



July 3, 2009

Mr. Steve Ryan
Environmental Protection Agency
Ariel Rios Building, SW, MS 6202J
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: EPA Proposed Draft 2 Energy Star Specification for Light Commercial HVAC Equipment

Dear Mr. Ryan:

These comments are submitted by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) in response to the U.S. Environmental Protection Agency (EPA) proposed draft 2 Energy Star specification for light commercial HVAC equipment, issued on June 12, 2009. AHRI is the trade association representing manufacturers of heating, cooling, and commercial refrigeration equipment. More than 350 members strong, AHRI is an internationally recognized advocate for the industry, and develops standards for and certifies the performance of many of the products manufactured by our members. In North America, the HVACR industry produces more than \$20 billion worth of product, and in the United States alone, our members employ approximately 130,000 people, and support some 800,000 dealers and contractors.

AHRI would like to thank EPA for taking many of our recommendations into consideration in this second draft specification. However, we believe that the specification as proposed has serious deficiencies in a number of product categories. We feel that in most cases, these deficiencies stem from either misinterpreting the data listed in the AHRI Directory of certified equipment and/or confusing product listing with product shipment. AHRI understands that the 25% threshold that EPA must aim at to justify the specification has to be based on product shipments and not product listings. Therefore, looking at just the AHRI directory is not sufficient in our opinion. EPA must also conduct a research market analysis to assess the number of products sold at the efficiency levels proposed. Based on our experience, there is a significant difference between the percentage of products listed in our directory at a certain efficiency level and the percentage of products sold in the market place at the same efficiency. EPA simply cannot ignore that fact and has an obligation to take into account product shipments when establishing the energy efficiency levels.

3-Phase Air-Source Air Conditioners and Heat Pumps < 65,000 Btu/h

AHRI understands EPA's intention to fully harmonize the specification for 3-phase equipment below 65,000 Btu/h with the specification for residential single-phase products. While the data for split systems listed in the AHRI directory show many products available at the proposed efficiency, EPA must take into account that 3-phase products represent less than 7% of shipments for all air conditioners and heat pumps less than 65,000 Btu/h of cooling capacity (the remaining 93% are single-phase products). Based on AHRI 2008 shipment data, 19.3% of all split air conditioners (single and 3-phase) were at 14 SEER and above, well below the 25% threshold. This percentage does not account for the EER levels as they are not captured in the AHRI statistics. Accounting for the minimum 12 EER proposed by EPA, AHRI estimates the total 2008 shipment of split air conditioners meeting the proposed specification at less than 10%. The same is true for split heat pumps.

Therefore, given the low volume of 3-phase products and the fact that few split systems are shipped at the proposed specification, AHRI stands by its original recommendation for split systems:

- ≥14 SEER; ≥11 EER for split air conditions
- ≥14 SEER; ≥11 EER; ≥8.0 HSPF for split heat pumps.

Air-Source Air Conditioners and Heat Pumps ≥ 65,000 Btu/h and < 240,000 Btu/h

AHRI seriously questions the proposed energy efficiency levels for air conditioners between 135,000 and 240,000 Btu/h. EPA is proposing efficiencies higher than what it proposed for the 65,000-135,000 Btu/h cooling capacity range, which is in contradiction with the AHRI recommendations and also with what ASHRAE 90.1 and the Department of Energy (DOE) have done. There is a good reason why the AHRI proposal, the ASHRAE 90.1 and the federal minimum efficiency standards for large unitary equipment decreases as the cooling capacity of the equipment increases. The decrease in efficiency as the cooling capacity increases is due to the test procedure (AHRI 340/360) which requires equipment to be tested and rated against higher external static pressures at larger cooling capacities. For example, at a cooling capacity of 65,000 Btu/h, the required external static pressure at which the equipment needs to be tested is 0.2 inches of water, while at 135,000 Btu/h the external static pressure is 0.35 inches of water. Higher external static pressure translates into additional fan energy and ultimately lower energy efficiency ratio (EER).

Similarly, large unitary heat pump efficiencies (i.e.; EER) are usually lower than air conditioners because of competing design effects as the system is optimized for both cooling and heating. The ASHRAE 90.1, DOE and AHRI efficiency

recommendations for heat pumps are consistent and are all lower than their respective air conditioner efficiencies. However, the EPA proposed efficiencies for heat pumps between 65,000 and 135,000 Btu/h are inconsistent.

We understand that EPA came up with the proposed efficiencies after analyzing the data in the AHRI Directory of large unitary equipment. However, we would like to caution EPA that the current data is mostly based on HCFC-22 units, which will be obsolete early next year. As EPA knows, requirements under Section 605 of the Clean Air Act will make it unlawful to produce or import HCFC-22 for use in newly manufactured refrigeration and air conditioning equipment on or after January 1, 2010. As such, no new products will be manufactured and charged with virgin HCFC-22 effective January 1, 2010. However, as of today, about 70 to 80% of the products still listed in the AHRI directory are using HCFC-22 as the refrigerant. While manufacturers have been very busy redesigning products for use with non-ozone depleting refrigerants, we do not expect to have a full directory of non-ozone depleting products until later this year. Consequently, the current data in the AHRI directory of large unitary equipment is not representative of product offerings that will be available next year and cannot be used to set the specification.

As previously indicated, AHRI developed its recommendation based on data it collected from its members. The information was shared with EPA. Therefore, AHRI stands by its original recommendation.

Finally, for each cooling size category, we proposed a new “heating section type” category with two sets of EER/IEER values. The first set is for products equipped with electric resistance, and the second (which has a 0.2 EER/IEER deduction) is for all other types of equipment (i.e.; equipment with gas heat). As we previously explained, the 0.2 EER/IEER deduction is necessary to account for the additional pressure drops (increase fan power consumption) caused by the gas heating element. The same deduction has been in the ASHRAE 90.1 standard since 1989 and was adopted by the Department of Energy in the federal standards for commercial air conditioners and heat pumps. We fail to understand why EPA wants to deviate from federal regulations. We urge EPA to reconsider its position and allow for a 0.2 EER/IEER deduction for equipment with gas heat. In summary, we strongly recommend that EPA adopt the following energy efficiency requirements:

**AHRI Proposal for ENERGY STAR Qualified Light Commercial Air Conditioners
≥65,000 Btu/h - <240,000 Btu/h**

Equipment Type	Size Category	Heating Section Type	Minimum Efficiency	Test Procedure
Air-Source Air Conditioner	≥65,000 Btu/h – <135,000 Btu/h	Electric Resistance (or None)	≥11.5 EER; ≥11.6 IEER	AHRI 340/360
		All Other	≥11.3 EER; ≥11.4 IEER	
Air-Source Air Conditioner	≥135,000 Btu/h – <240,000 Btu/h	Electric Resistance (or None)	≥11.3 EER; ≥11.4 IEER	AHRI 340/360
		All Other	≥11.1 EER; ≥11.2 IEER	

AHRI Proposal for ENERGY STAR Qualified Light Commercial Heat Pumps $\geq 65,000$ Btu/h - $< 240,000$ Btu/h

Equipment Type	Size Category	Heating Section Type	Minimum Efficiency	Test Procedure
Air-Source Heat Pump	$\geq 65,000$ Btu/h – $< 135,000$ Btu/h	Electric Resistance (or None)	≥ 11.3 EER ≥ 11.4 IEER, ≥ 3.35 COP @47F	AHRI 340/360
		All Other	≥ 11.1 EER ≥ 11.2 IEER; ≥ 3.35 COP @47F	
Air-Source Heat Pump	$\geq 135,000$ Btu/h – $< 240,000$ Btu/h	Electric Resistance (or None)	≥ 10.9 EER ≥ 11.0 IEER; ≥ 3.25 COP @47F	AHRI 340/360
		All Other	≥ 10.7 EER ≥ 10.8 IEER; ≥ 3.25 COP @47F	

Please note that the above COPs, as well as the COPs proposed by EPA are calculated at a 47°F outdoor temperature. We recommend that EPA clarify that point in the specification.

Effective Date

We understand that EPA is planning to launch the new specification on January 1, 2010, at the same time the new federal minimum energy efficiency standards will take effect. This effective date will likely give less than the required minimum 9 months lead time that U.S. Congress provided to manufacturers. However, industry is willing to accept a shorter lead time and a launch date of January 1, 2010, if the final specification is consistent with the AHRI recommendations. Manufacturers have been designing new products to meet the energy efficiencies that AHRI is recommending. However, more lead time would be needed if EPA goes beyond these recommendations.

Third-Party Certification Program

We have noticed that EPA has recently proposed third-party certification requirements on a couple of specifications it is developing or revising. AHRI applauds this initiative and strongly recommends adding third-party certification to this specification. Third-party certification programs, as administered by AHRI, includes random verification testing, where the third-party certifier randomly selects several products during the year and test them to verify that the performance ratings claimed by manufacturers are accurate. In the event that the tests reveal that the product is underperforming (i.e., the tested efficiency is lower than claimed for example), the manufacturer is required to de-rate the product and penalties (financial and additional tests) are imposed on the manufacturer to strongly encourage proper rating of the product. In addition, AHRI certification programs provide manufacturers with the possibility of challenging a competitor's product performance.

We believe that it is only through a third-party certification that accurate and unbiased evaluations of product performance can be achieved. As such, we

recommend that AHRI certification be required to comply with this specification. This will strengthen the credibility of the Energy Star program while ensuring a level playing field for manufacturers.

AHRI appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'K Amrane', with a stylized, cursive script.

Karim Amrane

Vice President, Regulatory & Research

Tel: 703/524-8800 ext.307

Email: kamrane@ahrinet.org