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Richard Karney, PE
ENERGY STAR Product Manager
U.S. Department of Energy

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Dear Mr. Karney:

Thank you for the opportunity to provide comments with regard to the development of an Energy Star designation for select water heaters. We applaud this long overdue effort, and will address not only the technical merits of the procedure, but also the eventual consumer information that will be provided once the standard is made available to the purchaser.

FlaSEREF is the education and information arm of the Florida Solar Energy Industries Association, and we submit these comments on behalf of the dedicated solar energy companies that have provided solar water heaters to Florida consumers for the last 30+ years.

Technical Information:

1. Where do the 13-17% statistics in Paragraph One come from? Documentation is requested to support these statistics.
2. As we've read from field testing, a HPWH provides between 40-70% of a household's water heating needs. Therefore, some backup water heating must be provided. That being the case, shouldn't the same "preheater" statement currently included in the solar water heating section also be included in the HPWH section? Better still, remove the statement from both and replace the statement with the average water heating contribution (%) of the relevant technology. However this gets handled, all technologies which don't provide 100% of the home's water heating needs should contain the same verbiage with a description of its appropriate water heating contribution.
3. Does the energy factor/savings/payback/etc. listed for the HPWH account for removing winter household heat and diverting it to heat water? Does it account for the slow recovery time of a HPWH?
4. We understand that annual maintenance required for a HPWH averages a couple of hours per year. Yet, there is no footnote in the energy and cost comparison table which states that. The only maintenance cost included is for solar. To be fair, maintenance footnotes should be included for all water heating technologies or for none of the technologies since all require some maintenance and HPWH's might be the highest cost of all.

5. Is the HPWH Energy Factor based on a combination system or stand-alone (i.e., dedicated heat pump)? Does it include a separate pump to move water to a storage tank or is it a single unit?
6. Why choose such a low Energy Factor for solar? A 50% solar fraction doesn't generate a true picture of the actual savings associated with using a typical solar system and unfairly affects both the performance and payback analysis. The average solar fraction is 70%.
7. Typical warranties for solar include: collectors (10 years), tanks (6 years), controls (5 years) and piping and parts usually (1 year). Given that, why include a 15-year warranty when a HPWH (for instance) only requires a minimum 6-year warranty and a gas-tankless system requires a minimum 10-year warranty (with the same stated life expectancy). We believe that most of the solar industry would find a 10-year minimum collector warranty acceptable, as that is typical.
8. The Florida Solar Energy Center tests and certifies all solar water heaters manufactured and sold in Florida (by law). FSEC certification must be recognized in lieu of SRCC (as the tax credit legislation does).
9. If you opt to keep cost-related comparisons in any final program/document, then tankless and gas condensing systems need to have an average cost, rather than range. Giving a wide range then using both ends of that range to determine payback gives the technology an unfair psychological advantage over all the other technologies. And, it gives the consumer the wrong impression - that the typical payback is 4.5 years for gas tankless and 3.5 years for gas-condensing systems rather than what could be a much larger payback of 13.5 and 8 years.

Final Information Structure:

1. Please list equipment discussion in order of maximum energy savings. That would remove any inherent writer bias, and adheres to the Energy Star mission of maximum kWh or therm reduction. If using the appropriate solar fraction of .70, we estimate that solar, with a slight edge, would take first position with HPWH a close second and gas-tankless systems a distant third.
2. Please add "with gas backup" to the "Solar" header in Table 2. The savings difference from Table 1 to Table 2 is confusing with this unspecified. Also, do HPWH's ever attach to gas backup tanks? If so, please also include them in Table 2.
3. Water heating IS the third largest user of energy in a household. But, that is third behind heating and A/C. Aggregating all kitchen appliances together (stove/oven, microwave, refrigerator and dishwasher) and including them as the second largest user is an unfair comparison. It gives consumers the impression that a refrigerator uses more energy than a water heater and that is misleading.
4. Why is bullet three, under Paragraph Two, included? Is the Energy Star goal, cost-effectiveness or energy savings? Does HVAC run through a cost-effectiveness criterion? Or, do you simply speak to the energy use of the varying system efficiencies and let the consumer get local market pricing for utility and HVAC equipment.
5. If gas-condensing and advanced non-condensing water heaters are not currently available in the residential market, discussing them may prove confusing. Can these be removed from any consumer information piece until the technologies are available?

6. If neither “tank-style” gas or electric systems are going to be included in the program, can the discussion be limited to a sentence or two only? Otherwise we are giving out a great deal of information for a technology that won’t be included in the program anyway.
7. In the final tables, can comparisons be more limited? So many things are included that it’s confusing. We would think that any reference to cost should be removed unless Energy Star proposes to routinely research and update average utility and appliance costs (used in lifetime savings, installed cost, price premium, payback on price premium, etc.). Consumers understand energy savings and are pretty savvy about making their own comparisons based on local market pricing. Perhaps Energy Factor, Annual Consumption, Annual Savings (kWh/year), Life Expectancy and Tax Credit would be sufficient.
8. Just to make sure that solar gets fair-handed treatment both in thought and in deed, can you include “Major manufacturers have indicated they are interested in developing this product if a market can emerge and compete. ENERGY STAR can assist in the development of this market with the collaboration its partners” in the market share section (if this is to be used in any final consumer piece). This statement is included in the HPWH, gas condensing water heater and non-condensing gas storage water heater sections, but not in the solar section. Why is that? And, the last two of these technologies are not even market available according to this document. Wouldn’t it be a better use of Energy Star efforts to promote a technology that is currently available, generates great energy savings and has the longest life of any technology included in this discussion paper?

Rebuttal to other comments:

1. With all due respect to Charlie Stephens, we don’t believe that using a photovoltaic system to power a heat pump is a financially responsible pairing. Photovoltaic systems have many positive uses, but running a central home heating and cooling system would require a very large PV system and is not a reasonable option for any, but the most wealthy, homeowners.
2. In the case of solar water heaters, all too often alleged experts (including EPA personnel) have cited their personal experiences (as opposed to empirical evidence) to dismiss solar water heating as a viable option to gas and electric (tanked or tankless) water heaters. We are confused as to why this occurs, especially in a setting where empirical data is expected to rule the day. Solar water heaters are a tried-and-true, reliable, environmentally friendly water heating alternative. We expect that these virtues should be stated positively both programmatically (Energy Star, Building America, Zero Energy Homes) and verbally (in all written documentation).
3. We echo the sentiments expressed by Danny Parker of FSEC with regard to electric tankless water heaters as well as the ambient water temperature issues.
4. We are in agreement with the comments provided by SEIA.

Respectfully Submitted,

Colleen M Kettles

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