



DEPARTMENT OF ENVIRONMENTAL PROTECTION

Isiah Leggett
County Executive

Robert G. Hoyt
Director

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U.S. Environmental Protection Agency
1310 L Street, NW
Washington, DC 20005

RE: Comments on the ENERGY STAR Programmable Thermostat Specification Draft 1 V.2.0

To Whom It May Concern:

The Montgomery County Maryland Department of Environmental Protection (DEP) understands and appreciates ENERGY STAR's commitment to improving the design and usability of programmable thermostats to enhance the effectiveness and energy saving potential of these devices. DEP is currently developing several programs that will encourage the use of these products. One program will install approximately 300 programmable thermostats in Montgomery County homes and study the influence of enhanced product education for one year after installation; another, a Property Assessed Clean Energy (PACE) program, will provide financing for comprehensive energy efficiency upgrades, which will include programmable thermostats. Additionally, DEP is cognizant of the opportunities for equipment retrofits both in its community and throughout the country, and sees the energy savings and carbon reduction benefits of this advanced technology being used and promoted by HVAC contractors and others as systems are upgraded.

While the requirements of the ENERGY STAR Programmable Thermostat Specification Draft 1 v.2.0 state that the product documentation "must provide clear instructions for the user to operate the thermostat and adjust programmed schedule times and setpoint temperatures," there is no indication that this requirements will lead to the product including simple effective education messages since there are no criteria provided. Further, upon review of current ENERGY STAR qualified products, DEP did not find information on packaging or in instruction manuals to educate the consumer about how to derive settings that would be appropriate for the homeowner, or settings that would lead to energy-cost savings. DEP staff view this lack of consumer education as a weak point in the otherwise strong specification revision. Since ENERGY STAR's strategy is to create specifications that lead to the development of technically superior thermostats and to more fully realize the devices' energy-saving potential, and because these devices are dependent on user behavior, we believe that ENERGY STAR will need to address the behavioral component by establishing more effective educational messages designed to increase proper usage of the devices.

Several studies¹ suggest that many homeowners who install programmable thermostats to save money and have more control over the comfort of their house are not using the devices properly because the end-user(s) lack knowledge about the proper settings to save energy and energy-costs, believe the device is too

¹ Nevis, M., and Pigg, S. "Programmable Thermostats that Go Berserk? Taking a Social Perspective on Space Heating in Wisconsin" 1999.; Cross, D., and Judd, D. "Automatic Setback Thermostats: Measure Persistence and Customer Behavior" 1997.

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complicated, and if the proper settings are installed but the end-user(s) does not find them satisfactory, they lack the skills to change the settings to meet their needs. DEP staff recommend that ENERGY STAR, as part of the programmable thermostat specification, develop program approved educational messages and initiate a process of product literature and packaging review to ensure information on effective product use is included on the product's packaging, promotional materials, "quick-start" guide and instruction manual.

While there are a variety of factors that determine how a device is used – ease of use, knowledge of how to program and adjust settings, belief in benefits of the device – one of the key barriers to effective use of programmable thermostats is that the programmed settings are often overridden by members of the household because the settings do not meet their needs. The instruction manual should include instructions for how to determine the program settings to best meet the needs of all residents in the household. This will help ensure buy-in from household members so the device is used consistently and with the appropriate set-backs. Additionally, educational materials need to inform the end-users of the device's pre-set program and the impact of changing the thermostats settings on their potential energy-cost savings. For instance, materials should state that for every degree the thermostat setting is raised outside of the scheduled setting, the energy cost will increase by a certain dollar amount. This information will also be valuable to HVAC installation contractors assisting customers with proper settings and incent users to stick to a pre-determined program.

DEP staff believes that providing consumers with simplified information on how to use the device, brief information on the benefits of the device, and educational materials that provide consumers with a process to make an informed decision about proper use of programmable thermostats (i.e., setting tailored to the household) will increase the effectiveness of the product and lead to greater energy and carbon savings. We look forward to working with ENERGY STAR to both enhance the use of programmable thermostats for Montgomery County residents and to assist in the development of specifications and requirements that improve usability of the device for all users.

Sincerely,

Susan M. Kirby
Clean Energy Program Coordinator

Cc: Eric R. Coffman, Senior Energy Planner