

November 30, 2021
Via Electronic Mail



Abigail Daken, Manager
ENERGY STAR HVAC Program
US Environmental Protection Agency Office of Air and Radiation
1200 Pennsylvania Avenue NW
Washington, DC 20460

Re: ENERGYSTAR Central Air Conditioner and Heat Pump Version 6.1 Specification

Dear Abigail,

Northwest Energy Efficiency Alliance (NEEA) staff submit the following comments in response to the United States (U.S.) Environmental Protection Agency (EPA) proposal to amend the recently completed Version 6.0 ENERGY STAR Central AC/Heat Pump (CAC/HP) specification, which will be reflected in a Version 6.1 specification.

NEEA is a non-profit organization working to encourage the development and adoption of energy-efficient products, practices, and services. Funded by the regional utilities, NEEA is a collaboration of 140 utilities and efficiency organizations working together to advance energy efficiency in the Northwest on behalf of more than 13 million consumers. This unique partnership has helped make the Northwest region a national leader in energy efficiency.

NEEA is supportive of the changes and clarifications made in Version 6.1 and believes the specification will positively contribute to identification of high performance air-source heat pumps (ASHPs) in the market. We appreciate the ENERGY STAR Program being responsive to new stakeholder feedback following the completion of Version 6.0. and proposing a series of improvements.

The following are specific five (5) comments for your consideration:

#1 Maintain removal of EER requirement for cold climate category

1. EER requirements for the cold climate category appropriately is appropriate and recognizes the cold climate category specification should focus on differentiating systems optimized for heating performance and efficiency.



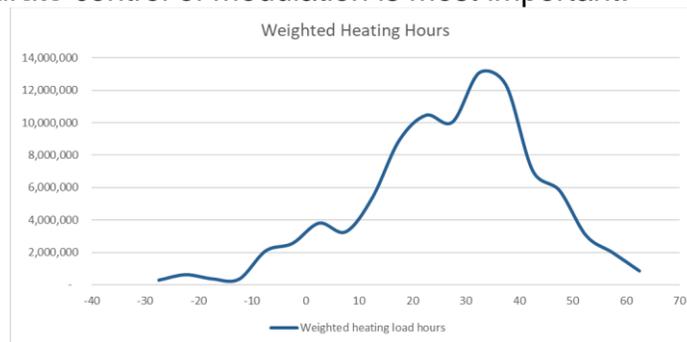
#2 Expand clarification of installation capabilities

1. High-quality installations of ASHP systems generate referrals, increase sales, reduce callbacks and improve customer comfort and satisfaction. Installation practices also have a major impact on efficiency and performance of an ASHP system. We applaud ENERGY STAR for including functionalities that help ensure that these high performance systems operate to their potential.
2. In discussions with Manufacturers, prior to the release of the Version 6.1 proposal, they expressed confidence in having the technical functionality but apprehension over whether their unique installation capabilities met the intention of the ENERGY STAR installation capability descriptions. Clarifications provided in 6.1 are welcome. We recommend additional detail and clarification be provide in the form of a FAQ or similar as manufacturers begin to submit products for qualification.

#3 Improve CVP testing to add value to consumer

The value of the controls verification procedure (CVP) as proposed will not improve customer value. The reason for this is twofold.

1. Controls verification is not very important to energy savings at 5°F. The ability of controls to properly modulate system performance is more important during low-load conditions under mild conditions. Annual energy use in cold climates is still driven by the heating weighted hours where the machine is operating at part-load. The graph below shows the weighted heating hours in Bozeman MT with a design temperature of -26°F. Even in this very cold climate, the bulk of the heating load is when the outdoor temperature is above 20°F when the heat pump's accurate control of modulation is most important.



2. The way the CVP as applied requires that the system is tested at maximum thermostat setting which effectively eliminates the controls logic from the performance measurement. The test becomes a static full load test to verify accurate capacity 5°F while maintaining a COP of 1.75. The CVP is perhaps a misnomer, as it is more of a capacity verification which has minimal consumer benefit if adequate backup heat is available from gas or electric backup heat.

We future ENERGYSTAR specifications should consider using a load based testing, especially for conditions which are critical to consumer satisfaction and utility forecasting.

#4 Minimum capacity performance should be added to requirements

1. While performance at cold temperatures is important, recent work by the Center from Energy and Environment (published report pending) has revealed that minimum capacity performance is more indicative of annual energy savings potential than maximum system performance. More work is being done on this and future versions of ENERGY STAR should consider adding a threshold of performance when the system is operating at low load (perhaps 17°F, and certainly 47°F) when the bulk of all heating is being provided.

#5 Mobile home bower coil system clarification

1. The spec states “The indoor unit cannot exceed 0.40 in. wc. when operated at the cooling full-load air volume rate not exceeding 400 cfm per rated ton of cooling”. Some additional clarification would be useful to indicate that this is an external static to the AHU.
2. This static pressure limit is quite low and the EPA may wish to consider allowing a higher pressure if the system is modulating (not a constant speed). Given that manufactured home duct work is typically small and can have considerably higher than 0.40 in. wc.

Thank you for offering the opportunity to provide comment to the ASHP/CAC V6.1 specification. ENERGY STAR serves a vital role in helping consumers identify of high performing energy efficient products. NEEA looks forward to continuing to support ENERGY STAR’s efforts into the future. Please don’t hesitate to contact us with any follow up questions or clarifications.

Sincerely,



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