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December 13, 2021

Ms. Abigail Daken
Manager, ENERGY STAR HVAC Program
United States Environmental Protection Agency
Washington, DC 20460
(Sent via email to LCHVAC@energystar.gov)

Re: AHRI-HRAI Comments to ENERGY STAR® Draft 1, Version 4.0 Light Commercial HVAC Specification

Dear Ms. Daken,

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) (collectively, the Joint Commenters) are submitting these comments in response to the United States Environmental Protection Agency (EPA) ENERGY STAR® Draft 1 Version 4.0 ENERGY STAR product specification for light commercial HVAC Equipment, issued on November 1, 2021.

Proposed Part-load Cooling Performance is a Drastic Increase Over Current Levels, and Other Comments on Efficiency Levels

The required performance levels of Version 3.0 of ENERGY STAR certified light commercial HVAC equipment are approximately 6-percent more efficient than standard equipment, by EPA's estimates.¹ Draft 1 of Version 4.0 proposes to increase the part load cooling (integrated energy efficiency ratio or IEER) for small and large Commercial Unitary Air Conditioners (CUAC) and Commercial Unitary Heat Pumps (CUHP) by approximately 30-percent over current values. Previous increases have been in the order of 15-percent version to version. The market interest in an updated light commercial specification is questionable. To maintain the existing interest in the program, the Joint Commenters suggest at most a 15-percent increase for IEER for small and large CUAC and CUHP from the current levels. The Joint Commenters also note that EPA has proposed increasing efficiency as capacity increases – a proposal with which we cannot agree. Part-load efficiencies of these products should mirror

¹ Energy Star, Light Commercial Heating & Cooling,
https://www.energystar.gov/products/light_comm_heating_cooling.

federal efficiencies and decrease as capacity increases.² Lastly, the Joint Commenters note that the IEER differences between electric resistance (or none) and all other heating section types are proposed to be 0.3-0.4 IEER. DOE requirements between these heating section types are more appropriately set at electric resistance (or none) 0.2 IEER points higher than all other heating section types. There is no justification to support the higher delta that EPA has proposed. The Joint Commenters recommend EPA modify the proposal to follow DOE requirements and to set electric resistance (or none) 0.2 IEER points higher than all other heating section types.

Efficiencies for Air-Cooled, Three-Phase, Small Commercial Package Air Conditioning and Heating Equipment with a Cooling Capacity of Less than 65,000 Btu/h

The Joint Commenters do not object to including Three-Phase, Small Commercial Package Air Conditioning and Heating Equipment with a Cooling Capacity of Less than 65,000 Btu/h (Very Small CUACs/CUHPs). We support harmonizing levels with CEE Tier 2. We note that ASHRAE 90.1-2019 includes minimum efficiencies, harmonized with national levels for the single-phase counterparts, using AHRI 210/240-2023 as the test procedure (EER2, SEER2, and HSPF2), starting January 1, 2023. The Joint Commenters can work with EPA on a crosswalk to ensure parity between metrics.

Gas/Electric Packaged CUHPs and Dual Fuel HPs

The Joint Commenters object to EPA's proposal to require the gas furnace in the gas/electric packaged unit to be variable-capacity or capable of operating in at least three distinct stages. There is no technology available in market for variable-capacity and three-stage equipment in gas/electric packaged units. Further, staging provides only a negligible efficiency increase in these units. Lowering the airflow will minimally increase the W/cfm and standby losses when using the same burner in the furnace. The Joint Commenters recommend that EPA remove this proposal.

The Joint Commenters recommend that EPA explicitly include dual-fuel heating systems, which are comprised of an electric heat pump and a natural gas furnace. The heat pump is used to meet the heating load of a building until it reaches capacity, at which point the gas furnace is used to meet the supplemental building heating load and to maintain the heating setpoint temperature. Incorporating these systems into the specification is also a strategy to ensure sufficient heating in colder climates.

² Table 3 to 10 C.F.R. § 431.97, Updates to the Minimum Cooling Efficiency Standards for Air Conditioning and Heating Equipment (shows decreasing minimum IEER efficiency for increasing capacity).

Cold Climate Performance Requirements

The Joint Commenters do not support proliferation of regional-specific performance requirements and strongly recommend that EPA not proceed with regional requirements. Manufacturers discourage regional specifications because it makes harmonizing between ENERGY STAR and other energy efficiency specifications difficult and may reduce participation in the program. There is simply not enough volume of ENERGY STAR Light Commercial HVAC products to justify cold climate specifications.

The Joint Commenters recommend that EPA make the revisions we have suggested above. Implementing these proposed changes will ensure continued recognition of energy-saving products as intended by the ENERGY STAR program.

We appreciate the opportunity to provide these comments and look forward to reviewing a second draft. If you have any questions regarding this submission, please do not hesitate to contact Laura Petrillo-Groh, lpetrillo-groh@ahrinet.org.

Sincerely,

Laura Petrillo-Groh

Stephen Chartrand



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cc: M. Carpizo, AHRI
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