The ENERGY STAR® Certified Products Toolbox

Abigail Daken
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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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Connected Criteria</th>
<th>Demand Response Criteria &amp; Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerator/Freezer</td>
<td>Final</td>
<td>Final</td>
</tr>
<tr>
<td>Pool Pumps</td>
<td>Final</td>
<td>Final</td>
</tr>
<tr>
<td>Connected Thermostats</td>
<td>Final</td>
<td>DR criteria, DR Test Method N/A</td>
</tr>
<tr>
<td>Clothes Dryers</td>
<td>Final</td>
<td>DR criteria, Test method in dev</td>
</tr>
<tr>
<td>Clothes Washers</td>
<td>Final</td>
<td>DR criteria, Test method in dev</td>
</tr>
<tr>
<td>Room AC</td>
<td>Final</td>
<td>Final</td>
</tr>
<tr>
<td>Dishwashers</td>
<td>Final</td>
<td>DR criteria, need products for Test method dev</td>
</tr>
<tr>
<td>Lighting (Lamps and Luminaires)</td>
<td>Final</td>
<td>No DR criteria</td>
</tr>
<tr>
<td>Electric Vehicle Supply Equipment</td>
<td>Final</td>
<td>DR criteria, DR Test Method N/A</td>
</tr>
<tr>
<td>Commercial Ice makers</td>
<td>Final</td>
<td>DR criteria, DR Test Method N/A</td>
</tr>
</tbody>
</table>
## Diverse drivers & energy implications

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

• 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

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
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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.