

Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Natural Resources Defense Council

August 4, 2022

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

RE: Docket Number EERE–2019–BT–TP–0032/RIN 1904–AE77: Supplemental Notice of Proposed Rulemaking for Test Procedure for Consumer Water Heaters and Residential-Duty Commercial Water Heaters

Dear Ms. Hegarty:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), and Natural Resources Defense Council (NRDC) on the supplemental notice of proposed rulemaking (SNOPR) for test procedure for consumer water heaters and residential-duty commercial water heaters. 87 Fed. Reg. 42270 (July 14, 2022). We appreciate the opportunity to provide input to the Department.

We generally support DOE’s proposed amendments to the January 2022 notice of proposed rulemaking (NOPR) that are presented in this SNOPR. Specifically, we support the proposed specification of flow rate tolerances for water heaters with a rated storage volume under 2 gallons. Additionally, we support the proposal to adopt optional additional test conditions for heat pump water heaters (HPWHs). We also support DOE’s proposal to require that testing be completed in the “over-heated mode” for storage-type water heaters that “over-heat” the stored water beyond the delivery temperature. Finally, we support the proposal to define a metric for “effective storage volume,” which would enable better comparisons between smaller water heaters with over-heating capabilities and larger water heaters that store water at lower temperatures.

We support DOE’s proposal to specify the flow rate tolerance requirements for water heaters with a rated storage volume under 2 gallons. The current test procedure does not provide explicit instructions for the tolerance on the flow rate for water heaters with a rated storage volume under 2 gallons. In the January 2022 NOPR, DOE proposed to specify that flow rates for these products must be maintained within a tolerance of ± 0.25 gallons per minute (gpm).¹ However, a flow rate tolerance of ± 0.25 gpm for water heaters with maximum flow rates less than 1 gpm would represent significant variation in comparison to the maximum flow rate. Therefore, we support DOE’s proposal to further specify a tolerance of $\pm 25\%$ for water heaters with a rated maximum flow rate of less than 1 gpm.

¹ 87 Fed. Reg. 42274.

We support DOE’s proposal to adopt optional test conditions needed for calculating climate-specific efficiencies. In the current test procedure, the ambient air temperature is required to be maintained between 65.0 °F and 70.0 °F during testing.² As we noted in our comments on the January 2022 NOPR, differences in ambient temperature and inlet water temperature affect the efficiency of HPWHs.³ Having information about efficiency at both colder and warmer conditions than those specified in the current test procedure would allow for calculating uniform energy factors (UEFs) for any climate regardless of whether the specific optional test conditions are representative of any region. In the SNOPR, DOE is proposing to adopt optional test conditions to allow manufacturers to voluntarily make representations of efficiency at different air and supply water conditions for HPWHs. We strongly support this proposal as this optional reporting can help provide a better understanding of the differences in HPWH performance at various conditions. We note that the optional reporting would not increase test burden for manufacturers who do not wish to report these additional ratings.

As part of the proposed optional test conditions, the SNOPR specifies the conditions that would apply to “split-system” HPWHs and those that would apply to “integrated or heat pump-only” HPWHs. DOE has proposed a definition of “split-system heat pump water heater” that specifies that the water heater contains an “outdoor heat pump component.”⁴ It is unclear to us under whether split systems with indoor heat pump components would fall under one of the specified categories of HPWHs. Thus, we encourage DOE to clarify which optional test conditions would apply to split systems with an indoor heat pump component.

We support DOE’s proposal for addressing storage-type water heaters that “over-heat” the stored water beyond the delivery temperature. In the SNOPR, DOE notes that there are water heaters on the market that offer a user-initiated mode that results in an elevated internal water temperature of the storage tank while maintaining the delivered water temperature at 125 ±5 °F.⁵ For water heaters that offer an operational mode that allows water to be stored at a higher temperature than the delivery temperature (except demand-response water heaters), DOE is proposing to require that testing be completed in the “over-heated mode” that results in the highest internal tank temperature while still maintaining an outlet temperature of 125 ±5 °F. In addition, DOE is proposing to clarify which products would be tested in over-heated mode by defining “demand-response water heater.” Specifically, a demand-response water heater would not be subject to testing in over-heated mode if it “automatically heats the stored water above the delivery temperature setpoint only in response to instructions received from a utility or third party.”⁶ We support testing water heaters that offer user-selectable over-heated modes in the over-heated mode in order to provide more representative results for these products. We also agree that demand-response water heaters as defined in the SNOPR should be exempt from such testing.

We support DOE’s proposal to define a measure of “effective storage volume” for water heaters designed with over-heating capabilities. Currently, raising the temperature of the stored water

² 87 Fed. Reg. 42275.

³ <https://www.regulations.gov/comment/EERE-2019-BT-TP-0032-0034>.

⁴ 87 Fed. Reg. 42277.

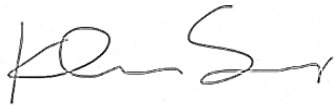
⁵ 87 Fed. Reg. 42279.

⁶ 87 Fed. Reg. 42280.

above the outlet water temperature requirements, which essentially increases the amount of hot water delivered without increasing the size of the water heater, is not reflected in the test procedure. In the SNOPR, DOE is proposing to add a metric for “effective storage volume,” which would account for the additional volume enabled by a user-initiated higher operating temperature.⁷ We believe that this would be a meaningful performance metric to better understand the actual hot water delivered and the thermal energy stored in the water heater.

Thank you for considering these comments.

Sincerely,



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Appliance Standards Awareness Project



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Joe Vukovich
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⁷ Ibid.