

Energy Star Changes Approach to Programmable Thermostats

Energy Star has promoted programmable thermostats since 1995, estimating that consumers will save 10%–30% on their heating and cooling energy bills. With sales of programmable thermostats doubling in the last ten years, and with more than 25 million programmable thermostats installed in homes, the potential energy savings are enormous. But it appears that those savings have remained largely unrealized.

Now Energy Star plans to stop certifying programmable thermostats. The results of this decision may be far-reaching. For example, programs such as Energy Star Homes and the new LEED for Homes program will no longer be able to award points for programmable thermostats. What is the basis for Energy Star’s surprising decision? It first sought field evidence of energy savings from programmable thermostats. Energy Star examined several studies covering a wide geography and a variety of climates that compared the energy use of homes with programmable thermostats to the energy use of homes without them. It found that there was no statistical difference in savings between the two groups (see Table 1). In other words, the studies show that simply installing a programmable thermostat doesn’t save energy. Jill Abelson, a communications manager at EPA, offers some insight. “Our research shows that consumers find programmable thermostats too complicated, or they override the default savings mode on the thermostats. Once the default setting has been overridden, they forget to return to it.”

Field Notes

The California Energy Commission (CEC) has included programmable

Table 1. Programmable Thermostats Field Studies

Organization	Location and year	Sample size	Conclusions
Southern California Edison	CA 2004	N/A	Energy savings depend on behavior and can be positive or negative
Energy Center of Wisconsin	WI 1999	299 homes	No significant behavior change/savings
Connecticut National Gas Corporation	CN 1996	100 homes	No significant behavior change
BPA/PNNL	NW 2001	150 homes	No significant behavior change/savings
Florida Solar Energy Center	FL 2000	150 homes	No savings, some increases



Figure 1. Instead of certifying thermostats itself, Energy Star will provide an educational graphic and information about the correct use of programmable thermostats to save energy. Here is one label configuration under consideration.

thermostats as a requirement in the California Title 24 building standards since the early 1980s, because the thermostats provide consumers with the capability to save energy. Consumers who can accurately predict when they will be home, and who find it difficult to remember to set up or set back the thermostat manually, can save energy with a programmable thermostat. However, the standards do not grant compliance credit for the devices to offset other required efficiency measures. “The capability requirement in the standards is reasonable,” says the CEC’s Bill Pennington. “Whether or not the programmable thermostat saves energy depends on the behavior of the occupant.”

the utility signals a critical peak emergency or pricing event. This will allow California utilities to reduce demand during peak demand periods, relieve the strain on overworked power grids, and reduce the use of expensive peaker power plants.

Utilities also recognize the potential of, and the problems with, programmable thermostats. “The thermostats are good, but we failed as an industry to show consumers how to use them,” says Pacific Gas and Electric Company’s David Manoguerra. “The assumptions for savings are supported when the devices are programmed properly.”

“I work with affordable multifamily building owners and operators and we stopped requiring programmable ther-

The commission is currently considering a requirement for programmable communicating thermostats in the next update of the standards. These thermostats automatically set up a preprogrammed amount in the summer when

mostats for affordable housing grants four years ago,” says Mark Faultersack, the manager of multifamily services at Madison Gas and Electric Company in Madison, Wisconsin. “With high occupancy turnover rates, the owners and operators were spending a lot of time explaining how to use them.” And because some of the people who live in multifamily buildings don’t pay for heating and cooling costs directly, there is not much motivation for them to control costs with a programmable thermostat. “We do, however, strongly encourage all our residential customers to set back their thermostats in the winter and up in the summer, regardless of how they do it,” says Faultersack, who has found that most customers’ practices are the same as the practices described in recent studies on these thermostats. “So far, most people who set back and set up to save energy and money do it whether they have a programmable thermostat or not.”

From Certification to Education

Given the disappointing lack of field evidence of energy savings for programmable thermostats, Energy Star introduced a new approach at a stakeholders meeting in January 2006. Instead of certifying thermostats itself, Energy Star will provide an educational graphic and information about the correct use of programmable thermostats to save energy. (Figure 1 shows one possible label configuration.) Energy Star is focusing on behavior and not on technology. “People think that if they buy a programmable thermostat and put it on the wall, they are saving energy,” says Abelson. “The problem is a lack of understanding and education.” Energy Star hopes that consumers who know the Energy Star label will readily adapt to seeing it as part of an educational graphic.

Energy Star solicited input from stakeholders in planning the transition from a performance specification for programmable thermostats to a consumer education program. An educational campaign for consumers and the move from a certification mark to an educational graphic has just begun. The National Electrical Manufacturers Association (NEMA), which represents the thermostat industry, aims to propose a standard specification for thermostats. NEMA’s goal is that, as thermostat controls become standardized, consumers will find it easier to program a thermostat than it is to operate a DVD player. If NEMA meets this goal, the great potential of programmable thermostats to save energy may finally be realized.



—**Jim Gunshinan**

*Jim Gunshinan is **Home Energy**’s managing editor.*