HOSHIZAKI AMERICA, INC.

December 11, 2023

Jeremy Dommu
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office, EE-5B
1000 Independence Avenue SW
Washington, D.C. 20585-0121

Re: Hoshizaki America Comments in Response to Energy Conservation Standards for Commercial Refrigerators, Freezers, and Refrigerator-Freezers, Notice of Proposed Rulemaking *[EERE-2017-BT-STD-0007]*

To Whom It May Concern:

Hoshizaki America is pleased to submit comments in response to the U.S. Department of Energy's (DOE) notice of proposed rulemaking for Energy Conservation Standards for Commercial Refrigerators, Freezers, and Refrigerator-Freezers. The docket number is EERE-2017-BT-STD-0007. See 88 Fed. Reg. 70196 (October 10, 2023).

Hoshizaki America requests "no-new-standard" for this Energy rulemaking. The proposal presented is neither technologically feasible nor economically justified. A major concern is that the proposal includes energy reductions of over 50% in some categories without proper supporting evidence that these standards can be achieved. Such standards should be developed from proper research, experimental testing, and cost studies of what is available on the market currently for manufacturers to achieve new levels of energy efficiency. Compounding the difficulty of achieving unrealistic targets is the regulatory burden of a massive transition for the refrigeration sector to lower GWP refrigerants. It is literally impossible to meet all objectives in the same time.

Hoshizaki America will address the questions posed by the DOE:

1 **DOE requests comments on its proposal to require that the proposed standards, if adopted, would apply to all CRE listed in Table I.1 manufactured in, or imported into, the United States on or after the date that is 3 years after the date on which the final new and amended standards are published. More generally, DOE requests comment on whether it would be beneficial to CRE manufacturers to align the compliance date of any DOE amended or established standards as closely as possible with the refrigerant prohibition dates proposed by the December 2022 EPA NOPR.**

Hoshizaki America requests a "no-new-standard".

Hoshizaki America requests DOE to wait until the EPA's AIM Act technology transition is effective in Jan 2025 for self-contained product. After the transition is complete, Hoshizaki

America recommends the DOE redo the engineering analysis based on technology in the field after this transition is completed.

Hoshizaki America also wants to point out that Commercial Refrigerators will be converting to UL safety standard 60335-2-89 2nd edition during this transition process. This new standard requires more extensive review of the products and will increase testing and approval time for each model. More testing equipment is needed, more time is needed to prep and test the products, and more time is needed for training of Engineers to the new standard. There is a serious backlog at all relevant 3rd party certifiers and ample time must be given for manufacturers to complete the approval process to adequately prove safety, sanitation, and energy for all converted products.

(2 – 4) Hoshizaki has no comments.

(5) DOE requests comment on refrigerated buffet/preparation table design options, design specifications, and energy consumption data tested per the DOE test procedure located in appendix C of 10 CFR 431.64.

Since this procedure has not been tested by manufacturers it would be good to have time for manufacturers to test the specifications and give feedback on repeatability and results for their products. Currently ASTM 2143 is under review for final changes and votes. We are not in agreement that the DOE test procedure is valid and encourage DOE to work with industry to make ASTM 2143 a valid test procedure with changes DOE requests. Hoshizaki agrees that refrigerated buffet/preparation table design options should not be included at this time.

(6) DOE requests comment on publicly available market data on CRE manufacturers or identification of any CRE manufacturers with large market shares not identified in Chapter 3 of the TSD NOPR.

Hoshizaki America does not have comments on market data.

(7) DOE requests comment on the decision to screen out increased insulation thickness, vacuum-insulated panels, linear compressors, and air curtain design as design options for improving the energy efficiency of CRE.

Hoshizaki America agrees with the screen out of increased insulation thickness, vacuum- insulated panels (VIP), and air curtain designs. VIP is not a good alternative due to susceptibility of breakage. The increased space needed to store VIP for production preparation would necessitate much larger production facilities resulting in larger capital expenditures. Increased insulation will decrease in volume due to set box sizes for restaurants and institutions. Due to customer demands, a smaller volume could result in lost sales for units that changed to lower capacity.

(8) DOE requests comment on its proposal to use baseline levels for CRE equipment based upon the anticipated design changes that will be made by manufacturers in response to the December 2022 EPA NOPR.

After reviewing the ENERGY STAR website, Hoshizaki America sees an issue with only looking at one refrigerant for baseline for all classifications. Hoshizaki America sees multiple refrigerants in use for the top 25% of the market. DOE should review what refrigerants are used in each category and size and make analysis of energy savings for each refrigerant type for each machine type and size. Hoshizaki America is one of the manufacturers that worked with AHRI to implore DOE to provide more information on what models were tested and torn down during the 2019 analysis. If given the opportunity, Hoshizaki America can accurately guide DOE and Guidehouse on which models were before and after the 2017 rulemaking based on model numbers of our products. If in fact the units were before the 2017 rulemaking that would give reason to why many of the design factors that were mentioned in the TSD were not caught as already in use.

(9) DOE further requests comment on its estimates of energy-use reduction associated with the design changes made by manufacturers in response to the December 2022 EPA NOPR.

Hoshizaki America reiterates that DOE should have a “no-new-standard” now so that DOE can better account for the energy efficiency gains or losses companies are achieving due to changes to lower GWP refrigerants. Allowing the market to fully transition will give the DOE time to do a full analysis of the market after the changes are made. The current proposed energy standards are neither technologically feasible nor economically justified. Many areas require over 30% reductions to meet the new standards: (VCS.SC.M, VCT.SC.M, VCS.SC.L, SOC.SC.M, and classifications with RT, PT, and RI doors). The equations for the model families result in curves that do not accurately give a levelized curve that gives a nominal energy reduction across the full range of volumes. We are seeing areas of the curve that have 10-20% reduction and some areas that range from 30-60% reductions. This variation has resulted in some volumes showing reductions that are not technologically feasible based on the technology that is available today. Considering that many changes were necessary for the 2017 rulemaking, the changes requested include items already put in place. Since the TSD includes items in use, this makes the ensuing review not economically justified since the savings will not be able to be realized if the energy savings are already in play in current DOE listed products. These items include fan controls, improved fan motors, improved glass doors, and occupancy sensors to name a few. Hoshizaki America would like the opportunity to review the models that were tested to validate the assumptions that were made. It is hard to believe that there are opportunities we and other ENERGY STAR Partners of the Year are missing to give 50% reduction in energy values. Hoshizaki America is requesting additional meetings to review such data with other manufacturers, DOE, and Guidehouse as in previous rulemakings to pinpoint a more achievable curve.

(**10) DOE requests comment on its proposal to apply an energy use multiplier to certain equipment classes that contain CRE with unique utility and energy use characteristics. DOE additionally requests comment on the proposed multiplier values and equipment classes for which these multipliers would be applied.**

Hoshizaki agrees in principle, but DOE has not allowed enough time for manufacturers to test and validate. This would require time to perform testing to verify if the multiplier values are correct. Please allow Hoshizaki America time in first quarter of 2024 to find time in our busy test room schedule to validate these numbers.

(11) DOE seeks comment on the method for estimating manufacturing production costs.

Hoshizaki America has no comments

(12) DOE requests comment on the CRE distribution channels and overall on the markups analysis.

Hoshizaki America has no comments

(**13) DOE requests comment on its approach for the energy use analysis**

Hoshizaki America questions how the DOE determined that manufacturers could reach a 55% reduction in energy use with the current models that are produced and listed in the CCMS database? When reviewing the energy analysis, the percent reduction compared to current models leaves a wide range of energy reductions needed to meet the requirements. Hoshizaki requests a review of any section that is over a 15% reduction to verify that these numbers are accurate due to the unreasonably high requirement to meet. Setting standards that are unattainable is unrealistic and will lead to cancellation of whole sections of the market if not corrected. The standard requires that new standards be technologically feasible and economically justified. Asking for a 55% energy reduction is not technologically feasible with the products that are on the market in 2023 and the costs are not economically justified by 2023 costs. Hoshizaki reiterates that a "no-new-standard" should be used to allow the market to fully complete transition to the EPA AIM act and for the DOE to evaluate the products in market in 2026-2028. After that we would welcome a technologically feasible and economically justified standard for review.

Hoshizaki America does not agree with implementing a new test standard for chef bases and then imposing an energy regulation without any test data to back it up. The standard proposed is set at a higher ambient temperature than normally tested for other categories for ASHRAE 72. While generalizations can be made for assumptions, these cannot be trusted like actual test data showing results for many manufacturers' products. Hoshizaki America requests the ability of manufactures to send units to 3rd party labs for Guidehouse to test over a 2-year period and determine where the energy levels should be set and then give manufacturers three years to make any necessary changes to meet this new standard. We do not agree with the use of assumptions for rulemaking.

(14) DOE requests comment on its price learning assumptions and methodology.

Hoshizaki America requests more information on models that were reviewed with specific manufacturers and model numbers. Hoshizaki America also requests the parts that were evaluated for efficiency gains with manufacturer names, part numbers, and 2023 costs to verify that the parts analyzed were from 2022 and not 2014. There were many instances where DOE just adjusted for inflation, but the last 3 years have not been a normal inflation track. Part shortages and material shortages have led to vast price increases and longer lead times. Verification of costs to 2023 figures would be helpful to validate cost to change to higher energy efficiency. Many times in the December 7, 2023 meeting Guidehouse representatives specified that the costs were adjusted for inflation, but it should be reevaluated to currently available products on the market with 2023 costs.

(15) DOE requests comment and data to inform how any of the analyzed design options would require additional installation time, training, or other related skills compared to the baseline equipment.

Microchannel condensers would need time for engineering personnel to determine the best circuit for the refrigeration system and best way to join the piping. There will be a learning curve compared to the

current condensers and will add more time to make sure the system is made in an optimum way. This will be a value lost on increase of labor time for installation and testing.

Variable speed compressors will require design controls to perfect the cycles for optimum energy use. This will include additional time for our staff to prepare the compressors and fans for the control features to make sure each unit has their own controls based on the defrost and run time.

(16) DOE requests comment and data on its assumptions and approach regarding consideration of repair and maintenance costs in the LCC and PBP analyses. Specifically, DOE requests data on the expected lifetimes and repair and maintenance frequencies of the considered design options in this NOPR.

Microchannel condensers lifetime is shorter than current condensers. The maintenance of these condensers will also increase astronomically. Depending on the conditions of the location, current condensers would need monthly to yearly cleaning. Depending on the air quality of the location, microchannels could require weekly cleanings. Service personnel may need to move the equipment out to get to these condensers, depending on the location of the parts.

Variable speed compressors and fan motor lifetimes could be seen as less than current components. After the current market has expanded to 5–7 year warranties for compressors, this could be looked at as subpar if we have to change back to 3-5 years for compressors. Repairs would go up if forced to use variable speed compressors if the timing to convert is too short to allow full life testing at many ambient and humidity conditions. If the defrost settings are incorrect, freezeups may occur due to true to life door opening conditions.

(17-22) Hoshizaki has no comments

(23) DOE requests detailed comment and information on the capital investments associated with each analyzed design option. In particular, DOE requests detailed comment and feedback on the specific changes in equipment and tooling required to incorporate microchannel heat exchangers, as DOE currently models microchannel heat exchangers as a purchased part that can be substituted for tube and fin heat exchangers with minor production line changes.

Whether it be in the factory or by component manufacturer for condensing units, the change of condensers would require capital cost for new jigs to incorporate new brazing patterns from the condenser to the rest of the refrigeration circuit. Jigs are used to make sure that brazing circuits can be repeated in a certain pattern. Cost for these jigs is dependent on size and complexity. We would estimate jigs for brazing to be in thousands of dollars per jig. Component manufacturers would incorporate the cost of the jigs and agency cost for the new condensing units to be amortized over the first three years of purchase of the new condensing units. These increased costs would have to be realized by the consumer.

(24) DOE requests comment on the availability of computer chips and other electrical components used in CREs and specifically if these components are used to achieve higher efficiency levels.

Hoshizaki America is still seeing part shortages and long lead times. Whether it be sheet metal, plastic resin, fan motors, compressors, or control board parts there are either delays or long lead times. For the last two years there has been an ebb and flow of materials causing issues with different suppliers. Manufacturers have to be constantly monitoring flow of equipment to make sure that manufacturing is

not stalled due to the lack of components. Every once in a while, we have to manufacture machines and set aside until particular parts are available to complete production then test them before preparing for shipment. This is another major reason to put a pause in this rulemaking and allow all manufacturers to catch up with the EPA AIM act and allow the marketplace to correct over the next three years. Forecasts are seeing a correction over the next three years for supply chains.

(25) DOE seeks comments, information, and data on the capital conversion costs and product conversion costs estimated for each TSL.

Hoshizaki America has no forecast for capital costs with microchannel condensers, ecm fan motors, occupancy light sensors, etc.

(26) DOE seeks comment on whether manufacturers expect that manufacturing capacity constraints, engineering resource constraints, or laboratory constraints would limit equipment availability to consumers in the timeframe of the new and amended standards compliance date (2028).

Hoshizaki America is seeing large backlogs in 3rd party laboratory time. There is a labor issue in every sector we see after covid. People are changing jobs for remote work opportunities, and laboratory testing is not the type of job you can do remotely. With all of the different types of testing needed for energy, safety, sanitation, material testing, etc. there are strains on the NRTLs to keep up. Hoshizaki America would request that DOE investigate to find out if the NRTLs are expanding their laboratories to meet the higher demand for testing that will be needed with the exponential growth of the use of flammable refrigerants which need additional safety measures that were not needed by HFCs.

(27) DOE requests information regarding the impact of cumulative regulatory burden on manufacturers of CRE associated with multiple DOE standards or equipment/product-specific regulatory actions of other Federal agencies.

Hoshizaki America is seeing a perfect storm for our regulatory compliance. Between the ACIM and CRE products we are seeing converging compliance dates for safety, refrigerant phaseout, and energy compliance. UL 60335-2-89 will become effective in September 2024 – so any new product with a change to the refrigeration system will need to be tested to the new standard. We have worked with both Intertek and UL to see what changes will be needed and we are in the process of purchasing the new equipment needed for the new standard. Not only are there differences in the ambient and humidity levels to consider, but also over a dozen new tests that will be added to our arsenal of safety tests to prove that our systems can meet the UL or Intertek safety certification requirements. We also have to include our sanitation testing for reach-ins to prove that the systems meet the sanitary standard of holding the proper temperature. Added to this are the new ASHRAE 29 and 72 standards that have both been updated for improvements for testing. Unfortunately, these improvements have added additional time to testing. Overall, the changes to safety and energy testing have more than doubled the testing time for each model family. Our test labs are limited, and we have to be mindful of the schedule for what is tested in-house and what tests will be needed at outside NRTLs. Hoshizaki America will be taxed to meet refrigerant changes by 2026 and energy changes by 2027/28 combined with new UL standard for 176 individual models. All our labs will be at max capacity for testing plus many systems will need to be sent to overloaded third party labs for safety testing on flammable refrigerant condensing systems along with NSF sanitation testing for new ice making systems. Combined with our 100+ CRE models affected by any change to efficiency requirements that will also require additional UL safety and

NSF sanitation testing, it will be extraordinarily difficult, if not impossible, to accomplish this within the proposed timeframe.

Along with the issues listed above, we also have the challenge of keeping up with state, federal, and international concerns about chemicals. PFAS, TSCA, Prop 65, and other regulations have required additional outside counsel to help to track chemical usage with our suppliers. We have almost a dozen different regulatory channels being researched in tandem for our products to help ensure we are complying for the ever-expanding number of regulations to which we must adhere. Hoshizaki America is both ISO 9001 and ISO 14001 approved along with being ENERGY STAR Sustaining Excellence Partner of the Year and strives for environmental excellence. The main issues we see are too many regulations with insufficient and/or overlapping implementation timelines and insufficient, incorrect, and/or unsubstantiated data, making it extraordinarily difficult for any company to meet them all. After achieving large energy savings over the last 13 years since 2010, it would be a good tradeoff to allow time for the EPA AIM act refrigerant changes to take place and then assess the true energy landscape.

(28-30) Hoshizaki America has no comment.

Hoshizaki America appreciates the opportunity to comment on this rulemaking. As stated in the rulemaking meeting along with interviews with Guidehouse, we welcome the opportunity to make chef base, prep table, or other model samples available to help create the most accurate rulemaking possible with the new test standards issued by the DOE. We would like to strive to help make an achievable standard that will provide energy savings wanted by all. Any questions on these comments, please reach out for further clarification. Hoshizaki America looks forward to positive negotiations going forward.

Sincerely yours,

Stephen Schaefer

Compliance Engineer V