September 30, 2021
Ms. Tanja Crk
US Environmental Protection Agency
Ariel Rios Building 6202J
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. Crk:
The Consortium for Energy Efficiency (CEE) respectfully submits the following comments in response to the ENERGY STAR Version 5.0 Commercial Refrigerators and Freezers Draft 1 Specification, released by the Environmental Protection Agency (EPA) on August 11 ${ }^{\text {th }}$, 2021.

CEE is the binational organization of energy efficiency program administrators. Historically, the CEE Board of Directors determined to build a single brand for efficiency and elected to create standing for the ENERGY STAR ${ }^{\oplus}$ Program rather than advancing the name recognition of CEE or other endeavors that existed at that time. The ENERGY STAR Program adopted specifications supported by CEE and program administrators, providing the confidence that utility ratepayer programs needed to invest in incentives in association with ENERGY STAR. This was a conscious investment and contribution of equity and the sanctioned obligations of utility members that include responsibility for delivering safe, reliable, and affordable service. Today, the staff and membership of the Consortium continue to perform diligence relative to the ENERGY STAR brand promise and associated performance specifications, given the very serious obligations entrusted to US and Canadian utilities as well as others sanctioned with advancement of voluntary market transformation efforts.

CEE members are responsible for ratepayer-funded efficiency programs in 38 US states, the District of Columbia, and four Canadian provinces. In 2019, CEE members directed approximately $70 \%$ of the $\$ 9.3$ billion in energy efficiency and demand response program expenditures in the two countries. These comments are offered in support of the local activities CEE members carry out to actively leverage the ENERGY STAR brand. CEE
consensus comments are offered in the spirit of strengthening ENERGY STAR ${ }^{\circledR}$, so it may continue to serve as the national marketing platform for energy efficiency.

CEE highly values the role ENERGY STAR plays in differentiating energy efficient products and services that the CEE membership supports locally throughout the US and Canada. We appreciate the opportunity to provide these comments.

## CEE Supports the Draft 1 Criteria for Vertical Closed Solid Self-Contained Refrigerators and Freezers

EPA proposes to revise the criteria for vertical closed solid self-contained refrigerators (VSC.SC.M) and freezers (VSC.SC.L). These two categories represent the most widely used commercial refrigeration categories according to the United States Department of Energy (DOE), ${ }^{1}$ and therefore offer a substantial energy savings opportunity. In 2019, approximately 40 CEE members offered program support for equipment covered by the current ENERGY STAR Commercial Refrigerator and Freezer Version 4.0 specification. Most of these members used ENERGY STAR as a basis for qualifying equipment. According to the ENERGY STAR Unit Shipment and Market Penetration Report Calendar Year 2020 Summary, $48 \%$ of all units shipped were ENERGY STAR qualified. Given this high level of market penetration and the opportunity to increase the stringency of the specification performance criteria to recognize approximately the top $25 \%$ of the market and continue to deliver meaningful energy savings over conventional models, CEE supports the proposed ENERGY STAR Version 5.0 Draft 1 criteria for VSC.SC.M and VSC.SC.L equipment. We find that the criteria are consistent with ENERGY STAR brand tenants of identifying approximately the top $25 \%$ energy efficient performers in the market, supporting customer choice, and providing a reasonable payback to the consumer. EPA states in the Draft 1 Specification that

- The proposed Version 5.0 levels reflect the performance of the top $27 \%$ of VCS.SC.M and VCS.SC.L products. All volume bins for VCS.SC.M and VCS.SC.L criteria were revised accordingly to recognize approximately the top $25 \%$ of models within those volume bins. One discussion guide commenter indicated that under counter freezers (VCS.SC.L) may be approaching maximum efficiency levels already established in v4.0. Since most under-counter units fall under the smaller volume bins (<30 cu ft), which will be modestly revised for v5.0, there are likely to continue to be models eligible for

[^0]ENERGY STAR certification...These incremental changes incentivize greater energy efficiency while accommodating sufficient consumer choice.

According to the data pack, EPA estimates that the products meeting the VCS.SC.M and VCS.SC.L criteria would have paybacks of 4.4 years and 0.8 years, respectively. The data pack shows that $24.3 \%$ of VSC.SC.M models and $29.8 \%$ of VSC.SC.L models meet the Draft 1 criteria. Given this somewhat high pass rate for VCS.SC.L of nearly $30 \%$ CEE evaluated the opportunity to increase the stringency of the criteria for the VSC.SC.L category. CEE analysis confirmed EPA's assessment that the Draft 1 criteria balance increases in energy efficiency with customer choice and CEE supports the proposed criteria for these classes of equipment.

Compared to the current ENERGY STAR ${ }^{\oplus}$ Version 4 Specification, EPA has proposed very slight decreases in Maximum Daily Energy Consumption (MDEC) for VSC.SC.L in the refrigerated volume categories of less than 30 cubic feet, as shown in Table 1. For volumes less than 15 cubic feet, the criteria reduce allowable MDEC by $0.29 \%$ to $1.19 \%$ compared to Version 4. For volumes from 15 cubic feet to less than 30 cubic feet, the criteria reduce MDEC by $1.2 \%$ to $1.68 \%$. Given the slight decreases in MDEC for VSC.SC.L in the refrigerated volume categories of less than 30 cubic feet, CEE evaluated the opportunity to increase the stringency of the criteria for this category.

Table 2 summarizes the availability of VSC.SC.L models that meet Draft 1 criteria. The pass rates for volumes less than 15 cubic feet and 15 cubic feet or greater to less than 30 cubic feet are $24.7 \%$ and $28.7 \%$ respectively. Given that the pass rate for the 15 cubic feet or greater to less than 30 cubic feet category is slightly above the $25 \%$ target, CEE analyzed the opportunity to increase the stringency of the criteria for this size range. CEE found that increasing the stringency of the Draft 1 criteria by $2 \%$ would reduce the number of qualifying models by seven, the pass rate to $23 \%$ and the number of brands with qualifying products by two to 15 . We do not think a $2 \%$ increase in efficiency is worth the reduction in customer choice and support the Draft 1 criteria.

## Table 1. Comparison of Criteria for VSC.SC.L

| Refrigerated Volume (ft ${ }^{3}$ ) | Version 4 |  | Version 5 Draft 1 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Criteria | MDEC Range (kWh/day) | Criteria | MDEC <br> Range <br> (kWh/day) | Savings vs. <br> Version 4 |
| $\mathrm{O}<\mathrm{V}<15$ | $0.21 \mathrm{~V}+0.9$ | 1.110 to 4.048 | $0.2068 \mathrm{~V}+0.9$ | 1.107 to 4.0 | $\begin{aligned} & \hline 0.27 \% \text { to } \\ & 1.19 \% \\ & \hline \end{aligned}$ |
| $15 \leq \mathrm{V}<30$ | $0.12 \mathrm{~V}+2.248$ | 4.048 to 5.847 | $0.1167 \mathrm{~V}+2.2488$ | 4.0 to 5.749 | $\begin{aligned} & \text { 1.2\% to } \\ & 1.68 \% \end{aligned}$ |
| $30 \leq \mathrm{V}<50$ | 0.285V-2.703 | 5.847 to 11.544 | 0.1526V + 1.1727 | 5.749 to 8.801 | $\begin{aligned} & 1.68 \% \text { to } \\ & 23.76 \% \end{aligned}$ |
| $50 \leq \mathrm{V}$ | $0.142 \mathrm{~V}+4.445$ | 11.545 to 37.105 | $0.028 \mathrm{~V}+7.4$ | 8.8 to 13.84 | $\begin{aligned} & 23.78 \% \\ & 62.7 \%^{*} \end{aligned}$ |

*The largest VSC.SC.L model in the dataset has a refrigerated volume of $230.29 \mathrm{ft}^{3}$, so that was used as the upper end for MDEC.

Table 2. Draft 1 VSC.SC.L Product Availability

| Refrigerated <br> Volume $\left(\mathrm{ft}^{3}\right)$ | Models (Brands) in <br> Dataset | Models passing <br> (Brands) | \% Passing |
| :--- | :--- | :--- | :--- |
| $\mathrm{O}<\mathrm{V}<15$ | $101(26)$ | $25(12)$ | $24.7 \%$ |
| $15 \leq \mathrm{V}<30$ | $135(34)$ | $38(17)$ | $28.1 \%$ |
| $30 \leq \mathrm{V}<50$ | $94(29)$ | $26(13)$ | $27.6 \%$ |
| $50 \leq \mathrm{V}$ | $99(20)$ | $39(4)$ | $39 \%$ |

CEE also analyzed the opportunity to increase the stringency in the 50 cubic feet and greater category given that 39 of the 99 models, or $39 \%$ of models meet the Draft 1 criteria. While this is significantly higher than the target 25\%, a review of the scatterplot shows that increasing the stringency of the criteria would eliminate products with refrigerated volumes greater than 150 cubic feet and thereby reduce customer choice. Analysis of the data for VSC.SC.L finds that the Draft 1 criteria balance increases in energy efficiency with customer choice. CEE supports the proposed criteria for the VSC.SC.M and VSC.SC.L equipment classes.

## CEE Supports the Proposed Expansion of the Scope to the Identified Categories

With the ENERGY STAR ${ }^{\oplus}$ Version 5 Commercial Refrigerators and Freezers Draft 1 Specification, EPA proposes to expand the scope to include service-over-counter, selfcontained refrigerators (SOC.SC.M), and self-contained chef base refrigerators (CB.SC.M) and freezers (CB.SC.L). Given that these types of refrigeration equipment are commonly used in food sales and food service establishments, the potential to define efficiency criteria that would provide cost effective energy savings, and, in the case of chef bases, the opportunity to support and build on existing efficiency program offerings, CEE supports incorporation of these classes of equipment in the scope of the specification. There are utility programs in California ${ }^{2}$ and Massachusetts ${ }^{3}$ that provide incentivizes based on deemed energy savings for chef bases. ENERGY STAR certification will streamline consumer selection of efficient models. CEE supports the addition of these classes of equipment to the scope of the specification. Further, CEE agrees with EPA "that the current DOE testing standard 10 CFR Part 431, Subpart C, Appendix B, 276 based on ANSI/ASHRAE Standard 72-2005, Method of Testing Commercial Refrigerators and

[^1]Freezers, is appropriate for both chef bases and service over counter units." CEE comments on individual equipment classes are provided below.

## We Request EPA Consider the Opportunity to Increase Energy Savings for SOC.SC.M Less Than 40 Square Feet TDA

EPA proposes three size categories for SOC.SC.M, stating that this approach allowed greater consumer availability. Review of the data for SOC.SC.M shows that 178 of the 592 models, or $30 \%$ meet the draft 1 criteria. The data suggests that there is an opportunity to significantly increase the stringency of the criteria for units with a total display area (TDA) of 20 square feet or greater to less than 40 square feet while still exceeding a $25 \%$ pass rate and we request that EPA reevaluate the proposed criteria to emphasize efficiency for products with a TDA under 40 square feet. A closer look at SOC.SC.M product availability is provided in Table 3 below.

## Table 3. Draft 1 SOC.SC.M Product Availability

| Total Display Area <br> $\left(\mathrm{ft}^{2}\right)$ | Models in Dataset <br> $($ (Brands $)$ | Models passing <br> $($ Brands $)$ | \% Passing |
| :--- | :--- | :--- | :--- |
| $0<$ TDA <20 | $266(24)$ | $62(12)$ | $23 \%$ |
| $20 \leq$ TDA <40 | $295(24)$ | $108(18)$ | $36.6 \%$ |
| $40 \leq$ TDA | $30(5)$ | $8(2)$ | $26.7 \%$ |

Given the somewhat high pass rate of $36.6 \%$ for the middle size category, CEE analyzed increasing the stringency of the Draft 1 criteria for the TDA of 20 square feet or greater to less than 40 square feet category. The analysis revealed that the efficiency criteria would need to be increased to $20 \%$ more stringent than those proposed in Draft 1 before the pass rate falls below $25 \%$. Increasing the stringency by $19 \%$ would result in 80 models from 14 brands qualifying, which represents a $27 \%$ pass rate.

The Draft 1 criteria for the TDA of 20 square feet or greater to less than 40 square feet category is being constrained by the proposal for the TDA of 40 square feet or greater category. The proposed criteria for the TDA of 40 square feet or greater category aim to identify approximately the top $25 \%$ of efficient models and provide seamless transition from the middle size category. Given that the TDA of 40 square feet or greater category contains far fewer models than the two smaller TDA categories, and the opportunity to significantly increase the stringency of the criteria for the TDA of 20 square feet or greater to less than 40 square feet bin while still exceeding a $25 \%$ pass rate, we request that EPA reevaluate the proposed criteria to emphasize efficiency for products with a TDA less than 40 square feet.

## EPA Would be Well Served to Clearly Define Usable Refrigerated Volume for the Purpose of Testing and Qualifying Chef Bases

EPA proposes to include CB.SC.M and freezers CB.SC.L in the specification. The Draft 1 Specification lists criteria for both categories based on refrigerated volume. CEE requests clarity on the definition of chef base refrigerated volume for the purpose of testing and qualifying chef bases for ENERGY STAR ${ }^{\oplus}$. Chef bases essentially have a large, refrigerated volume that is broken up into useable compartment spaces based on drawer locations. There is refrigerated space in between the drawers or to the side of them that cannot be used to store product. The definition of volume is important because chef base energy use is evaluated relative to volume. There are definitions for volume within ASHRAE 72, but they do not relate well to the drawer configuration of chef bases. We recommend EPA define a metric based on useable volume, since that is the metric of value to the end user and efficient use of refrigerated space should be rewarded.

CEE would once again like to thank the EPA for the opportunity to comment on the ENERGY STAR Version 5.0 Commercial Refrigerators and Freezers Draft 1 Specification. Please contact CEE Senior Program Manager Bjorn Jensen at 617-337-9280 with any questions about these comments.

Sincerely,


Ed Wisniewski
Executive Director


[^0]:    ${ }^{1}$ U.S. Department of Energy. (2014). Technical Supporting Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment - Commercial Refrigeration Equipment. Washington, D.C Table 9.6 "Projected Shipments for Commercial Refrigeration Equipment, 2017-2046

[^1]:    ${ }^{2}$ https://www.caetrm.com/measure/SWFSO16/01/; measure for Chef Bases. Note: free account required for access.
    ${ }^{3}$ https://www.masssave.com/en/saving/business-rebates/food-service-equipment/instant-rebates/

