

**ENERGY STAR® Commercial Refrigerators and Freezers
Specification Revision Stakeholder Meeting
McCormick Place, Chicago, IL**

May 19, 2008

Meeting Notes

Commercial refrigerator and freezer manufacturers and other industry stakeholders participated in a meeting hosted by the U.S. Environmental Protection Agency (EPA) on May 19, 2008, at the National Restaurant Association (NRA) Show in Chicago, IL, to discuss issues that were raised in comments concerning the Draft 1 Version 2.0 ENERGY STAR commercial refrigerators and freezers specification. The Attendee List and meeting presentation can be downloaded from the ENERGY STAR commercial refrigerator and freezer specification revision Web page at: www.energystar.gov/productdevelopment. Click on the "Revisions to Existing Specifications" link.

Below is a summary of the discussion that took place during the meeting, which was facilitated by Rachel Schmeltz, EPA. The stakeholder discussion section is organized according to the order in which the topic was presented. EPA is continuing to research the comments and concerns that were raised during the meeting and will follow up with meeting participants and other stakeholders, as needed.

Stakeholders with any questions or additional comments can contact Rachel Schmeltz at schmeltz.rachel@epa.gov or Bijit Kundu, ICF International, at bkundu@icfi.com.

Part I: Rationale for Revision, Activity To-Date, and Meeting Purpose, Rachel Schmeltz, EPA

Ms. Schmeltz provided some background on the current ENERGY STAR specification for commercial refrigerators and freezers. She then presented EPA's rationale for revising the current Version 1.0 specification, which included the following points:

- Current specification has been in place since 2001;
- Relatively high market share of ENERGY STAR qualified commercial refrigerators and freezers;
- New Federal minimum efficiency standards effective January 1, 2010 that make current ENERGY STAR levels mandatory; and
- Manufacturer interest in adding new subcategories.

Ms. Schmeltz gave a brief description of the activities that have taken place in this specification development process leading up to the NRA stakeholder meeting, including:

- Distribution of Draft 1 on February 14, 2008;
- Online stakeholder meeting held on February 28, 2008 to discuss proposed changes;
- Deadline for partners to submit comments and data on April 10, 2008;
- Distribution of memo on May 8, 2008 identifying discussion topics for meeting at NRA.

Based on limited feedback and supporting data submitted in response to the Draft 1, EPA decided to hold off on developing a Draft 2 specification for review prior to the meeting. Instead, EPA decided to use the meeting to obtain direct stakeholder input on topics identified in the Draft 1 comments to better inform the development of a revised Draft 2 proposal.

Part II: Stakeholder Discussion

Ms. Schmeltz walked attendees through the following key issues brought to EPA on the Draft 1 specification:

1. Internal Volume Measurement

In Draft 1, EPA proposed that the interior volume of equipment be measured using the ANSI/AHAM HRF-1-2004 procedure. Manufacturers are currently required to use this procedure to qualify products for ENERGY STAR, though not explicitly stated in the existing specification.

Question to Stakeholders: Is this the appropriate method to measure interior volume?

Stakeholder Comment: EPA should instruct manufacturers to use gross volume, instead of trace lines, when calculating interior volume using this method.

The group generally supported the idea of referencing the ANSI/AHAM HRF-1-2004 procedure and requiring manufacturers to use gross volume instead of trace lines to calculate volume.

2. Volume Categorization of Equipment

The following volume categorizations were proposed in Draft 1 by EPA in order to provide for fair representation across all sizes of equipment. The volume (V) ranges, in cubic feet, proposed in Draft 1 include the following:

- $0 < V < 20$
- $20 \leq V < 30$
- $30 \leq V < 70$
- $70 \leq V$

Question to Stakeholders: Are these size categories appropriate in order to ensure adequate model availability across all size ranges?

Stakeholder Comment: Some of the volume ranges are too wide and should be broken down further. For example, the 30 to 70 category should be further separated into 30 to 50 and 50 to 70 bins.

Stakeholder Comment: Proposed volume ranges could be:

- $0 < V < 15$
- $15 \leq V < 30$
- $30 \leq V < 50$
- $50 \leq V < 70$
- $70 \leq V$

Stakeholder Comment: A polynomial approach to creating requirements is not a good one because the relationship of volume to energy should be a straight line.

Stakeholder Comment: Small units will have a tough time meeting requirements. EPA should consider breaking up the smaller category further into two categories: <15 and $16 - 30 \text{ ft}^3$.

Question to Stakeholders: Should EPA consider a volume “floor” for small volume freezers, as proposed by Natural Resources Canada (NRCan) (i.e., 12 ft^3), below which the requirement is not based on product volume but is instead represented by a single energy consumption value?

Stakeholder Comment: A volume “floor,” which requires a single energy consumption requirement for all models below a certain volume, should be considered by EPA for small freezer units only, if the data supports it.

Stakeholder Comment: EPA should require consistent volume categories across both refrigerators and freezers.

The group generally supported the amended volume ranges and consideration of a “floor” for small volume freezers based on the data. However, at least one stakeholder thought that 12 cu. ft. is too high and this “floor” should be more like 7 or 8 cu. ft. EPA will closely examine the data to determine an appropriate “floor” volume.

3. Additional Sub-Categorization

Question to Stakeholders: Is there a need to further separate equipment based on functionality in order to give adequate choice for end users? For example:

- Hinged vs. sliding doors
- Horizontal vs. vertical units
- Automatic vs. manual defrost

EPA Comment: EPA considers the location of the doors, either on top of the unit or in front of the unit, as the determining factor of what is considered a vertical and horizontal unit.

Stakeholder Discussion: Stakeholders felt that horizontal, or chest, units and vertical refrigerator and freezer units need to have their own category. Chest freezers are inherently more efficient than vertical models because less cold air is lost when opening the door. In addition, hinged and sliding door units need to be separated because sliding doors inherently use more energy (e.g. 10-15% more than sliding doors). There was further discussion about whether products should be separated by defrost method. Some stakeholders thought it may not be necessary due to the fact that it may be difficult to define “automatic defrost” and there are very few freezers which actually use manual defrost. Other stakeholders disagreed with this point stating that some of their commercial back bar freezers do use manual defrost.

Some stakeholders noted that further sub-categorization by certain attributes, like defrost cycle, may make the specification too complicated. A suggestion was made to consider the common terminology used by all manufacturers in product catalogs that already separates equipment into sub-categories by end-use. Examples provided included: reach-in, undercounter, chest, back bar, and milk coolers. It was suggested that EPA should look at how manufacturers categorize their equipment in product catalogs and use these pre-existing categories as the basis for the sub-categorization. Then EPA could determine where the volume approach is needed to set performance requirements.

This approach was generally supported by stakeholders.

4. Quality Requirements

Question to Stakeholders: Should ENERGY STAR require that equipment meet other standards, such as NSF-7, UL 471, and NFPA 70, to ensure adequate safety and quality, and further delineate commercial food-grade units?

Stakeholder Discussion: Concerning NSF-7, stakeholders discussed the value of including it in the ENERGY STAR specification. Some stakeholders felt that including NSF-7 as a requirement would make the specification very clear about the type of products that could qualify. Other stakeholders felt that NSF-7 would add little benefit to the specification. Instead, EPA should consider including a qualifying statement that restricts eligible products to commercial food-grade equipment, thereby excluding laboratory-grade and residential equipment. One stakeholder brought up the fact that the NSF-7 requirements are further broken down into separate categories based on application (i.e., 7.1, 7.2, etc.). However, most of the stakeholder thought that referencing NSF-7 was enough, and it would be up to the customers to perform due diligence regarding application of the product they purchase.

Some stakeholders felt that it was good idea to include a requirement to meet UL 471 to further ensure that only commercial grade equipment can qualify under the specification. Many stakeholders suggested NFPA 70 was not appropriate to include in the specification. This standard describes where and how equipment is installed, which is generally out of manufacturer control.

Stakeholders generally supported the inclusion of a statement in the ENERGY STAR specification that the equipment should be able to meet NSF-7 and UL 471 in order to qualify.

5. Glass Door Units

Question to Stakeholders: Should there be a requirement stipulating a minimum % of door surface area and/or minimum number of sides that are glass in order to be considered a glass door unit?

Stakeholder Comment: If the majority of a door area is glass, the unit should be considered a glass door unit. If the majority of a door is solid area, the unit should be considered a solid door unit.

Stakeholder Comment: If the door has any glass on it, it should be considered a glass door.

Stakeholder Comment: There could be an adjusted requirement for equipment that is 50% glass and 50% solid door or EPA could based requirements on the proportion of door that is solid and glass.

Stakeholder Comment: EPA should skew the combo-glass products toward solid door technologies since they are more efficient. .

Generally, stakeholders supported the idea that if a majority (greater than 50%) of the door area is glass, the unit should be considered a glass door unit.

6. Other Types of Equipment

Question to Stakeholders: Are there specialty products with accessories, which do not affect the energy consumption of the unit and can be tested using ASHRAE 72, that should be allowed to qualify for ENERGY STAR?

Stakeholder Discussion: Aside from beer-dispensing units, there were no other specialty products noted by stakeholders that should be explicitly included in the specification. One stakeholder noted that beer-dispensing units may use galvanized interliners and therefore would not meet the NSF-7 standard. One manufacturer responded saying they only use stainless steel interliners which would meet NSF-7. Another manufacturer said they manufacture both beer-dispensing units using galvanized and stainless steel interliners. This is an issue that EPA will need to research further for the Draft 2.

7. Ice Cream Freezers

Question to Stakeholders: Is there an interest in continuing to cover ice cream freezers in the specification?

Stakeholder Comment: The ice cream freezer market is very limited. The largest application for this equipment type is in grocery stores. Most of the ice cream freezer units used in grocery stores are remote-condensing units which are not eligible for ENERGY STAR qualification.

Stakeholder Comment: Other units that contain ice cream would really fall under the general freezer category because they operate at 0 degrees F.

Stakeholders generally supported the idea that ice cream freezers be excluded from the new specification.

8. Repeated Values in Dataset

In response to a stakeholder comment on the Draft 1, EPA filtered the performance data by excluding models with the same base design (i.e., same volume and energy consumption) as a representative model, differing only in aesthetic properties. EPA showed stakeholders that by filtering the data the ENERGY STAR dataset for commercial refrigerators and freezers is reduced by over 50%.

Question to Stakeholders: Should identical models with different model numbers be considered as one data point?

Stakeholder Discussion: Stakeholders felt that filtering the data for the data analysis using the methodology EPA described was preferred. One stakeholder suggested filtering units by brand name as well. Stakeholders made it clear that while filtering the data for the analysis was preferred, EPA should continue to list all models on the ENERGY STAR qualified products list.

The discussion then turned to the method by which stakeholders should test and report product data to EPA for consideration in revising the specification. Some stakeholders stated that as long as the energy consumption for the units do not differ it is preferable, due to time and cost constraints, to test one representative model and report that representative data for similar products. This is an area EPA will need to further research. It is likely that EPA will continue to require manufacturers to submit individual product specification sheets for each model covered by the representative product submission.

9. Data Needs

EPA explained to stakeholders that there is a lack of available data for refrigerator-freezer units, large glass door refrigerators, and all sizes of glass door freezers. Because of this, EPA is unable to propose requirements for these units and, therefore, is considering excluding them from the revised specification.

Stakeholder Discussion: Stakeholders with product data on these types of equipment agreed to submit their data to EPA.

10. Test Data and Data Integrity

A concern was brought to EPA regarding the quality of data presented in the ENERGY STAR, CEE, and California Energy Commission datasets, which were used to derive the proposed new performance requirements. Some manufacturers are testing equipment with all accessories turned on while others are not, causing inconsistency within the ENERGY STAR data set.

Question to Stakeholders: What should EPA require in the specification to ensure consistent and accurate testing?

Stakeholder Comment: Manufacturers should test their products as self-contained, core-connected, and as intended for use.

Stakeholder Comment: Manufacturers should test their products to represent the worst case scenario.

Stakeholder Discussion: It was generally supported that equipment should be tested with all options turned "ON". One stakeholder noted that in order to register products for sale in Canada,

products must be tested with all optional accessories (i.e., lighting, perimeter heat) turned to the “ON” position. It was suggested by several stakeholders that EPA use this method and revisit the performance analysis using the NRCAN dataset.

EPA agreed to review and consider using the NRCAN dataset for the analysis in developing Draft 2. EPA also asked stakeholders to indicate which of their products listed in the ENERGY STAR database, and not listed with NRCAN, have been tested with all the options turned “ON”. In addition, stakeholders generally agreed to submit to EPA any product data which have been submitted to NRCAN but not yet publicly available due to a backlog.

Part III: Action Items and Timeline

Rachel Schmeltz reviewed the following action items resulting from the stakeholder discussion:

For EPA

- In Draft 2, **EPA** will propose the use of gross volume instead of trace lines to calculate internal volume in ANSI/AHAM HRF-1-2004.
- When setting requirements in Draft 2, **EPA** will consider having a “floor,” which requires a single energy consumption requirement for all models below a certain volume. This would apply for small volume units and would depend on the dataset of energy consumption values.
- When setting requirements in Draft 2, **EPA** will also consider amending the volume ranges according to the suggested ranges:
 - $0 < V < 15$;
 - $15 \leq V < 30$;
 - $30 \leq V < 50$;
 - $50 \leq V < 70$; and
 - $70 \leq V$.
- **EPA** will investigate how manufacturers categorize their equipment in product catalogs and consider using these pre-existing categories as the basis for further sub-categorization in the Draft 2 specification.
- **EPA** will draft a statement for the Draft 2 specification that equipment should be able to meet NSF-7 and UL 471 in order to qualify.
- **EPA** will draft a requirement for Draft 2 stipulating that if a majority (greater than 50%) of the door surface area is solid or glass, the unit would have to meet the requirements for a solid or glass door unit, respectively.
- **EPA** will investigate the use of galvanized interliners in beer-dispensing units in order to include beer-dispensing units in Draft 2.
- **EPA** will propose excluding ice cream freezers in Draft 2.
- In performing any data analysis for determining requirements in Draft 2, **EPA** will filter the data by excluding models with the same volume and energy consumption, differing only in aesthetic properties.
- **EPA** will distribute the stakeholder meeting presentation, meeting notes, and an amended timeline, with interim milestones, to all stakeholders.
- **EPA** will review the NRCAN dataset for the analysis in developing Draft 2.

For Manufacturers/Meeting Participants

- **Manufacturers** will submit to EPA any product data on refrigerator-freezer units, large glass door refrigerators, and all sizes of glass door freezers.
- **Manufacturers** will notify which of their products listed in the ENERGY STAR database, and not listed with NRCAN, have been tested with all the options turned “ON”.
- **Manufacturers** will also notify EPA of any product data which have been submitted to NRCAN but not yet available on the Web site.

Ms. Schmeltz concluded the meeting by presenting the timeline for the Version 2.0 specification adding that the specification must be finalized by April 1, 2009 in order for it to be effective on January 1, 2010, the date the Federal standards take effect. EPA agreed to set interim milestones based on the discussion from the meeting and distribute to stakeholders for review.

Meeting adjourned.