

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



OFFICE OF
AIR AND RADIATION

December 8, 2016

Dear ENERGY STAR® Brand Owner or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) is pleased to announce the selection of solid-state cooling as a 2017 ENERGY STAR Emerging Technology Award category. EPA is proposing the attached performance criteria with the goal of recognizing the best available solid-state cooling systems that help to protect the environment while offering the consumer new ways to save energy.

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 they are more widely adopted. The Award recognizes promising technologies that may not yet meet key principles associated with categories eligible for the ENERGY STAR label (e.g., broadly available, cost effective to the consumer) or may be relatively more complex to properly install and operate. The Award also recognizes components, or sub systems, that have significant environmental benefits. As technologies become more mainstream, Award categories may be recognized through ENERGY STAR specification development. For more information on the Award visit www.energystar.gov/emergingtech.

Technology Overview

Solid-state Cooling uses the *Peltier Effect* to create a heat flux at the intersection of two different types of materials. Also known as thermal electric cooling, it operates using electricity inputs but without traditional hardware associated with refrigerants and compressors. There are several benefits to using this technology as a substitute for the traditional compressor based systems (that have been used since the 1840s): increased energy efficiency, elimination of refrigerants (in some models), noise reduction, and reduction in product size. Today the technology is being used in small refrigerators, lab grade refrigerators, and commercial glass door refrigerators, although there are other markets being considered. In the draft [criteria](#), we are proposing three separate product classes of refrigeration: small coolers, laboratory grade refrigeration, and commercial refrigeration. For each product category we are proposing that models exceed ENERGY STAR or CEC performance levels by at least 15%. If the initial systems are successful, future solid-state cooling could bring efficiency benefits to the broad range of cooling products and markets including the much larger residential and commercial HVAC cooling systems.

Draft Criteria for Review

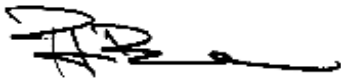
Interested stakeholders are encouraged to provide feedback on the proposed recognition criteria to emergingtech@energystar.gov by December 22, 2016. Depending on the comments received, EPA may release a subsequent draft for stakeholder review prior to finalizing the criteria. Once final, manufacturers of equipment that meet the Award criteria will be able to submit information and data to EPA for review. Upon EPA approval, manufacturers will be able to use the ENERGY STAR Emerging Technology Award logo to promote the product.

Reminder concerning Innovative Refrigerant Systems:

EPA will be extending recognition of the 2016 Award category -Innovative Refrigerant Systems- into 2017, please see www.energystar.gov/emergingtech for award criteria and instructions for new submissions.

If you have any questions about the Award or the criteria development process, please contact me at banwell.peter@epa.gov and (202) 343-9408, or Paul Skorochood, ICF at paul.skorochood@icf.com and (202) 862-1268.

Sincerely,

A handwritten signature in black ink, appearing to read 'Peter Banwell', with a horizontal line extending from the end of the signature.

Peter Banwell
ENERGY STAR Program

Enclosure:
Draft Criteria: Solid-State Cooling Systems