ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

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December 16, 2011

Via E-Mail

Amanda Stevens
U.S. Environmental Protection Agency
ENERGY STAR Appliance Program
appliances@energystar.gov

Re: ENERGY STAR Residential Refrigerators and Freezers Draft 1.0 Version 5.0 Specification Document

Dear Ms. Stevens:

On behalf of the Association of Home Appliance Manufacturers (AHAM), I would like to provide our comments on the ENERGY STAR Residential Refrigerators and Freezers Draft 1.0 Version 5.0 Specification Document.

AHAM represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. In the U.S., AHAM members employ tens of thousands of people and produce more than 95% of the household appliances shipped for sale. The factory shipment value of these products is more than $30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

AHAM supports EPA and the Department of Energy (DOE) in their efforts to provide incentives to manufacturers, retailers, and consumers for continual energy efficiency improvement, as long as product performance can be maintained for the consumer. AHAM is concerned about EPA's proposed new approach to setting maximum annual energy use levels utilizing a hyperbolic tangent methodology which is a significant change.

## I. Revisions to Maximum Annual Energy Use

The hyperbolic tangent approach adds unnecessary complexity to an already complex regulatory agenda for refrigerator/freezers. Further, the hyperbolic tangent function will impact the built-in class of refrigerator/freezers. In DOE's recent Final Rule setting new refrigerator and freezer energy efficiency standards for 2014, DOE recognized the unique consumer utility provided by

built-in products, as well as these products' more technical challenges to achieve continuing increases in energy efficiency. Built-in refrigeration products have inherent functional differences from conventional free-standing products. These lead to lower efficiency, or higher energy consumption, for built-ins with comparable insulation, refrigeration system components, and structural characteristics as their free-standing counterparts. We look forward to working with ENERGY STAR on this matter prior to the issuance of Draft 2.

In order to minimize these and other complexities, ENERGY STAR must include more accurate adders for through-the-door ice (TTD) in Version 5.0 (as indicated below) and commit to using the approach it currently uses to set maximum annual energy use levels—i.e., a percentage more efficient (less energy use) than the federal minimum standards by DOE, in Version 6.0.

In addition, AHAM believes that developing a crosswalk to a hyperbolic tangent curve in 2014 is difficult and should assure a fair and even impact across the industry. Any hyperbolic tangent curve created for 2014 could not be based on previous data due to the implementation of the new test procedure. The curve would need to be estimated which would lead not only to uncertainty and potential confusion on the part of manufacturers' development teams, but also to customer confusion comparing products from one year to the next.

Therefore, AHAM strongly recommends if EPA continues forward with the new hyperbolic tangent methodology, it be done with the commitment that a reversion back to a percentage increase will be done in 2014.

A. Qualification Criteria

EPA proposes that refrigerators would need to have an annual energy consumption of less than 500 kWh/year, with the requirements modestly higher for models that provide added functionality such as through the door ice and connectivity. We strongly support the 5% allowance for smart appliances as outlined in our petition with efficiency advocates and environmental and consumer groups. The ENERGY STAR program will be a stronger and better program into the future as it recognizes the benefits of smart appliances and its efforts to jump start the development of the Smart Grid. The purpose of the 5% allowance for smart appliances is to give a percentage allowance to appliances if they meet the threshold for connectivity. Thus, if a unit as a whole achieves connected status, it should obtain the 5% allowance not just a 5% allowance for the base model of that unit. The original intent behind the 5% connected allowance was to be an adjustment incentive for Smart Grid enabled appliances as a whole. AHAM strongly recommends the connected allowance should be a percentage adjustment for the whole unit including any adders as illustrated in Equation 2 below.

In addition, we fully support the through-the-door adder as an adjustment to recognize the penalties these products have during the test procedure, which is a closed door test, and the energy savings benefits consumers have by reducing door opening in the home. However, AHAM strongly recommends the through-the-door adder be adjusted by product class to be consistent with the in-depth analysis done by the Department of Energy (DOE) during its rulemaking of federal minimum standards. The 30 kWh/yr adder across product classes should be changed to a fixed 76 kWh/yr adder for Top Mounted units, a fixed 52 kWh/yr adder for Side-

by-Side units, and a fixed 84 kWh/yr adder for Bottom Mount units, which is consistent with DOE's standards. These fixed kWh/yr values were calculated by subtracting the Code of Federal Regulations (CFR) DOE energy standards equation for a model unit without through-the-door ice service from the equation for a model unit with through-the-door ice service. The adjustment is necessary to reflect the actual kWh/yr impact of the through-the-door ice service feature.

Below are the recommended changes for the adjustment of the 5% connected allowance along with the adjustment for the through-the-door adders.

**1) Qualification Criteria:**

A. Energy Use Requirements

a. Annual Energy Consumption (AEC) shall be less than or equal to Maximum Annual Energy Consumption ($AEC_{MAX}$), as calculated per Equation 1.

**Equation 1. Calculation of Maximum Annual Energy Consumption Requirement**

$$AEC_{MAX} = AEC_{BASE} + \sum_{i=1}^{n} AEC_{ADD\_i}$$

*where,*

$AEC_{BASE}$ *is the annual energy consumption base allowance, per Table 1; and*

$AEC_{ADD\ i}$ *is an annual energy functional adder, per Table 1*

**Equation 2. Calculation of Maximum Annual Energy Consumption Requirement with 5% Connected Allowance.**

$$AEC_{MAX}^{Connected} = AEC_{BASE} + \sum_{i=1}^{n} AEC_{ADD\_i} + 0.05\left(AEC_{BASE} + \sum_{i=1}^{n} AEC_{ADD\_i}\right)$$

*where,*

$AEC_{MAX}^{Connected}$ *is the annual energy consumption base allowance with 5% Connected allowance*[1].

| Product Type | Annual Energy Consumption Base Allowance, $AEC_{BASE}$ (kWh/year) | Through-the-Door Ice Adder (kWh/year) |
|---|---|---|
| ***Full-Size Refrigerators and Refrigerator-freezers*** | | |

[1] Product must be qualified using the final and validated "connected" test procedure to use the allowance.

| | | |
|---|---|---|
| • Refrigerators and Refrigerator-freezers with manual defrost<br>• Refrigerator-freezers with partial automatic defrost<br>• Refrigerator-freezers with automatic defrost and top-mounted freezer<br>• All Refrigerators with automatic defrost | 250 x tanh(0.050 x *AV* - 0.1) + 175 | 76 |
| • Refrigerator-freezers with side-mounted freezer | 235 x tanh(0.050 x *AV* - 0.1) + 270 | 52 |
| • Refrigerator-freezers with bottom-mounted freezer | 255 x tanh(0.045 x *AV*) + 230 | 84 |
| ***Compact Refrigerators and Refrigerator-Freezers*** | | |
| • Compact refrigerators and refrigerator-freezers | 255 x tanh(0.045 x *AV*) + 230 | N/A |
| ***Full-Size and Compact Freezers*** | | |
| • Compact and Full-Size Upright freezers with manual defrost | 330 x tanh(0.025 x *AV*) + 198 | N/A |
| • Compact and Full-Size Upright freezers with automatic defrost | 430 x tanh(0.025 x *AV*) + 284 | N/A |
| • Compact and Full-Size Chest freezers | 380 x tanh(0.025 x *AV*) + 115 | N/A |

B. Potential Out-Year Criteria

To minimize consumer confusion and manufacturing uncertainty over multiple changes in labels, federal standards, and ENERGY STAR specification changes, AHAM strongly recommends that for Version 6.0 EPA commit to returning to a straight percentage increase over the DOE federal minimum standards by product class as is the case today in 2014 when the new federal standard must be complied with. It is not possible to accurate predict what levels and where the market will be until this transition occurs in 2014.

To minimize consumer confusion and manufacturing uncertainty over multiple changes in labels, federal standards, and ENERGY STAR specification changes, AHAM strongly recommends that for Version 6.0 EPA commit to returning to a straight percentage increase over the DOE federal minimum standards by product class as is the case today in 2014 when the new federal standard must be complied with. It is not possible to accurately predict what levels and where the market will be until this transition occurs in 2014. Further, ENERGY STAR should facilitate the ability to comply early with the version 6.0 levels and closely coordinate this early compliance with the Department of Energy's and the Federal Trade Commission's efforts in this area. We would like to work with ENERGY STAR closely on this very important implementation issue.

## II. Connected Product Criteria

EPA proposes that products that meet the proposed criteria in Section 4 of the specification would be eligible to earn a 5% allowance. The allowance is intended to serve as an incentive to help jump start the market for refrigerators and freezers with smart grid functionality. AHAM strongly supports ENERGY STAR's decision to incorporate smart grid functionality and to provide a 5% allowance consistent with the Joint Petition from industry, efficiency advocates and environmental groups. AHAM has made recommendations for changes provided in track changes to Section 4 of the draft specification which is attached. (Attachment A)

## III. Scope—Wine Chillers and Beverage Centers

EPA proposes that wine refrigerators are not eligible for qualification under this specification. Wine storage products and other similar beverage centers should not be included within the scope of the ENERGY STAR program, including hybrid products. AHAM supports that position. Although DOE has recently issued guidance that includes *some* hybrid products in the definition of refrigerator and refrigerator-freezer, AHAM has filed comments opposing that guidance. DOE has stated that it intends to engage in a separate rulemaking to cover wine storage and similar products, and AHAM supports that rulemaking—all wine storage products, including hybrid products, should be considered as part of that rulemaking. Similarly, EPA should wait for DOE to complete that rulemaking before adding any wine storage or beverage center products to the ENERGY STAR program.

## IV. Model Numbers

EPA proposes model numbers used for the ENERGY STAR qualified product submissions shall be consistent with Federal Trade Commission (FTC) and Department of Energy submissions. However, the requirements for listing of model numbers for FTC and DOE differ, with the FTC allowing "wild cards" for a single listing. AHAM strongly encourages that ENERGY STAR follow the DOE requirements as it relates to model numbers.

AHAM appreciates the opportunity to submit comments on the ENERGY STAR Residential Refrigerators and Freezers Draft 1.0 Version 5.0 Specification and would be glad to further discuss these matters.

Best Regards,

Charlotte Skidmore
Director, Energy & Environmental Policy

# ATTACHMENT A