



**Department of Energy**  
Washington, DC 20585

February 5, 2007

Dear ENERGY STAR Partners and Stakeholders:

I am pleased to announce the schedule for establishing ENERGY STAR criteria for residential water heaters. Water heating represents between thirteen and seventeen percent of residential energy consumption, making it the third largest energy end use in homes, behind HVAC and kitchen appliances. As homes have become more energy efficient, the percentage of energy used for water heating has increased. Water heating is the only major residential energy end use that the ENERGY STAR program does not address.

The U.S. Department of Energy (the Department) considered establishing ENERGY STAR criteria for water heaters in 2003. After analyzing the market, the economics and potential energy savings of various technologies, as well as considering feedback from stakeholders, the Department decided not to establish ENERGY STAR criteria for residential water heaters at that time. Since then, manufacturer and stakeholder interest has increased and water heater product development has progressed. The Department has monitored these technological advances and has deemed the water heater market prepared for advanced water heater technologies.

The first step on the schedule is the release of draft criteria for partners and stakeholders to review and submit comments. The technologies identified for potential qualification are described below.

- **Atmospheric burner** technology injects fuel supplied at atmospheric pressure into a burner located at the base of a storage tank. Heat from the burner is transferred to the water inside the tank. Combustion by-products are channeled into a vertical flue, where additional heat is transferred to the water in the tank, then vented to the ambient air.
- **Gas-condensing** water heating uses a burner as well as its hot fuel gas by-product to heat water in a storage tank. The gas by-product travels through a helical heat exchanger coil, transferring additional heat to the water in the tank. The gas by-product condenses as it reaches the end of the coil and is drained as slightly acidic water.
- **Heat pump** water heater technology uses a vapor compression refrigeration system to transfer heat. A refrigerant serves as the working heat-transfer medium, delivering heat to the water in the storage tank.
- **Solar** water heater technology uses the sun's radiation to heat water. Solar water heaters have a solar collector in combination with a conventional storage or demand water heater. The sun's rays strike a solar collector, which absorbs the thermal energy and transfers this heat to the water in the storage tank. Passive and active, and direct and indirect configurations are available on the market.
- **Whole-home tankless** or instantaneous water heater technology uses the same concept as conventional water heater technology, but without a storage tank. Cold water enters the heat exchanger and a fuel flow sensor is triggered when the minimum hot water demand or draw is met. When the burner fires, the cold water is heated and leaves the water heater.

These technologies were identified based on their energy savings potential in comparison to conventional technologies. To ensure product performance and reliability, the Department will require a minimum product warranty similar to what is included in other ENERGY STAR programs. Draft criteria will reflect the information and data collected from research studies as well as discussions with manufacturers

and energy efficiency program sponsors on technical issues.

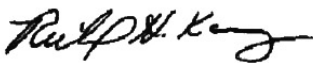
In May, a stakeholder meeting will be held at Department headquarters in Washington, DC to discuss the draft criteria. Stakeholders may submit feedback and comments both at the meeting and in the formal comment periods before and after the meeting. All formal stakeholder comments will be posted on the ENERGY STAR web site. After reviewing the comments, the Department will release revised draft criteria in July followed by another formal comment period. The Department will release final criteria by the end of calendar year 2007 and the criteria will take effect in September 2008. The specific schedule is as follows:

<b>ENERGY STAR Criteria for Residential Water Heaters</b>	
March 2007	Release Draft Criteria
March – May 2007	Comment Period on Draft Criteria
May 2007	Stakeholder Meeting
July 2007	Release Revised Criteria
July – October 2007	Comment Period on Revised Criteria
December 2007	Release Final Criteria
September 2008	Criteria go into effect

All information on the ENERGY STAR residential water heater criteria development process will be available under the *New Product Specifications in Development* section of the ENERGY STAR web site - [http://www.energystar.gov/index.cfm?c=new\\_specs.new\\_prod\\_specs](http://www.energystar.gov/index.cfm?c=new_specs.new_prod_specs).

If you have any questions about this ENERGY STAR schedule or the criteria-setting process, please contact either Josh Butzbaugh at [jbutzbaugh@drintl.com](mailto:jbutzbaugh@drintl.com) or myself at [richard.karney@ee.doe.gov](mailto:richard.karney@ee.doe.gov).

Sincerely,



Richard H. Karney, P.E.  
ENERGY STAR Products Manager