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February 28, 2020

Ms. Abigail Daken
Manager, ENERGY STAR® HVAC Program
U.S. Environmental Protection Agency

E-mail: CAC-ASHP@energystar.gov

RE: ENERGY STAR Central Air Conditioners & Heat Pumps Version 6.0 Draft 2

Dear Ms. Daken

Rheem Manufacturing Company ("Rheem") appreciates the opportunity to submit the following comments regarding ENERGY STAR Product Specification for Air Source Heat Pump and Central Air Conditioner Equipment Eligibility Criteria Draft 2 Version 6.0.

Rheem is an industry leader for total heating, cooling and water heating solutions and one of the few global brands with product offerings covering residential and commercial heating, cooling, conventional and hybrid storage water heaters, tankless water heaters, solar water heating systems, pool and spa heaters, commercial boilers, residential hydronic and geothermal systems, indoor air quality accessories, and replacement parts for all categories. Rheem operates a distribution facility in Brampton, Ontario, headquartered in Atlanta, Georgia. Rheem operates a state-of-the-art Parts Distribution center in Randleman, NC and Salt Lake City, UT, and operates distribution facilities throughout the US, Canada and many other countries around the world. It manufactures in Fort Smith, Arkansas; Montgomery, Alabama; and Oxnard, California. All manufacturing facilities are ISO 9001 certified.

Rheem supports the EPA efforts in the development of Version 6.0. While Rheem appreciates the EPA responding to industry concerns with the timing proposed in Draft 1, the stringency of levels and number of measures required to meet Draft 2, are such that Rheem can no longer support January 1, 2023 as the implementation date. Draft 2 narrows the specification for qualifying products with stringent levels and prescriptive requirements. The requirements are so burdensome that only the top-of-the-line products would meet the specification. Rheem contends that few manufacturers will participate, and those products meeting the specification will be out of reach for most consumers. The program would not be effective. Rheem has certified equipment to the Energy Star specifications for many years. Rheem appreciates that Energy Star has moved the effective date forward, but adding to the January 1, 2023 list of requirements is still very burdensome and beyond the limits of our resources.

Rheem has concerns in the following areas:



INTEGRATED HOME COMFORT

**Effective date:**

While Rheem understands the 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 of the current draft specification are not possible within the requirements of the Appendix M test procedure. In Appendix M, the only products that may be tested to the 5°F test for HSPF are triple-capacity Northern Heat Pumps. During the negotiated rulemaking, AHRI requested that variable speed heat pumps also 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.

Rheem is currently working to transition to the new DOE test procedure, Appendix M1, new DOE energy efficiency regulations, and low GWP refrigerants by January 1, 2023. The effort has challenged our facilities and staff. With the answer to many unknowns still ahead of us, Rheem is unlikely to be able to address product designs that will meet the voluntary Energy Star Draft 2 Version 6.0 until we have met all regulatory requirements. The EPA also acknowledges in Draft 2 that any product complying early would need to be re-tested to Appendix M1 to the 2.0 metrics and recertified prior to January 1, 2023, to remain in the program. This would be unduly burdensome and it is doubtful that Rheem would certify equipment to ENERGY STAR based on Appendix M metrics and recertify the same equipment to ENERGY STAR based on Appendix M1 metrics.

In addition, the 12.0 EER2 specification is likely to be out of reach for all but single-stage equipment. The combination of high SEER2 and high EER2 may not be a marketable product. The proposal to introduce a new class of optimized cold climate heat pumps is very burdensome and may be beyond the limits of our resources. Rheem believes that a truly optimized cold climate heat pump would require special practical considerations related to the application and use of such a product not just the addition of a new low temperature test.

Regional Identification:

Rheem does not support proliferation of regional-specific performance requirements and strongly recommends that the EPA not proceed with regional requirements. Rheem discourages regional specifications because it makes harmonizing between ENERGY STAR and other energy efficiency specifications difficult and may limit Rheem participation in the program.

Rheem is staunchly against labeling for all the various combinations of products. Draft 2 contains conflicting proposals regarding labeling. 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 as "ENERGY STAR Cold Climate." Rheem also opposes labeling for Moderate and Hot Climate requirements. Rheem is not supportive of physical labels, much less multiple physical labels. All product information should be communicated in product literature.





The energy metrics that give an indication of the expected energy costs are SEER2 and HSPF2. Rheem does not agree that EER2 should be a consideration for consumers when they select a heat pump. The metric EER2 provides an indication to utilities of peak load and is not helpful to consumers. The EER2 metric will drive consumers towards equipment that benefits utilities and not always themselves.

Control Verification Procedure :

Rheem is concerned about the impact of the introduction of the controls verification procedure (CVP) to confirm that the settings used/performance for the low ambient test point at 5° F are achieved by the native controls operating as they would in a customer's home without a procedure to follow. During the February 11 stakeholder meeting, DOE presented concept of CVP that is intended for validation purposes only, not for ratings. The CVP would allow for native controls testing validating 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. While that may be true, without a procedure in hand, Rheem is unable to evaluate the impact of the burden.

Rheem appreciates the EPA offering to schedule a public meeting after the release of the procedure and look forward to participating. There are many questions as the CVP proposed is for heating only, which is very different from the JIS 8616 procedure reviewed at ASRAC VRF WG. The procedure adopted into AHRI 1230 is still being evaluated for tolerances. A months long process that needs to consider and accurate encompass all products within the scope of the test procedure. Rheem is concerned that it may not be possible to adequately assess the impact of an unknown, not vetted procedure if EPA intends to finalize v6.0 by Q2 2020. For example, during the development of this specification, in the limited draft proposal, EPA introduced concepts based of a test procedure being developed for demand response, AHRI 1380, which EPA was a part of, yet there were corrections needed in revised specification, which was a months-long process.

The entire CVP needs to be vetted. Rheem cannot agree with the CVP proposal until significant testing and analysis is conducted including impact on equipment and control designs. Ultimately, due to the general concern that this specification is overly prescriptive, Rheem recommends not pursuing a CVP in version 6.0.

Performance Criteria and Levels:

Rheem does not support the EPA's proposal for increased levels. Based on AHRI's review of 2018 and 2019 sales, approximately 5 percent of split system central air conditioners would meet the proposed 17.0 SEER level. Even fewer single package central air conditioners would meet the proposed level. This is also before one considers the prescriptive features included in Draft 2.

The EER2 requirement will lead to larger heat exchangers that increase the size, refrigerant charge and cost of the outdoor unit. The hottest hours of the year are a small portion of the cooling season. The coldest hours of the year are a small portion of the heating season. The EER2 metric describes





the efficiency during the hottest and coldest hour and neglects the benefits of meeting the building part load with variable capacity. In practice, the proposed Energy Star Version 6.0 draft 2 specification will cause the EER2 design requirement to overshadow the SEER2 design requirement.

Staged and Variable Capacity:

It is not necessary to set a prescriptive requirement when a performance requirement will suffice. Rheem does not support mixing design requirements and performance requirements.

Test Method:

Rheem 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. The Appendix M test method is no longer needed if compliance prior to January 1, 2023, is removed as requested.

Rheem cannot support a new specification for equipment certified to the Appendix M. It is overly burdensome to expect manufacturers to design and test products to two test procedures. It is likely that the only Rheem products certified to a new 6.0 specification for Appendix M products are Energy Star 5.0 certified products.

Connected Criteria:

Rheem continues to support EPA's broader goal to establish a national compatible DR communications infrastructure. However, at this early stage, the specification should not be overly prescriptive, limit innovation and lock-in technology still being refined. Rheem recommends establishing the communication protocol and standards requirements to include equivalent alternates to CTA-2045A and OpenADR 2.0.

Conclusion:

Rheem recommends that the EPA make the significant revisions that we have suggested to maintain an effective program that aligns with the program's Guiding Principles, or sunset the program on December 31, 2022.

We appreciate EPA's willingness to consider our comments. If there are questions, please contact me directly.

Sincerely,
RHEEM MANUFACTURING COMPANY
Karen Meyers

A handwritten signature in black ink that reads "Karen B. Meyers".

Vice President, Government Affairs

