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US Environmental Protection Agency Office of Air and Radiation
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Ms. Daken,

Northeast Energy Efficiency Partnerships (NEEP) appreciates the opportunity to provide comments to the ENERGY STAR program on the Residential Air Source Heat Pump and Central Air Conditioner V6.0 Specification Draft 1. NEEP maintains an active ASHP initiative and have conducted several research projects as well as resources in this space. We have convened an ASHP Working Group for several years as well as maintained a qualified product list for ASHPs that performance well in cold climates (ccASHP).¹ We have reviewed the draft specification and have the following comments.

In generally, NEEP is very supportive of this draft specification and feels it would positively contribute to the ASHP market.

Rationality

We support the move to regionally-specific criteria. In our discussions, manufacturers have suggested that ASHP performance can be optimized either for heating or for cooling, not for both. In order to deliver real saving for consumers, the technical requirements should be customized for at least two regions.

Variable Speed

NEEP recommends that until a test procedure or metric more capably can value the benefits of variable speed equipment, ENERGY STAR should explicitly require variable capacity. NEEP requires three or more speeds as part of our ccASHP Specification.

Test Procedure

NEEP supports the general direction of the Canadian Standards Association (CSA) test procedure for ASHP which is load based. Until that test procedure is finalized and an appropriate amount of testing to the procedure has been done, we support EPA requiring low temp performance requirements in cold

¹ More details at <https://neep.org/ashp>



climates (i.e. COP@5F). This is a requirement as part of our ccASHP Specification. In concept, we support the use of an industry standard test procedure for determining COP@5F. We will have to assess Appendix M1 optional test procedure further to consider if any necessary adjustments are necessary. We support aligning with NEEP level of 1.75.

Capacity maintenance

As part of NEEP's process to develop and update the ccASHP Specification, there has regularly been a robust debate about the inclusion of a capacity maintenance requirement. Some manufacturers raised concerns about intentional gaming with respect to what some manufacturers call their "rated" capacity at 47, some intentionally picking lower capacity values which would help their capacity maintenance % look better. NEEP decided to address this by requiring transparent reporting over developing a strict cut off line. Armed with the information, a designer/installer can make a determination of whether a particular system meets the particular application needs.

NEEP provides two capacity maintenance calculation (Max capacity at 5F compared to rated capacity at 47F OR Max Capacity at 47F). The comparison to the max capacity at 47F may be a more realistic comparison between true capabilities at 47F and 5F.

Comments on EER

EER continues to be an important element of peak management, but not at the expense of heating performance optimization. We support ENERGY STAR reducing EER requirements for colder climates. NEEP has prepared a memo that address this in more detail, with our reasoning copied below.²

[NEEP's] proposed reduction of the required EER levels reflects a recognition that the specification should focus on differentiating systems optimized for heating performance and efficiency. The proposed reduction represents an intentional pivot away from requiring top-tier efficiency in all conditions, and towards a stronger focus on heating efficiency (steady state and seasonal).

Based on supplemental specifications we have obtained for approximately 40 multi-zone systems that meet the COP@5F requirement but fail other requirements, moving to 10 EER would allow the majority of the systems to meet the specification that otherwise meet the requirements, but are not listed due to their lower EER rating. We believe these systems demonstrate high heating

² <https://neep.org/sites/default/files/Cold%20Climate%20Air%20Source%20Heat%20Pump%20Specification-%20Proposed%20Revisions%20Memo%20-%20209.11%20Correction.pdf>



performance and that they belong on a list of cold-climate ASHP products, while still maintaining adequate cooling performance.

ASHPs use energy during the cooling season and we want to ensure that cooling efficiencies are not completely sacrificed, so the proposal continues to include SEER and EER requirements; only the EER level is proposed to be reduced. The previous EER requirement was driven by the ENERGY STAR specification that is a uniform spec for the entire United States and does not differentiate by climate. The ENERGY STAR HSPF requirement is 8.5, 4% better than the code minimum of 8.2, yet the SEER requirement of 15 is more than 15% higher than the code minimum of 13. This may make sense for a nationwide program, but it is heavily biased towards cooling performance; such a bias does not support a spec for climates where heating loads dominate by a large margin. There is not a code minimum EER rating, and we believe that allowing more flexibility with the EER requirements better serves the goal of providing a focus on products with high performance in cold climates.

Connectivity

NEEP supports the addition of connected criteria for this specification. From our perspective, it would be reasonable for ENERGY STAR to require lower EER for products that have connected capabilities, though we would recommend gathering information to see what EER levels are being achieved by connected products to set an appropriate levels.

In general, NEEP supports ENERGY STAR's incorporation of connected criteria in more specifications and amongst more products in the market. By encouraging more products to be connected, EPA could be helping better manage peak energy use on the most constrained days when a potentially dirtier, less efficient back-up generation supply may be needed for a grid to meet demand. While pollutants and carbon emissions are challenging to trace back to an individual product's energy use, we know that there are more peak days coming when energy can be at a premium; connected products offer the opportunity to help curtail some of the energy use at the most critical times. While many consumer electronics manufacturers are voluntarily adding connectivity to their suite of offerings for consumer interest, appliance and HVAC manufacturers has been much slower to embrace this trend. For those products with a potentially long shelf-life, including connectivity today gives the opportunity for control into the future.

Conclusion

Thank you for offering the opportunity for NEEP to provide comment to the ASHP/CAC V6.0 draft 1 specification. ENERGY STAR is and must continue to serve in a leading role in recognition of high



performing products, and NEEP 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,

A handwritten signature in black ink that reads "David Lis".

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A handwritten signature in black ink that reads "Claire Miziolek".

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