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EDISON ELECTRIC INSTITUTE

November 21, 2007

Mr. Richard Karney
U.S. Department of Energy
Energy Star Program
1000 Independence Avenue, N.W.
Washington, DC 20585-0121

RE: Energy Star Residential Water Heaters: Second Draft Criteria
October 26, 2007 (publication date)

Dear Mr. Karney:

The Edison Electric Institute (EEI) appreciates the opportunity to submit comments regarding the Second Draft Criteria for ENERGY STAR Residential Water Heaters that was published on October 26, 2007.

EEI is the association of the U.S. shareholder-owned electric companies, international affiliates and industry associates worldwide. Our U.S. members serve over 97 percent of all customers served by the shareholder-owned segment of the industry. They service 71% of all ultimate customers in the United States. Many of our members are combination electric/gas companies, and provide efficiency services for both fuel types.

These comments will state our views on the 2nd draft document and its conclusions.

EEI believes that energy efficiency has a very important role in our Nation's energy strategy. We believe new technologies and controls provide important new tools to implement efficiency measures and achieve energy savings. We also believe that the ENERGY STAR program is one of the most successful public-private partnerships ever created. EEI has always endorsed the program, and many member companies use ENERGY STAR information for their efficiency programs that they operate.

EEI has reviewed the 2nd draft criteria and urges DOE to change the criteria as soon as possible. It is clear that the Department has ignored the comments that

EEI and several utilities made in response to the first draft criteria (see Attachment 1). By ignoring the potential efficiency gains provided by high efficiency electric (and other types, such as oil), DOE is creating a situation where the ENERGY STAR program will be very controversial and will not receive the support it has received in the past. With these draft criteria, it appears that DOE will be favoring certain technologies and certain fuel types, rather than increasing the efficiency of water heaters as a whole.

Comments on the Second Draft Criteria

Electric-Resistance Storage Water Heaters

-In the criteria, it is stated that an electric water heater with an Energy Factor (EF) of 0.95 would save 4.8% of the energy in comparison with a typical 50-gallon water heater with an EF of 0.904 (the federal minimum). It is also stated that "A savings of 4.8% is not significant and does not offer meaningful differentiation in accordance with the ENERGY STAR guiding principles."

As EEI stated before, many consumer electronics that actually increase energy consumption over baseline models can receive the ENERGY STAR label. How is that consistent with the guiding principles?

Also, for gas storage water heaters, the draft criteria for ENERGY STAR is an Energy Factor of 0.65. In the report, the savings and payback and justification are shown for a 50 gallon gas water heater. However, the typical gas storage water heater is sized at 40 gallons, not 50 gallons. Using the typical 40 gallon gas storage water heater with a baseline Energy Factor of 0.594, the estimated energy savings is approximately 9%. When compared to the ENERGY STAR criteria for other products (which start at 15% energy savings), 9% can also be considered to be "insignificant" and "not in accordance with the ENERGY STAR guiding principles."

DOE should include high-efficiency electric resistance water heaters with Energy Factors greater than or equal to 0.95 in the program, especially since DOE is including low efficiency gas water heating technology in the program. It appears that DOE only analyzed the statements from certain stakeholders falsely claiming that electric resistance is "highly inefficient" and notes that "full fuel cycle" has never been a part of any ENERGY STAR criteria for any rated product.

Gas Storage Water Heaters

By allowing gas storage water heaters to receive an ENERGY STAR label while excluding electric storage (and oil storage) water heaters, DOE appears to be favoring certain fuels and stakeholder comments. In the draft criteria, DOE states that after 3 years, ENERGY STAR will no longer qualify gas storage water

heaters. However, it does not indicate what DOE will do after 3 years, in terms of Energy Factor criteria.

In terms of a minimum 6-year warranty, nearly all water heaters sold on the market have such a warranty, so this does not provide any extra benefit to consumers. Other water heaters sold on the market have 9 and 12 year warranties.

Tankless Water Heaters

In this category of water heaters, it appears that DOE is playing favorites once again. The report ignores any retrofit costs associated with larger gas lines needed for gas tankless water heaters (just saying that "replacing gas lines is generally expensive"), but indicates that the costs associated with electric tankless units makes such retrofits "impractical."

It is also inconsistent that gas tankless water heaters must have a 10 year warranty to receive an ENERGY STAR label while a gas storage water heater is only required to have a 6 year warranty.

In terms of electric storage water heaters, DOE is being very inconsistent. The draft states "the best electric tankless water heaters can only achieve a 0.99 Energy Factor, which is just 9.5% more efficient than the Federal standard." Why is a 0.99 Energy Factor not considered ENERGY STAR eligible while a 0.82 Energy Factor gas tankless unit would receive the label?

Also, in terms of energy savings, which is part of the "guiding principles", a savings of 9.5% is more than the 9% savings that will be achieved from a typical 40 gallon gas storage water heater that would earn an ENERGY STAR label under the draft criteria.

EEI is concerned about the potential peak demand and distribution transformer impacts of electric tankless water heaters. However, to exclude such technology even though it has significant energy savings is not consistent with other appliance ENERGY STAR labels.

Heat Pump Water Heaters

EEI has several concerns with the draft criteria for heat pump water heaters. Heat pump water heaters are very efficient technologies, but they are still very expensive and not practical for certain retrofit applications.

In the 2nd draft criteria, DOE has proposed a minimum Energy Factor of 2.0, which would provide an estimate energy savings of 55% compared to a baseline electric storage water heater. This % savings is the highest bar set for any water

heating technology (or possibly any product receiving an ENERGY STAR label). Gas tankless water heaters only have to save 29.9% to receive an ENERGY STAR label. Gas condensing units only have to 28.4% of the energy compared to a baseline unit. Even solar water heaters with electric water heater backup can save less energy and still receive a label under this draft criteria.

To provide some consistency among the most efficient water heating technologies, EEI suggests that the criteria for heat pump water heaters be lowered to 1.5 EF, which would save approximately 30% of the energy, which would be more consistent with other high efficiency water heaters. To keep the minimum Energy Factor at 2.0 EF would be unfair and inconsistent. Also, with a more realistic Energy Factor value, more units with small footprints may be manufactured and sold in the marketplace.

In terms of the warranty, EEI believes that there should be a uniform length (in terms of number of years) across all water heater types and technologies to receive the ENERGY STAR label.

Solar Water Heaters

As with heat pump water heaters, the "bar" to obtain an ENERGY STAR label may be set too high. Solar water heaters are required to save much more energy than other high efficiency water heaters, except for heat pump water heaters. EEI would suggest lowering the Solar Fraction / Solar Energy Fraction so that a solar water heater that saves 30% of the electricity, natural gas, propane, or oil would receive a label.

Conclusion

EEI is a firm believer in the ENERGY STAR program and once again urges DOE to revise its draft criteria to create more "win-win" scenarios for manufacturers, consumers, and energy suppliers. EEI hopes that DOE will consider our suggestions, which will help to ensure that all parties support the ENERGY STAR program.

EEI sincerely appreciates the opportunity to submit these comments.

Respectfully submitted,

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cc: Ed Comer, EEI
Rick Tempchin, EEI

Attachment 1 - EEI Letter of May 28, 2007

May 28, 2007

Mr. Richard Karney
U.S. Department of Energy
Energy Star Program
1000 Independence Avenue, N.W.
Washington, DC 20585-0121

RE: Energy Star Residential Water Heaters: Draft Criteria
May 2, 2007 (publication date)

Dear Mr. Karney:

The Edison Electric Institute (EEI) appreciates the opportunity to submit comments regarding the Draft Criteria for ENERGY STAR Residential Water Heaters that was published on May 2, 2007.

EEI is the association of the U.S. shareholder-owned electric companies, international affiliates and industry associates worldwide. Our U.S. members serve over 97 percent of all customers served by the shareholder-owned segment of the industry. They service 71% of all ultimate customers in the United States. Many of our members are combination electric/gas companies, and provide efficiency services for both fuel types.

These comments will state our views on the draft document and its conclusions.

EEI believes that energy efficiency has a very important role in our Nation's energy strategy. We believe new technologies and controls provide important new tools to implement efficiency measures and achieve energy savings. We also believe that the ENERGY STAR program is one of the most successful public-private partnerships ever created. EEI has always endorsed the program, and many member companies use ENERGY STAR information for their efficiency programs that they operate.

EEI has serious concerns with the draft report and its conclusions. Where other ENERGY STAR specifications work with manufacturers to use high efficiency and well proven technologies, it appears that in this case, DOE would prefer to use less proven technologies and to ignore manufacturer concerns about the efficiency levels being used.

Also, the report covers technologies for electric and gas-fired water heaters, but ignores oil-fired and propane water heaters. While these technologies have much smaller market shares, they should not be ignored for this process.

The draft criteria are also inconsistent with other products that have received an ENERGY STAR label. For example, for many appliances, the main criteria to receive a label was/is to be 10-15% more energy efficient than the "baseline" model available on the market. In other cases, such as consumer electronics, the main criteria was the amount of standby energy used (e.g., 2 Watts), regardless of the amount of "active energy" or annual energy usage. For example, a 42" plasma TV using 500+ Watts in the "active" mode but 1 Watt in the "standby" mode receives an ENERGY STAR label, but a 42" LCD TV using 200 Watts in the "active" mode but 2.1 Watts in the "standby" mode would not receive a label, even though the LCD TV, on an annual basis, would most likely use much less energy.

In the case of water heaters, the draft criteria require an energy efficiency increase of 39.1% for natural gas storage water heaters and an increase of 121.2% for electric storage water heaters. Both of these increases are far above any other ENERGY STAR label that we are aware of. These draft levels are very unlikely to be accepted by manufacturers.

To gain manufacturer acceptance, and to be inclusive of all technologies for water heaters, DOE should investigate more reasonable levels, plus the use of sophisticated controls. As an example, there are high efficiency electric water heaters that have 0.95 Energy Factor ratings plus solid state controls that allow the owner to easily adjust the temperature to items such as "Energy Smart" for hand washing and "Vacation" for when the home will be vacant for several days. For ENERGY STAR water heaters, DOE may want to use two criteria: 1) a level of 4-5% above current baselines, and 2) solid state controls, which could significantly increase annual energy savings for all types of water heaters.

Conclusion

EEI is a firm believer in the ENERGY STAR program and urges DOE to revise its draft criteria to create more "win-win" scenarios for manufacturers, consumers, and energy suppliers. EEI hopes that DOE will consider our suggestions for the upcoming ENERGY STAR specifications, and appreciates the fact that DOE has presented the data in an open and transparent manner.

EEI sincerely appreciates the opportunity to submit these comments.

Respectfully submitted,

Steve Rosenstock, P.E.
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