UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND RADIATION

June 1, 2022

Dear ENERGY STAR® Water Heater Brand Owner or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) is pleased to distribute the Final Draft Version 5.0 ENERGY STAR® Water Heater specification. Stakeholders may submit comments on the final draft to EPA no later than June 24, 2022. EPA plans to finalize this Version 5.0 Water Heater specification by July 5, 2022.

Final Draft Summary

The Final Draft for Version 5.0 incorporates changes based on the large number of comments received following Draft 1 and the subsequent conversations held with stakeholders. EPA appreciates the many thoughtful and respectful conversations stakeholders engaged in about these criteria. Products may certify to the new version as soon as it is final and products currently certified remain certified until the Version 5.0 effective date.

While EPA maintains a commitment to decarbonization in line with Biden administration priorities, discussion with stakeholders revealed that requiring heat pump levels for gas storage water heaters remains premature based on the market and technology. The final draft proposes a Uniform Energy Factor (UEF) equivalent to high efficiency condensing levels for all gas products. For instantaneous gas products, this proposal does not change compared to Draft 1.

Commenters recommended every possible action from not revising the specification, to proposing various levels of UEF revision (ranging from a low-efficiency gas condensing-equivalent level to a high efficiency gas heat pump-equivalent level), to sunsetting the gas water heaters criteria entirely. Comments in favor of higher efficiency levels and/or sunsetting gas water heaters pointed out:

- the Administration's commitment to decarbonization and wide public support for it;
- the results of numerous studies showing that switching to electricity for water heating is key to the lowest cost paths to decarbonization; and
- that unlike gas models, electric water heaters must be much higher efficiency than the DOE minimum standard to earn the ENERGY STAR, giving gas an unfair advantage.

Those commenters recommending lower efficiency levels than in Draft 1, or to not revise the specification, argued that:

- the idea that electrification is necessary for decarbonization is not fully thought through;
- high efficiency electric water heaters remain unfamiliar and expensive;
- in some homes, switching energy sources (i.e., natural gas to electricity) requires providing or upgrading electrical service at the location of the water heater, most notably impacting the ability of low and moderate income (LMI) households to make a transition;

- setting a level that no products on the market can meet is against ENERGY STAR Guiding Principles and practice. Additionally, they argue that there is no guarantee gas powered heat pumps will be cost effective; and
- a cost effective gas technology exists, as noted in the Regional Technical Forum (RTF) UES Measure for Residential Water Heaters Workbook Version 2.0. The units save energy through use of a non-powered flue damper, achieve a UEF of 0.65 to 0.70, and can be installed in locations lacking an electrical outlet, if desired.

Several commentors recommended setting UEF levels corresponding to a high efficiency condensing level, which is how EPA intends to proceed. EPA determined the UEF levels using the DOE technical support document (TSD) for consumer water heaters (March 2022), which provides estimates for a typical product at a high efficiency condensing level of efficiency (0.86 for high draw pattern, 0.81 for medium draw pattern). A small number of units currently on the market meet the proposed criteria (0% of medium draw units, 2% of high draw models in U.S., 22% of instantaneous units, all of which are high draw.). This level will be cost effective in some markets, and significantly improves customer payback over current levels in all markets.

With continued progression toward decarbonization in the US, EPA is confident that market adoption of electric water heating products will increase over the next few years, given the broad base of market actors driving it, and it will make sense to sunset the gas water heating criteria in the near future. The small number of products this proposal recognizes will ease the transition for many consumers that need it while also encouraging consumers to explore more efficient ENERGY STAR electric water heaters.

In addition to the changes above, the following changes, unrelated to UEF criteria levels, were also implemented in the Final Draft:

- EPA proposes a definition for upper compressor cutoff temperature to support voluntary reporting for use in hot climates.
- For connected products, EPA proposes to remove the requirement to provide consumers the ability to override scheduled events ahead of the event. While this capability would be useful, partners let us know it would be a barrier to connected products entering the market, and EPA agrees it is not necessary at the moment. The proposed ENERGY STAR Final Draft Connected Residential Water Heaters Test Method to Validate Demand Response, Version 1.2 reflects this change.

More details regarding all changes described above are included in note boxes throughout the specification document.

Comment Submittal Process

Stakeholders may provide any final written comments for EPA consideration to WaterHeaters@energystar.gov by June 24, 2022. All comments will be posted to the ENERGY STAR Water Heaters Product Development website unless the submitter requests otherwise.

Please direct any specific questions to Abigail Daken, EPA, at daken.abigail@epa.gov or (202) 343-9375, and Ned Bent, ICF, at ned.bent@icf.com or (571) 842-4917. For test procedure inquiries, please contact Julia Hegarty, U.S. Department of Energy, at Julia.Hegarty@ee.doe.gov or (240) 597-6737. Thank you for taking the time to review these Final Draft documents. I look forward to continuing working with you.

Sincerely,

Enclosures:
ENERGY STAR Final Draft Version 5.0 Water Heaters Specification
ENERGY STAR Final Draft Connected Residential Water Heaters Test Method to Validate Demand Response, Version 1.2
ENERGY STAR Draft 1 Version 5.0 Water Heaters Comment Response Matrix
ENERGY STAR Final Draft Version 5.0 Water Heaters Data Package