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May 23, 2019

Ms. Abigail Daken
Manager, ENERGY STAR® HVAC Program
U.S. Environmental Protection Agency
Washington, DC 20460
E-mail: cacashp@energystar.gov

Re: ENERGY STAR Residential Air Source Heat Pump (ASHP) and Central Air Conditioner (CAC) Equipment Version 6.0 Draft 1

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 1 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 has certified equipment to the Energy Star specifications for many years. Last year, Rheem received a second ENERGY STAR Canada award: ENERGY STAR "Most Efficient" Promoter of the Year (2018), following Heating & Cooling Manufacturer of the Year (2017). The Energy Star goal of identifying products that can save consumers energy, without compromising performance, in a way that makes financial sense for consumers to invest in higher efficiency equipment is becoming increasingly challenging given how the federal minimum efficiencies continue to rise. Rheem is very concerned that the collection of unrelated modifications offered in the draft 1 Version 6.0 product specification could be impossible to comply within the proposed time.

Rheem has concerns in the following areas:



INTEGRATED HOME COMFORT

**Timing:**

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 1 Version 6.0 until we have met all regulatory requirements.

Currently, Rheem has CAC split and some package products available to meet the increase from 15 SEER to 16 SEER; however, given the next standard change will not occur until 2023, and the overabundance of work essential to meet those requirements, Rheem does not support raising the Energy Star level to 16 SEER.

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 more than the addition of a new low temperature test.

The capacity requirements for a cold climate heat pump in the heating versus cooling mode require careful consideration without the use of resistance heat to provide the supplemental heating capacity needed in a cold climate. In a heat pump system, the capacities in the heating and cooling modes are related and limiting to each other. A high heating capacity matched with a low cooling capacity may not be technically feasible in a configuration that is familiar to consumers today. It is unlikely that Rheem would begin development of products that meet the proposed cold weather specification until after January 1, 2023, assuming that consumer demand is in alignment with the Energy Star specification.

While cold climate consumers may imagine replacement of a furnace and air conditioning system with a heat pump of the same air conditioning capacity, the required heating capacity could be more than double the capacity of an installed air conditioner. The cold climate heat pump solution with associated increases in indoor and outdoor coil sizes could lead to major structural home modifications or doubling of zones with additional HP systems. Much work will be completed to assess consumer needs for heat pump applications in cold climates before such a system is offered for sale.

Cold Climate Region:

Rheem prefers that the Energy Star program avoid the state-specific regional approach used in the Version 4.0 Furnace specification. It is convenient to include the Energy Star certification mark on FTC's Energy Guide label as long as the information does not interfere with the purpose of the Energy Guide label. Today, there are maps that reflect DOE mandatory requirements as well as Energy Star maps that indicate qualification with a voluntary specification on the variety of products that Rheem offers for sale. The labels and the metrics are confusing. By the time that consumers see the Energy Guide label on HVAC equipment, all of the decisions are final, the equipment is operating and





confusion over a costly investment in new HVAC equipment is painful for all. Rheem supports elimination of the Energy Guide label.

Early Adoption of Portion of Appendix M1:

Rheem cannot support hybrid versions of current and proposed DOE test procedures. Products have not been developed and tested to Appendix M1. Further mutations of the currently complicated test landscape are difficult to imagine. A reasonable response could be to delay adoption of all voluntary requirements until mandatory requirements have been met.

Prescriptive Requirements:

Rheem is opposed to the EPA's proposal to require at least two stages of capacity for a unit to be recognized as Energy Star. The energy efficiency savings of an AC or HP system is associated with the system design. An oversimplification that makes outward attributes of a design mandatory may lead to shortcomings in the internal control strategies that allow the system to achieve system energy savings. Rheem believes that while prescriptive requirements provide simple solutions for regulatory bodies, a prescriptive requirement in isolation can lead to unanticipated system performance.

DR Communications Protocols:

Rheem is interested in EPA's broader goal to establish a national compatible DR communications infrastructure, however we do not support anything beyond what was only recently published in AHRI Standard 1380 (I-P/2019), *Demand Response through Variable Capacity HVAC Equipment in Residential and Small Commercial Applications*. Furthermore, as this is a new standard that took many months to develop among a wide array of stakeholders, and is in its early stages, current products have not had sufficient time to be designed and/or tested to 1380. As a result, Rheem does not support the DR Communications Protocol specification be included in Version 6. Rheem is interested in continuing dialogue on this matter for a future Energy Star specification, and recommends establishing the communication protocol and standards requirements to include equivalent alternates such as CTA-2045A and OpenADR 2.0. Rheem also believes that 'communication' specifications should not be overly prescriptive, limit innovation and/or lock-in technology, and should include solutions that address both DR and consumer needs.

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

Sincerely,
RHEEM MANUFACTURING COMPANY

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

Karen Meyers
Vice President, Government Affairs

