



April 30, 2014

**ENERGY STAR® Product Specification for Residential Water Heaters, Draft 1 Ver. 3.0 – Comments –
AOS**

A. O. Smith Corporation is a leading manufacturer of residential and commercial water heating products, and is an ENERGY STAR Partner. We appreciate the opportunity to comment on the ENERGY STAR Product Specification for Residential Water Heaters Eligibility Criteria, Draft 1, Version 3.0.

We support EPA's efforts to update the ENERGY STAR Residential Water Heater Program. We do, however, have some concerns with, and comments on, specific portions of the specification.

- We understand and agree with the change to remove the 2 gallon limit from gas instantaneous units.
- We also agree with the need to reexamine the specification when the federal test method is finalized, and support EPA's decision to retain the "light duty" EPACT definition for now. We do suggest, though (as we did in comments to DOE on the test method), that "light duty" be changed to "residential duty", as "light duty" commercial is a current term-of-art with a different meaning.
- We agree with the criteria for electric units given in Table 1.
- We agree with the criterion for gas storage units equal to or less than 55 gallons give in Table 2.
- We believe that the criterion for gas storage units over 55 gallons is too stringent. The 2010 DOE analysis for the NAECA 3 levels going into effect in April 2015 determined that a "max tech" of 0.77 EF was more appropriate than a level of 0.80. The DOE minimum efficiencies are also based on tank storage volume, since the stand-by loss component of the EF calculation increases with larger tanks, due to greater surface area. With this spec covering larger capacity tanks up to 100 gallons, this effect becomes quite pronounced at the larger volumes, and a flat 0.80 EF will be difficult to obtain. We suggest that a simpler way to address these units is to establish a criterion that is 4 points above the minimum DOE EF established in NAECA 3. This can be accomplished with the simple equation $0.8412 - 0.00078V$.
- We agree with the criteria for gas instantaneous water heaters given in Table 3.
 - Recognizing that it is not part of the V3.0 criteria, we do have a comment in regard to lines 167 – 170 (in the note). While we are strong proponents of technology

neutrality, we are reserved in our views about the future possibility of a single set of gas water heater criteria for both instantaneous and storage heaters. Perhaps the upcoming uniform descriptor and accompanying method of test, along with complementary revisions to commercial water heater coverage that we envision will be enacted over the next few years, will provide a viable way to do so, but we urge EPA to proceed cautiously.

- As we stated in the stakeholder webinar on April 16th, we do not agree with, and have concerns about the technical feasibility of, the standby loss criterion for “residential duty” EPACT gas heaters given in Table 4. While we understand EPA’s intent to reflect similar annual energy use to that of gas storage heaters under 55 gallons, we believe that a 33%+ reduction in standby loss is much more than “slightly tighten(ed)” (line 188), and is approaching, if not exceeding, the technical feasibility of thermal isolation on larger tanks. AHRI will be provided detailed comments on this issue, so we will not duplicate them in our comments, other than to say that we support the AHRI position of leaving the standby loss criterion in V3.0 equivalent to V2.0, that the standby loss for the over 55 gallon units is volume dependent (like we suggested above for 55 gallon and under units), and that looking at a daily water use of 84 gallons instead of 64.3 gallons is valid for these larger water heaters.
- We have questions about the inclusion of “Connected Product Criteria”. To be clear, we are strong supporters of water heaters (electric and gas) that have connected functionality. However, we are not sure that the proposed method of adding these criteria to the water heater specification benefits anyone (with the possible exception of utilities), especially the consumer. He/she will usually be making their purchasing decision based on operating efficiency (cost) and first cost of the heater. ENERGY STAR® is well understood by the consumer to be an endorsement of higher-efficiency/lower-operating-cost products. Unless they are informed of grid connectivity programs by their utility, they will most likely not know if they are eligible for such a program or not, so we question the value to the consumer in making the purchasing decision. If, like some other ENERGY STAR recognized products, the manufacturer could “trade off” connectivity for a slightly lower efficiency eligibility criterion, there may be a readily understood benefit to the consumer in the form of a lower first cost for the grid connected heater, but that is not a part of the water heater V3.0 proposal, either.

Thank you again for the opportunity to provide input regarding the program requirements, and feel free to contact me if you have additional questions, or would like clarification on any of our comments.

Regards,

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