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June 24, 2022

Via Email: WaterHeaters@energystar.gov

Ms. Abigail Daken
EPA Manager, ENERGY STAR® HVAC Program
U.S. Environmental Protection Agency

RE: ENERGY STAR Version 5.0 Residential Water Heaters Final Draft Specification

Dear Ms. Daken:

Rheem Manufacturing Company (Rheem) appreciates the opportunity to submit the following comments regarding the Final Draft of Version 5.0 of the ENERGY STAR Product Specification for Residential Water Heaters.

Rheem is an industry leader in total heating, cooling, refrigeration and water heating solutions and one of the few global brands with product offerings covering residential and commercial heating, cooling, conventional and hybrid storage water heaters, tankless water heaters, solar water heating systems, pool and spa heaters, commercial boilers, residential hydronic and geothermal systems, commercial refrigeration products, indoor air quality accessories, and replacement parts for all categories. Rheem is headquartered in Atlanta, Georgia, and has U.S. based manufacturing facilities in Alabama, Arkansas, California, Connecticut, and North Carolina.

Rheem supports EPA's efforts to update the ENERGY STAR water heater specification to recognize new technologies being commercialized and to encourage market adoption of the most energy efficient products available. To help achieve this desired outcome, and still provide consumers with options to select a water heater size and fuel type, Rheem recommends the following revisions to the Final Draft.

NO_x Emission Reporting

Rheem is concerned with the added NO_x emissions reporting requirements and believes it adds to the certification burden with little to no value for consumers. Further, it attempts to duplicate NO_x requirements already in place with the various Air Quality Management Districts (AQMD). Given, EPA's plan to sunset gas-fired water heaters in the near future,¹ Rheem recommends NO_x emissions reporting be optional and be limited to claims made in product literature by referencing established NO_x compliance rules and levels. Also, to be consistent,

¹ In the comment response matrix published with the Final Draft of version 5.0 of the ENERGY STAR Program Requirements for Residential Water Heaters, EPA stated their plan to sunset gas-fired water heaters in the near future.



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this should be applied to all the gas-fired water heaters including consumer storage, consumer instantaneous, and residential-duty commercial storage.

The test method for measuring NO_x emissions, to complete the reference in table 6, should be “South Coast Air Quality Management District’s Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boiler.”² While this test is broadly utilized by the industry, the specific limits for NO_x emission compliance are set by the various AQMD’s in California and would be more helpful as an added reference.

Performance Requirements for Gas-Fired Instantaneous Water Heaters

Rheem reiterates our comments from Draft 1 and recommends that the ENERGY STAR requirements for residential gas-fired instantaneous water heaters be divided by draw pattern. Due to differences in the UEF test procedure, a UEF of 0.95 is significantly harder to achieve in the Medium draw pattern versus the High draw pattern. A UEF of 0.95 is near the maximum technologically feasible level for the High draw pattern and may not even be theoretically possible for the Medium draw pattern. Rheem recommends EPA set a Medium draw pattern level of 0.93 UEF. This level is achievable and uses technology equivalent to the High draw pattern level of 0.95 UEF. Rheem acknowledges that there are very few Medium draw pattern models currently available, however, with the 20–55gallon gas-fired storage water heater category being set to condensing, the selection for gas-fired water heaters will be significantly reduced, creating an opportunity for smaller capacity, Medium draw pattern instantaneous models. Otherwise, the specification finalized as proposed will prohibit Medium draw pattern models from being certified and further limit consumer choice.

Rheem supports the proposed levels for all gas-fired storage water heaters

Rheem appreciates EPA amending the proposed ENERGY STAR UEF requirements for gas-fired storage water heaters from >1.0 UEF to a high efficiency condensing UEF (as compared to a baseline condensing UEF). Rheem supports the residential gas-fired storage and residential-duty commercial water heater levels proposed in the Final Draft with the above noted exceptions.

Test Method to Validate Demand Response

Rheem supports EPA’s decision to amend the Test Method to Validate Demand Response to remove steps 10-14 of the current consumer override test, which verify that scheduled event can be overridden. CTA-2045 includes the capability to schedule a demand response event but does not require this capability in water heaters. Scheduling the event ahead of time is not

² NO_x Emission Test Method: http://www.aqmd.gov/docs/default-source/laboratory-procedures/methods-procedures/r1121_1146-2_prot.pdf





immediately important as a utility or 3rd party aggregator can send a demand response request at the time they want the event to start.

Rheem disagrees that the capability to override events ahead of time is not immediately important. When a water heater is in an override state all demand response requests should be denied. The proposed consumer override test verifies that an active demand response event can be overridden and that a new demand response request will be denied when in an override state. Therefore, the proposed consumer override test appropriately tests the ability of a connected water heater product to override the expected demand response requests.

To not further delay certification of connected products to ENERGY STAR, Rheem recommends EPA make the connected criteria portion of this Final Draft become effective immediately on the date of publication of this revised Specification.

Upper Compressor Cut-Off Temperature

Rheem recommends EPA amend Table 1 to include upper compressor cut-off temperature and state that this an optional requirement.

Other Issues

Rheem recommends that EPA correct the following typographical errors.

- Section 4.D.b “CPWH” is used instead of “CWHP” which is the correct abbreviation for “connected water heater product.”
- Appendix B has several broken links.

Thank you for the opportunity to comment. Rheem supports the ongoing development of the water heater specification and remains committed to participating in the ENERGY STAR program. We appreciate EPA’s willingness to consider our comments. If there are questions, please contact me directly.

Sincerely,

A handwritten signature in black ink that reads "Joe Boros".

Joe Boros
Regulatory Affairs Director
Rheem Manufacturing Company

cc: James Phillips, Karen Meyers

