ENERGY STAR® Appliance Specification Updates:

An Overview in Preparation for the Road Ahead Session 2015 ENERGY STAR Products Partner Meeting

Melissa Fiffer, U.S. EPA

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ENERGY STAR Overview

Product Updates

- Laundry: Washers & Dryers
- Room Air Conditioners
- Residential Dishwashers
- Residential Refrigerators-Freezers

What’s New?
EPA’s ENERGY STAR identifies the most energy-efficient products, buildings, plants, and new homes – all based on the latest government-backed standards.

Today, every ENERGY STAR label is verified by a rigorous third-party certification process.
Specification Development

• Specifications are reviewed every 3 years or when market share exceeds 35%
• When developing or revising a specification, EPA balances:
  – The need to keep pace with evolution among leading products and continue to effectively differentiate for consumers
  – Timing of new Federal standards
  – Production cycles and other factors important to the industry
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 with testing
6. Label provides meaningful differentiation

Description of specification process is also available on ENERGY STAR web site.
Efficiency Gains

U.S. Shipment Weighted, Average Annual Energy Use, 1990-2014

Energy Use per Year (kWh/yr)

*2014 Refrigerator data reflects a 2014 DOE test method and is not directly comparable with prior year data.
## ENERGY STAR Overview

### Product Updates

- **NEW V 4.0** Room Air Conditioners
- **NEW V 6.0** Dishwashers
- Laundry: Washers & Dryers
- Residential Refrigerators-Freezers

### What’s New?
Room Air Conditioners Specification Takes Effect Oct 26, 2015

<table>
<thead>
<tr>
<th>Room Air Conditioners Version 4.0</th>
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<tbody>
<tr>
<td>Opportunity</td>
</tr>
<tr>
<td>• About 6 million room A/Cs sold in 2014</td>
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<tr>
<td>Efficiency Criteria</td>
</tr>
<tr>
<td>10% less energy use than conventional model</td>
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<tr>
<td>Other</td>
</tr>
<tr>
<td>Installation requirements¹</td>
</tr>
<tr>
<td>Savings</td>
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<tr>
<td>56 kWh/yr, on average ($6.85/yr)</td>
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<tr>
<td>“Connected”</td>
</tr>
<tr>
<td>Included¹ (Optional)</td>
</tr>
<tr>
<td>Metric, Test Method</td>
</tr>
<tr>
<td>CEER², DOE Appendix F</td>
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</tbody>
</table>

• As of June 30, 2015, new products must certify to Version 4.0.

¹Installation and Connected Criteria FAQ available on ENERGY STAR RAC partner page. Visit www.energystar.gov/specifications and click on Room Air Conditioners.
²Combined Energy Efficiency Ratio (CEER)
V 4.0 ENERGY STAR Room Air Conditioner Highlights

- EPA built anticipated use of SNAP alternatives (e.g., propane and R-32) into its analysis of proposed levels, as one of a suite of technology advances/options to achieve higher efficiency.

- V 4.0 includes installation requirements to improve efficiency and consumer comfort:
  - Weather stripping/gasket materials that resist air and water infiltration and UV degradation
  - Materials are intended to seal all areas between the unit and window opening
  - For window units, side curtains must have minimum R-value of 1
  - Products must ship with installation instructions. For through-the-wall units, this includes recommendations re: appropriately sized covers for the off-season

## Opportunity
- Continue to see more efficient products and new technologies being implemented

## Efficiency Criteria
- **Standard**: ≤ 270 kWh/yr, ≤ 3.5 gal/cycle
- **Compact**: ≤ 203 kWh/yr, ≤ 3.1 gal/cycle

## Other

## Savings
- 12% energy, 30% water savings (standard dishwasher)
- Per Unit: $6/yr, on average

## “Connected”
- Included *(Optional)*

## Metrics, Test Method
- Annual Energy Consumption (AEC) and per-cycle water consumption, DOE Appendix C1

- As of Sept 15, 2015, new products must certify to Version 6.0.
### Laundry Specifications Took Effect in Early 2015

<table>
<thead>
<tr>
<th></th>
<th>Clothes Washers</th>
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<th>Clothes Dryers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Version 7.1</strong></td>
<td></td>
<td><strong>Version 1.0</strong></td>
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</table>
| Opportunity      | • Good product availability at efficiencies exceeding current criteria | • Significant savings opportunity, in particular, with more effective automatic cycle termination  
|                  |                  | • Recognize new efficient technology being introduced to U.S market |
| Savings          | 25% energy, 40% water savings  
National: $4 billion  
Per Unit: $40/year, on average | 20% energy savings  
National: $1.5 billion  
Per Unit: $9-18/year |
| Other            | None            | Drying cycle time  
User Information Requirements |
| “Connected” Criteria | Included (Optional)  | Included (Optional) |
| Effective Date   | March 7, 2015   |                  | January 1, 2015 |
| Metrics\(^1\), Test Method | IMEF, IWF - DOE Appendix J2  
In development: Demand response test | CEF - DOE Appendix D2  
In development: Demand response test |

\(^1\) Integrated Modified Energy Factor (IMEF) and Integrated Water Factor (IWF), and Combined Energy Factor (CEF).
Refrigerators & Freezers Specification Took Effect Sept 15, 2014

<table>
<thead>
<tr>
<th>Program Summary</th>
<th>Refrigerators &amp; Freezers Version 5.0</th>
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<tbody>
<tr>
<td>• Over 1150 refrigerator products and 100 freezer products have certified to the Version 5.0 specification, representing over 90 brands</td>
<td></td>
</tr>
<tr>
<td>• 21 refrigerator products have certified as having demand response tested functionality</td>
<td></td>
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</tbody>
</table>

| Savings         | Approximately 10% less energy than models meeting the 2014 DOE standards (4.5-10/year – varies by type/size) |

| “Connected” Criteria | Included (Optional) |

<table>
<thead>
<tr>
<th>Metric, Test Method</th>
<th>Annual Energy Use, DOE Appendix A and Appendix B</th>
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<tr>
<td></td>
<td><strong>Final test method for refrigerator/freezer demand response capabilities</strong></td>
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</table>
**ENERGY STAR Overview**

**Product Updates**

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- Residential Refrigerators-Freezers
- Room Air Conditioners
- Residential Dishwashers

**What’s New?**
ENERGY STAR Most Efficient 2015 Update: Growing Utility Collaboration

• Utility efficiency program sponsors: 15 in 2014 to over 40 in 2015
  – Partners serve approximately 26 million residential customers, or nearly 70 million consumers
  – 10 more program sponsors expressed interest in leveraging ENERGY STAR Most Efficient

• Spot marketing to raise awareness and build demand of ENERGY STAR Most Efficient among target consumers

• Enhancing the functionality of the ENERGY STAR Most Efficient website, adding price and locator information. Pilot with refrigerators and clothes washers, extending to all products sold at retail
ENERGY STAR Most Efficient 2016 Criteria

• Clothes Washers
  – Modest adjustment to harmonize the criteria for front load and top load products certified to V 7.1
  – **33% less energy and 32% less water than the 2015 federal standard (based on a front load model)**
  – Retains suspension of small volume washers

• Dishwashers
  – Retains 2015 criteria for products certified to V5.2 and V6.0
  – **22% less energy and 36% less water than the 2013 federal standard**

• Refrigerators
  – **~15% less energy than the 2014 federal standard**
  – Retains 2015 criteria for bottom freezers and side-by-sides
  – **Revised criteria** (to be finalized October 16, 2015) allow for greater recognition of the energy savings associated with top freezer models
  – Refrigerators are eligible for dual recognition under the 2016 Emerging Technology Award, which will feature low Global Warming Potential (GWP) refrigerant systems that deliver added energy savings.
**ESPPM Teasers:**

*The Road Ahead, Oct 14 at 10am*

- A facilitated dialogue among ENERGY STAR partners including appliance retailers, manufacturers, EEPS
- Let’s discuss what you’ve identified as key opportunities and challenges facing ENERGY STAR appliances in the next 5 years
- Please review the discussion topics included in the Sept 30th email and come ready to participate – we’d love to hear your input!
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