ORNL, General Electric collaborate on super efficient electric water heater

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The Department of Energy's Oak Ridge National Laboratory and General Electric have collaborated to finalize, test and market the first product from a major brand to meet DOE's new Energy Star criteria for electric heat pump water heaters.

The GE® Hybrid Water Heater is affordable and designed to be 50% more energy efficient than a standard 50 gallon electric water heater, which should help reduce carbon emissions associated with standard electric storage water heaters in the average home.

GE and Oak Ridge National Laboratory entered into a Cooperative Research and Development Agreement where ORNL and GE will jointly test and market the units, which could be available in home improvement centers by late 2009.

The initiative coincides with DOE's announcement in April of the first ever Energy Star criteria for water heaters. Energy Star labels on appliances make it easy for consumers to buy the most energy efficient products available. According to DOE projections, Energy Star labels on water heaters are expected to save Americans about $780 million in utility costs and avoid 4.2 million tons of carbon dioxide emissions in five years. GE is the first major brand to announce plans for a heat pump model that will be designed to meet the Energy Star criteria.

"The cooperation announced today is a real-life example of how the nation's public and private sectors are working together to accelerate new

energy efficient technology solutions to the marketplace," DOE Assistant Secretary for Energy Efficiency and Renewable Energy Andy Karsner said. "Commercialization of ENERGY STAR water heaters will give Americans yet another way to make smart energy choices that will save money and energy, and in the interest of increasing energy security and addressing climate change, help further the President's goal of fundamentally changing the way this nation uses energy."

Bob Hawsey, director of ORNL's Energy Efficiency and Renewable Energy Program said "water heating accounts for 12 percent of U.S. home energy consumption, and since about 4.5 million electric storage water heaters are purchased annually, literally millions of consumers each year will have the opportunity to cut their electric water heating bills in half with a modest investment that will pay for itself in a few years."

The synergy between DOE Energy Star goals, ORNL science and technology capabilities, and GE has made efficient water heating a fertile area for substantial energy savings, Hawsey said.

Patrick Hughes, Director of ORNL's Building Technologies Research and Integration Center said "DOE has raised the bar for energy efficiency through the Energy Star program, and GE has risen to the challenge. It is very gratifying and exciting to see this type of marketplace response. These are the kinds of products that will have to emerge at affordable prices if zero energy homes are ever to become a reality."

The technological roots of the new heat pump water heater can be traced to a previous product cycle where ORNL and its partners were recognized with an R&D 100 award in 2001. GE, which has won 163 R&D 100 awards, and ORNL, with 134, rank 1st and 2nd in the number of R&D 100 awards received by any company, laboratory, or other

institution.

While always much more efficient that conventional units, the new generation of heat pump water heaters are more durable, reliable, easier to install, and cost less than initial designs.

The new models can easily be installed by a plumber to replace an existing water heater. The installed cost will be about $400 more than a conventional 50-gallon water heater (resellers/retailers determine their own resale value), but the energy savings in about two years may cover the additional cost of purchase.

Testing and analysis on the new heat pump water heaters will be conducted in ORNL's Building Technologies Research and Integration Center and at field sites to be named later. The work is supported by GE and DOE's Building Technologies Program within the Office of Energy Efficiency and Renewable Energy.

Source: Oak Ridge National Laboratory