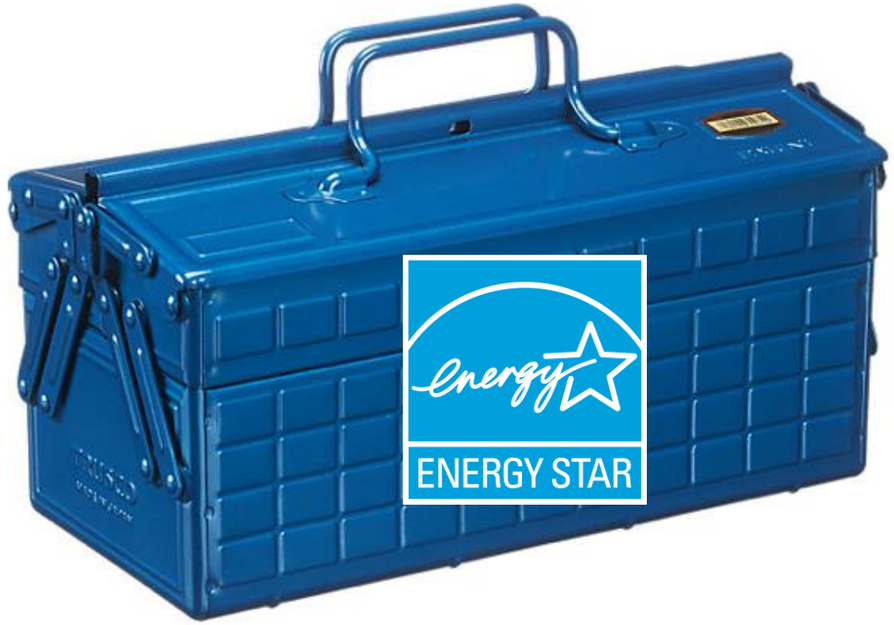
The ENERGY STAR® Certified Products Toolbox



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Phoenix, AZ

September 5, 2018

ENERGY STAR Most Efficient

ENERGY STAR Emerging Technology Award

ENERGY STAR Products Specifications

ENERGY STAR's Dynamic Product Portfolio

- More than 75 product categories
- Consumers choose more than 800,000 ENERGY STAR products each day
- The simple choice for energy efficiency for 25 years







ENERGY STAR Guiding Principles

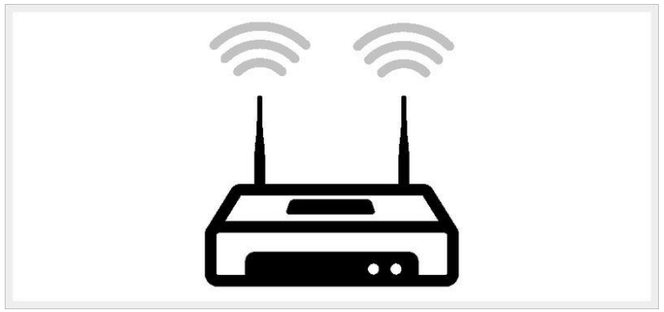
1. Significant energy savings
2. Product performance maintained or enhanced
3. Purchasers can recover investment in increased efficiency within a reasonable time period
4. Efficiency achieved through one or more technologies; products can be broadly available
5. Energy consumption can be measured and verified
6. Label provides meaningful differentiation

Keeping Product Specs up to Date

- Specifications are revised regularly, as needed to stay aligned with our guiding principles
- 5 revisions in 2017 and 6 expected in 2018, in response to:
  - Updated Federal test methods and standards
  - Cost effective opportunities to expand scope and increase savings
  - High market share of certified products, leading to poor differentiation
- New product efforts expand program savings
  - Storm windows
  - Escalators

Connected in ENERGY STAR Specifications

- 2011 → present: optional “connected” criteria in product specifications (**11** product types)
  - Interoperability, use of open standards
  - Energy use reporting
  - Demand Response
  - Standby power limits
- Smart Thermostats (not optional) - data reporting to service provider is key to demonstrating savings
- ENERGY STAR Specifications for many natively networked products, such as consumer electronics and IT equipment handled differently



ENERGY STAR's Unique Position

- ENERGY STAR optional criteria leverage the national platform that utilities can rely on and consumers look for, bringing together interested partners and stakeholders.
- ENERGY STAR criteria provide consistent definitions and approaches, a consistent set of starter functionality, an emphasis on open standards, test methods for DR functionality.
- ENERGY STAR is a trusted resource that can help consumers find these connected products and identify the benefits they offer.

ENERGY STAR + Connected: The Consumer is Key

New functionality to enable immediate energy savings and convenience such as:

- receiving a message that your refrigerator door didn't close;
- receiving a message that your clothes washer needs repair, enabling a service center to assess the problem remotely and come prepared with necessary parts;
- being able to turn on the room AC before returning home;
- learning how much energy you might save from lowering your room AC's setting a few degrees

Demand Response: Encourage manufacturers to offer products with future-oriented load flexibility while ensuring the consumer is considered (e.g. over rides allowed)

Connected Status in ENERGY STAR Specifications

Specification	Connected Criteria	Demand Response Criteria & Test Method
Refrigerator/Freezer	Final	Final
Pool Pumps	Final	Final
Connected Thermostats	Final	DR criteria, DR Test Method N/A
Clothes Dryers	Final	DR criteria, Test method in dev
Clothes Washers	Final	DR criteria, Test method in dev
Room AC	Final	Final
Dishwashers	Final	DR criteria, need products for Test method dev
Lighting (Lamps and Luminaires)	Final	No DR criteria
Electric Vehicle Supply Equipment	Final	DR criteria, DR Test Method N/A
Commercial Ice makers	Final	DR criteria, DR Test Method N/A

Diverse drivers & energy implications

What connectivity provides	Driver of market adoption	Energy Implication and/or Opportunity	Examples
Large loads, load flexibility doesn't impact consumer	Grid services	Enable cleaner grid	Pool pumps, water heaters
Large loads, load flexibility has consumer impact	Grid services	Enable cleaner grid; protect consumer interest	EVSE, HVAC
Convenience and quality of maintenance	Consumer & brand owner interest	Better maintenance saves energy	White goods, HVAC
Safety and security	Consumer interest	Added load; occupancy info?	Door locks, window sensors
Additional functionality	Consumer interest	Added load	Color changing lights, VADAs

ENERGY STAR Most Efficient

- An extension of the trusted ENERGY STAR brand, representing the “best of the best” in energy efficient products
- A marketing designation that recognizes the most efficient products among those that qualify for the ENERGY STAR in a given year
- Target audience: environmentally conscious, early adopters
- Each year, we review our criteria and raise the bar as needed to ensure Most Efficient is awarded to only the top performers
- Criteria are chosen to recognize technologies that save significant energy, but may not be cost effective in many applications

ENERGY STAR Most Efficient Proposed Categories in 2019

- Boilers
- Ceiling Fans
- Dishwashers
- Clothes Washers
- Furnaces
- Windows
- Computer Monitors
- Ductless Split Air Conditioners and Heat Pumps
- Geothermal Heat Pumps
- Central Air Conditioners/Air Source Heat Pumps, proposed updates
- Clothes Dryers, proposed updates
- Dehumidifiers, proposed updates
- Refrigerators-Freezers, proposed updates
- Ventilating Fans, proposed updates
- Televisions, reintroduced

Join the conversation!

- Proposed criteria released July 30th
- Webinar September 11th
- Finalization expected late September

The ENERGY STAR Emerging Technology Award

Launched in 2011 to raise the profile of innovative technologies that have the potential to significantly reduce greenhouse gas emissions once more widely adopted

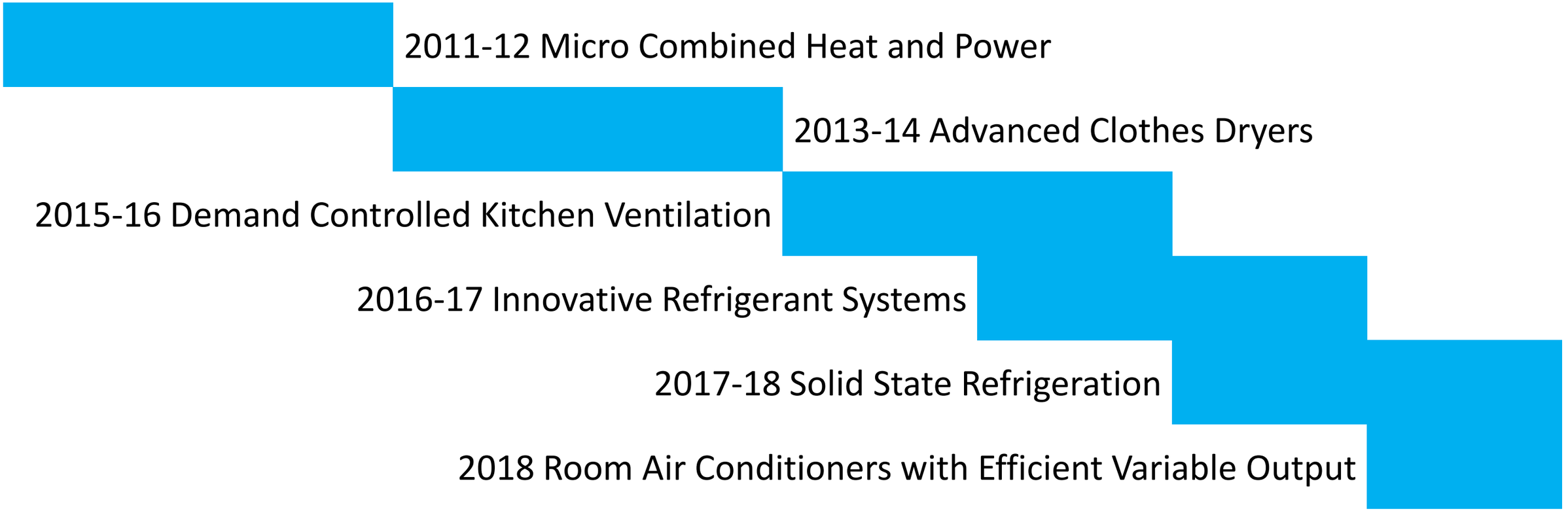
- 1-2 product categories annually
  - may not yet meet key principles associated with categories eligible for ENERGY STAR label, or
  - may be relatively complex to properly install and operate

Benefits of the Emerging Technology Award

ENERGY STAR 2014
Emerging Technology Award

- **Recognition**
  - Featured on website
  - Opportunity to promote their accomplishment
- **Match-making**
  - Help match award winners with interested partners
  - Thousands of partners in dozens of sectors
- **Barrier removal**
  - In some cases, EPA may be able to help companies develop strategies to overcome barriers

History of Emerging Technology Categories



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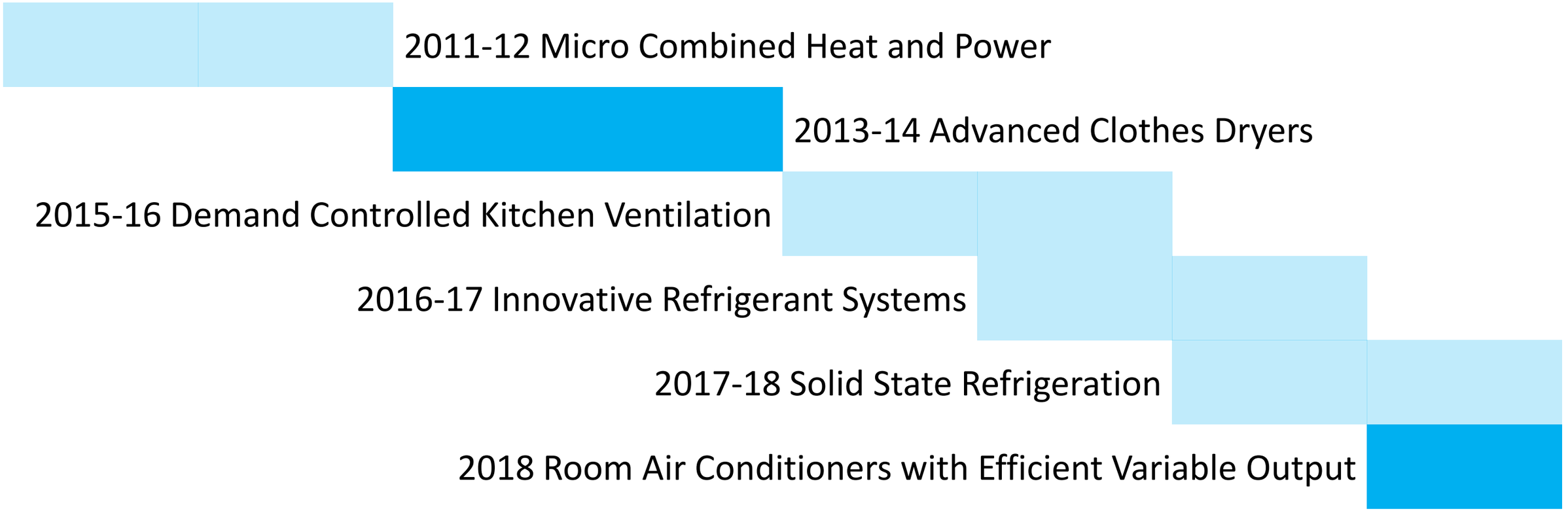

History of Emerging Technology Categories

2011-12 Micro Combined Heat and Power

2013-14 Advanced Clothes Dryers

2015-16 Demand Controlled Kitchen Ventilation

2016-17 Innovative Refrigerant Systems

2017-18 Solid State Refrigeration

2018 Room Air Conditioners with Efficient Variable Output

Program Elements Work Together

- Emerging Tech helps products “cross the chasm” and provide an elite tier of efficiency that can be awarded by the ENERGY STAR Most Efficient designation.
- As the technologies become more widespread and familiar, and less expensive, they come to meet the guiding principles for ENERGY STAR recognition