ENERGY STAR®
Most Efficient 2014 Update and 2015 Proposals

September 4, 2014
Webinar Logistics

• Audio provided via teleconference:

  Call in:  +1 (877) 423-6338 (U.S.)

  Code:  316317

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Webinar Goals

• Provide update on ENERGY STAR Most Efficient in 2014

• Present and seek feedback on 2015 proposed recognition criteria
## ENERGY STAR Most Efficient 2014

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Models</th>
<th>ENERGY STAR Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boilers</td>
<td>122</td>
<td>17</td>
</tr>
<tr>
<td>Ceiling Fans</td>
<td>47</td>
<td>15</td>
</tr>
<tr>
<td>Central Air Conditioners and Air Source Heat Pumps</td>
<td>55</td>
<td>8</td>
</tr>
<tr>
<td>Clothes Washers</td>
<td>119</td>
<td>9</td>
</tr>
<tr>
<td>Computer Monitors</td>
<td>82</td>
<td>22</td>
</tr>
<tr>
<td>Furnaces</td>
<td>94</td>
<td>6</td>
</tr>
<tr>
<td>Geothermal Heat Pumps</td>
<td>236</td>
<td>7</td>
</tr>
<tr>
<td>Refrigerators-Freezers</td>
<td>116</td>
<td>12</td>
</tr>
<tr>
<td>Televisions</td>
<td>135</td>
<td>16</td>
</tr>
<tr>
<td>Ventilating Fans</td>
<td>212</td>
<td>11</td>
</tr>
<tr>
<td>Windows</td>
<td>380</td>
<td>43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1598</strong></td>
<td><strong>122</strong></td>
</tr>
</tbody>
</table>
2014 Updates

• Interest is growing:
  – In 2014, twelve utility efficiency program sponsors serving 37 million residential customers featured ENERGY STAR Most Efficient 2014 in their residential program offerings
  – Efficiency program sponsor participation has tripled since the beginning of the designation in 2011 and doubled since 2012

• Beginning Late September 2014
  – Regional spot market promotions of ENERGY STAR Most Efficient to high-end green consumers to promote the benefits and increase awareness and demand
    • Target markets: Albany, NY (NYSERDA) and Sacramento, CA (SMUD, PG&E)
    • Markets were selected based on utility partner program engagement and concentration of “Super Green” consumers
Spot Market Promotion Details

• National Public Radio underwriting
  – 15 spots run 9/22 through week of 11/3
  – Albany: WAMC FM 90.3, 130 reads
  – Sacramento: KXJZ FM 90.9, 126 reads
• Draft copy:
  • Support for KXYZ comes from EPA. ENERGY STAR products are a simple way to save money and help prevent climate change. Introducing ENERGY STAR Most Efficient twenty-fourteen, awarding the best of ENERGY STAR for energy efficiency and innovation. More information about products and rebates at energy star dot gov.
Spot Market Promotion Details (cont.)

• Online banner ads
  – 728 x 90 and 300 x 250
  – Ads run 9/22 to week of 11/3
  – Geo-targeted placements using behavioral appliance data to reach affluent, green consumers, movers, homeowners, and remodelers

• Most Efficient Landing Page
  – Promotion of rebates from PG&E and SMUD
  – Listing of retailers selling ENERGY STAR Most Efficient products in NYSERDA and SMUD targeted areas

Sample banner ad
Spot Market Promotion Details (cont.)

• In-Store Messaging
  – Hang tag signage
  – Select retail partners in targeted areas to promote ENERGY STAR Most Efficient products
  – This highlights the retailer as current and engaged with the high-end green shopper’s aspirations

Sample signage
Website Updates

• Price and locator functionality to premiere on the ENERGY STAR Most Efficient 2015 website
• Plan for all retail-based ENERGY STAR Most Efficient product categories; beginning with pilot set
• Look for a demo at ENERGY STAR Partner Meeting, October 27-29 in Phoenix, AZ
ENERGY STAR Most Efficient Categories in 2015

- Boilers
- Ceiling and Vent Fans
- CAC/ASHP
- Clothes Washers
- Computer Monitors
- Dishwashers NEW for 2015
- Furnaces
- Geothermal Heat Pumps
- Refrigerator- Freezers
- Televisions
- Windows
# Proposed Changes to Criteria

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Proposed Changes</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes Washers</td>
<td>Maintain criteria for standard washers. Reference added to V 7.0 IMEF/IWF criteria effective March 2015. Suspend small volume washer recognition.</td>
<td>9 brands – similar to 2014</td>
</tr>
<tr>
<td>Computer Monitors</td>
<td>Increase stringency for On Mode power levels. 2W/MP allowance instead of 6W/MP.</td>
<td>50 products from 27 brands meet proposed energy efficiency criteria.</td>
</tr>
<tr>
<td>Dishwashers</td>
<td>New product category for standard residential dishwashers. Establish energy and water criteria. Set a cleaning performance floor for heavy cycle. Cleaning performance reporting for all tested cycles via CBs.</td>
<td>38 products from 5 brands would meet proposed energy and water criteria.</td>
</tr>
<tr>
<td>Heating and Cooling Products (CAC and Air Source HP, Geothermal HP, Furnaces)</td>
<td>System status and messaging criteria updated to be more specific and more closely related to energy savings. Application process changes. Levels maintained.</td>
<td>EPA seeks feedback from manufacturers; anticipates at least one complete system (Carrier) meets proposal.</td>
</tr>
<tr>
<td>Televisions</td>
<td>Increase stringency for On Mode power levels.</td>
<td>26 brands from 11 brands meet proposed energy efficiency criteria.</td>
</tr>
</tbody>
</table>
Clothes Washers

• 2015 Proposal:
  • Maintain criteria for standard size washers
  • For products certified to V 7.0, include equivalent IMEF/IWF criteria using DOE top- and front-loading crosswalk calculations
  • Suspend small volume (1.6-2.5 cu-ft) washers

• Rationale:
  – Recognizes about 80 large washer models in a range of sizes (3.7-5.6 cu-ft)
  – Significant energy and water savings 28% less energy and 30% less water than a product meeting the 2015 federal standard (based on a front load model)
    • Steady growth since late 2012; ~ 50 models added
  – No small volume products on market exceed V 7.0, which is more stringent than ENERGY STAR Most Efficient 2014

• Products that meet proposed requirements are available from 4 Product Brand Owner partners and offered under 9 brands (Amana, Crosley, Electrolux, Frigidaire, Kenmore, LG, Maytag, Samsung, Whirlpool)
Clothes Washers (cont.)
**Dishwashers**

- **2015 Proposal:**
  - Products use 22% less energy and 36% less water than the federal standard
    - Annual Energy Savings: 67 kWh/yr
    - Annual Water Savings: 387 gal/yr
  - Includes a minimum heavy cycle Cleaning Index of 70 as assessed under ENERGY STAR Test Method for Determining Residential Dishwasher Cleaning Performance (Rev. Feb-2014)
  - Includes reporting of per cycle Cleaning Index for heavy, medium, and light via an EPA-recognized certification body
  - Excludes compacts
- Products that meet proposed energy and water criteria are available from 5 brands (Blomberg, Bosch, Gaggenau, Viking, and Viking Range)
Dishwashers (cont.)

- Rationale:
  - With this new ENERGY STAR Most Efficient product category, there is an opportunity to recognize dishwashers pushing the envelope for greater efficiency.
  - Recognizing that greater efficiency brings higher risk for trade-offs between savings and performance, the proposed heavy cycle cleaning threshold intends to help prevent recognizing poor performers.
  - Data suggests heavy cycle testing is most likely to indicate cleaning issues.
  - EPA will review medium and light cycle data to confirm appropriateness of using a heavy cycle threshold.
Dishwashers (cont.)

- Standard Dishwasher
- 2015 Most Efficient Proposal
- Federal Standard

Annual Energy Use (kWh/yr) vs. Per Cycle Water Use (gal/cycle) graph.
Central AC and Air Source Heat Pumps

• 2015 Proposal:
  – Maintain current levels
  – Split Systems: 18 SEER, 12.5 EER, 9.6 HSPF
  – Packaged Systems: 16 SEER, 12 EER, 8 HSPF
  – Ductless: 20 SEER, 12.5 EER, 9.6 HSPF

• Update system status and messaging criteria
  – Eliminate vague “2-way comms” criteria
  – Add ESP monitoring for ducted units with blowers
  – Add Fault History (for installers) and Resident Alerts for all systems
Central AC and Air Source Heat Pumps (cont.)

• Rationale:
  – Maintain levels:
    • No increase in models recognized; still less than 1% of models on the market
    • Recognized products save at least 8% (packaged) or 22% (split) over standard systems compared to 2015 standard
  – Update system status and messaging criteria:
    • Gathered data through program on system capabilities; market for smart systems has matured
    • Opportunity to provide better defined requirements for manufacturers; speeds approval process
    • Specifies requirements most closely tied to comfort, energy savings, and cost savings
System Status and Messaging Capabilities

- Applies to ENERGY STAR Most Efficient Central AC, Air Source and Geothermal Heat Pumps, and Furnaces
- Fault history on alphanumeric display (on unit, or on thermostat, or on diagnostic tool, etc.)
- Static pressure estimate across blower fan
- Messages to residents in plain text, at least filter check and need for technician service; on thermostat or equivalent
- Maintain current automatic setup requirement
Change to Application Process

- Eliminate submission of manuals as part of application process
  - Difficult for partners
  - Slows application processing
- Instead, require description systems’ system status and messaging capabilities
  - EPA to provide a guide to help partners submit descriptions including all information needed for recognition
  - Draft was distributed with proposals
  - Descriptions to be considered confidential
Geothermal Heat Pumps

• 2015 Proposal:
  – Maintain current levels; update other criteria
  – Meet ENERGY STAR requirements for EER and COP
  – System status and messaging requirements

• Rationale:
  – 236 recognized products, very small percent of total models on market
  – Typically uses half the energy of conventional air conditioning
  – Wide variety of manufacturers participating
  – Opportunity to improve system status and messaging capabilities
Furnaces

• 2015 Proposal:
  – Maintain current levels, update other criteria
  – 97 AFUE (gas only)
  – System status and messaging requirements

• Rationale:
  – Gathered data through program on system capabilities; market for smart systems has matured
  – 94 products recognized from all major manufacturers, very small percent of models on market
  – At least 20% savings compared to standard units
  – Opportunity to improve system status and messaging capabilities
Computer Monitors

- 2015 Proposal:
  - Revise criteria
  - 50 of 868 products recognized, multiple models available in top selling segments
  - Models that meet these proposed criteria are, on average, approximately 44% more efficient than conventional models
- Only products meeting the definition of a computer monitor eligible to be ENERGY STAR Most Efficient 2015. Excludes digital picture frames and signage displays.
  - Small (less than 16”): 9
  - Medium (16” through under 26”): 32
  - Large (26” or greater): 8
- Includes 2.0 watts per megapixel allowance. ENERGY STAR data shows monitors can deliver higher resolution with lower power budget than they previously required.
Rationale:

- Current ENERGY STAR Most Efficient 2014 criteria capture a higher percentage (~9%, up from ~5% when these criteria were finalized last year) presenting new opportunity to differentiate very best performing products.
- 15 manufacturers: Including Acer, Asus, Dell, HP, Lenovo, LG, NEC, Samsung, ViewSonic
Televsions

- 2015 Proposal:
  - Revise criteria
  - Models that meet these proposed criteria are, on average, approximately 58% more efficient than conventional models
  - 26 out of 1011 Version 6.0 ENERGY STAR certified products would be recognized, across all major sizes (June 2014 ENERGY STAR qualified products list)
    - Under 35 inches: 11
    - 35 to 50 inches: 12
    - 50+ inches: 3
  - 11 partners including Samsung, LG, Sony Panasonic, Westinghouse, Naxa, Vizio
Televisions (cont.)

• Rationale:
  • Selection of top performing products continued to increase in 2014, following trend of significant growth in availability of ENERGY STAR Most Efficient models.
  • Last year, approximately 30 models initially met ENERGY STAR Most Efficient 2014 criteria when they were finalized, representing ~3% of the market. As of July 2014, 85 models meet ENERGY STAR Most Efficient 2014 criteria, representing ~8% of the market.
  • Opportunity exists to differentiate top performing models in 2015. Current proposed criteria again represents ~3% of the market, which is expected to rise in 2015.
Televisions (cont.)
Propose Maintaining Criteria for All Other Categories in 2015

- **Boilers**
  - Current criteria continue to recognize best of ENERGY STAR certified models
- **Ceiling Fans**
  - Current criteria continue to recognize best of ENERGY STAR certified models
- **Refrigerator-Freezers**
  - Current criteria continue to recognize best of ENERGY STAR certified models
  - Refinements proposed in light of the 2014 DOE test procedure change
- **Ventilating Fans**
  - Current criteria continue to recognize best of ENERGY STAR certified models
- **Windows**
  - Current criteria continue to recognize best of ENERGY STAR certified models
Boilers

- **2015 Proposal:**
  - Maintain current criteria of 95 AFUE gas, 90 AFUE oil
- **Rationale:**
  - 96 gas products recognized from more than 10 manufacturers, still a small percentage of the market
  - Gas product offerings have entirely recovered after updated calculation of product efficiency
  - Added 27 oil products from 7 manufacturers
Ceiling Fans

• 2015 Proposal:
  – Maintain current criteria
  – Efficiency (cfm/W) 170 high speed, 270 medium speed, 400 low speed

• Rationale:
  – Uses about 1/3 the energy of standard fan
  – Approximately doubled eligible models: 46 models, from 12 manufacturers recognized
Refrigerators

2015 Proposal:

- Maintain current criteria
- Given new federal standard effective September 15, 2014, the 2015 recognition criteria remove references to V 4.1
- Products must be certified to V5. ENERGY STAR Most Efficient products use approximately 15% less energy than new (2014) Federal standard; ≤ 637 kWh/yr
- The cap on total energy use means the largest products in certain product categories face a slightly more aggressive challenge – e.g., 28 cu-ft French door model with ice would need to use about 20% less energy
- Built-in models are held to the same energy use criteria as standalone products
Refrigerators (cont.)

• Rationale:
  – Energy savings of ~15%+ relative to a new standard model (meeting 2014 standard)
  – Not increasing the ENERGY STAR Most Efficient stringency; waiting to see products entering the market with upcoming Sept 15, 2014 transition

• Products that meet the criteria so far:
  - Come in a range of sizes (13-28 cu-ft)
  - Are being promoted by 3 manufacturing partners – Samsung, Fischer & Paykel, and Bosch
Ventilating Fans

• 2015 Proposal:
  – Maintain current criteria
  – Bathroom/utility fans only
  – 7.5 cfm/W high speed for 10-89 cfm fans
  – 6.8 cfm/W high speed for 90 cfm or higher fans

• Rationale:
  – Uses less than half the energy of standard fan. Among the quietest models (key to consumers)
  – About 18% growth in recognized models over the year: 220 models from 6 manufacturers
Windows

• **2015 Proposal:**
  – Maintain current criteria
  – U-factor ≤ 0.20
  – SHGC to follow ENERGY STAR Version 6.0
    • Northern Zone uses minimum SHGC ≥ 0.20
  – NAFS certification required to help ensure structural quality/longevity (Performance Grade ≥ 15)

• **Rationale:**
  – Products with performance significantly higher than ENERGY STAR minimum criteria are widely available; but still small slice of total market
    • 380 product lines recognized (thousands of product options)
    • 43 manufacturers submitted products
    • Variety of operator types and frame materials
      – Wood, vinyl, fiberglass, and composites
Windows (cont.)

<table>
<thead>
<tr>
<th>Climate Zone</th>
<th>U-factor</th>
<th>SHGC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>≤ 0.20</td>
<td>≥ 0.20</td>
</tr>
<tr>
<td>North-Central</td>
<td>≤ 0.20</td>
<td>≤ 0.40</td>
</tr>
<tr>
<td>South-Central</td>
<td>≤ 0.20</td>
<td>≤ 0.25</td>
</tr>
<tr>
<td>Southern</td>
<td>≤ 0.20</td>
<td>≤ 0.25</td>
</tr>
</tbody>
</table>

![Map representing different climate zones in the United States](image)
Windows

- Residential windows **only**
  - No commercial products, doors, skylights, TDDs
- Products lines listed on website by operator type
  - Go to: [www.energystar.gov/mostefficient](http://www.energystar.gov/mostefficient)
- To join, partners must submit a “recognized product information form”
- EPA to calculate savings for several locations in each climate zone (savings vary by location/climate)
- EPA and DOE to discuss developing a specification for advanced dynamic window products for ENERGY STAR Most Efficient 2016
Proposed Schedule for 2015

• August 4 distributed draft criteria for comment

• Thursday, September 11 stakeholder comments due to mostefficient@energystar.gov

• Late September finalize 2015 criteria and begin distributing ENERGY STAR Most Efficient 2015 mark

• Update list of recognized products January 1, 2015
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Thank you for your participation today.