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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



**OFFICE OF AIR
AND RADIATION**

January 19, 2024

Dear ENERGY STAR® Brand Owner or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) has selected two new categories for recognition with the 2024 ENERGY STAR Emerging Technology Award: Commercial HVAC Electric Motors and Modular Packaged Commercial Refrigeration Systems. EPA is proposing recognition and draft performance criteria for these product categories with the goal of recognizing promising new technologies that offer purchasers new ways to save energy and protect the environment. Interested stakeholders are encouraged to provide comments on the selection of these categories and draft performance levels by February 7, 2024. Following review of those comments, EPA will either release new draft product performance criteria or develop and release final criteria.

Overview of the Emerging Technology Award

Launched in 2011, the ENERGY STAR Emerging Technology Award raises the profile of innovative technologies that have the potential to significantly reduce greenhouse gas emissions once more widely adopted. The annual Award recognizes promising technologies that may not yet meet key principles associated with product categories eligible for the ENERGY STAR label (e.g., those that are broadly available, cost effective to the consumer) or may represent large improvements in existing ENERGY STAR product categories. As products become more mainstream, Award categories may become candidates for ENERGY STAR specification development. For more information on the Award, visit www.energystar.gov/emergingtech.

2024 Award Extension Notice for Commercial or Industrial Heat Pump Dryers

With this letter EPA is extending the existing award category for Commercial or Industrial Heat Pump Dryers into 2024. Commercial or Industrial Heat Pump Dryers remain a promising technology as they have the potential to deliver dramatic energy improvements to commonly used commercial and industrial product categories. Extending this award category into 2024 provides EPA and manufacturers additional time to develop final test method and performance criteria.

2024 New Category Proposal: Commercial HVAC Electric Motors

Electric motors are the largest electrical end use category in the world, currently consuming 45% of all electricity at a cost projected to reach \$900 billion per year by 2030.¹ This presents a large opportunity for efficiency, provided the right market factors and motor technologies. Following the call for product category nominations EPA received a proposal to recognize electric motors that

comply with the most rigorous efficiency performance levels from the International Electrotechnical Commission (IEC): the “IE-5” level (levels range from IE1 – IE5). Recognized in Europe but also in the USA by the National Electrical Manufacturers Association (NEMA) and the Consortium for Energy Efficiency, motors rated to the “IE” scale have been receiving utility program support, but only up to the “IE – 4” level. In this letter EPA is supporting the establishment of the Emerging Technology Award for commercial HVAC motors that achieve performance at IE-5 level. There are several advantages to this approach:

- There is a well-established international test method in place.
- Existing manufacturers already make products.
- Utility programs may elect to modify their programs by raising performance levels to recognize products that meet the Award levels.
- Motors represent the largest electrical end use in the world, representing 45% of total consumption and even a small increase in efficiency can have a large impact.
- Motors are inexpensive relative to the total cost of ownership, with purchase price to the total cost of ownership, with purchase price representing just 1% of the total cost, which is mostly electrical optional cost.

In addition to energy savings from increased efficiency, there are other technology improvements associated with IE-5 motors which offer advantages to users that could help speed adoption of this technology.

- Quieter operation
- Lower temperature operation
- Longer life
- Reduced energy losses of 20% (vs IE-4) motors, and 40% (vs IE-3) motors
- No use of rare earth materials in magnets
- Efficiency savings ranging from 5% (motor only) and 25% (when variable fan and drive systems are included.)

2024 New Category Proposal: Modular Packaged Commercial Refrigeration Systems

The type of commercial refrigeration equipment found in grocery stores that permits customers to reach into freezers, or vertical doored systems holding frozen or chilled foods and beverages, are known in the industry as “self-serve.” Typically, these systems are cooled by large rooftop units which have long tubes of refrigerants providing cooling to the rows of self-serve refrigerators (as found in grocery store aisles). There are three problems associated with this existing product design: 1) during service the entire row of refrigerators or freezers goes off-line, leading to spoiled foods; 2) legacy systems use refrigerants that have high global warming potential; and 3) legacy systems are prone to refrigerant leaks due to the long length of the refrigerant tubing.

During the call for nominations, EPA received a proposal to recognize a new product category in commercial refrigeration most simply called the “modular packaged system.” The characteristics of this system are that the refrigeration systems are self-contained; there is one packaged cooling system per refrigerator/freezer (eliminating the rooftop unit); they use low GWP refrigerants, and they work as “drop in” replacements for legacy technologies. Given the large technical potential that exists with the legacy systems that will need to be replaced due to mandatory refrigerant phase outs, EPA agrees that this product category has the potential to play an important role in this market. Establishing an Emerging Technology Award category could help accelerate the market by establishing performance criteria and giving buyers more confidence in the new systems.

Interested stakeholders are encouraged to provide feedback on the attached proposed recognition

criteria to emergingtech@energystar.gov by February 7, 2024. Depending on the comments received, EPA may release subsequent drafts for stakeholder review prior to finalizing the criteria.

If you have any questions about the Award or the criteria development process, please contact me, Peter Banwell, at banwell.peter@epa.gov or (202) 343-9408 or emergingtech@energystar.gov.

Best Regards,



Peter Banwell
ENERGY STAR Program

Enclosures:

[2024 Emerging Technology Award Draft Criteria - Commercial HVAC Electric Motors](#)

[2024 Emerging Technology Award Draft Criteria - Modular Packaged Commercial Refrigeration Systems](#)

[1] IEA, 2011. Energy Efficiency Policy Opportunities for Electric Motor-Driven Systems.

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