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Submitted via: CAC-ASHP@energystar.gov

**Re: ENERGY STAR Central Air-Conditioner and Air-Source Heat Pump
Version 5.0 Specification Framework**

Lennox International Inc. (Lennox) hereby submits comments on the framework document *ENERGY STAR Central Air-Conditioner and Air-Source Heat Pump Version 5.0 Specification Framework* published on July 1, 2013 (hereafter, the “Framework Document”).

Lennox is a leading provider of climate control solutions for heating, air conditioning, and refrigeration markets. Lennox is a publicly-traded company that has thousands of employees, and it manufactures equipment addressed by the Framework Document. Lennox is also a member of the Air-Conditioning, Heating and Refrigeration Institute (AHRI), which has worked extensively with EPA and DOE to develop reasonable, practical energy efficiency regulations and programs.

Lennox offers the following general comments on the Framework Document. Below that, Lennox provides responses to specific items raised by EPA and identified by topic.

A. General Comments on the Current ENERGY STAR Program.

Lennox attended the stakeholder webinar meeting held by EPA on July 22, 2013 regarding the Framework Document. Before commenting on the specifics of the Framework Document, Lennox believes some general comments in regard to the current ENERGY STAR program are appropriate.

At the public meeting, Lennox along with several others from the central air-conditioning and air-source heat pump (CAC/ASHP) industries expressed concern over the current status of the program, including regarding the following issues.

1. Increased Burden of the Program.

Prior to 2010, the ENERGY STAR program worked fairly seamlessly with the AHRI certification program. The ENERGY STAR requirements at the time were that the manufacturer be a registered ENERGY STAR partner and if the manufacturer participated in the AHRI certification program, the determination of whether a product met the ENERGY STAR requirements came through the AHRI database.¹ If the specific product ratings met the ENERGY STAR criteria, the ENERGY STAR status was attained automatically. The AHRI audit process, which tests a significant percentage of a manufacturer's basic models on an annual basis, assured integrity of the ratings and the program for CAC and ASHP equipment.

However, in 2010 EPA made significant changes to the ENERGY STAR requirements for CAC/ASHP products, which resulted in a dramatically increased burden to manufacturers.² These and associated changes included:

- Submission of test reports for ENERGY STAR ratings
- Third-party lab certification specifically for ENERGY STAR
- Third-party audit testing specifically for ENERGY STAR ratings
- Increased test selection and test sample size
- Audit procedure performance tolerances

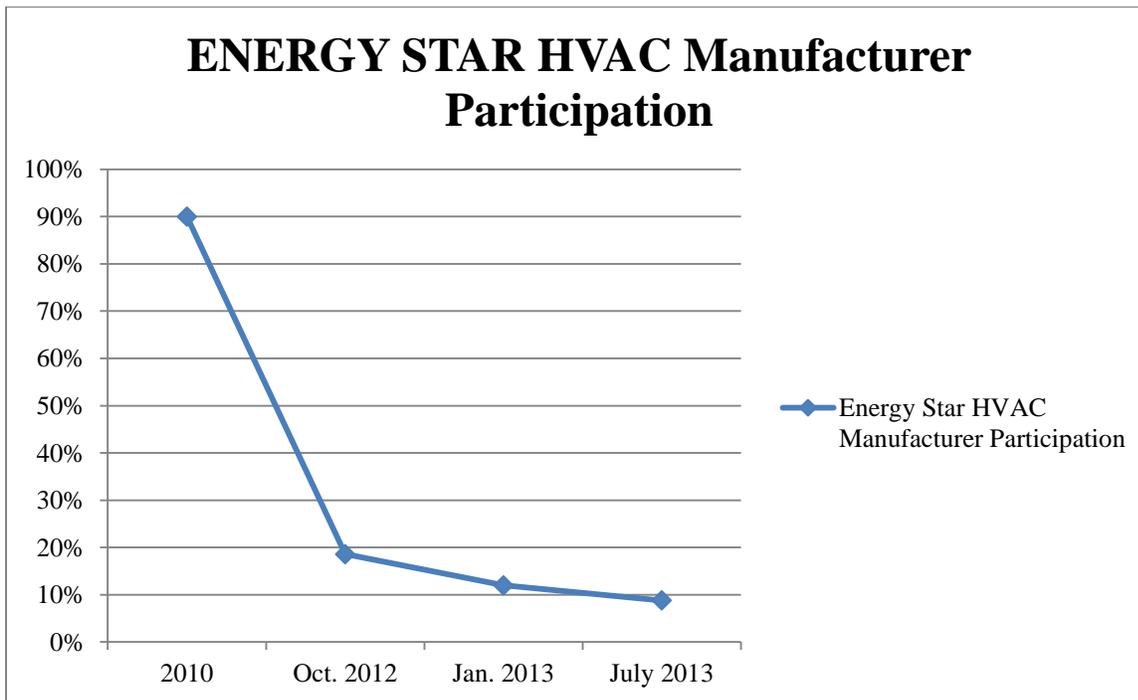
These issues were discussed at the end of the July 22nd meeting and several CAC/ASHP manufacturers provided comments on the increased burden these changes have imposed. These changes have greatly increased the effort and cost to participate in the program to the point where Lennox as well as many other manufacturers have questioned the benefit of the program.

The result of these changes has been a dramatic and consistently declining level of participation in the ENERGY STAR program by CAC/ASHP manufacturers over the last few years. Lennox estimates that in 2010 over 90% of the eligible products were listed as ENERGY STAR-approved. Lennox has tracked the participation in the ENERGY STAR program, following the increased burden, from information available in the Consortium for Energy Efficiency (CEE) directory, where ENERGY STAR product ratings are shown. Data was sampled for October 2012, January 2013, and more recently for July 2013. Data are shown in

¹ See ENERGY STAR Program Requirements for Air Source Heat Pump (ASHP) and Central Air Conditioner Equipment; Eligibility Criteria, Version 4.0, *available at* http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/ac_ashp/Final_CAC_ASHP_Eligibility_Criteria.pdf?3c7e-a112. Note that at the time, AHRI was referred to as ARI.

² See ENERGY STAR Program Requirements for Residential Air Source Heat Pump (ASHPs) and Central Air Conditioner Equipment, Version 4.1, *available at* http://www.energystar.gov/ia/partners/product_specs/program_reqs/Central_ASHP_and_CAC_Program_Requirements.pdf?62dd-4b6f.

the chart below with the July 2013 data indicating current participation is less than 10%.³ From this information, it is clear that the CAC/ASHP manufacturers have decided the burden of the current program outweighs the benefits.



2. Need for Program Reform.

Lennox believes that there is value in the ENERGY STAR brand, but an onerous program severely diminishes the program’s relevance to distributors, contractors, and consumers. Conversely, a well-designed program can add value. Lennox believes the ENERGY STAR program structure prior to 2010 was well-designed and suggests that EPA strongly consider reforming the current program to replicate successful aspects of the prior model. This is particularly appropriate for the CAC/ASHP market where robust procedures (such as the AHRI and CEE programs) exist for assessing product energy efficiency, and a large volume of different models (including based on matched indoor and outdoor equipment) exists.

At the July 22 meeting on the Framework Document, Karen Meyers from Rheem suggested that considering the increase in the minimum mandated efficiency levels by DOE, the benefits of increasing the ENERGY STAR efficiency levels would be diminishing, and she recommended sunsetting the ENERGY STAR program for CAC/ASHP products.

³ Source data for October 2012, January 2013, and July 2013 retrieved from <http://www.ceedirectory.org>. CAC Active Ratings, Systems only, Single Phase.

While Lennox recognizes there is market awareness of the ENERGY STAR program, the program benefits for CAC/ASHP manufacturers are limited. Product performance information for these products is available through the AHRI and CEE databases, which can be used to verify that product performance meets market-based energy savings incentives, in place of ENERGY STAR approval. Therefore, unless there is significant reform of the ENERGY STAR program for these products, Lennox would agree with Rheem's position and support sunseting the program.

If EPA decides to continue with the current requirements, Lennox foresees that the participation level will continue to decline, effectively sunseting the program through lack of participation.

B. Specific Framework Document Issues on Which EPA Seeks Comment.

In addition to the above general points, Lennox also offers comments on the specific issues raised by EPA. However, Lennox submits these comments with the outlook that the ENERGY STAR program for CAC/ASHP products needs to be reformed.

1. Regional Specification.

Lennox is not in favor of regional specifications for the ENERGY STAR program and recommends that a national approach be taken.

While Lennox appreciates EPA's recognition that there are issues associated with a regional specification for ENERGY STAR, we believe there are larger issues associated with a regional specification than EPA has recognized. With the advent of regional requirements in the new DOE Minimum Efficiency Performance Requirements (MEPS),⁴ manufacturers likely will need to design products specifically to meet, and be optimized for, these new minimum efficiency levels. Furthermore, Lennox offers a variety of higher efficiency products and product match-ups that meet ENERGY STAR and CEE efficiency tiers. These products in many cases are designed specifically to meet these threshold levels.

If a regional approach is taken to new ENERGY STAR criteria, there could be a significant increase in the quantity of threshold efficiency levels when considering both ENERGY STAR and CEE tiers. Regarding ENERGY STAR, each region (South, Southwest, and North) may need a separate "base" ENERGY STAR level as well as possibly other levels. Manufacturers would be faced with designing new product families to optimize products at these increased segment thresholds, or spreading products over these thresholds, resulting in sub-

⁴ See 10 CFR 430.32(c).

optimized performance-to-value relationships. Either of these approaches could result in an increased cost of the product to the consumer due to reduced volume or sub-optimum designs to meet these thresholds. If ENERGY STAR levels are different than CEE tiers, this could further complicate manufacturer product lines and exacerbate these problems.

Lennox also believes that a regional ENERGY STAR approach would lead to confusion among consumers and within the distribution supply chain. For instance, the consumer would need an understanding of the “regions” to be certain that any given product is actually ENERGY STAR rated.

Lennox would prefer a simple, national ENERGY STAR standard. Furthermore, the ENERGY STAR levels should be coordinated with the CEE program.

Finally, with regard to EPA’s question on “proof of performance,” Lennox is an AHRI member and uses the AHRI database for purposes of performance verification.

2. Performance Metrics.

Lennox recommends that EPA not add additional performance metrics to the ENERGY STAR program. In particular, an additional coefficient of performance metric adds a burden to manufacturers without providing a significant benefit. Keeping ENERGY STAR straightforward, without unnecessary additional metrics, should help to maintain manufacturer participation and the viability of the program.

EPA specifically asks “For the northern region, can the HSPF be raised without increasing the SEER?” Lennox believes that this is technically possible but likely would have limited practical application. There may be emerging technology that better enables independently driving HSPF and SEER but in practice in the market today they trend together.

3. System status and diagnostics.

Lennox does not believe that it would be appropriate at this time to add diagnostics and communication as ENERGY STAR eligibility criteria. While EPA states in the Framework Document that “research has shown that losses due to low quality installation and maintenance are substantial – 20-30% of the total energy used for heating and cooling,” we do not believe that credible research has shown that the use of fault diagnostics could recapture a significant amount of these losses across a broad range of product types. The largest share of these losses may very well reside in system components that would not be addressed by auto-diagnostics, thus defeating the usefulness of these devices and needlessly adding cost to the consumer.

Lennox manufactures a number of models that have two-way communications with the system controller. The communications protocol used in these systems is proprietary to Lennox. The communications system is used to assure proper initial system setup and in some modulating capacity systems, to assure proper airflow is achieved for a given operating condition. There are also some fault detection features that can be communicated to the homeowner, or if the homeowner prefers to a servicing contractor, to assist system maintenance. However, given the still-evolving nature of system diagnostics, Lennox would not recommend requiring these as a “basic” ENERGY STAR component, so that system diagnostics can be further evaluated through high-end equipment. Furthermore, system diagnostics add costs to a product, which could discourage consumers from making certain ENERGY STAR purchases, and it should be up to manufacturers whether to add diagnostics to equipment.

4. Supporting Quality Installation.

Although Lennox supports quality installation, Lennox does not believe quality installation should be addressed as part of the manufacturer’s ENERGY STAR requirements.

As noted by EPA, quality installation and maintenance procedures, such as those defined in the American National Standards Institute (ANSI) approved Air Conditioning Contractors of America (ACCA) Standard HVAC Quality Installation Specification,⁵ are important for maximizing energy savings from efficient HVAC equipment. But Lennox believes quality maintenance and installation should be addressed separately from the manufacturer’s ENERGY STAR program.

Regarding the Framework Document’s raising the possibility of requiring expanded performance data in a consistent framework, Lennox does not see the benefit to this as variability in manufacturer technical literature does not necessarily impact product performance. Furthermore, requiring reworking of technical literature to a standardized format could further discourage manufacturer participation in the ENERGY STAR program and discourage innovation in the development of technical literature. Instead, quality installation is best addressed, as noted above, separately from the manufacturer’s ENERGY STAR program.

Additionally, Lennox opposes ENERGY STAR requiring measurement ports for products when they are shipped. Accurate measurement of static pressure requires very specific arrangements that cannot be accomplished within the confines of the CAC/ASHP product itself, separate from the field-installed ductwork. Furthermore, original equipment manufacturers often do not provide the discharge or inlet plenum ductwork for CAC/ASHP products. Manufacturers configure their products differently and internal static measurements will vary according to the designs of the equipment.

⁵ ANSI/ACCA 5 QI – 2010, *HVAC Quality Installation Specification*.

5. Blowers.

Lennox agrees with EPA's position on blowers and the agency not "pursuing additional requirements on blowers." Blower performance is accounted for in the SEER and HSPF ratings, and EPA should not add additional ENERGY STAR metrics for blowers.

6. Test Methods.

Lennox believes that EPA should reference the most recent revision of the ANSI/AHRI standards as the method for test. This aligns with the AHRI audit test program. If EPA continues the ENERGY STAR program for CAC/ASHP products, Lennox recommends that EPA align ENERGY STAR with the current AHRI program.

In conclusion, Lennox wishes to emphasize that EPA should thoroughly review and reform the current ENERGY STAR program to ease the burden to manufacturers or sunset the program. If EPA continues the program, Lennox recommends a national approach to ENERGY STAR that is coordinated with CEE, rather than a regional approach. Furthermore, Lennox would urge EPA to not add additional performance metrics or system communication requirements to the ENERGY STAR criteria. Lennox also believes that while there is great benefit to the end user as well as EPA and DOE to focus efforts on quality installations, this should be achieved through a separate action and not included in the manufacturer's ENERGY STAR program. Lennox appreciates the opportunity to comment on this Framework Document.

Sincerely,

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