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Comments from NEEA on the Design for the Building Initiative for Low-Emissions Development (BUILD) Program Docket 20-DECARB-01

On behalf of the Northwest Energy Efficiency Alliance (NEEA), we respectfully submit the following targeted recommendation specific to connectivity portion on the proposed Building Initiative for Low-Emissions Development (BUILD) Program guidelines following the California Energy Commission's (CEC) Staff Workshop on September 15, 2021. We are honored that you recognized NEEA's Advanced Water Heating Specification (AWHS) and our Qualified Products List in your Eligible Equipment List (Appendix A). NEEA has one clarifying recommendation we would like to suggest. (Found in Table 4.1)

\$100/HPWH CTA-2045 Wi-Fi module

We strongly support the CTA-2045B standard and requirement, 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-2045B compliance; specifically, a certified CTA-2045B port and protocol implementation. NEEA's Advanced Water Heater Specification 7.0 includes this requirement for products Tier 3 and higher. The port is essential to providing open access to heat pump water heater (HPWH) technology to customers, utilities, and third-party aggregators, but a Wi-Fi module itself shouldn't be required. NEEA has found that the Wi-Fi linkage 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 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. The CTA 2045B (EcoPort) (cm) allows for a variety of connection methods including direct load control that provide a longer, more stable grid connection. As an example, in 2018, Bonneville Power Administration (BPA), Portland General Electric and NEEA ran a study (1) with 278 connected water heaters that found the Wi-Fi linkage was one of the single biggest challenges in maintaining communication between the water heater and the grid. The study found that customers changed Wi-Fi passwords, routers, router locations and even moved out and thus losing connections to the water heater via Wi-Fi. 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 2045B port will futureproof the water heater as a thermal energy storage device for the life of the product (12-14 years).

Most utilities have not yet determined the best pathway to leverage the demand response capabilities of the water heater. The CTA 2045B 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).

Thank you for the opportunity to comment. We look forward to working with the CEC and stakeholders to deploy an effective and equitable BUILD program that helps put California on the path to safe, healthy, and decarbonized buildings.

Submitted by: Geoff Wickes Senior Product Manager, Emerging Technology
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(1) <https://www.bpa.gov/EE/Technology/demand-response/Pages/CTA2045-DataShare.aspx>