



## GE Appliances & Lighting

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Ms. Abigail Daken  
ENERGY STAR Water Heater Program Manager  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

Re: **ENERGY STAR Product Specification for Residential Water Heaters  
Draft 2 Version 2.0 (“Product Specification”)  
Comments of General Electric Company (GE)**

Dear Ms. Daken:

GE is pleased to submit these comments regarding the Environmental Protection Agency’s (“EPA” or the “Agency”) ENERGY STAR Program Requirements, Product Specification for Residential Water Heaters, Draft 2 Version 2.0. GE is a multi-year recipient of the ENERGY STAR Sustained Excellence award and has a long history of innovation and development of energy efficient products, including the program's first qualified heat pump water heater. GE continues to support EPA’s efforts to develop ENERGY STAR criteria for water heaters.

GE comments on specific sections of the Product Specification as follows:

a. Additional Qualification Requirements for Heat Pump Water Heaters

1. Audible Alerts

EPA proposes that “The units shall include an audible alert to notify when the compressor turns off due to a blockage in the condensate drain.” GE suggests that this requirement be amended to state: “The units shall include an audible alert to notify if the compressor turns off due to a blockage in the condensate drain or other malfunction.” [Emphasis added.]

There are two reasons for this suggestion. First and foremost, it would provide consumers with an audible signal regarding product operating efficiency whenever heat pump operation is stopped due to any abnormal condition, for example, a refrigerant leak which results in deactivation of the compressor. As water heaters are often located in a utility

closet or other area in the home where they are not readily visible, an audible alert (not an alarm) would give consumers reasonable notice of compromised operating efficiency.

The second reason for this suggestion is to correct a false assumption in EPA's proposed requirement that the compressor would necessarily turn off due to a blockage in the condensate drain. GE's heat pump water heaters are designed so that a blockage in the condensate drain line would redirect condensate to a secondary "overflow" drain line without interrupting compressor operation. Such an overflow drain line would direct condensate to a floor drain or drain pan, used in conjunction with installations of heat pump water heaters just as they are for traditional water heaters and other water appliances.

By broadening the audible alert function to include any malfunction in compressor operation, while at the same time eliminating the need to develop an alert for a specific circumstance obviated by product design, EPA's proposal would more accurately focus on proper heat pump operation and its attendant consumer benefits.

## 2. Reporting Requirement for Lower Compressor Cut-Off Temperature

EPA further proposes that "Manufacturers shall report in their literature the ambient temperature below which the compressor cuts off and electric resistance only operation begins." GE currently provides this information. However, EPA should be aware that factors other than ambient temperature can affect whether and when a water heater may use electrical resistance heating in addition to or in lieu of heat pump operation. For example, some water heaters may activate electrical resistance heating based on inlet water temperature, not ambient air temperature. Other products may also activate resistance heating based on heavy draw patterns. Such operation would be related to tank volume but, again, would be independent of ambient temperature. In either case, a lower compressor cut-off temperature would not necessarily mean better energy efficiency.

Furthermore, as heat pump water heaters are relatively new to the market, any reporting requirement for compressor cut-off temperature should aim to minimize consumer confusion and make clear that a water heater will still function effectively (if not as efficiently) outside of a given ambient temperature range. For the foregoing reasons, GE suggests that EPA not implement such a reporting requirement unless and until test procedures can be developed to more fully account for factors in addition to ambient temperatures.

## 3. Add-On Heat Pump Water Heaters

As EPA indicated in its Note, "Stakeholders expressed concerns that the installation of an add-on heat pump water heater would void the safety certification of the storage tank on which it is installed." EPA further notes that all add-on heat pump water heaters require modification of the existing storage tank wiring and that any change made to tank wiring would void UL safety certifications. EPA therefore properly concludes that "If this concern cannot be satisfactorily resolved, EPA will not include add-on heat pump water heaters in this specification." Consistent with its June 24, 2011 comments in this matter, GE agrees with EPA's concerns and urges EPA not to include add-on heat pumps in this program.

b. Point –Of-Use Electric Units

GE reiterates its position stated in its June 24, 2011 comments that EPA should not include point-of-use ("POU" or "tankless") water heaters in the ENERGY STAR Program. ENERGY STAR is designed to promote products which will consistently perform in the field with superior energy efficiency. This not the case with POU systems. Rather than being inherently efficient, their performance efficiency is highly dependent on installation location. Moreover, test procedures cannot accurately measure the efficiency of a multiple-unit POU system. In the absence of a repeatable test procedure that would include distribution efficiency, EPA should not include these products in the ENERGY STAR Program.

c. Other Matters - ENERGY STAR Credits for Smart Water Heaters

While not addressed in this Draft, GE urges EPA to consider and implement an ENERGY STAR credit for "smart"-enabled electric water heaters. EPA understands the additional energy-saving capabilities of smart appliances generally and has established this credit for refrigerators. Given the energy usage patterns and thermal storage capabilities of water heaters, smart water heaters may offer even greater energy and cost savings to consumers, especially during peak load periods. GE looks forward to working with EPA to evaluate, develop and implement such criteria.

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For the foregoing reasons, GE urges EPA to:

1. Require an audible alert for any malfunction in compressor operation in heat pump water heaters;
2. Relatedly, not require an alert designed specifically for compressor operation cut-off in heat pump water heaters due to condensate drain blockage, particularly if such blockage would not affect compressor operation;
3. Not implement a reporting requirement for compressor cut-off temperatures in heat pump water heaters unless and until test procedures can be developed to more fully account for factors in addition to ambient temperatures;
4. Not include Point-Of-Use use ("POU" or "tankless") water heaters in the ENERGY STAR Program; and
5. Develop and implement an ENERGY STAR credit for "smart"-enabled electric water heaters.

Respectfully submitted,



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