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February 28, 2020

Ms. Abigail Daken
Manager, Energy Star® HVAC Program
U.S. EPA
Washington DC, 20460
(Sent via email to: cacashp@energystar.gov)

RE: Energy Star® Residential Air Source Heat Pump (ASHP) and Central Air Conditioner (CAC) Equipment Version 6.0, Draft 2

Dear Ms. Daken,

Carrier provides fire safety, security, building automation, heating, ventilation, air conditioning and refrigeration systems and services to promote integrated, high performance buildings that are safer, smarter and sustainable. Carrier is the founder of the modern HVAC industry and operates across the globe. Our range of products includes unitary residential and commercial products, including ducted and ductless, transport refrigeration products, air and water cooled chillers, and HVAC building services.

The comments below are in response to the Energy Star® specification for CAC/ASHP products, Version 6, Draft 2.

General Comments

Carrier is opposed to the Draft 2 Version 6.0 Energy Star® CAC-ASHP Specification as it is currently presented. Our primary opposition is outlined below.

Carrier appreciates the EPA responding to industry concerns with the timing proposed in Draft 1. While Carrier is supportive of a January 1, 2023 implementation date, this position was more reflective of the content of Draft 1, versus the additions to requirements in this current draft. Carrier is concerned that with the stringency of levels and number of features required to meet Draft 2, many other manufacturers will not participate, and those products meeting the specification will be out of reach financially for most consumers. Draft 2 implements all the features of the ENERGY STAR Most Efficient category, which raises the bar for the base program



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to be out of sync with ENERGY STAR's Guiding Principles of the program¹. The Most Efficient category identifies the most highly efficient products in the marketplace and is intended to "complement the base ENERGY STAR program, identifying for a set of early adopter consumers and energy efficiency program sponsors, the most energy efficient of the ENERGY STAR certified products." The Guiding Principles acknowledge that "it is typically possible to achieve the necessary balance among principles by selecting efficiency levels reflective of the top 25 percent of models available on the market when the specification goes into effect." By EPA's own estimates, the 2018 estimated market penetration for combined CAC/HP is 34%, with CAC at 29% and HP at 43% penetration.² This data indicates that the current program is working, and it does not require the extensive overhaul as contained in Draft 2.

Given the current success of a program predicated on meeting reasonable performance requirements, Carrier recommends removing the prescriptive requirements as outlined below and adopting levels in the Guiding Principles, or sunset the current program on December 31, 2022.

Effective Date and Early Compliance

Carrier supports an effective date of January 1, 2023, provided that the specification will be reflective of the top 25 percent of models available on the market when the specification goes into effect.

While we understand EPA's desire to populate the database with products prior to the effective date, we are concerned that early compliance will introduce significant market confusion and certain aspects are not possible with the required Appendix M test procedure. In Appendix M, the only products permitted to conduct a 5°F test for HSPF are triple-capacity northern HPs. During the negotiated rulemaking, AHRI members requested that variable-speed heat pumps be permitted to optionally test at 5°F; however, DOE did not support this request and decided not to make the changes in this final rule.³

¹ ENERGY STAR® Products Program Strategic Vision and Guiding Principles, May 2012, https://www.energystar.gov/ia/partners/prod_development/downloads/ENERGY_STAR_Strategic_Vision_and_Guiding_Principles.pdf?0a0a-3f14

² ENERGY STAR® Unit Shipment and Market Penetration Report Calendar Year 2018 Summary

³ "Energy Conservation Program: Test Procedures for Central Air Conditioners and Heat Pumps (Final Rule)." Federal Register 82:101 (May 26, 2017) p. 1444. Available from: http://www.ahrinet.org/App_Content/ahri/files/MEMBER-CONTENT/ADVOCACY/REGULATORY/01.05.17-Final_rule.pdf; Accessed: 2/14/2020



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EPA also acknowledges in Draft 2 that any product complying early to remain in the program would need to be retested to Appendix M1 and recertified prior the January 1, 2023. This would be unduly burdensome to Carrier. Given the narrow range of eligible product, the burden of recertification, and the possibility for market confusion, Carrier does not support this proposal.

Regional Identification

Carrier does not support proliferation of regional-specific performance requirements and strongly recommends that the 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.

Carrier would also like clarification on the conflicting proposals regarding labeling contained in the draft. In line 143 of page 5, the draft cites, "There is no requirement that a physical label be installed on the unit itself;" however, earlier in the document, there is a discussion of a modified ENERGY STAR certification mark designating proposal for heat pumps meeting Cold Climate requirements with a as "ENERGY STAR Cold Climate." Carrier does not support adding more physical labels to our products, much less multiple physical labels.

Carrier remains opposed to the proposal to differentiate cold climate performance as a percentage of heating capacity at 5°F. We also remain opposed to the hybrid test procedure created by requiring that the capacity of a given unit as measured under the conditions defined by Appendix M1 at 5°F, divided by the heating capacity as measured per Appendix M at 47°F, expressed as a percentage that would be necessary for early compliance. While we appreciate the reduction of the percent heating capacity threshold from 80% to 70%, Carrier remains opposed to the establishment of an arbitrary level to demonstrate low ambient performance and we question if it is appropriate to set the same level for early compliance.

Carrier is very concerned about the impact of the introduction of the controls verification procedure (CVP) to confirm that the settings used for the low ambient test point at 5°F are achieved by the native controls supposedly operating as they would in a customer's home without a procedure to follow. During the February 11 stakeholder meeting, DOE presented the concept of CVP that is intended for validation purposes only, not for ratings. The CVP would allow for native controls testing to validate COP and heat capacity at 5°F. There is an assumption that the commercial VRF products more complex than the residential products within this specification. Without a finalized and industry test procedure, Carrier is unable to evaluate the impact of the burden. The procedure adopted into AHRI 1230 is still being evaluated for tolerances. Again, this is too much complexity being introduced into the base Energy Star specification.



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Performance Criteria and levels

Carrier does not support the EPA’s proposal for increased levels. Carrier suggests more reasonable levels that would continue to allow for single stage products to be inclusive to Version 6. Carrier recommends setting the cooling efficiency for split system CACs/HPs and single package ACs and HPs as follows:

	<u>Split AC</u>	<u>Split HP</u>	<u>Package AC</u>	<u>Package HP</u>
SEER2	15.2	15.2	14.3	14.3
EER2	12.0	12.0	11.0	11.0
HSPF2	-	7.8	-	7.0

(Appendix M-1 test procedure)

Prescriptive Staged and Variable Capacity

Carrier is opposed to EPA’s proposal to require at least two stages of capacity for a unit to be recognized as ENERGY STAR. While EPA is interested in examining the CAC/ASHP specification to address market trends toward two-stage and variable speed equipment and the Joint Commenters agree that variable capacity HVAC systems afford the capability to provide greater peak load reduction than traditional single-capacity systems (for the same reduction in cooling), it is not necessary to set a prescriptive requirement when a performance requirement will suffice. We do not support mixing design requirements and performance requirements.

Installation Capabilities

Carrier does not support the additive installation capabilities of this latest Draft 2. Connectivity provides CAC/ASHP consumers with value, beyond grid value, as these products have advanced diagnostic and setup capabilities. Quality installation offers significant energy and financial savings over the lifetime of the product. The ability to diagnose and quickly troubleshoot problems reduces downtime and may also reduce repair cost. Carrier acknowledges diagnostics is currently on the “most efficient” specification and recommends installation capabilities remain there. Lastly, EPA asked about what can be done about the alleged oversizing problem with residential unitary products. As Carrier has stated in the past, the best solution to oversizing is to encourage contractors to utilize the ACCA/ANSI Quality Installation Specification & Verification Protocols. Following those protocols will solve both of EPA’s concerns.

Connected Criteria

Carrier appreciates EPA’s intent to align more closely with AHRI 1380 on optional connected criteria for this product category. Carrier continues to support AHRI 1380 as the pathway for grid connectivity and would encourage EPA to maintain connected criteria as optional.



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Test Method

Carrier supports the test method reference update to refer to the 2023 Federal test method for CAC/HP units, 10 CFR part 430 Subpart B, Appendix M1. Appendix M test method is no longer needed if compliance prior to January 1, 2023, is removed as requested.

Conclusion

Carrier is a long-time supporter of the Energy Star® program and wishes to continue working closely with the EPA and the Energy Star® program to develop Version 6.0 in 2023 in conjunction with the impending energy efficiency conservation standards as well as HFC rulemakings which will increase compliance obligations to our products.

As stated above, Carrier recommends removing the prescriptive requirements, as outlined below, and adopting levels which will continue the program to be grounded in the Guiding Principles, or sunset the current program on December 31, 2022.

Carrier appreciates the opportunity to provide these comments. If you have any questions regarding this submission, or wish to discuss further, please do not hesitate to contact me.

Respectfully submitted,

A handwritten signature in black ink that reads "John J. Gibbons".

John J. Gibbons
Executive Director, Regulatory Affairs
Carrier

CC: Mr. Christopher Kafura, Executive Director, Carrier Residential Engineering
CC: Mr. Todd Nolte, Director, Carrier Residential Product Marketing
CC: Mr. Matthew Thornblad, Director, Government Relations, Carrier
CC: Mr. Matthew Pine, President, Carrier Residential HVAC