

Appliance Standards Awareness Project  
Alliance to Save Energy  
Natural Resources Defense Council

December 5, 2014

Ms. Brenda Edwards  
U.S. Department of Energy  
Building Technologies Program  
Mailstop EE-5B  
1000 Independence Avenue, SW  
Washington, DC 20585

**RE: Docket Number EERE–2014–BT–STD–0048/ RIN 1904–AD37: Request for Information for Central Air Conditioners and Heat Pumps**

Dear Ms. Edwards:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), Alliance to Save Energy (ASE), and Natural Resources Defense Council (NRDC) on the request for information (RFI) for central air conditioners and heat pumps. 79 Fed. Reg. 65603 (November 5, 2014). We appreciate the opportunity to provide input to the Department.

Amended energy conservation standards for central air conditioners and heat pumps offer the potential for very large national energy savings, and we are pleased that DOE is initiating this process to consider amended standards. However, we believe that there are significant flaws in the test procedures that underlie the standards and that improvements to the test procedures would allow for better representing the energy efficiency of central air conditioners and heat pumps and ensuring energy savings in the field. We are also concerned about the high off mode power consumption of some central air conditioners and heat pumps associated with crankcase heaters.

**We encourage DOE to initiate a process to consider amendments to the test procedures for central air conditioners and heat pumps.** Below we outline some of our concerns with the current test procedures for central air conditioners and heat pumps:

- Variable-capacity equipment: NEEA has found that the current method for testing variable-capacity equipment used by manufacturers who have obtained test procedure waivers may not provide a good representation of energy use in the field or reasonable relative rankings of equipment. Representative ratings of variable-capacity equipment will become more important in the future as variable-capacity equipment becomes more widely adopted.
- External static pressure and fan power: The current test procedures use unrealistically low values for external static pressure of 0.1-0.2 in. w.c. The recent furnace fans test procedures rulemaking adopted much more realistic values for external static pressure including a value of 0.5 in. w.c. for units with an internal evaporator coil. Using more

realistic values for external static pressure would better capture actual fan power and better ensure adequate airflow in the field. In addition, the default fan power assumed in the current test procedures may be significantly lower than actual values in the field.

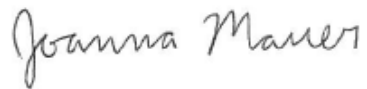
- Cyclic test: The cyclic test in the current test procedures is conducted using a dry coil, which is not representative of field conditions. Using the same indoor conditions (80°F dry bulb and 67°F wet bulb) for the cyclic test as are used for the steady-state test would better reflect the cyclic performance of central air conditioners and heat pumps.
- Outdoor temperatures: The current test procedures for determining SEER ratings are based on measurements at outdoor dry-bulb temperatures of 82°F and 95°F. Many areas of the U.S. will routinely see outdoor temperatures well above 95°F, and different units with the same SEER rating may provide very different performance at temperatures above 95°F. Similarly, the current test procedures for determining HSPF ratings are based on measurements at outdoor dry-bulb temperatures of 17°F and 47°F. Heat pumps, including both ducted and ductless units, are becoming more common in colder climates such as the northeast, which see outdoor temperatures well below 17°F. Adding a test point for SEER ratings at an outdoor temperature above 95°F and adding a test point for HSPF ratings at an outdoor temperature below 17°F would provide an incentive to manufacturers to provide good efficiency performance at these temperatures. In addition, requiring reporting of performance at each of the outdoor temperature test points would allow efficiency program administrators to incentivize equipment that will perform well in their region.
- Sensible heat ratio: Different areas of the U.S. require very different equipment performance in terms of latent heat removal. Requiring reporting of sensible heat ratio would provide more information to consumers and contractors about appropriate equipment for their region and also allow efficiency program administrators to better target efficiency programs for central air conditioners and heat pumps.

We encourage DOE to initiate a process to consider amendments to the test procedures, similar to the process recently initiated for clothes dryers, where all stakeholders can raise issues and provide input.

**We encourage DOE to consider how the combination of off mode test procedures and standards could achieve significant reductions in the off mode power consumption of central air conditioners and heat pumps.** We understand that crankcase heaters can consume 60 W of power or more, and that an uncontrolled crankcase heater will consume power continuously whenever the central air conditioner or heat pump is in off mode. We also understand that products with multiple compressors will have multiple crankcase heaters. Appropriate test procedures and standards for off mode power consumption could drive improved crankcase heater control strategies to significantly reduce off mode energy use.

Thank you for considering these comments.

Sincerely,



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Technical Advocacy Manager  
Appliance Standards Awareness Project



Rodney Sobin  
Director of Research and Regulatory Affairs  
Alliance to Save Energy



Elizabeth Noll  
Energy Efficiency Advocate  
Natural Resources Defense Council