

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF
AIR AND RADIATION

June 9, 2014

Dear ENERGY STAR® Climate Controls Stakeholder or other interested party,

In light of recent evolution in the climate controls market, the Environmental Protection Agency (EPA) is considering a potential new approach for ENERGY STAR recognition of residential climate controls and seeks stakeholder feedback and participation.

EPA remains interested in the opportunity for savings that better HVAC controls promise and shares the excitement of many stakeholders about the wave of innovation sweeping the market for HVAC controls. A recent report from Commonwealth Edison estimated that 30-35% of cooling energy use could be saved by consumers choosing more efficient thermostat set points. The enormous savings opportunity coupled with the innovation in HVAC controls and services are the impetus for this proposal. The approach outlined here hopes to capitalize on the opportunity presented by technical solutions coupled with consumer services. We welcome your engagement with this process. Please submit comments by July 14 and [register for a webinar on this approach from 1pm to 3pm on June 23rd](#). EPA will also participate in the EPRI workshop on smart thermostats, June 25-26 in Palo Alto, CA, and hopes to discuss this proposal with other participants there.

Background

Over the past few years, EPA's focus with respect to climate controls has been increased savings through improved ease of use. A lab based test for that purpose has been leveraged by some stakeholders as part of evaluating smart thermostats; however EPA remains concerned about the correlation of good performance to energy savings in the field.

At the same time, innovation in the climate control market continues apace, in particular with an increase in the number and variety of home thermal control strategies which include climate control services instead of or in addition to hardware. Increasingly these strategies offer a combination of connectivity, which enables remote access and demand responsiveness, and automatic energy savings through a variety of means. Connectivity also opens the possibility of much richer feedback to consumers about the energy consequences of their HVAC usage. In addition, it opens the potential for continuous evaluation of the use of HVAC in actual homes.

Consideration of a New Approach

In recognition of the changing climate control market, EPA is considering a new ENERGY STAR program for climate control systems that looks more broadly at HVAC system energy consumption and the services available to reduce it. Taking a holistic approach in terms of the outcome consumers and the efficiency community seek, this proposal will support continued business model innovation in a time of significant evolution in the market and allow the influential ENERGY STAR label to be leveraged to enhance consumer interest in energy saving HVAC services.

Service providers, defined here as entities offering ongoing services to residents based on data from the climate control system in a home, play a key role in the promise of increased savings through automatic decision making and feedback to residents. In addition, service providers have access to rich data about the operation of HVAC in a home that uses their product. Thus, EPA envisions service providers as the principal partners in this new effort.

Climate control systems would be evaluated as follows:

- Initial qualification would be based on a basic set of criteria for the total system (hardware, software and service) intended to ensure qualified products are capable of delivering HVAC energy savings that are both measurable and verifiable.
- Continuing qualification would require periodic submission of summary information by either climate control manufacturers or providers of associated services. This information would demonstrate energy savings is being achieved in fielded climate control systems.

System Criteria

EPA anticipates establishing a set of required capabilities, which would be evaluated by examination of the system and associated user documentation. EPA believes a set of capabilities that could deliver a high probability of HVAC energy use savings can be identified, while recognizing that no set of capabilities would guarantee savings in every home. Considered climate control system criteria include:

- temperature stability and measurement accuracy
- bi-directional open-standards based communications
- in the absence of connectivity, retained ability to locally:
 - set room temperature,
 - switch from heating to cooling,
 - turn the HVAC system off, and
 - view room and set (target) temperatures
- the ability to either accept and act upon external occupancy data or to directly detect occupancy and act upon it to reduce HVAC energy consumption
- the ability to collect individual room and set temperatures, HVAC run-times and HVAC performance information from fielded systems
- basic DR capability

Evaluating Effectiveness

In order to ensure effectiveness in terms of delivered savings, EPA is considering mandating periodic submission of summary information. The information would be developed from data available to service providers from the climate control hardware, such as HVAC run time, set temperatures or measured temperatures.

A metric based on this type of data would be calculated for each home, then averaged over a set of homes that is a good representation of the population of users (ideally, potential users) of the climate control system. EPA would collect only this averaged data. In order for a system to be eligible for the ENERGY STAR it would need to have the ability to provide the necessary data. EPA looks forward to working with stakeholders to develop a specific metric that reflects the HVAC energy saved in homes, and is sensitive to concerns of privacy and proprietary information.

Stakeholder Feedback

EPA seeks stakeholder feedback about, and interest in, such a program. The following questions are of particular interest, but any feedback is welcome.

1. Other suggested criteria for system qualification and/or comments on criteria outlined above?

2. What are potential issues with service providers submitting periodic data?
3. What information could your organization contribute to developing a suitable metric?

EPA is excited about the potential for a new wave of innovation in climate controls to unlock significant, real HVAC energy savings. The Agency seeks to leverage the ENERGY STAR program to recognize climate control systems that deliver on this promise-this proposal begins this development. Please [register for a webinar on June 23rd](#) to explore this proposal further, and submit your comments by July 14. RSVP for the webinar, and submit comments, to climatecontrols@energystar.gov. If you have questions, contact Abigail Daken at EPA, daken.abigail@epa.gov, 202-343-9875, or Doug Frazee at ICF International at douglas.frazee@icfi.com, 443-333-9267. We look forward to your engagement.

Sincerely,



Abigail Daken
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