

**Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Consumer Federation of America
National Consumer Law Center
Natural Resources Defense Council
Northeast Energy Efficiency Partnerships**

June 24, 2020

Ms. Catherine Rivest
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office, EE-5B
1000 Independence Avenue SW
Washington, DC 20585-0121

**RE: Test Procedures for Consumer Water Heaters and Residential-Duty Commercial Water Heaters;
Request for Information (Docket number EERE-2019-BT-TP-0032)**

Dear Ms. Rivest:

This letter provides input from the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy, Consumer Federation of America, National Consumer Law Center (on behalf of its low-income clients), Natural Resources Defense Council and Northeast Energy Efficiency Partnerships regarding the Department of Energy's (DOE) Request for Information on water heater test procedures. 85 Federal Register 21104 (April 16, 2020). The RFI begins DOE's statutorily required review of this test procedure. We appreciate the opportunity to comment.

We have three recommendations at this initial rulemaking stage. We recommend that DOE develop a voluntary component for the test procedure that would provide information needed to calculate efficiency performance in different climates. DOE's test procedure also should better account for water heater controls. Finally, we recommend that DOE investigate the test procedure's treatment of niche water heater types that may not be adequately addressed today, such as split-system heat pumps and booster water heaters.

DOE should adopt voluntary testing needed for calculating climate-specific efficiency.

Heat pump water heaters offer the potential for very large savings compared to conventional water heater technology. All major manufacturers offer electric heat pump water heater product lines and many utilities promote them. Heat pumps are much more efficient than conventional water heaters in

all climates, but the difference varies based on climate, with some models performing better in warmer or cooler climates.

The current test procedure provides for testing at 67.5 degrees F ambient with an inlet water temperature of 58 degrees F. We recommend that DOE allow manufacturers to report test results at specified additional conditions that would enable calculation of climate-specific efficiency performance. This additional voluntary testing and reporting should include compressor cut off temperature. We recommend that DOE investigate and consider the additional test conditions and compressor cut off temperature test contained in the Northwest Energy Efficiency Alliance's (NEEA) *Advanced Heat Pump Water Heater Specification*.¹ The NEEA specification provides a set of test conditions representative of cool climates (50 degrees F ambient and 50 degrees F inlet water temperature) and warm climates (95 degrees F ambient and 67 degrees F inlet water temperature). In the NEEA specification, test results for cool climate conditions are labeled E₅₀; results at the warm climate conditions are labeled E₉₅. For cool climates, efficiency performance also depends on the compressor cutoff temperature, the point at which a heat pump water heater switches to electric resistance mode. By providing for voluntary reporting of E₅₀, E₉₅ and the compressor cut off temperature, DOE would enable the reporting of information needed to determine climate-specific efficiency and performance.

Allowing for voluntary reporting of this information would provide several benefits. First, while program administrators such as NEEA can require data submittal to determine program qualification, federal law places limitations on manufacturers' efficiency representations. Including these voluntary additional testing points in the federal test procedure would improve manufacturers' ability to differentiate their products based on climate-specific performance. Once this data becomes available, other market participants including sellers and installers could similarly better represent performance to their customers. Those customers would benefit from this improved information in making their choices about which water heater to purchase. In addition, utilities and other efficiency program administrators could use the voluntarily reported information to more accurately calculate savings benefits in their area.

DOE should address controls in the test procedure.

DOE should enhance the test procedure to better account for controls. Heat pump water heaters typically rely on a resistance element to accelerate recovery during periods of high demand. Products that minimize use of the resistance element while still meeting consumer demands will reduce energy use, but these savings will not be represented under the current test procedure. A modified test procedure that reflects the effectiveness of controls in minimizing use of the resistance element would improve representativeness and create new incentives for manufacturers to develop products that provide increased savings for consumers.

DOE should investigate the test procedure's treatment of niche products.

¹ Available at <https://neea.org/resources/advanced-water-heating-specification>

Some water heater types may not be adequately addressed by the current test procedure. For example, split system heat pumps are a relatively new entry to the US market that provide for installation of the compressor outdoors. We encourage DOE to investigate whether the current test procedure provides adequate instructions for testing these products and whether the test conditions are representative of their intended installations.

DOE should also investigate the adequacy of the test procedure for other types of specialized water heaters. We recommend that DOE investigate booster water heaters (which are marketed as an add-on product for installations that fail to meet demand for hot water), water heaters with storage capacity less than 20 gallons, gas-fired heat pump water heaters, and combined heating and hot water systems, as well as other niche products the Department or other commenters may identify.

Thank you for considering these comments.

Sincerely,



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