

June 15, 2016

Abigail Daken
US Environmental Protection Agency
Ariel Rios Building 6202J
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. Daken:

The Consortium for Energy Efficiency (CEE) respectfully submits the following comments in response to the ENERGY STAR® Draft 1 Version 3.0 ENERGY STAR Light Commercial HVAC (LC HVAC) Specification (Draft 1 Specification), released by the Environmental Protection Agency (EPA) on May 12, 2016.

CEE is the binational organization of energy efficiency program administrators and a staunch supporter of the ENERGY STAR® Program. CEE members are responsible for ratepayer-funded efficiency programs in 45 US states, the District of Columbia, and seven Canadian provinces. In 2014, CEE members directed over \$6.7 billion of the \$8.7 billion in energy efficiency and demand response program expenditures in the two countries. These comments are offered in support of the local activities CEE members carry out to actively leverage the ENERGY STAR brand. CEE consensus comments are offered in the spirit of strengthening ENERGY STAR so it may continue to serve as the national marketing platform for energy efficiency.

CEE highly values the role ENERGY STAR plays in differentiating energy efficient products and services that the CEE membership supports locally throughout the US and Canada. We appreciate the opportunity to provide these comments.

CEE Supports the EER Metric and Supports ENERGY STAR Retaining EER Criteria in Version 3.0

CEE supports EPA's proposal to retain energy efficiency ratio (EER) requirements in the Version 3 specification. Energy efficiency ratio (EER) rated at 95° Fahrenheit (F) is a measure of energy performance at peak times, and therefore, may be more relevant for program administrators whose goal is to save energy during peak hours and who administer programs in areas that have a relatively high number of cooling hours occurring at peak conditions. Financial savings for end users may also accrue if some form of time of use rates exist.

CEE Requests EPA Further Evaluate Installed Costs and Operating Costs of Unitary AC and HP Equipment <65,000 Btu/h before Suspending Label

In the draft 1 proposal, EPA proposes to exclude equipment <65,000 Btu/h from the Version 3 Specification because “EPA was not able to identify a level that provided reasonable payback to the consumer, based on the installed cost and energy used in the latest DOE Technical Support Document (TSD), as updated with feedback from the ASRAC working group members in 2014.” The CEE Commercial Air-conditioning and Heat Pumps Committee reviewed the life cycle cost (LCC) and payback period (PBP) data from the US Department of Energy (DOE) Final Rule for Small Commercial Air-cooled Air Conditioners and Heat Pumps <65,000 Btu/h¹ (2017 federal minimum standards). The Committee agreed that the data in tables VIII.4, VIII.6, VIII.8, and VIII.10 support the decision to exclude unitary AC and HP equipment <65,000 Btu/h from the Version 3 Specification. However, some aspects of the data were not consistent with the findings of Committee members. The differences in operating costs in the tables from one efficiency level to the next were significantly lower than what many of our members would expect based on the data and methodology they use in their programs.²

The aforementioned cost and payback data associated with equipment <65,000 Btu/h is also inconsistent with similar data collected as part of the Technical Support Document (TSD) for the residential central air conditioners and heat pumps energy conservation standard rulemaking³. CEE recently aligned its specifications for commercial equipment <65,000 Btu/h with the CEE Residential High Efficiency Central Air Conditioners and Air Source Heat Pumps Specification. This was done based on the understanding that residential equipment drives manufacturer product design for equipment in this size range, that commercial three-phase equipment and residential single-phase AC and HP equipment are technologically the same, and that alignment would reduce market confusion and increase program participation. Manufacturers’ comments obtained during the stakeholder review process supported alignment and confirmed our understanding that there is no appreciable difference in this equipment between three-phase and single-phase versions, except that the much smaller market size for three-phase equipment in this size range results in low availability for very high efficiency units and very high efficiency

¹ As published in the Federal Register, Vol. 80, No. 137, Friday, July 17, 2015 p. 42613-42688, https://www.fincen.gov/statutes_regs/frn/pdf/Customer_Identification_Programs.pdf

² We also noted that according to the data in *Table VIII.4, Average LCC and PBP Results by Efficiency Level for Small Three-phase Air-cooled Split-system Air Conditioners<65,000 Btu/h*, 16 SEER equipment achieved the lowest operating cost of all efficiency levels evaluated, and 17 SEER, 18 SEER, and 19 SEER equipment achieved progressively higher operating costs, which we could not explain.

³ 10 CFR 430, docket EERE-2014-BT-STD-0048. *2015-08 Notice of Data Availability Technical Support Document: Energy Efficiency Program for Consumer Products: Residential Central Air Conditioners and Heat Pumps*. <https://www.regulations.gov/#!documentDetail;D=EERE-2014-BT-STD-0048-0029>

three-phase components such as compressors and fan motors. In light of the similarities between residential and small commercial equipment, we recommend that EPA consider the data in the residential rulemaking TSD when assessing whether to continue to label small commercial HVAC systems.

CEE Recommends EPA Update Performance Criteria for Packaged and Split System Air Conditioners and Air-source Heat Pumps $\geq 65,000$ Btu/h and $< 240,000$ Btu/h as Soon as Possible

During the ENERGY STAR stakeholder webinar on May 26, EPA staff indicated that if the EPA moved forward with its proposal to exclude equipment $< 65,000$ Btu/h, a likely effective date for the version 3.0 specification for equipment $\geq 65,000$ Btu/h and $< 240,000$ would be January 1, 2018 to coincide with the 2018 federal minimum standards, implying that the Version 2.2 of the ENERGY STAR LC HVAC specification would remain effective until then. CEE formerly aligned one of its tiers to the Version 2.2 performance requirements, but recently retired that tier due to increased prevalence of efficient products and rising codes and standards. In its place, CEE established new Tier 1 levels that are intended to act as a mass-market tier, meaning that part and full load performance levels are such that program administrators can obtain sufficient product volume through their programs to achieve cumulative savings goals and to emphasize significant per unit savings over the baseline at both full and part load conditions. The CEE Tier 1 represents approximately the top performing thirty to thirty-five percent of products listed in the AHRI Directory. Availability in local markets is determined by distributor stocking practices. CEE members report that local availability of high efficiency equipment varies and in many territories is much lower than AHRI product listings would suggest. CEE recommends that EPA consider updating its performance requirements by aligning with CEE Tier 1 to reflect market conditions, and ensure the ENERGY STAR brand differentiates highly efficient HVAC systems.

CEE Requests EPA Provide Product Availability Data Supporting EPA's Assessment that the Proposed Performance Criteria for Packaged and Split System Air Conditioners and Air-source Heat Pumps $\geq 65,000$ Btu/h and $< 240,000$ Btu/h will meet the ENERGY STAR Brand Objectives in 2018

Proposed performance levels in the Draft 1 proposal harmonize EER levels with CEE tier 2 specifications for unitary air conditioners and heat pumps, and IEER and COP at 47°F levels with the 2023 federal minimum standards. EPA states in the proposal document that:

“The levels proposed provide a balance between consumer savings, reasonable payback, and differentiation between standard and high efficiency products. Based on the Air-Conditioning, Heating and Refrigeration Institute (AHRI) Certified Products Directory, these levels offer the best combination of product availability and energy savings.”

CEE recommends that EPA provide further data on the availability of products at the proposed levels and how that data is being used to predict that the proposed levels meet the objectives of the brand in 2018. Of note, CEE recently considered aligning IEER levels to DOE 2023 federal minimum standards after the 2018 federal minimum standards take effect in 2018. Manufacturers expressed that the proposed levels were too stringent and that multiple regulatory challenges manufacturers face, including transition to low global warming potential refrigerants and the development of safety standards associated with those refrigerants, would hinder their ability to meet these performance levels in the specified timeline. CEE considered these comments, concluded that there were significant changes impacting the market at that time and that it did not need to set post 2018 levels two years in advance. Therefore CEE eliminated the proposal associated with establishing higher IEER levels after the 2018 federal minimum standard took effect. CEE does currently have a Tier 2 in place that represented approximately the top ten percent to fifteen percent of performers in the AHRI Directory in 2015 and plans to reassess these levels as we approach the 2018 federal minimum standard effective date.

CEE Supports Including both COP at 47° and COP at 17°F as Performance Requirements

In the draft 1 proposal, EPA proposes to include COP rated at 17°F as a reporting requirement only. The draft 1 specification states that EPA does not want to impose an additional burden on manufacturers by requiring certification of an additional metric. As noted by AHRI staff during the ENERGY STAR stakeholder webinar on May 26, AHRI certifies COP at 17°F ratings listed in the AHRI Directory of Certified Product Performance (AHRI Directory). As the vast majority of manufacturers list their products in the AHRI Directory, any additional burden should be minimal.

The CEE Commercial Unitary AC and HP Specification includes COP rated at 47°F and COP rated at 17°F performance criteria for equipment $\geq 65,000$ Btu/h. CEE members value efficient performance throughout the full range of operating conditions seen by air conditioning and heat pump equipment. As noted in EPA’s memo accompanying the proposal, COP rated at 17°F is of interest to utilities, particularly in northern climates. In 2015, 11 CEE member programs used both COP at 47°F and COP at 17°F criteria as performance requirements for programs incentives. The 17° F condition represents peak conditions in parts of many southern US states⁴ and average winter lows in many northern states. Identifying efficient performance at 17°F can help reduce peak demand in southern states and ensure efficient operation and sufficient capacity on average winter days in northern states. We recommend EPA include both COP at 47°F and COP at 17°F as

⁴ASHRAE. “Climatic Design Information, Appendix: Design Conditions for Selected Locations” *ASHRAE Handbook—Fundamentals*. 2009

performance requirements and harmonize those COP levels with those of the CEE Commercial Unitary Heat Pumps Specification.

CEE Supports Further Differentiation of High Efficiency Variable Refrigerant Flow (VRF) Multisplit Systems and Requests Additional Information on Publicly Available Equipment Cost and Energy Savings.

CEE supports EPA in exploring further differentiation of high efficiency variable refrigerant flow (VRF) multisplit systems from standard efficiency VRF systems through separate ENERGY STAR specifications. Additional data and market intelligence would better enable program administrators to evaluate ENERGY STAR labeled VRF systems for inclusion into their existing program portfolios. In particular, program administrators would benefit from:

- Market penetration and sales data by efficiency level, not merely percentage of existing product lines meeting the requirements
- Energy savings as expressed in kWh of VRF system that would meet the ENERGY STAR specification compared to standard efficiency systems and details on the methodology used for estimating savings including methodology specific to VRF systems with heat recovery.
- Product availability for potential ENERGY STAR products in each of the two subcategories and each nominal sizes, not just size range, including the number of manufacturers with qualifying products in each nominal size. Availability of products meeting a high efficiency performance specification from multiple manufacturers throughout the range of sizes offered is typically necessary to allow energy efficiency program administrators to use that performance specification as a basis for qualifying equipment for incentives.

With respect to the above energy savings data request, CEE would appreciate the inclusion of the estimated kWh savings associated with models meeting the proposed ENERGY STAR specification versus baseline standard efficiency units. CEE members have encountered challenges accurately estimating VRF system performance based on standard efficiency ratings such as IEER, and would like to understand how EPA is estimating energy savings so they can evaluate those estimates. Energy efficiency program administrators could more readily assess the opportunity of promoting this product category if ENERGY STAR presented this data along with details on the assumptions and methodology used to calculate the energy savings values.

Thank you for your consideration of these comments. Please contact CEE Program Manager Bjorn Jensen at (617) 337-9280 with any questions.

Sincerely,



Ed Wisniewski
Executive Director