ENERGY STAR®
Most Efficient 2013 Update and 2014 Proposals
August 22, 2013

Webinar Details

• Audio provided via teleconference:
  Call in:  +1 (877) 423-6338 (U.S.)
  Code:  456-417

• Press *6 to mute or un-mute your line
Goals of Webinar

• Review ENERGY STAR Most Efficient goals and target audience
• Provide update on ENERGY STAR Most Efficient in 2013
• Present and seek feedback on 2014 proposed recognition criteria

ENERGY STAR Most Efficient Goal and Audience

• Goal: Drive more energy efficient products into the market more quickly
  – Identify the top, few, most energy efficient products
  – Avoid confusing consumers or harming the ENERGY STAR brand
  – Align with ENERGY STAR program goal of reducing GHGs
• Audience: Early adopters, environmental interest
Update on ENERGY STAR Most Efficient in 2014

- While still in early stages of implementation, some important advances in 2013
- In the first half of 2013, 11 utility efficiency program sponsors (w/ 28 million residential customers) featured ENERGY STAR Most Efficient; 10 more interested
- ENERGY STAR Most Efficient graphic featured at major appliance retail chains: Best Buy, The Home Depot, Lowes and Sears
- Consortium for Energy Efficiency’s annual ENERGY STAR household survey: 64% of households who had seen or heard about ENERGY STAR Most Efficient would buy b/c of designation
- EPA: developed sales-staff training; continuing to improve ENERGY STAR Most Efficient product lists
- As of July 2013, 1335 models from 119 ENERGY STAR partners meet the ENERGY STAR Most Efficient 2013 recognition criteria.  
  - Each of these categories has experienced some growth in 2013 with Televisions showing the largest growth from 35 to 149 models.
Products Covered in 2013

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Models</th>
<th>ENERGY STAR Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boilers</td>
<td>42</td>
<td>10</td>
</tr>
<tr>
<td>Ceiling Fans</td>
<td>38</td>
<td>12</td>
</tr>
<tr>
<td>Central Air Conditioners and Air Source Heat Pumps</td>
<td>91</td>
<td>8</td>
</tr>
<tr>
<td>Clothes Washers</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>Computer Monitors</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>Furnaces</td>
<td>93</td>
<td>6</td>
</tr>
<tr>
<td>Geothermal Heat Pumps</td>
<td>235</td>
<td>6</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>91</td>
<td>10</td>
</tr>
<tr>
<td>Televisions</td>
<td>151</td>
<td>16</td>
</tr>
<tr>
<td>Ventilating Fans</td>
<td>165</td>
<td>6</td>
</tr>
<tr>
<td>Windows</td>
<td>344</td>
<td>40</td>
</tr>
</tbody>
</table>

Maintaining ENERGY STAR Most Efficient Categories in 2014

- Boilers
- Ceiling and Vent Fans
- CAC/ASHP
- Clothes Washers
- Computer Monitors
- Furnaces
- Geothermal Heat Pumps
- Refrigerators
- Televisions
- Windows
## Propose 2014 Changes to Criteria for 5 Categories

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Proposed Increase in Stringency</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVs</td>
<td>Sample On Mode Power Allowances: 32 inch: 24.7 W</td>
<td>Samsung, LG, Panasonic, Funai, Westinghouse</td>
</tr>
<tr>
<td></td>
<td>42 inch: 37.3 W</td>
<td></td>
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<tr>
<td></td>
<td>60 inch: 58.1 W</td>
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</tr>
<tr>
<td>CAC and Air Source HP (ducted only), Geothermal HP, Furnaces</td>
<td>Qualitative Criteria Updated: •Fault History in plain text •Static Pressure estimate (if unit contains blower) •Messages to residents •Communicate specific product information for setup</td>
<td>Varies by product category; complete CAC and Furnace system from Carrier at least</td>
</tr>
</tbody>
</table>

### Televisions

- Models that meet these proposed criteria are, on average, approximately 50% more efficient than conventional models
- 30 out of 658 Version 6.0 ENERGY STAR certified products would be recognized, across all major sizes *(June 2013 ENERGY STAR qualified products list)*
  - Under 35 inches: 9
  - 35 to 50 inches: 15
  - 50+ inches: 6
- 9 partners: Samsung, LG, Insignia, Philips, Funai, TTE, Westinghouse, Panasonic, Naxa
Televisions

- Selection of top performing products continued to increase in 2013, following rapid uptake of ENERGY STAR Most Efficient models in 2012:
  - Approximately 60 models initially met ENERGY STAR Most Efficient 2012 criteria when they were finalized. In 2013, 381 models can meet ENERGY STAR Most Efficient 2012.
  - Last year, approximately 35 models initially met ENERGY STAR Most Efficient 2013 criteria when they were finalized. As of June 2013, 149 models meet Most Efficient 2013 criteria.
- Still opportunity to differentiate top performing models in 2014.
Central AC and Air Source Heat Pumps

• 2014 proposal: maintain current quantitative criteria
  – 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 qualitative criteria
  – For ductless, no change: filter check and need for service indicators
  – For ducted, more specific automatic setup, monitoring, and service messaging requirements

Central AC and Air Source Heat Pumps: Rationale

• Maintain quantitative criteria:
  – 91 recognized from all major manufacturers, yet less than 1% of models on the market
  – Recognized products save at least 20% (packaged) or 25% (split) over standard systems
• Update qualitative 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
Automatic Setup, Monitoring, and Service Messaging Capabilities

• Applies to ENERGY STAR Most Efficient Central AC, ducted air source and geothermal heat pumps, and furnaces
• Fault history in plain text (on unit, on thermostat, 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
• Transfer specific setup information: capacity, stages of heating and cooling, default air flow requirements; to thermostat or on board system controller

Geothermal Heat Pumps

• 2014 proposal: maintain current quantitative criteria; update qualitative criteria
  – Meet ENERGY STAR requirements for EER and COP
  – Automatic setup, monitoring, and service messaging

• Rationale:
  – Gathered data through program on system capabilities
  – 239 recognized products, very small percent of total models on market
  – Typically uses half the energy of conventional air conditioning
  – Wide variety of manufacturers participating
Furnaces

- 2013 proposal: maintain current quantitative criteria, update qualitative criteria
  - 97 AFUE (gas only)
  - Automatic setup, monitoring, and service messaging
- Rationale:
  - Gathered data through program on system capabilities; market for smart systems has matured
  - 93 products recognized from all major manufacturers, very small percent of models on market
  - At least 20% savings compared to standard units

Propose Maintaining Criteria for All Other Categories in 2014

- Clothes Washers
  - Steady growth in recognized models in small and large sizes; current criteria continue to recognize best of ENERGY STAR certified models
- Refrigerator-Freezers
  - Offers choice in a range of sizes and configurations, yet small overall number of recognized models
  - Current criteria continue to recognize best of ENERGY STAR certified models
  - Refinements proposed in light of the 2014 DOE test procedure change
- Residential Heating Boilers
  - 42 gas products recognized from 10 manufacturers; current criteria continue to recognize best of ENERGY STAR certified models
- Computer Monitors
  - Some growth in number of recognized models but still very small percentage of available models; current criteria continue to recognize best of ENERGY STAR certified models
- Ceiling Fans
  - Current criteria continue to recognize best of ENERGY STAR certified models
- Ventilating Fans
  - Current criteria continue to recognize best of ENERGY STAR certified models
- Residential Windows
  - Current criteria continue to recognize best of ENERGY STAR certified models
Clothes Washers

- 2014 Proposal: maintain current criteria
- Rationale:
  - Recognizes 50 models in a range of sizes including a selection of:
    - larger washers, 3.7 to 5.2 cubic feet; and
    - smaller washers (i.e., apartment/condo size), 2 to 2.3 cu-ft
  - Significant energy and water savings
    - approximately 50% energy savings and 60% water savings relative to the DOE standard (for large washers)
  - Steady growth since late 2012; ~ 25 models added
- Products that meet proposed requirements are available from 7 manufacturing partners and offered under 9 brands (Asko, Electrolux, Frigidaire, Kenmore, LG, Maytag, Miele, Samsung, Whirlpool)
Refrigerators

- 2014 Proposal: Maintain current criteria but with proposed refinement in light of the amended DOE test procedure that manufacturers will be required to use starting in Sept. 2014.
- Given this, 2014 recognition criteria are expressed in two ways:
  - Products certified to V4.1: 30% less energy use than Federal standard; ≤ 481 kWh/yr.
  - New: Products certified to V5: Approximately 15% less energy use than new (2014) Federal standard; ≤ 637 kWh/yr.
    - 15% less energy use than is measured in DOE test. 12-15% less energy use than total energy (including the test's 84 kWh placeholder value for ice making).
    - The cap on total energy use means the largest products face a slightly more aggressive challenge – e.g., 28 cu-ft French door model with ice would need to use about 18% less energy.
    - New cap of 637 was developed by adjusting 481 kWh/yr by the 15% average change in tested energy use and adding 84 kWh/yr to incorporate ice making energy.
  - Built-in models are held to the same energy use criteria as standalone products.
- Products certified under either the V4.1 or V5.0 (effective Sept. 15, 2014) will be recognized in 2014.

Refrigerators (cont)

- Rationale:
  - Energy savings of 30%+ relative to a current standard model and ~15%+ relative to a new standard model (meeting 2014 standard)
  - Offers consumers choice in a range of sizes (9-28 cu-ft) and configurations while still only recognizing a relatively elite number of products
    - 91 models
  - Relative modest number of new models (~10) have been recognized since 2012 criteria were finalized
- Products that meet the criteria are available from 10 manufacturing partners - Electrolux, Blomberg, GE, Kenmore, LG, Liebherr, Perlick, Samsung, Viking, and Whirlpool.
Residential Heating Boilers

- 2014 proposal: maintain current criteria of 95 AFUE gas, 90 AFUE oil
- Rationale:
  - 42 gas products recognized from 10 manufacturers, still a small percentage of the market
  - Gas product ratings will resettle after updated calculation of product efficiency
  - No oil products recognized

Computer Monitors

- 2014 Proposal: maintain current criteria
- Rationale:
  - 35 of 1611 products recognized, wide selection in top selling segments
  - Only products meeting the definition of a computer monitor eligible to be Most Efficient 2014. Excludes digital picture frames and signage displays.
    - Small (less than 17”): 1
    - Medium (17”through under 25”): 26
    - Large (25” or greater): 8
- 15 manufacturers: Including Acer, Asus, Dell, HP, Lenovo, NEC, Phillips, Samsung, ViewSonic
Ceiling Fans

- 2014 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 in first year of participation: 38 models, from 12 manufacturers recognized

Ventilating Fans

- 2014 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 50% growth in recognized model over the year: 165 models from 6 manufacturers
Residential Windows

• 2014 proposal: maintain current criteria
• Rationale:
  – 300+ product lines recognized (thousands of products)
  – 40 manufacturers
  – Wood, vinyl, fiberglass, and composite frame materials
• 2014 Criteria:
  – U-factor ≤ 0.20
  – SHGC to follow IECC 2012
    • Northern Zone uses minimum SHGC ≥ 0.20
  – NAFS certification required to help ensure structural quality/longevity (Performance Grade ≥ 15)

<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>
Residential Windows

- Residential windows only
  - No commercial products, doors, skylights, TDDs
- Products lines are listed on website by operator type (but not prices)
- Partners to submit “recognized product information form” (will be similar to Qualified Products Information Form)
Proposed Schedule for 2014

- **Late July** distributed draft criteria for comment
- **Friday, September 6** stakeholder comments due to [mostefficient@energystar.gov](mailto:mostefficient@energystar.gov)
- Late September finalize 2014 criteria and begin distributing ENERGY STAR Most Efficient 2014 mark
- Update list of recognized products January 1, 2014
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Thank you for your participation today.