

## Water Heater Version 2.0 Spec - Stakeholder Comments Draft 3

Topic	Comment	Draft EPA Responses
<b>General</b>		
Scope	We request that commercial water heaters are included in this Version 2.0 Water Heater Specification.	EPA released the first draft of the Version 1.0 specification for ENERGY STAR Commercial Water Heaters on August 28, 2012. The usage pattern of water heaters in most commercial applications is very different than that in residential applications. Because of this, EPA feels that in our first effort to label commercial water heaters, a separate specification is more appropriate. EPA is open to reconsidering this decision in the future.
	EPA should create a two tiered ENERGY STAR system for electric water heaters. This would involve making the proposed changes in the latest draft revision as a base ENERGY STAR criteria and then creating a separate climate-specific set of criteria, based on ENERGY STAR "plus" for Northern region ENERGY STAR qualified HPWH. ENERGY STAR has recent precedent (i.e. gas furnaces) for developing regionally specific ENERGY STAR levels (and labels).	At this time, a tiered ENERGY STAR specification for water heaters is premature. EPA is willing to consider such changes in future specification revisions. Further, EPA may include educational documentation on the ENERGY STAR website that will help consumers to find the appropriate product for a household.
Smart Grid	Stakeholders are increasingly interested in exploring the opportunities associated with connected (i.e. able to communicate with utilities) capabilities. ENERGY STAR, as they have begun to do with other appliance product categories (i.e. refrigerators, Room air conditioners) should explore including a connected protocol/requirement into its next revision. Ideally, protocols for electric water heater "Connected-ness" could be standardized through this process, avoiding unique communication devices/protocols for each manufacturer.	EPA understands the potential to save energy by using smart grid-enabled devices in residential applications and is open to considering connectivity in future revisions of the Water Heater specification.
Definitions	We suggest that definition c read, "NAECA-covered gas instantaneous water heater with a rated storage volume of at least 2, but less than 20, gallons." That would be a simpler definition, and in keeping with the scope definition of NAECA.	When EPA reconsiders inclusion of hybrid water heaters after DOE publishes a test method for them, we will take this comment under consideration.
	The addition of the sentence "Further, all individual models within a basic model must have the same certified rating." in 4) B.2 is unnecessary. The requirement that all models within a basic model group must comply with the definition of basic model group in Section 1 is sufficient.	Thank you for your comments. The requirement that all individual models within a basic model must have the same certified rating is based on the applicable sampling criteria per DOE's regulations in Part 429. EPA will maintain the requirement in order to maintain consistency with DOE regulations. The requirement, however, has been moved to the definition of a basic model.
Test Requirements	We strongly urge the ENERGY STAR program to adopt a five (5) percent tolerance on all Energy Factor (EF) results, no matter the number of representative test samples. The experimental error associated with the water heater EF test protocol is in excess of 5% and is well documented.	EPA adopted the DOE test method for residential water heaters in the ENERGY STAR Version 2.0 Residential Water Heater specification and so refers to the DOE sampling requirements for testing and tolerance requirements. For non-DOE covered products, EPA encourages manufacturers to take testing tolerances into account when commenting on ENERGY STAR requirements.
<b>Gas Storage</b>		
Scope	With respect to ENERGY STAR® Version 2.0 proposal, Drafts 1, 2 & 3 to combine both high efficiency gas storage (non-condensing and condensing) categories into one, we hold to the position of maintaining current ENERGY STAR® criteria for each as currently defined in ENERGY STAR® Residential Water Heater Specification Version 1.0 (including a 0.80EF minimum and compliance with ANSI Z21.10.1/CSA 4.1 for the gas condensing category) and to keep the two categories separate and distinct. Reducing or removing these minimum qualification requirements for the gas condensing category (0.80EF) is premature and will remove the differentiated incentives which have been in place at energy utilities across the country.	Combining the condensing and storage categories is in line with EPA's ultimate goal of a technology neutral specification. EPA believes that this change will allow an increase in gas condensing unit's qualification to the ENERGY STAR specification. However, utilities may choose to retain different incentives on a product-specific basis. The same may be true of other product categories.
	We favor early announcement that EnergyStar expects to require that all gas water heaters be condensing in the next round, and urge EnergyStar to announce intent to end recognition of non-condensing water heaters, whether tank, tankless, or hybrid, in the next cycle. However, the proposed qualifying criteria for electric storage, gas storage, and solar water heaters seem appropriate levels for now.	Thank you for your comments. This will be re-examined during the development of the next revision of the specification.
Energy Factor	The DOE through the NAECA III Final Rule effective April, 2015, has established minimum efficiency requirements for larger capacity (≥55 U.S. gallons) gas water heaters starting at 0.75EF. Conversely, the EPA in its current draft form sets the ENERGY STAR® gas storage water heater high efficiency threshold at 0.67EF. This sends a confusing message to Manufacturers, the Industry and Consumers alike where a new minimum efficiency standard will exceed an ENERGY STAR® threshold.	It is EPA's intention to address the efficiency requirements as they apply to the 2015 federal standards during the next specification revision.
<b>Solar</b>		
	We are pleased that EPA has determined to continue the labeling of solar water heaters in the Energy Star Program.	Thank you for your comments.

General	Solar water heaters eligible for the ENERGY STAR Water Heaters Program must be certified in accordance with the applicable American National Standard for solar water heaters, or in accordance with SRCC OG-300. This change would ensure that solar water heaters certified in accordance with American National Standards would be eligible for inclusion in the Energy Star Program.	When a new test method is available, DOE and EPA will review and validate it, in order to understand how it suits the needs of the program. Until we have done so, we cannot include it in the specification.
Solar Fraction/Solar Energy Factor	The SEF takes into account the losses of the tank, but means solar has to provide over 50% of the domestic hot water used. A Gas, Electric or Tankless water heater that saves only 18% over energy inefficient models is given an ENERGY STAR rating. Why should the same not hold true for solar hot water? An SF=0.2 should be used, resulting in a Solar Energy Factor (SEF) of 1.12 for electric tanks and a SEF of 0.75 for gas tanks.	Due to the longer payback for solar water heating technology, it is essential that Solar Water Heaters maintain a high efficiency standard to be included in ENERGY STAR.
<b>Electric Water Heaters (Including POU)</b>		
Scope	The argument that POU units “may or may not” be as energy saving as other Energy Star options could apply to a number of products in Energy Star categories that nevertheless have been accepted into the Energy Star program. It thus appears that this requirement is being inconsistently applied within the Energy Star program and unfairly applied in this specific category to one fuel source and not the other.	With such uncertainty, the payback periods that are necessary for inclusion in the program cannot be accurately determined, and would present a very complex purchase decision for the average consumer. Though POU products will not be added in version 2.0, EPA recognizes that in certain circumstances, these devices can save water and energy resources. Such information will be posted to the ENERGY STAR website to educate consumers on the situational benefits of this product category.
	It goes without saying that consumer water use, “the distance between fixtures and the central hot water heater,” and the “characteristics” of POU units will impact energy savings. However, once again, these factors impact other products being included in this specification as well. Even the most efficient products, if used improperly or inefficiently, or installed in an inappropriate location within a home, would not achieve the energy savings claimed by the Energy Star program and would therefore not withstand the argument being made here.	
	For millions of consumers who live in areas with no access to natural gas, the exclusion of POU electric units from Energy Star will ultimately drive the continued purchase of less efficient water heaters. For numerous other consumers considering new construction or add-ons to existing homes, the exclusion of POU units from the Energy Star program will deny them another energy- and water-saving option. We simply cannot agree that this is the result that is most in line with the core goals and intent of the Energy Star program.	
General	We support the proposed product performance requirements for electric water heaters.	Thank you for the support.
<b>Heat Pump Water Heaters</b>		
Additional Requirements	Under Section 3 Qualification Criteria, the first item should be revised to read as follows:  “The unit shall include a visible or audible alert to notify if the compressor shuts off or if there is a blockage in the condensate drain. An alert is not required for a drain blockage if the water heater provides a redundant drain. The alert will also activate no more than 48 hours after users lock out compressor operation voluntarily, as when the unit is set into a resistance only mode.”	Upon further investigation and discussions with utilities and manufacturers, it appears that the blockage of the condensate drain is not a major or common occurrence in heat pump water heaters. Taking into consideration the cost burden added to the manufacturers and eventually to the consumers due to this requirement and also, considering the wide array of after-market devices available to serve this purpose, EPA proposes to remove the blocked condensate drain alert requirement from the specification.
	The first sentence of the additional requirement in 3) A.1. should be modified to state: The unit shall include a visible or audible alert to notify if the compressor shuts off <u>due to</u> a blockage in condensate drain or any other system failure.	
	Our suggestion reflects the intent that if the compressor shuts off in response to any type of abnormal or failure condition, an alert should be provided. This also addresses the problem that the current proposal literally requires an alert every time the compressor shuts off, even during the normal pattern of cycle operation.	
	We support changing the blocked condensate “alarm” to an “alert” on HPWH’s, and are agreeable to an alert when the compressor is locked-out by the user for more than 48 hours.	
	While we believe adding an alert to notify the consumer of a blocked condensate drain may be valuable it shouldn’t be a made a “requirement”. Also, if this feature is desired by the consumer there are many field installable options currently available in the market that can accomplish this.	
Add-on	We agree with the exclusion of add-on heat pump water heaters (HPWH’s) and POU units.	Thank you for your comments.

Residential Units	We urge EnergyStar to keep investigating models that might allow including these products, and to keep seeking input from utilities and organizations like CEE that represent them.	EPA remains interested in this energy saving technology and will continue to work with stakeholders to allow them to be included in future ENERGY STAR Water Heater specifications.
Misc.	EPA should advise consumers on the following: Ducting guidance- What are the best installation situations (i.e. semi-conditioned vs. conditioned) to duct in colder climates? Exhaust ducting vs. intake ducting, etc.  Quantifying energy impacts of HPWH on whole home energy use, especially in colder climates where heating penalty may be greater than cooling/dehumidification benefit.  Many Northeast efficiency programs lack confidence that the currently proposed EF level will deliver the energy savings that they need for product promotion.	EPA is receptive to including educational documentation on the ENERGY STAR website that will help guide consumers to find the appropriate product for a household.
<b>Comments on Draft 3 Updated Proposal</b>		
Scope	We agree with and support the proposed definition and qualification criteria for EPACK Covered Residential Units. We will comment that while the "line of demarcation" between residential and commercial EPACK covered units (100 Btuh) could arguably be higher (120–140 kBtuh, for example), we are willing to endorse the current proposal with the understanding that the criteria for ENERGY STAR coverage for commercial EPACK water heaters is being drafted now, and ENERGY STAR coverage for higher input heaters will be forthcoming in the reasonably near future.	Thank you for your comments. The ENERGY STAR Commercial Water Heater Version 1.0 Draft 1 specification has been released on August 28 2012 and can be accessed at <a href="http://www.energystar.gov/newspecs">www.energystar.gov/newspecs</a> .
	We believe that this category demonstrates significant potential as an attractive, high efficiency water heating choice, and look forward—if in-field performance validates nameplate efficiency—to incorporating the category into programs offerings. Further, we seek commercially available models with validated performance according to an industry and government accepted test procedure before we can endorse the extension of the ENERGY STAR program to this category. Some members are planning or conducting pilot studies to establish whether such products can deliver cost-effective energy savings. Overall our members are eager to support development of this product and are willing to partner with manufacturers to validate the in-field performance of these products.	Thank you for the support. EPA would be interested in the findings of the cost-effective energy savings pilot study.
	We support EPA's proposal to extend the ENERGY STAR water heater program to include certain EPACK water heaters. However, before proceeding, we request EPA and manufacturers comment on the safety and appropriateness of these models for residential use.	We understand these products are already in use in residential settings and there have been no safety concerns to date. In previous comments, stakeholders have noted that any unsafe products would be recalled by the Consumer Product Safety Commission (CPSC). To date, this has not occurred.
	We strongly believe that before the EPA considers the addition of any new product category into the ENERGY STAR® Residential Water Heater Program that the new product category is appropriately listed in the DOE Residential Product Classifications and proper due diligence is completed through the traditional and customary DOE stakeholder process such as that being completed for the establishment of a new grid-interactive electric thermal storage water heater product class via the outstanding DOE RFI.	Your comments are well taken but not every ENERGY STAR product category follows the DOE covered products model. EPA's objective is to include any products that have demonstrated consistent energy savings and reliability over conventional technologies. EPA agrees that it is premature to include hybrid water heaters without a DOE test method and hence, has decided to exclude the them from V2.0 specification.
	We applaud and strongly support EPA's proposals to raise the EPACK water heater thermal efficiency criterion to 90% TE and to rely on the ANSI safety standards for water heaters without modification.	Thank you for your input.
	We have no comment on the proposed standby loss criterion in 3) d. as it applies to EPACK Covered Residential Gas Water Heaters, as defined in the modified proposal. However, recognizing that EPA is planning to develop an Energy Star specification for commercial water heaters, we note that this criterion should not be considered as equally applicable to the broader category of commercial gas water heaters that would be covered by that future specification.	Thank you for your valuable input. EPA has taken this into consideration during the Commercial Water Heater specification development process.

Efficiency Criteria	<p>With respect to the ENERGY STAR® Version 2.0 proposal drafts 1, 2, 3 and UPDATED 3 to combine both high efficiency gas storage (non-condensing and condensing) categories into one, we hold to the position of maintaining current ENERGY STAR® criteria for both categories (non-condensing and condensing) as currently defined in ENERGY STAR® Residential Water Heater Specification Version 1.0 (including an 0.80EF minimum and compliance with ANSI Z21.10.1/CSA 4.1 for the gas condensing category) and to keep the two categories separate and distinct. The DOE through the NAECA III Final Rule effective April, 2015, has established minimum efficiency requirements for larger capacity (&gt;55 U.S. gallons) gas water heaters starting at 0.75EF. Conversely, the EPA in its current draft form sets the ENERGY STAR® gas storage water heater high efficiency threshold at 0.67EF. This sends a confusing message to Manufacturers, the Industry and Consumers alike where a new minimum efficiency standard will exceed an ENERGY STAR® threshold.</p>	<p>Throughout this process, EPA's intention is to create a technology-neutral specification that does not exclude one proven technology over another. Regarding the NAECA rule in 2015, EPA intends to revise the specification in accordance with the 2015 federal requirement.</p>
Definitions	<p>We have no specific comments on the added definition of "EPACT Covered Residential Gas Water Heaters." However we still are concerned about the unnecessary complications created by addressing only a subset of EPAct covered water heaters. We asked EPA to reconsider our recommendation that the requirement be modified to add criteria for water heater models defined by federal regulations as commercial but which are marketed for residential applications. Another option is to issue Energy Star specifications for commercial water heaters at the same time as the revised residential water heater specification is finalized.</p>	<p>The distinction between commercial and residential water heaters is made clear in both the residential and the recently released draft 1 commercial water heater specification. Most commercial water heaters are sold for applications with a significantly different use scenario than a residence. For this reason, the technical requirements, as well as the warranty requirements, will need to be different. EPA is open to considering combining the specifications in the future, but currently the distinction is helpful.</p>
Safety	<p>Under ANSI Z21.10.1, storage water heaters with burner input capacity of 75,000 Btu per hour or less are required to have flammable vapor ignition resistance (FVIR) technologies, while storage water heaters of larger burner capacity are covered by ANSI Z21.10.3 are not required to have FVIR technologies. Given this apparent incongruity in safety requirements, CEE seeks clarification on the extent to which EPACT covered water heaters are subject to the same safety concerns that resulted in the FVIR requirement in ANSI Z21.10.1.</p>	<p>EPA understands the challenges associated with requiring FVIR technology, and after much deliberation with stakeholders, has decided to remove the requirement for FVIR compliance. EPA understands that there is an ANSI committee defined to review the safety requirements of water heaters and EPA will continue to rely on the expertise of this committee. EPA also notes that instantaneous water heaters intended for residential</p>