

June 24, 2011

Ms. Abigail Daken  
ENERGY STAR Water Heater Program Manager  
U.S. Environmental Protection Agency  
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1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

Dear Abigail:

Supplementing our participation in the June 22, 2011 webinar, we have the following comments on Water Heaters V2.0 Specification Framework. These comments address the general topics identified in the Framework document.

## II. Technology Neutral Approach

This concept has several potential benefits but we do not believe it can be fully and effectively implemented until the efficiency test procedure issues have been resolved to provide a test procedure which provides a more equitable basis for comparison of all water heating technologies. Additionally, it should be recognized that a very large percentage of water heater sales are replacements and most consumers still go into that purchasing decision seeking a like for like replacement. Consequently, if the ENERGY STAR program is going to try to maintain its influence on how consumers purchase water heaters, it should not get too far ahead of consumers who still make decisions that are not technology neutral.

On the issue of a test method for hybrid systems, the current definitions of categories of water heaters within the federal regulations provide for any gas hybrid model with input over 75,000 Btu/h to be tested for thermal efficiency and standby loss. With those two parameters, an equivalent Energy Factor (EF) could be calculated using DOE's specified residential usage values. If EPA were to include gas hybrid water heaters, there is a mechanism to establish criteria that parallel the EF criteria for models tested to the DOE residential water heater test procedure.

### III. Revisions to Existing Product Categories

Combining the gas condensing and gas high efficiency water heater categories into a single category with the EF specified for high efficiency models will eliminate the inconsistency of the current criteria, which would not accept a condensing model with an EF of .77, but would accept that model if it were entered as a high efficiency model.

The discussion regarding solar water heaters during the June 22 webinar underscored the fact that the market for these types of water heaters has some unique characteristics. Also, information was presented suggesting that there may be some distinction of performance among models of solar water heaters. We believe these are reasons for EPA to treat solar water heaters as a separate energy source rather than include them in the electric and gas storage categories.

### IV. Consideration of New Product Categories

If add-on heat pumps are included in the program, the current DOE test procedure does cover these units. The EF value resulting from that test should be used as the ENERGY STAR criterion. This particular issue is being overanalyzed. The COP is not an appropriate metric for water heaters, particularly those connected to or having a storage tank. This incorrectly focuses on only one aspect of a water heater's efficiency, *i.e.* how efficient is the unit in heating water. The energy consumed to maintain the temperature of the stored water to compensate for standby losses must also be considered; EF does that, COP does not. The effect on the add-on heat pump efficiency of the size and standby loss of actual units in the field to which the add-on heat pump is applied, is not significant enough to warrant additional criteria. While the standard test tank is a nominal 52 gallon electric storage water heater, the relative change in efficiency for other sizes in the field will likely track the same effect of size that is seen in the current DOE test procedures. That is to say larger sizes of storage water heaters with designs comparable to a smaller volume model will have a lower EF than that smaller model. So while an add-on heat pump connected to a 65 or 80 gallon tank may have a lower effective EF, the relative improvement in EF caused by the add-on heat pump will not change much since the 65 or 80 gallon unit probably has a lower EF than the "standard" 52 gallon model. An additional item that should be noted is that the current DOE efficiency test procedure provides an EF that is relevant only to installing the add-on heat pump on an electric storage water heater.

We support the concept of including point of use electric water heaters. We believe that these models can be defined by a combination of input and storage parameters.

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Although not mentioned in the Framework document, there was a discussion of the possible inclusion of add-on devices during the June 22 webinar. We do not support the inclusion of system add-on devices in an ENERGY STAR program for water heaters. The fact that add-on heat pump water heaters are being considered should not be misused to include products that are not water heaters in this program. If EPA has an interest in add-on products that may improve the system efficiency or reduce water waste, then a separate program should be established for those products.

Another issue not mentioned in the Framework document that we believe should be reconsidered is the inclusion of high efficiency electric resistance storage water heaters. It is recognized that this criterion may have a short shelf life because of new efficiency requirements that go into effect in 2015. But between now and April 2015, there will be about 10 million electric storage water heaters replaced. Regardless of what anyone might like to happen, the majority of those replacements will be another electric resistance storage water heater. The highest efficiency models are about 5% more efficient than the minimum efficiency model. By not including this product in the ENERGY STAR program, an easy opportunity to save energy is being lost. The energy savings becomes significant because of the potentially large number of replacements that could be affected by the program.

We appreciate the opportunity to comment on this Framework document. If you have any questions, please do not hesitate to call me.

Sincerely,

Frank A. Stanonik  
Chief Technical Advisor