

June 12, 2019

Ms. Abigail Daken  
US Environmental Protection Agency  
Ariel Rios Building 6202J  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Dear Ms. Daken:

The Consortium for Energy Efficiency (CEE) respectfully submits the following comments in response to ENERGY STAR® Water Heater Product Specification Draft 1 Version 3.3 released by the Environmental Protection Agency (EPA) on April 16, 2019.

CEE is the binational organization of energy efficiency program administrators and a staunch supporter of the ENERGY STAR® Program. CEE members are responsible for ratepayer-funded efficiency programs in 38 US states, the District of Columbia, and four Canadian provinces. In 2016, CEE members directed nearly \$7 billion of the \$8.8 billion in energy efficiency and demand response program expenditures in the two countries. These comments are offered in support of the local activities CEE members carry out to actively leverage the ENERGY STAR brand. CEE consensus comments are offered in the spirit of strengthening ENERGY STAR, so it may continue to serve as the national marketing platform for energy efficiency.

CEE highly values the role ENERGY STAR plays in differentiating energy efficient products and services that the CEE membership supports locally throughout the US and Canada. We appreciate the opportunity to provide these comments.

# CEE Advocates for Open, Non-Proprietary Connection Within the Bounds of the Customer's Premises

In many places within the draft ENERGY STAR Version 3.3 specification, it appears that EPA requires open connection; in other places, it is unclear whether this fundamental principle is explicitly stated. CEE is a **staunch supporter of open standards as a means to fully realize the potential of grid connectedness and to maximize consumer choice.** As described further in [CEE's comments](#) to the ENERGY STAR Connected Criteria for Large Load Products Discussion, our members' interest in connected devices and services is not limited to the ability to control products but rather to afford customers the most extensive number of options to manage energy use wisely, and if helpful, allow consumer-authorized third parties to help manage their homes' energy use so as to save money and reduce the environmental impact of the grid.

Requiring that the connected product communicate in an open, non-proprietary manner from within the customer's premises provides the customer with the ability to choose who may offer beneficial services that leverage these products in the future. This approach allows the market to enable new grid and energy management services without necessitating the manufacturer's involvement, while enabling manufacturers to participate, or provide additional value-added services. CEE is not opposed to additional means for achieving connectedness. If a manufacturer wanted to include a cloud-based solution using their proprietary or non-proprietary service in addition to what CEE has proposed above, this option is acceptable, if not desirable. Offering multiple means of participating in voluntary energy management programs ultimately benefits the customer and the grid. However, CEE members strongly oppose cloud-only manufacturer solutions as the sole acceptable pathway for attaining ENERGY STAR recognition.

There are at least two places in EPA's Residential Water Heaters Version 3.3 Draft 1 where the specificity of the ENERGY STAR requirements remains unclear:

**1. Definitions; M Connected Water Heater Product** (lines 93–103)

It is not evident from the diagram and call-out box whether stand-alone internet or cloud applications would qualify. In particular, clarification on the distinction between "separate communications hardware" and "additional hardware" would help resolve uncertainty from a reader's perspective.

**4. Connected Product Criteria - Optional; C. Demand Response** (lines 250–252)

The requirement to meet CTA-2045 or OpenADR 2.0 appears to only apply for demand response connected criteria; the remote management and consumer

feedback do not seem to include any provisions or stipulations about how the water heater communicates.

## A Modular Interface Based on Open Standard Communication Protocol Enables Grid and Customer Opportunities Across the United States and Canada

There are various ways to achieve the desired outcome of enabling multiple pathways to connect, to ensure that customers can fully realize and operationalize the benefits of connected water heaters. CEE believes that it is necessary that a product enable economical and direct, on-premise, open standards-based translation using the physical and data-link layers of an industry-accepted, modular communication interface such as ANSI/CTA-2045-A. As further defined in the optional criteria for heat pump water heaters defined in the [CEE Residential Water Heating Specification](#), an open standards interface must be combined with an open standard communication module. Manufacturers may also choose to include additional communication interface to facilitate load management or other services that may be proprietary to the manufacturer or designated third party.

To serve the collective and diverse needs of CEE members across the United States and Canada, a ENERGY STAR specification for connected residential water heaters would require, at a minimum, CTA-2045-A at the physical, data, and application layer, as well as OpenADR at the application layer.

## Fuel Neutral Definition of a Connected Water Heater Product (CWHP) Enables Full Potential for Connected Offerings to be Reached

The proposed draft stipulates that any residential water heater that meets the ENERGY STAR certified water heater specification is eligible to qualify as a Connected Water Heater Product (CWHP). CEE members are interested in both electric demand response programs and natural gas demand response programs, and therefore support the inclusion of both fuels in the definition outlined in Draft 1. In addition to demand response opportunities, members are interested in leveraging other benefits that may result from data reporting. These benefits could include enhanced program evaluation and verification metrics through real-time energy reporting, increased customer satisfaction through feedback on product performance as well as customized recommendations, and improved capability for maintenance or diagnostics for either the homeowner directly or a consumer-authorized party.

CEE is interested in the potential program benefits that might be enabled through the Remote Management and Consumer Feedback section 4B of the draft. While we see the merit in having equipment provide remote management functionality, user alerts, and energy reporting, it is important to acknowledge that the energy saving benefits have yet to be quantified when not coupled with some type of customer engagement strategy that makes use of best available behavioral sciences. CEE fully supports the exploration of including remote management and consumer feedback functionality and offers to coordinate with EPA in better understanding the program benefits and energy impacts that they could deliver.

## Timing and Process Considerations

There are several market and program factors that impact how CEE members assess when and what to include in portfolio offerings for customers. CEE highlights a few of these external variables below as consideration for the schedule of ENERGY STAR's proposed specification revision relative to residential water heaters:

### Demand Response Test Requirements Not Yet Developed

Section 5 of the Version 3.3 Draft 1 specification on Test Requirements notes a forthcoming test procedure on *Evaluation of Demand Response in Connected Water Heaters*, which is currently under development by DOE. CEE appreciates the need for a verified methodology to evaluate demand response capabilities of connected water heaters and acknowledges that this necessary process may impact the resulting timeline of ENERGY STAR's specification.

### Uniform Energy Factor as the Current Industry Standard

The Energy Factor (EF) rating was replaced by the new Uniform Energy Factor (UEF) in June 2017. This revised industry standard was developed by DOE as an alternative test procedure and rating method to more accurately reflect energy savings and enable improved comparison of water heater products. [CEE specifications](#) for gas-fired residential and residential-duty commercial storage water heaters, gas-fired residential tankless water heaters, and heat pump water heaters all currently use the new UEF metric. Similarly, the CEE AHRI Directory of Efficient Equipment uses UEF as the metric through which to evaluate efficiency. While the Version 3.3 specification allows products to be certified to the UEF metric and test method, the product performance requirements are still using the now-outdated EF metric. This potentially needs to unnecessary confusion and misperception in the market.

## Harmonization with Other Industry Efforts in Development

On April 26<sup>th</sup>, 2019, NRDC submitted a [Draft Joint Appendix 13 on Water Heater Demand Management](#) to the California Energy Commission. This proposal provides a specification with alternative calculation method reference manuals and compliance software tools for heat pump water heater demand management, intended for inclusion in the 2019 Building Energy Efficiency Standards (Title 24 Part 6) to support an alternative code compliance option. For CEE members who operate in the state of California, this specification has the potential to impact the design and implementation of these members' offerings.

Alignment of voluntary program requirements is always preferable in the market, when possible. EPA has already indicated intent to harmonize with this effort, which will help facilitate greater consistency and coordination in the market.

## Future ENERGY STAR Specification Revisions Impending

Section 7 of the Version 3.3 Draft 1 specification on Future Specification Revisions indicates that "EPA expects the market will be in a position to begin a revision in the 2019 or 2020 timeframe". CEE notes that this timeline is in the very immediate future and having multiple revisions in a short period of time can have significant logistical and cost implications to both efficiency programs as well as other industry stakeholders. CEE members operate on fixed timeframes, and many are only able to update or revise their program offerings at distinct times within these cycles.

With these in mind, CEE encourages EPA to be mindful of the timeline and schedule for revisions to the ENERGY STAR Water Heating specification, in order to best harmonize with these considerations.

CEE would once again like to thank EPA for the opportunity to comment on ENERGY STAR® Water Heater Product Specification Draft 1 Version 3.3. Please contact CEE Senior Program Manager Alice Rosenberg at 617-337-9287 with any questions about these comments.

Sincerely,



Ed Wisniewski  
Executive Director