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Ms. Daken,

Thank you for the opportunity to provide comment to EPA, and the ENERGY STAR program, as the Agency works to develop revised criteria for water heaters (Draft 1, Version 3.0). Our comments will be specific to the elements related to the electric storage requirements.

NEEP and several of the regions' stakeholders have identified Heat Pump Water Heaters (HPWHs) as a potentially game changing water heating technology for the Northeast/Mid-Atlantic region, with exciting associated energy savings when compared to the incumbent electric resistance water heaters. Northeast Energy Efficiency Partnerships (NEEP), with robust input from regional stakeholders developed the [Northeast/Mid-Atlantic HPWH Market Strategies Report](#) which was published in December 2012 to develop a long term strategy for transforming this market. One of the key strategies outlined in the report was directly related to ensuring product quality and ENERGY STAR;

Regional Strategy #3	
Focus on product quality to achieve high level of customer satisfaction	
Challenge	Stakeholders want to ensure consumer satisfaction when operating HPWHs in the more challenging conditions common to the Northeast and Mid-Atlantic region
Key Action Items:	
<p>1) Consistently define, and endorse, product quality throughout region. Providing consumers with an objective method for identifying quality HPWH products that will perform, up to and beyond consumer expectations, is essential to ensuring long term market growth. While technical frameworks already exist in the market, they have not always accurately measured HPWH capabilities (i.e. ability to operate in heat pump mode) when operated in conditions common to the Northeast and Mid-Atlantic region. To provide clear direction to the various market actors, stakeholders throughout the region should promote a single, consistent construct to “define” HPWH product quality in the Northeast. The framework needs to include technical requirements for energy efficiency AND performance criteria.</p> <ul style="list-style-type: none"> • ENERGY STAR qualification ensures base level of quality. Based on extensive program experience and familiarity utilizing the ENERGY STAR Labeling program, and on recently added additional requirements¹ that ENERGY STAR will be instituting in 2013, the region is encouraged to work through the ENERGY STAR framework to promote quality HPWH products in the Northeast and Mid-Atlantic. • Utilize lower compressor cut off temperature as essential compliment to ENERGY STAR. It is vital that stakeholders utilize the lower compressor cut off temperature as a tool to help select HPWH products that will operate efficiently in their particular installation situation (common ambient temperatures can range between 50-65 degrees). 	

¹ Manufacturers shall report the ambient temperature below which the compressor cuts off and electric resistance-only operation begins.



<ul style="list-style-type: none"> o Regional stakeholders should work closely with ENERGY STAR to develop consumer guidance on how to use the HPWH’s lower compressor cut-off temperature to aid in product selection.
<p>2) Utilize/develop “stretch” specifications to encourage improvements to HPWH product performance. While the most recent ENERGY STAR specification revision (Version 2.0) should enable the objective of driving high sales volumes of current technology (with an awareness of upfront costs) into the market, the region should simultaneously provide direction to industry on desired improvements to current technology (“stimulating advanced product designs”). See Chapter 5 for areas of potential improvement.</p> <ul style="list-style-type: none"> • ENERGY STAR’s Most Efficient and the Northern Climate Specification for HPWH should be considered as potential vehicles to communicate such performance needs to industry.

Following the development of the report, NEEP has facilitated a Working Group made up of a diverse set of regional stakeholders (program administrators, manufacturers, installers, efficiency thought leaders, etc.) to see that the recommendations are implemented. The comments on ENERGY STAR’s Draft 1 Version 3.0 Water heater specification (below) reflect input from this working group.

1. **ENERGY STAR needs to further explore ambient conditions of water heaters and the impacts of low ambient temperatures on performance-** Limited data shows that water heaters are operated in spaces that range between 45° and 85° Fahrenheit in the Northeast region. Water heaters are rated per DOE for efficiency at a constant 67°. Since performance and efficiency of heat pumps are impacted by ambient conditions, the efficiency of HPWHs is reduced during periods of low ambient temperatures (below 67°). There is currently a lack of data from the region to quantify how long these periods occur for and how these periods of low ambient temperatures affect the energy efficiency and ultimately energy savings of these units over the course of a full year.

ENERGY STAR should work to better understand how low temperature ambient conditions effect qualified products performance. While requiring compressor cut off temperature to be reported is a commendable start, it still does not help to quantify the potential issue.

We are concerned that reduced efficiencies could be a serious consumer issue, especially when it comes to HPWHs meeting the energy savings expectations of consumers. As more and more ENERGY STAR certified units are sold into the region, it is imperative that these products are achieving the savings that consumers are expecting. If ambient conditions are causing reduced energy savings, then ENERGY STAR must consider performance requirements beyond reporting to identify those products that are capable of maintaining performance and savings.

2. **Increase EF levels or consider developing Most Efficient 2015 category for water heaters.** The proposed Energy Factor levels reflect very modest increases compared to the current required levels (no change for <55 gallons, 2.0 to 2.2 EF for >55 gallons). A review of the current certified products list shows that there is a growing spectrum of EF levels amongst the electric storage category. We suggest that ENERGY STAR consider elevated levels for both size categories to differentiate HPWHs. If ENERGY STAR decides not to adjust the required EF levels, we strongly suggest that ENERGY STAR consider developing a Most Efficient 2015 category for electric water heaters as a mechanism to identify the highest performers. Several states in the Northeast are already only promoting products with EF above 2.3 for all sizes; it would be useful for ENERGY STAR or ENERGY STAR Most Efficient to step forward in this space to provide a label for such efficiency levels.



3. **NEEP supports the inclusion of additional reporting requirements into the specification (beyond compressor cut off temperature)-**
 - a. ENERGY STAR should consider requiring manufacturers to report measured Energy Factors for different modes/settings, including “eco”. This would allow stakeholders to communicate the importance of settings to consumers.
 - b. ENERGY STAR should consider requiring manufacturers to report EF at 50°. This data point is already being required by the Northern Climate Specification (which all the major manufacturers have qualifying products), so it should not present any additional testing burden. This would be an additional piece of information for stakeholders to use in determining whether certain products are appropriate for promotion in certain applications.
 - c. ENERGY STAR should consider requiring manufacturers to report the noise of their products during heat pump operation. Again, this information is being reported for the Northern Climate Specification and should not present any new testing burden. This would be yet another data point for stakeholders to use in determining promotion of certain HPWHs in certain situations.
4. **Effective date-** NEEP supports aligning the effective date with the federal minimum standard effective date
5. More generically, Northeast stakeholders would appreciate ENERGY STAR developing clearer language about its policy to incorporate multiple performance metrics in their specifications as well as its latitude to utilize test procedures that fall outside of the DOE Appliance Standards Program.

Thank you for your consideration of these comments. We look forward to continued engagement during this revision of the ENERGY STAR specification for water heaters.

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