



May 22, 2007

Mr. Richard Karney
Program Manager, Energy Star
U. S. Department of Energy

Dear Richard:

The A. O. Smith Water Products Company supports the efforts to establish an Energy Star program for residential water heaters. We believe that an appropriately crafted program will influence consumer behavior toward buying more energy efficient water heaters which will lead to substantial energy savings on both an individual and national basis. We have carefully reviewed the "Energy Star Residential Water Heaters: Draft Criteria Analysis" and have the following inputs for the DOE on this matter:

- **Minimum FHR Requirement:** The minimum FHR of 50 gallons seems very low to insure proper performance in a traditional home. It is our understanding that the National Plumbing Code requires a minimum FHR of 67 gallons for a three bedroom house with two bathrooms.

A. O. Smith believes that the minimum FHR criteria for Energy Star should be raised to be more consistent with the National Plumbing Code.

- **Minimum Warranty:** A.O. Smith understands the intent of the minimum warranty to be to insure quality and reliability to the consumer. Unfortunately, warranty does little to insure quality or performance and may jeopardize the Energy Star reputation. If an unreliable product is certified under the Energy Star program and the manufacturer subsequently goes out of business or refuses to honor the warranty, the reputation of the Energy Star brand will be severely damaged.

Many in the energy efficiency community have complained that water heaters are sold at retail on the basis of length of warranty and not energy efficiency or features. The use of a minimum warranty in Energy Star will just promulgate the competition on the basis of warranty rather than performance or value.

In reality, a warranty is just insurance which adds to the price a consumer must pay for the product. Warranty features are best determined by competition in the free market and should not be dictated by regulation or standards.

A. O. Smith believes the minimum warranty requirement should be dropped from the Energy Star criteria for residential water heaters.

- **Prescriptive Definitions:** A.O. Smith believes that the descriptions of the various product categories should be based on performance and hot water delivery characteristics and not on specific design features or devices which may be used to achieve the Energy Star designation.

We do not believe that it is appropriate to imply condensing water heaters have helical heat exchanger coils. While many condensing water heaters have helical heat exchanger coils, such a design feature is not needed to achieve the desired result; a condensing water heater with an EF of 0.80 or greater. Similarly, the draft criteria for “Advanced Non-Condensing Gas Storage” implies that a “powered burner with a draft inducer as well as advanced valves and heat traps” are required. While these features may well lead to the desired performance level of an EF greater than 0.70, they are definitely not required to achieve that level of performance.

Prescriptive definitions inhibit the development of new ideas and designs which do not follow the prescription.

A. O. Smith believes that the product category descriptions for the various water heater categories in the Energy Star Criteria should not be prescriptive but rather should state only the desired performance levels and characteristics.

- **Electric Resistance Storage Water Heaters:** A. O. Smith does not agree that electric resistance storage water heaters should be excluded from the Energy Star designation. For a nominal equipment cost and no additional installation cost, a 0.95 electric resistance storage water heater saves 275 KW h/year over a 0.90 water heater. This may be only 10% of the savings achievable from a yet to be developed HPWH but the market penetration could easily be ten times as large over the next decade due to the current national availability and low installed cost. The total energy saved by a wide adoption of 0.95 water heaters could easily exceed that achieved by HPWH because of the very easy retrofit of all existing electric water heaters.

A. O. Smith believes that the most practical means to save energy with electric water heating is to encourage the use of 0.95 water heaters through an Energy Star designation. This is justified by the very low incremental cost and the very substantial national energy savings potential achieved by rapid and significant market penetration.

- **Gas Storage Water Heaters:** A.O. Smith believes that high performance gas storage water heaters should be included in the Energy Star program. The comparison used to exclude these water heaters was between a 0.62 gas storage water heater and a 0.58 gas storage water heater. However, there are many gas storage water heaters currently available with energy factors in the 0.65 to 0.67 range.

When a comparison is made using these higher performance gas storage water heaters, substantial individual and national energy savings can be achieved using currently available products. In fact, the savings achieved by a 0.67 water heater over a 0.58 is 75% of the savings which could be achieved by the “Advanced Non-Condensing Gas Storage” water heaters which do not currently exist at any price. Because of the possibility of a much quicker and larger market penetration, the total energy saved in the next decade by these available, proven and cost-effective gas storage water heaters could exceed that achieved by the higher efficiency units expected in the future.

A. O. Smith believes that the exclusion of high performance gas storage water heaters from the Energy Star designation overlooks a substantial opportunity to save substantial energy on a national scale while providing consumers with proven, available water heating appliances at reasonable prices. A. O. Smith recommends that gas storage water heaters with Energy Factors of 0.65 or greater be included in Energy Star program.

- **Whole-Home Tankless Water Heaters:** Traditionally, the Energy Star designation has been reserved for the “cream of the crop” of any appliance category. Under the current proposal, the Energy Star designation would be given to most tankless water heaters which are currently on the market. This wholesale inclusion of tankless water heaters is based on their performance in the DOE-Energy Factor test. Recent studies by the Davis Energy Group and by GTI have shown that tankless water heaters do not perform as efficiently as expected when subjected to actual residential use profiles. As a response, the California Energy Commission is considering requiring an 8.8% degradation of tankless water heater energy factors in the next version of their Title 24 regulations. In addition, these studies have shown that tankless water heaters waste significant amounts of water both by their design and perhaps by the owner’s usage pattern based on his perception of “endless hot water.”

We believe the consumer’s perception is that an Energy Star appliance should have all of the latest safety and environmental technology. Unfortunately, gas tankless water heaters have significantly less stringent emissions requirements and are not required to be flammable vapor ignition resistant. A. O. Smith is concerned that these short-comings run counter to the traditional Energy Star brand positioning and will ultimately dilute the value of the Energy Star brand.

A. O. Smith believes that the wholesale inclusion of whole-home gas tankless water heaters in the Energy Star program based solely on their EF values represents a significant risk to the Energy Star brand and may lead to higher water usage and higher atmospheric emissions while costing the consumer a substantial installed cost premium.

- **Minimum FHR Requirement:** The minimum FHR of 50 gallons seems very low to insure proper performance in a traditional home. It is our understanding that the National Plumbing Code requires a minimum FHR of 67 gallons for a three bedroom house with two bathrooms.

A. O. Smith believes that the minimum FHR criteria for Energy Star should be raised to be consistent with the National Plumbing Code.

We appreciate your careful consideration of these issues as you develop the final criteria for the water heater Energy Star program. A. O. Smith plans to attend the hearing on June 5th so that we can further clarify our position and concerns. At that time, we would like participate with a presentation by Dr. William R. Hoover. If you have any questions regarding the A. O. Smith position, please contact either Dr. Hoover at 414-731-6346 (whoover@aosmith.com) or Mr. Mike Parker, V. P. Marketing at 615-792-6389 (mparker@hotwater.com). Both Bill and Mike are planning to attend the June 5th hearing.

Thank you,



Ajita Rajendra
President
A.O. Smith Water Products Company

cc: Mr. Ron Massa
Mr. David Romoser
Mr. Drew Smith
Dr. William Hoover