.

The port is essential to providing open access to heat pump water heater technology to customers, utilities, and third-party aggregators, but a Wi-Fi module should not be required. SkyCentrics in the 8 years of working with utilities on CTA-2045 connectivity has found that the Wi-Fi communications to and from a water heater is problematic. The challenge with this approach is that there is no guarantee that water heaters connected in this manner will continue to be so in the future. Changes to the customer owned Wi-Fi network such as new routers, passwords or internet service providers can result in disconnects that ultimately degrade the ability of the grid to connect to the device. There are a number of utilities that we work with that have had to spend a lot of money calling customer on the telephone to ask them to restore the Wi-Fi connection. This will be problematic at scale when millions of water heaters (CA has 13M) are supporting the grid in an essential way, allowing CA to reduce reliance on expensive and carbon dirty peaker power plants.

The CTA-2045-B EcoPort (cm) allows for a variety of connection methods including direct load control that provide a longer, more stable grid connection. The ability to connect to the HPWH is what matters. There are numerous viable pathways to connect to a HPWH (Cellular, FM Radio, AMI to name a few) that function quite well but Wi-Fi is not one of them. For low touch devices such as water heaters, Wi-Fi routers, passwords and connectivity will be lost over time. Requiring the open-source CTA-2045-B port will futureproof the water heater as a thermal energy storage device for the life of the product (12-14 years). When the water heater gets replaced, the module will still likely be swapped to the new water heater and will continue to provide reliable communications.

Most utilities have not yet determined the best pathway to leverage the demand response capabilities of the water heater. The CTA-2045-B port will allow them to deploy the best solution for their needs as the technology unfolds. Additionally, if one communication method is not satisfactory, the flexibility of the port/protocol will allow them to simply change to another one. Wi-Fi locks them into a specific technology that may not be maintained by the customer, or it would require heavy customer service support by the utility and/or aggregator. CEC's Load Management Standards proceeding is developing the infrastructure that will enable and encourage these programs, and this is where California needs to head as soon as possible. However, we should not require modules that add unnecessary costs and rigidity until such programs are widely available and adopted.

Instead, we recommend that the incentive should simply require that HPWHs support the CTA-2045B standard (port and protocol).

We look forward to working with the CEC and other stakeholders to create an effective and equitable BUILD program that puts California on the path to healthy, and decarbonized buildings. Thank you for the opportunity to submit a comment.