



Natural Resources
Canada

Ressources naturelles
Canada

May 20, 2003

Mr. Richard Karney
Energy Star Program Manager
U.S. Department of Energy
Washington, D.C.
Email: Richard.karney@ee.doe.gov

Re: Energy Star draft specification for water heating

Dear Richard,

We are responding to your recent document outlining draft proposals for establishing Energy Star Water Heater criteria options, dated April 4, 2003. Overall, we believe that this is a good initiative, and a good start to begin the development of a technical specification for establishing an Energy Star labeling initiative for water heating.

We have reviewed the document, as well as attended your recent meeting, and are providing you with written comments on our assessment of the proposed criteria.

Overall, in terms of what is desirable for Canada, we are leaning towards the strategy along the lines of the first scenario proposed in your document.

Although we believe that the industry has come to a point where there is limited range for improving the possible efficiency of electric storage water heaters, significant savings are still achievable. If electric storage water heaters are excluded from the mix, the potential for electrically-derived, Energy Star qualified units will be low in Canada should only heat pump water heaters, or solar domestic water heating (solar dhw) units be included. The best electric tanks have about 65 watts standby, so there is still some potential.

For the solar dhw and heat pump water heaters, we suggest that a range of performance be established within each product category, whereby not all solar dhw or HP water heaters automatically qualify. There is the issue with backup and storage efficiency for both types, which will require some consideration; perhaps we should consider that the storage tank has to meet standby loss similar to electric tanks.

Standard gas storage water heaters tanks should be excluded from the mix because the Energy Factor for these units max at about 65%. There could be some advantage to considering direct vent / sealed combustion units which prevent the space heating losses up the flue. This product category will require further assessment to determine what, if any, eligibility criteria would need to be considered.

.../2

For gas-fired instantaneous / tankless (also called continuous flow) units, Energy Star should qualify the best of class since there is a range of efficiency for these units. For example, units with pilot lights that have low EF (below .70) and should not qualify.

Condensing gas water heaters should be given greater consideration. Notwithstanding the mention above regarding direct vent/sealed combustion units, condensing gas water heaters should be the only type of storage tank to qualify for Energy Star. In Canada, there is growing enthusiasm for combination space heating / water heating systems and therefore we should consider whether there is some way to include these types of units eventually. The potential impact is greater since the space heating is also included.

Some specific comments regarding the analysis in the April 4, 2003 document:

- On page 8, we view that the cost estimate of \$40 is really low to take electric tanks from EF = .90 to EF = .94.
- Should add the point that having bottom inlet of cold water provides electric efficiency improvement (points bridging p 5 and p6)
- Predicting that the electric tank will have only 2" walls is optimistic - since reaching the 2004 minimum performance level (EF = 0.90) was based on using 2.5" (page 6)
- For the tankless gas water heaters, the economics on page 8 also seem optimistic.
- The chart on page 5 showing 73 of 178 models of electric tank is suspect. There is an issue of accuracy and repeatability of test results for electric storage tanks, especially for the electric tanks using the DOE test method. Supporters of the method indicate that the test method can cause variations of .02, which is about 20 watts. (Also, we understand that the numbers in the GAMA listing have been coming down as the numbers are being challenged.)

Energy Star should have a serious look at the way the EF is measured for electric water heaters. We are concerned with repeatability and accuracy of the test method.

We are currently carrying out a more detailed review of an Energy Star water heating specification, and consulting with several interested stakeholders within Natural Resources Canada, and with industry representatives.

We are working towards providing you with a more detailed recommendation before the proposed publication date of June 3rd, for the first criteria.

I would invite you to contact Brian Killins, the Senior Standards Engineer responsible for this product area in the Standards and Labelling Group here at the Office of Energy Efficiency. Brian will be the lead on the commentary for this product category. Brian's coordinates are as follows:

Brian Killins, bkillins@nrcan.gc.ca; Phone: (613) 947-8764

Best regards,

(sent by email)

Anne Wilkins
Senior Program Manager
Equipment Labelling
Office of Energy Efficiency