February 23, 2021

Ms. Tanja Crk
U.S. Environmental Protection Agency
Climate Protection Partnership Division
1200 Pennsylvania Avenue NW
Washington, DC 20460

Topic: ENERGY STAR® Version 5.0 Commercial Refrigerators and Freezers Discussion Guide

Dear Ms. Crk:

This letter comprises the comments of the Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) in response to the United States (U.S.) Environmental Protection Agency (EPA) ENERGY STAR® Version 5.0 Commercial Refrigerators and Freezers Discussion Guide.

The signatories of this letter, collectively referred to herein as the California Investor-Owned Utilities (CA IOUs), represent some of the largest utility companies in the Western U.S., serving over 32 million customers. As energy companies, we understand the potential of appliance efficiency standards to cut costs and reduce consumption while maintaining or increasing consumer utility of products. We have a responsibility to our customers to advocate for standards that accurately reflect the climate and conditions of our respective service areas, so as to maximize these positive effects.

We appreciate this opportunity to provide the following comments about this Discussion Guide. We commend EPA for revisiting the voluntary requirements for Commercial Refrigerators and Freezers, which were last updated in the Version 4.0 Specification, finalized in September of 2016. We appreciate EPA's efforts investigating the additional scope for Version 5.0 and offer the following comments in support of EPA's development of their draft specification:

1. **CA IOUs support EPA's efforts to incorporate Chef Bases and Griddle Stands, Refrigerated Prep Tables, and Blast Chillers and Freezers into ENERGY STAR scope.**

   ***Chef Bases and Griddle Stands***

   We are highly supportive of the addition of chef bases and griddle stands (referred to here as just "chef bases") to ENERGY STAR's commercial food service equipment certification program. We note that existing utility programs[1, 2] already incentivize and calculate deemed energy savings for chef bases and would greatly benefit from an ENERGY STAR label and Qualified Products List (QPL). Furthermore, we present studies that strongly suggest that the industry test method, American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

[1] https://www.caetrm.com/measure/SWFS016/01/; measure for Chef Bases. Note: free account required for access.
[2] https://www.masssave.com/en/saving/business-rebates/food-service-equipment/instant-rebates/.

Standard 72-2014, "Method of Testing Open and Closed Commercial Refrigerators and Freezers" can be used without modification to accurately evaluate the energy use of chef bases. Additionally, we share evidence indicating that there is a significant variation amongst chef bases in daily energy consumption (DEC) normalized by refrigerated volume DEC variation. An ENERGY STAR certification will make it easier for consumers to make informed purchase decisions that best address their priorities.

In the most recent revision of the Department of Energy (DOE) Energy Conservation Standards for Commercial Refrigeration Equipment, DOE exempted chef bases due to the *seemingly apparent* demanding use case of these systems compared to other commercial refrigeration equipment (i.e., providing food-safe temperatures in extremely warm environments in excess of 200°F). DOE noted that chef bases are "designed with uniquely robust refrigeration systems."[3] We cite two technical reviews[4, 5] of chef bases that evaluated the impact of unit heat loads typically found near chef bases, including a griddle at 350°F and a broiler at 600°F.[6] In both papers, the authors indicated that the heating load above the chef base unit had a negligible impact on the DEC metric.[7] The SCE workpaper, Chef Bases for Foodservice Applications, used ASHRAE Standard 72 – 2014 without modification to evaluate the energy use of this equipment.[8] We note that ASHRAE Standard 72 – 2005 is incorporated by reference in the DOE Uniform Method for Commercial Refrigeration Equipment.[9] While we understand that the door opening schedules within ASHRAE 72 (six-door openings per hour) may not be fully reflective of field use during a busy lunch or dinner service, we nonetheless recommend that EPA propose Maximum Daily Energy Consumption (MDEC) ENERGY STAR requirements for chef bases, using the standard industry test method ASHRAE Standard 72-2005, without modification, as the test procedure.

In addition to demonstrating the utility of an existing test procedure for evaluating the energy use of chef bases, the aforementioned SCE workpaper also commented that there was significant variation in DEC values when normalized by refrigerated volume for the six chef base models tested. Note that this equipment was from six different manufacturers and used similar R-404A/R-134A refrigerants.[10] Additional energy savings are anticipated from chef bases using hydrocarbon refrigerants (e.g., R-290). We have compiled examples of R-290 product performance data in Appendix A.[11] The California Energy Commission (Energy Commission) Modernized Appliance Efficiency Database System (MAEDbS) also documents energy usage for worktop refrigerators and freezers.[12] We note that worktop refrigerators and freezers may have a similar drawer configuration as chef bases; however, chef bases must be able to support the weight and heat of typical restaurant cooking equipment (e.g., griddles and broilers), which is

[3] See for example, EERE-2013-BT-TP-0025, Commercial Refrigeration Equipment Test Procedure Final Rule p. 18.
[4] https://www.caetrm.com/media/reference-documents/ET15SCE1010_Chef_Bases_Report_final2.pdf.
[5] FSTC lab testing and analysis for R404 unit: https://www.caetrm.com/media/reference-documents/Turbocoil_RB-72_60_R404_Chef_Base.pdf; and R290 unit: https://www.caetrm.com/media/reference-documents/Turbocoil_RB-72-60_R290_Chef_Base.pdf.
[6] https://www.caetrm.com/media/reference-documents/Turbocoil_RB-72_60_R404_Chef_Base.pdf, p. 5, Holding Energy Rate.
[7] https://www.caetrm.com/media/reference-documents/ET15SCE1010_Chef_Bases_Report_final2.pdf, p. 8, Test Methodology.
[8] https://www.caetrm.com/media/reference-documents/ET15SCE1010_Chef_Bases_Report_final2.pdf, p. 8, Test Methodology.
[9] 10 CFR § 431.63 (d)(1).
[10] https://www.caetrm.com/media/reference-documents/ET15SCE1010_Chef_Bases_Report_final2.pdf, p. 10, Figure 2.
[11] Note: Hoshizaki performance listed at the National Sanitation Foundation (NSF) 7 open food safety test temperature, 100°F, which is higher than ASHRAE Standard 72-2005 testing at 75°F.
[12] https://cacertappliances.energy.ca.gov/Pages/Search/AdvancedSearch.aspx, Category: Refrigeration Products, Appliance: Commercial Refrigerators, Refrigerator Type: Medium Temperature, Commercial Refrigerator Style: Work-Top Table.

typically above 700 pounds (lbs) and 350 to 600°F, which requires additional reinforcement and heat shielding of chef bases compared to worktop refrigerators and freezers.[13]

Product design specifics aside, we note strong similarities in the DEC of chef bases and worktop refrigerators which form a useful baseline understanding of the market, see Figure 1. Based on the combined data set shown in the preliminary analysis below, we believe that currently-certified commercial refrigeration equipment with similar form factors to chef bases[14] may be an appropriate starting point for developing a proposed Draft 1 DEC requirement for chef bases.

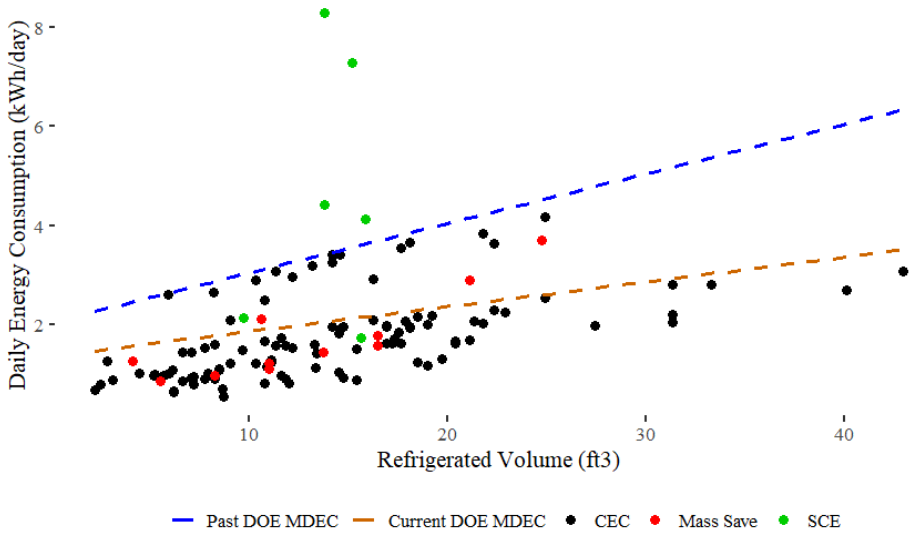


**Figure 1: DEC and refrigerated volume of chef base and work-top refrigerator data sources.**
Source: CA IOU analysis, 2021, of SCE workpaper dataset 2016,[15] Energy Commission MAEDbS dataset 2021.
Note: Energy Commission MAEDbS accessed Jan 2021. Current DOE MDEC for VCS.SC.M, past DOE MDEC for solid door refrigerators.

We anticipate that ENERGY STAR MDEC requirements for chef bases would be a function of refrigerated volume similar to past DOE requirements[16] for solid door refrigerators and existing DOE MDEC requirements for Vertical Closed Solid, Self-Contained, Medium Temperature Refrigerators (VCS.SC.M).[17] We note that the data set of known chef bases (i.e., SCE [green points], Mass Save [red points]) in Figure 1 have units from the full refrigerated volume range (i.e., <5 $ft^3$ to 25 $ft^3$) meeting the 2010 DOE standards, and units below 20 $ft^3$ meeting the 2017 current DOE MDEC requirement. We encourage EPA to request additional DEC and refrigerated volume data from manufacturers of chef bases to further refine the DEC distribution across this product type, confirming whether the DOE MDEC for VCS.SC.M is an appropriate energy performance requirement for efficient chef bases.

[13] Typical cooking equipment weight load: https://www.webstaurantstore.com/guide/672/undercounter-refrigeration-buying-guide.html, Weight Limits. For typical cooking equipment temperatures, see https://www.caetrm.com/media/reference-documents/Turbocoil_RB-72_60_R404_Chef_Base.pdf, p. 5, Holding Energy Rate.
[14] Note: flat front pull-out drawers would be considered a vertical self-contained refrigerator by DOE classification.
[15] https://www.caetrm.com/media/reference-documents/ET15SCE1010_Chef_Bases_Report_final2.pdf, 2016, p. 9, Table 2.
[16] MDEC = 0.10 x Volume + 2.04. 10 CFR § 431.66(b)(1). In force from January 1, 2010, to March 26, 2017.
[17] MDEC = 0.05 x Volume + 1.36. 10 CFR § 431.66(e)(1). In force from March 27, 2017.

***Refrigerated Prep Tables***

We applaud EPA for considering the addition of refrigerated prep tables to the ENERGY STAR's commercial food service equipment certification program. We share some suggestions for potential product classes and recommend working with the American Society for Testing and Materials (ASTM) F26 committee to modify the ASTM F2143-2016, "Standard Test Method for Performance of Refrigerated Buffet and Preparation Tables" to support the data requirements of the ENERGY STAR program.

We agree with manufacturer assessments shared in the ENERGY STAR commercial refrigeration webinar on February 9, 2021, which noted that refrigerated prep tables are a complex product requiring analysis of multiple configurations. In our preliminary analysis, potential product classes based on prescriptive features could be:

a. Refrigerated compartment or no refrigerated compartment,
b. Cooling type:[18] single cavity, cold wall, forced air, liquid cooling (glycol or eutectic fluid), and
c. Raised rail or no raised rail.

We anticipate that the quantitative data needed to analyze these products would be:

- Refrigerated compartment area in cubic feet ($ft^3$),
- Pan surface area in square feet ($ft^2$) (or pan count and nominal size),
- Maximum pan depth in inches (for distinguishing glycol deep well products), and
- Number of rails (for dual rail systems).

A PG&E emerging technology workpaper demonstrates performance differences between refrigerated prep table technology types, such as air-cooled versus glycol units, which indicated approximately a 100 watts energy demand improvement for glycol products[19] and approximately 15 percent in energy savings over baseline (non-glycol) products.[20]

We note that current datasets, such as the Energy Commission MAEDbS, have limited to no availability to search for most of these fields. DEC results for eight units from eight manufacturers tested to ASTM F2143-2016 are available via a SCE workpaper.[21] We encourage EPA to work with manufacturers to determine the most commonly sold refrigerated prep table configurations and exclude rare configurations from the scope, to limit the complexity of the potential requirements.

We confirm the stakeholder concerns raised on the major update to the test procedure between ASTM F2143-2001 and F2143-2016 and agree that the number of pans filled is significantly different. According to Section 10.4.3.7 of ASTM F2143-2016, all test pans are filled with water. Whereas in ASTM F2143-2001, Section 10.2.3.4, the test lab is instructed to pour the solution only into instrumented pans which, as specified in Section 10.2.1, are corner pans and a pan in the center of the unit (rail). We share the concern that comparing results between the two standards

[18] https://www.fermag.com/articles/9532-the-ultimate-guide-to-buying-a-pizza-prep-table/, Section: Different Ways to Chill, M. Sherer, 2019.
[19] https://www.etcc-ca.com/reports/refrigerated-prep-tables?dl=1613540681, p. 17, Table 2.
[20] Ibid, p. 73.
[21] https://www.etcc-ca.com/reports/refrigerated-prep-tables-foodservice-applications?dl=1613540666, DEC results p. 12, Table 3.

will be extremely challenging and may require retesting units to the new 2016 version. We expect that the pan filling requirements in the ASTM F2143-2016 test method will result in more field representative results than the past test procedure (2001).

We recommend EPA conduct additional manufacturer outreach regarding the frequency of use of either of the versions of ASTM F2143 (i.e., 2001, 2016) and encourage EPA to use the ASTM F2143 test procedure in the specification if there is evidence showing that it is currently used in practice.[22] Note that the Energy Commission MAEDbS data for refrigerated prep tables is based on ASTM F2143-2001.[23] Some stakeholders recommended modifying the National Sanitation Foundation (NSF) 7, "Commercial Refrigerators and Freezers" standard to collect energy data; however, NSF standards are typically evaluated at a high temperature to ensure food safety under extreme conditions. We consider this a valid and useful approach to safety testing, yet we anticipate that energy consumption estimates from this standard will not be field representative (i.e., measured energy use is likely to be much higher than typical of field conditions). To collect field representative measurements in this standard, the NSF working group would need to incorporate substantial changes to the standard, including testing at an additional temperature and incorporating energy consumption measurements. This degree of modification of the test procedure may be impractical, and stakeholder efforts may be better served working with the ASTM F26 committee to modify the ASTM F2143-2016 Standard to address stakeholder concerns and supply the data needs of the ENERGY STAR program.

On other refrigerated prep table topics (Discussion Guide Question 14e), the PG&E workpaper noted that only one of three sites used the integrated refrigerated prep table cover during slow periods within business operating hours.[24] ASTM F2143-2016 use of the integrated cover when available may not be representative of field conditions. We encourage DOE and/or EPA to investigate field use of integrated refrigerated prep table covers in order to ensure that the adopted test procedure is as representative of average use as possible.

***Blast Chillers and Freezers***

We welcome EPA's consideration of blast chillers and freezers for inclusion in the ENERGY STAR's commercial food service equipment certification program and recognize potential difficulties to adding these products in the short term. We recommend that DOE and/or EPA investigate typical operational hours for blast chillers and freezers. We also recommend engagement with manufacturers, food service operators, and the ASHRAE Standard 220 Committee to ensure that the final test procedure and energy usage metric meets the needs of the ENERGY STAR certification program.

Our investigations suggest that there is limited energy usage data currently available for blast chillers and freezers. Both ASHRAE Standard 220, "Method of Testing for Rating Small Commercial Blast Chillers, Chiller-Freezers, and Freezers" and International Organization for Standardization Final Draft International Standard (ISO/FDIS) 22042, "Blast chillers and freezers cabinets for professional use — Classification, requirements and test conditions" are in draft stages, with final versions anticipated in 2021. In Table 1, we compare major features of the two recent draft versions of ASHRAE Standard 220 and ISO/FDIS 22042.

[22] Manufacturers on the ENERGY STAR Commercial Refrigeration Equipment Webinar on February 9, 2021, noted that this ASTM F2143 test procedure was not used outside of Energy Commission Title 20 testing requirements.
[23] 20 CCR 1604(a), Table A-1.
[24] https://www.etcc-ca.com/reports/refrigerated-prep-tables?dl=1613540681, p. 71, Site Operating Practices.

**Table 1: Comparison of ASHRAE 220 Draft with ISO/FDIS 22042 Draft**

| | ASHRAE Std 220 | ISO/FDIS 22042 |
|---|---|---|
| Draft Date | Jan 6, 2021 | June 1, 2020 |
| Starting Food Temperature | 71.1°C (160°F) | 65°C (149°F) |
| Blast Chiller Temp | 4.4°C (40°F) | 10°C (50°F) |
| Blast Freezer Temp | undecided | -18°C (-0.4°F) |
| Ambient Temp | 30°C (86°F) | 25°C, 30°C, 40°C (as designed) |
| Reporting Metric | kWh/lb | kWh/kg |

Source: ASHRAE Standard Project Committee 220[25] & ISO/FDIS 22042.[26]

We agree with EPA's emphasis on blast chillers and freezers, because they have very high energy use relative to their square footage footprint in a commercial kitchen. Based on conversations with test engineers at SCE's Foodservice Technology Center, our understanding is that production kitchens where this equipment is used are often designed to maximize the throughput of food products through blast chillers and freezers; and therefore we expect that the hours of blast chiller/freezer operation will be closely in line with the hours of operation of the production kitchen. For some kitchens, it is common for the last batch of the night to be put into the blast chiller/freezer before closing down operations to cool and hold overnight. However, other kitchens may shutdown and not use the chiller after hours. We recommend that DOE and/or EPA investigate the frequency of these two use cases.

The blast chillers we've analyzed are equipped with single-speed compressors operated that the setpoints and loading conditions appear to only affect the runtime of the compressor. Based on the engineering dynamics of these products, we expect larger units to be more efficient than smaller units. Therefore, suggest that EPA consider investigating an energy efficiency metric that varies based on capacity, rather than establishing multiple separate product classes based on refrigerated volume and temperature functionality. We recommend EPA reach out to manufacturers and food service operators to determine if there are any special considerations that would otherwise prevent a single equipment class for blast chillers and a single equipment class for blast freezers. We also recommend that the DOE and/or EPA engage with the ASHRAE Standard 220 Committee to ensure that the final test procedure meets the needs of the ENERGY STAR certification program.

2. **CA IOUs support EPA's efforts to expand the Version 5.0 Specification to other federally-covered equipment classes including vertical closed transparent (VCT) remote condensing (RC) refrigerators (VCT.RC.M) and freezers (VCT.RC.L), as well as service over counter (SOC) RC and self-contained (SC) refrigerators (SOC.RC.M and SOC.SC.M).**

We strongly support EPA in including vertical closed transparent and service over counter proposed equipment classes (i.e., VCT.RC.M, VCT.RC.L, SOC.RC.M, and SOC.SC.M) in ENERGY STAR's commercial food service equipment certification program, since the proposed equipment classes have existing DOE MDEC standards.[27]

We also recommend that EPA cover both types of RC configurations – those connected to dedicated condensers and those connected to multi-compressor rack systems – for VCT and SOC equipment classes. The DOE test procedure (based on Air-Conditioning, Heating, and

[25] Available upon request from chairperson of ASHRAE SPC 220 (Oliver.Ta@sce.com).
[26] https://standards.iteh.ai/catalog/standards/sist/f0f58bd4-a3bb-4e26-8143-cd65ed273739/ksist-fpren-iso-22042-2021#.
[27] 10 CFR § 431.66(b)(2) and (d)(1).

Refrigeration Institute [AHRI] Standard 1200- 2010 "Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets") for determining DEC, measures the electrical usage and the thermal performance of the case, based on a calculated energy use for the remote condensing system with efficiencies defined in Table 1 of AHRI 1200-2010 based on adjusted dew point. Since EPA will rely on the same test procedure, we find no compelling reason to exclude multi-compressor rack systems from the scope. Case efficiency increases due to the use of higher efficiency evaporator fan motors (such as permanent magnet synchronous motors), improved defrost cycle control, and improved anti-sweat heater controllers and/or other design features, which will be captured regardless of the condenser configuration. Inclusion of cases connected to multi-compressor rack systems into an ENERGY STAR QPL will likely encourage high-efficiency designs for these RC products that may not be realized otherwise.

EPA asked whether certain model characteristics or specifications differentiate between models intended to be connected to dedicated condensers and those intended to be connected to multi-compressor rack systems. Our findings indicate that refrigerated cases manufactured to be connected to a RC unit (as opposed to self-contained models) can be connected to either a dedicated condenser or to a multi-compressor rack system. The choice of RC system installed in an end application (i.e., to a dedicated condenser vs. to a multi-compressor rack system) is driven by factors such as facility size. Based on initial interviews with industry experts, we found that, in the grocery sector, the majority of grocery stores use multi-compressor rack systems for VCT.RC refrigerators and freezers. On the other hand, in the quick service, mini-market, and gas station sectors, most VCT.RC refrigerators and freezers are connected to dedicated condensers. For SOC refrigerators, our preliminary interviews with industry experts indicate that the majority of SOC refrigerators are either self-contained or connected to a dedicated RC unit.

In summary, we strongly support EPA in including vertical closed transparent and service over counter proposed equipment classes (i.e., VCT.RC.M, VCT.RC.L, SOC.RC.M, and SOC.SC.M) in ENERGY STAR's commercial food service equipment certification program since the proposed equipment classes have existing DOE MDEC standards. Furthermore, we recommend that EPA cover both types of RC configurations – those connected to dedicated condensers and those connected to multi-compressor rack systems – for VCT and SOC equipment classes.

**3. We are supportive of EPA's efforts to improve educational resources related to open cases and encourage EPA to emphasize retrofitting or replacing open cases with units with doors.**

We appreciate EPA's interest in promoting methods and technologies, such as night curtains and air curtains, that have the potential to improve the energy usage performance of open display case refrigerators by decreasing air infiltration. However, based on conversations with engineers involved with energy retrofits of grocery stores, the long-term effectiveness of nights curtains is highly dependent on staff usage and energy savings may not last more than a few months for sites with the high staff turnover found in most grocery store environments. We note that the most effective and persistent way to reduce air infiltration is to retrofit or replace open cases with doored units, with a recalibration of refrigeration systems based on reduced load. This approach was mentioned by a manufacturer in the ENERGY STAR commercial refrigeration webinar on February 2, 2021, and has been confirmed through multiple studies and advised through design guides.[28, 29] We understand that previous concerns about decreased sales may persist in many

[28] ASHRAE. 2015. Advanced Energy Design Guide for Grocery Stores – Achieving 50% Energy Savings Toward a Net Zero Energy Building (https://www.ashrae.org/technical-resources/aedgs/50-percent-aedg-free-download).
[29] National Renewable Energy Laboratory (NREL). 2008. Technical Support Document: Development of the Advanced Energy Design Guide for Grocery Stores-50% Energy Savings. NREL/TP-550-42829.

parts of the market but believe the concerns may have changed or lessened as many large national chain grocers have begun implementing large-scale door retrofits across their portfolio of stores, leveraging the reduced infiltration load on the refrigeration system to drive system-wide setpoint adjustments and reconfiguration of the racked systems to obtain large-scale energy savings.

We suggest EPA highlight educational materials that focus on educating retail grocers on the benefits of doored cases to guide the market toward this proven strategy. Finally, as highlighted in the DOE's 2012 "Guide for the Retrofitting of Open Refrigerated Display Cases with Doors" retrofit guide, retailers indicated "concerns regarding the uniformity and quality of outcomes of case retrofit projects,"[30] as these retrofits can be a complex multi-step process involving adjustments to the case temperature setpoint, luminaire, and evaporator airflow. We encourage EPA to work with manufacturers, retailers, and program administrators to investigate potential ways to reduce retrofit barriers, such as development of a retrofit kit QPL and/or deployment of a qualified installer programs to ensure implementers receive the full energy benefits from retrofit efforts.

4. **We encourage EPA to take into account the impact on the ENERGY STAR program for commercial food service equipment of evolving regulations related to refrigerant use.**

We note that the U.S Congress finalized the ATF Improvement and Modernization (AIM) Act of 2020 on December 27, 2020,[31] which authorizes EPA to phase down production and consumption of hydrofluorocarbon (HFC) refrigerants, to restrict HFC uses on a sector-specific basis, and to adopt refrigerant management standards. EPA is expected to finalize a rule for HFC refrigerant phase down in 2021. We also note that California's Air Resources Board already prohibits the use of many HFCs, such as R-404A, in retail food refrigeration equipment, including supermarket systems, remote condensing units, stand-alone medium- and low- temperature units, and refrigerated food processing and dispensing equipment.[32] We anticipate that the evolving regulatory landscape may limit where ENERGY STAR-rated products containing higher global warming potential refrigerants can be sold. We encourage EPA to be aware of these efforts, as they may have significant impacts to stakeholders.

[30] https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/cbea_open_case_retrofit_guide.pdf, Page 10.
[31] https://www.congress.gov/bill/116th-congress/senate-bill/4841/text.
[32] https://govt.westlaw.com/calregs/Document/IECACCA620B4E45EEBF4F25A9FD9FB522.

In conclusion, we would like to reiterate our support for EPA's ENERGY STAR Version 5.0 Commercial Refrigerators and Freezers Discussion Guide. We thank EPA for the opportunity to be involved in this process.

Sincerely,

Patrick Eilert
Manager, Codes & Standards
Pacific Gas and Electric Company

Karen Klepack
Senior Manager, Building Electrification and Codes & Standards
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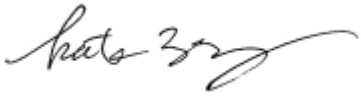

Kate Zeng
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## Appendix A: Chef Base Data

### Table A1: Chef Base Data Referenced in the Mass Save Chef Base Qualified Products List

| Manufacturer | Model Number | Volume ($ft^3$) | Hotel Pan Count | Hotel Pan Depth (inch) | Volume Per Pan ($ft^3$) | Estimated Refrigerated Volume | Exterior Length (inch) | Max Daily Energy Consumption (kWh/day) | Refrigerant | Cut Sheet Link |
|---|---|---|---|---|---|---|---|---|---|---|
| Hoshizaki | CR98A | 24.75 | 12 | 6 | 2.0625 | 24.75 | 98 | 3.69 | R-290 | https://assets.katomcdn.com/raw/upload/v1609219037/products/440/440-CR98A/440-CR98A.pdf |
| Hoshizaki | CR85A | 21.1 | 10 | 6 | 2.11 | 21.1 | 85 | 2.9 | R-290 | http://www.hoshizaki.com/docs/color-specs/CR85A.pdf |
| Hoshizaki | CR110A | 24.75 | 12 | 6 | 2.0625 | 24.75 | 110.5 | 3.69 | R-290 | http://www.hoshizaki.com/docs/color-specs/CR110A.pdf |
| Hoshizaki | CR60A | 10.6 | 5 | 6 | 2.12 | 10.6 | 60.5 | 2.1 | R-290 | http://www.hoshizaki.com/docs/color-specs/CR60A.pdf |
| Delfield | F2936CP | 2.22 | 3 | 4 | 1.375 | 4.125 | 36.25 | 1.258 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2952CP | 2.22 | 4 | 4 | 1.375 | 5.5 | 52.25 | 0.854 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2956CP | 2.22 | 4 | 4 | 1.375 | 5.5 | 56.25 | 0.854 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2960CP | 3.33 | 6 | 4 | 1.375 | 8.25 | 60.25 | 0.975 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2962CP | 3.33 | 6 | 4 | 1.375 | 8.25 | 62.25 | 0.975 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2973CP | 4.44 | 8 | 4 | 1.375 | 11 | 73.25 | 1.101 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2975CP | 4.44 | 8 | 4 | 1.375 | 11 | 75.25 | 1.101 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2978CP | 4.44 | 8 | 4 | 1.375 | 11 | 78.25 | 1.219 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2980CP | 4.44 | 8 | 4 | 1.375 | 11 | 80.25 | 1.219 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2987CP | 5.55 | 10 | 4 | 1.375 | 13.75 | 87.25 | 1.447 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2995CP | 6.66 | 12 | 4 | 1.375 | 16.5 | 96.25 | 1.57 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F2999CP | 6.66 | 12 | 4 | 1.375 | 16.5 | 99.25 | 1.57 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |
| Delfield | F29910CP | 6.66 | 12 | 4 | 1.375 | 16.5 | 110.25 | 1.777 | R-290 | https://assets.katomcdn.com/raw/upload/v1609231077/products/032/032-F2962CP/032-F2962CP.pdf |