UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND RADIATION

August 5, 2015

Dear ENERGY STAR® Partners and other Stakeholders:

The U.S. Environmental Protection Agency (EPA) is pleased to share both an update on ENERGY STAR Most Efficient 2015 and proposed recognition criteria across 12 product categories for 2016. Stakeholders are invited to provide written comments on these criteria no later than **September 8, 2015** to MostEfficient@energystar.gov.

ENERGY STAR Most Efficient 2015

As of July 2015, 1721 models from 108 ENERGY STAR partners meet the ENERGY STAR Most Efficient 2015 recognition criteria. Growth occurred in 2015 in most categories, with the number of recognized geothermal heat pumps almost doubling since the beginning of the year. The number of models and partners per category is noted in the following table:

Product Category	**Models**	**ENERGY STAR Partners**
Boilers	230	27
Ceiling Fans	89	13
Central Air Conditioners and Air Source Heat Pumps	75	9
Clothes Washers	35	7
Computer Monitors	73	22
Dishwashers	6	2
Furnaces	11	1
Geothermal Heat Pumps	406	9
Refrigerators-Freezers	17	6
Televisions	122	19
Ventilating Fans	211	11
Windows	446	46
Total	**1721**	**108**

ENERGY STAR Most Efficient is being leveraged by a growing number of energy efficiency program sponsors. In the first half of this year, that number jumped dramatically from around 15 in 2014 to over 40 efficiency program sponsors featuring ENERGY STAR Most Efficient 2015 in their residential program offerings or promotions. These partners serve approximately 26 million residential customers, or nearly 70 million consumers. Their programs feature one or more of the product categories covered by ENERGY STAR Most Efficient 2015 and reflect a diverse geographic spread. In addition, ten more program sponsors from different regions have expressed interest in using the recognition levels and graphic in programs where they promote products at various efficiency levels.

This year, the Agency will again roll out geo-targeted, spot market promotions to raise awareness of ENERGY STAR Most Efficient among target consumers. These promotions will build upon a successful pilot effort in 2014, when EPA targeted customers in Albany, NY and Sacramento, CA, with online and

radio ads focused on the benefits of ENERGY STAR Most Efficient products. This outreach focuses on connecting ENERGY STAR Most Efficient offerings with a responsive target audience to create and build awareness and demand, while differentiating ENERGY STAR Most Efficient from ENERGY STAR products. Banner placements in online publications like HGTV, The New York Times, and Forbes, in addition to radio ads on the top stations in the selected cities, led to over 12 million impressions for the promotion in 2014, and thousands of page views to an ENERGY STAR webpage that directed visitors to partner offerings in those markets. This year, EPA is expanding this effort into new cities, working to complement the outstanding ENERGY STAR Most Efficient offerings of our partners. The Agency is also building out the functionality of the ENERGY STAR Most Efficient website to add price and locator information. This well-visited site has over 17,000 views per month.

2016 Product Categories and Recognition Criteria

For 2016, EPA intends to maintain the 12 product categories currently eligible for ENERGY STAR Most Efficient recognition. The proposed recognition criteria for 2016 were developed in consultation with the Department of Energy (DOE) based on an analysis of currently certified ENERGY STAR models. This analysis indicates that for most categories existing recognition criteria remain reflective of the "best of the best." As a result, EPA is extending the 2015 efficiency criteria into 2016 for many categories including boilers, ceiling fans, ducted central air conditioners and air source heat pumps (CAC/ASHP), dishwashers, furnaces, geothermal heat pumps (GHP), refrigerators-freezers, and residential windows. EPA made minor changes to the recognition criteria for standard sized clothes washers to maintain consistency across configurations and to those for computer monitors requiring use of a Total Energy Consumption (TEC) approach once ENERGY STAR Version 7.0 takes effect in the spring of 2016. EPA has revised the recognition criteria for ductless split air conditioners and heat pumps, televisions, and ventilating fans. A summary of the changes along with the rationale is outlined below.

Ceiling Fans: EPA is extending the 2015 criteria into 2016 as the current list of recognized ceiling fans remains quite exclusive with approximately 2% of the market achieving recognition. Further, the current criteria continue to distinguish fans with more advanced technology in the form of brushless DC motors.

Computer Monitors: EPA is retaining the same stringency as the current Most Efficient 2015 criteria, as the criteria continue to recognize less than 5% of the market, designating today's top most efficient products. However, EPA has expressed the criteria in terms of a TEC approach to align with how a computer monitor's energy consumption will be expressed in the Displays Version 7.0 specification, effective April 30, 2016. Products recognized as Most Efficient in 2016 will retain their recognition throughout the year, as long as they meet the Displays Version 7.0 specification when it takes effect.

Clothes Washers: EPA has made a modest adjustment to the 2016 criteria for standard sized clothes washers so that top- and front-load clothes washers are subject to the same requirements, as originally intended.

Dishwashers: EPA has maintained the 2015 criteria for dishwashers for 2016. EPA is working with partners to expand the list of recognized products in 2016, as dishwashers were new to the ENERGY STAR Most Efficient portfolio in 2015.

Heating and Cooling Products: EPA has retained the current recognition criteria for furnaces, CAC/ASHP, geothermal heat pumps (GHP), and boilers. Recognized furnaces and CAC/ASHPs represent an elite group of products with exceptional performance. While the number of recognized GHP models continues to grow, overall GHP sales remain very small, while the consumer value in terms of savings and functionality remains significant at the current levels. For boilers, the 2015 criteria remain the best means of differentiating the top energy savers; however, for future years, EPA seeks opportunities beyond AFUE to further distinguish gas boiler energy performance. For instance, the Agency is watching the development of a uniform test method for idle loss for boilers that also deliver hot water. EPA has made two revisions to the ductless split air conditioners and heat pumps recognition criteria. First, the system status and messaging requirements, evaluated for inclusion in 2015, are now included for 2016. Second, EPA has raised the Heating Seasonal Performance Factor (HSPF) criteria from 9.6 to 10 to align with the Northern Climate Heat Pump specification offered by the Northwest Energy Efficiency Alliance.

Doing so will simplify participation by efficiency programs and brand owner partners and recognized products will deliver efficiency 25% beyond that of a conventional product.

Refrigerators-Freezers: EPA has made no substantive changes for the refrigerator-freezer recognition criteria in 2016 as the market is still adjusting to changes to both the ENERGY STAR requirements and the federal minimum efficiency standards in the last year. In 2016, EPA will work with partners to increase the quantity and variety of configurations represented on the ENERGY STAR Most Efficient list.

Televisions: EPA has increased the stringency of the criteria for televisions in 2016. Although 2.7% of current ENERGY STAR models meet these levels, this number is expected to grow significantly as new models are introduced later this year and into early 2016. Models that meet these criteria offer 62% savings over conventional models.

Ventilating Fans: To recognize the best of the best bath and utility ventilating fans, EPA has increased the efficacy criteria at high speed to ≥10 for all cfm. Currently 211 bath fan models are recognized as ENERGY STAR Most Efficient, representing 17% of the market. Under these new criteria, 7% would be recognized, and consumers would realize 85% savings over a conventional model. EPA again assessed the viability of adding range hood fans to the ENERGY STAR Most Efficient portfolio and concluded that there is no clear break in performance that allows for highlighting some products as top performers beyond ENERGY STAR.

Windows: No substantive changes are planned for the 2016 residential window recognition criteria. Although recognized windows are available from over 40 product brand owners, they still represent a relatively small percentage of the market. In addition, EPA has maintained its focus on residential windows exclusively rather than expanding to include doors or skylights. The Agency does not have data demonstrating that high performance products are widely available in these categories or that such products typically save consumers a meaningful additional amount of energy.

The proposed ENERGY STAR Most Efficient 2016 criteria for the full suite of products are summarized below. In addition to meeting these recognition criteria, products must be certified as ENERGY STAR by an EPA-recognized certification body. Additional detail for each product category is included in the recognition criteria documents accompanying this letter.

<table>
<tr><th>Category</th><th>Recognition Criteria</th></tr>
<tr><td>Boilers*</td><td>Gas Powered Boilers: 95% AFUE or higher. Oil Powered Boilers: 90% AFUE or higher</td></tr>
<tr><td>Ceiling Fans*</td><td>Efficiency (cfm/W): ≥ 170 at high speed, ≥ 270 at medium speed, ≥ 400 at low speed</td></tr>
<tr><td>Clothes Washers</td><td>
<table>
<tr><th>Clothes Washer Volume</th><th>Integrated Modified Energy Factor (IMEF)</th><th>Integrated Water Factor (IWF)</th></tr>
<tr><td>>2.5 cubic feet</td><td>≥2.76</td><td>≤3.2</td></tr>
</table>
</td></tr>
<tr><td>Central Air Conditioners*</td><td>
<table>
<tr><th>Product type</th><th>SEER</th><th>EER</th><th>HSPF</th><th>COP</th></tr>
<tr><td>Split AC</td><td>18</td><td>13</td><td></td><td></td></tr>
<tr><td>Split HP</td><td>18</td><td>12.5</td><td>9.6</td><td></td></tr>
<tr><td>Packaged AC</td><td>16</td><td>12.0</td><td></td><td></td></tr>
<tr><td>Packaged HP</td><td>16</td><td>12.0</td><td>8.2</td><td></td></tr>
<tr><td>Closed Loop Water-to-Air/GHP</td><td></td><td>17.1</td><td></td><td>3.6</td></tr>
<tr><td>Open Loop Water-to-Air GHP</td><td></td><td>21.1</td><td></td><td>4.1</td></tr>
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<tr><td></td><td>
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<tr><td>Closed Loop Water-to-Water GHP</td><td></td><td>16.1</td><td></td><td>3.1</td></tr>
<tr><td>Open Loop Water-to-Water GHP</td><td></td><td>20.1</td><td></td><td>3.5</td></tr>
<tr><td>DGX</td><td></td><td>16.0</td><td></td><td>3.6</td></tr>
</table>
system status and messaging capabilities</td></tr>
<tr><td>Air-Source Heat Pumps*</td><td>Products must meet the following cooling and heating performance levels: ≥18 SEER, 12.5 EER, & 9.6 HSPF for split systems; 16 SEER, 12 EER & 8 HSPF for packaged systems; system status and messaging capabilities</td></tr>
<tr><td>Ductless AC and Heat Pumps</td><td>Products must meet the following cooling and heating performance levels: 20 SEER, 12.5 EER and (for heat pumps) 10 HSPF; and system status and messaging capabilities</td></tr>
<tr><td>Computer Monitors</td><td>Total Energy Consumption (E_{TEC}) shall be less than or equal to Maximum allowable Total Energy Consumption in kilowatt-hours per year calculated as follows:

$$E_{TEC\_MAX} = 6.13 \times r + 55 \times tanh(0.003 \times [A - 59] + 0.01) + 5.0$$

A = viewable screen area in square inches; tanh = hyperbolic tangent function; and r = Total Native Resolution in megapixels</td></tr>
<tr><td>Dishwashers*</td><td>
<table>
<tr><th>Product Type</th><th>Annual Energy Use (kWh/yr)</th><th>Water (gallons/cycle)</th></tr>
<tr><td>Standard Dishwasher</td><td>≤240</td><td>≤3.2</td></tr>
</table>
<table>
<tr><th>Test Cycle Type</th><th>Cleaning Index</th></tr>
<tr><td>Heavy</td><td>70</td></tr>
<tr><td>Medium</td><td>70</td></tr>
<tr><td>Light</td><td>70</td></tr>
</table>
</td></tr>
<tr><td>Furnaces*</td><td>AFUE 97% or higher; system status and messaging capabilities</td></tr>
<tr><td>Geothermal Heat Pumps*</td><td>Equivalent to Tier 3 levels established in the ENERGY STAR Program Requirements; system status and messaging capabilities</td></tr>
<tr><td>Refrigerator-Freezers*</td><td>Product must use less than or equal to 637 kWh per year and be at least 15% more efficient than federal requirements</td></tr>
<tr><td>Televisions</td><td>P_{max} = 62×tanh(0.000412 [A-140] + 0.014) + 14
P_{max} = maximum allowable On Mode Power consumption in W
A = viewable screen area of the product in square inches; TANH = hyperbolic tangent function</td></tr>
<tr><td>Ventilating Fans</td><td>Bathroom/utility fans only; Efficacy at high speed (cfm/W): ≥10</td></tr>
<tr><td>Residential Windows*</td><td>U-factor ≤ 0.20 in all Zones
SHGC in Northern Zone ≥ 0.20
SHGC in North-Central Zone ≤ 0.40
SHGC in South-Central and Southern Zones ≤ 0.25
North American Fenestration Standard/Specification (NAFS) Performance Grade ≥15</td></tr>
</table>

**Proposed criteria carried over from 2015 for these categories.*

EPA will provide additional information regarding the roll out of ENERGY STAR Most Efficient 2016 recognition with the finalization of these criteria. Products recognized in 2015 that the meet the ENERGY STAR Most Efficient 2016 criteria will automatically receive recognition.

EPA will hold a stakeholder webinar on **Tuesday, August 25 from 1PM to 3PM Eastern Time** to discuss the proposed 2016 recognition criteria. To participate in this webinar, please register here by **Friday, August 21**. Please share written comments no later than **September 8, 2015** with MostEfficient@energystar.gov. EPA plans to finalize these recognition requirements in September.

Thank you for your support of the ENERGY STAR program.

Sincerely,

Ann Bailey, Director
ENERGY STAR Product Labeling