



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

OFFICE OF
AIR AND RADIATION

July 28, 2017

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 2017 and proposed recognition criteria across 13 product categories for 2018. Stakeholders are invited to provide written comments on these criteria no later than **August 28, 2017** to MostEfficient@energystar.gov.

ENERGY STAR Most Efficient 2017

As of July 2017, 2049 models from 138 ENERGY STAR partners meet the ENERGY STAR Most Efficient 2017 recognition criteria. The number of models and partners per category is noted in the following table:

Product Category	Models	ENERGY STAR Partners
Boilers	371	28
Ceiling Fans	76	10
Central Air Conditioners and Air Source Heat Pumps	136	6
Clothes Dryers	5	2
Clothes Washers	98	7
Computer Monitors	121	20
Dishwashers	47	4
Furnaces	71	7
Geothermal Heat Pumps	230	9
Refrigerators-Freezers	321	27
Ventilating Fans	165	10
Windows	408	39
Total	2049	138

ENERGY STAR Most Efficient is being leveraged by over 30 energy efficiency program sponsors. These partners serve over 34 million consumers. Their programs feature one or more product categories covered by ENERGY STAR Most Efficient 2017 and reflect a diverse geographic spread.

ENERGY STAR Most Efficient is also being leveraged for retailer incentives as part of the ENERGY STAR Retail Products Platform (ESRPP), an innovative, nationally coordinated, market transformation initiative. In 2016, during its first pilot year, three retailers and eight energy efficiency program sponsors representing 11 states and almost 18 percent of the U.S participated in the ESRPP. By the end of 2017, the addition of new products and service offerings, along with an expanded group of participating sponsors and retailers, are expected to broaden ESRPP's coverage to approximately one-third of the U.S. market.

In addition to significant progress in garnering utility energy efficiency program sponsor support for ENERGY STAR Most Efficient, EPA has also made progress in arming consumers with the information they need about recognized products. In addition to highlighting ENERGY STAR Most Efficient 2017

products, our website includes real-time information on retail pricing and where to locate and buy these models. This information is currently available for products sold at select major retailers, including clothes washers, refrigerators, dishwashers, dryers, monitors, and ventilating fans. EPA is working on adding retailers to be able to include this information for ceiling fans by the end of 2017.

2018 Product Categories and Recognition Criteria

For 2018, EPA intends to continue to highlight all 12 of the product categories currently eligible for ENERGY STAR Most Efficient recognition, add one category, and re-introduce televisions to the portfolio for a total of 14 categories in 2018.

The proposed recognition criteria for 2018 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 many categories existing recognition criteria remain reflective of the “best of the best.” As a result, EPA is extending the 2017 efficiency criteria into 2018 for a number of categories including boilers, ducted and ductless central air conditioners and air source heat pumps, furnaces, geothermal heat pumps (GHP), dishwashers, dryers, refrigerators-freezers, residential windows, and ventilating fans. EPA has revised the recognition criteria for ceiling fans, clothes washers, and monitors, and added recognition criteria for dehumidifiers. EPA will release for comment an ENERGY STAR Most Efficient 2018 televisions proposal after the completion of the development of ENERGY STAR Version 8.0. A summary of changes along with the rationale is outlined below.

Ceiling Fans: EPA is proposing updated criteria for 2018 for smaller fans, in response to expected changes in qualification rates associated with the forthcoming ENERGY STAR Version 4.0 Ceiling Fans specification. The new criteria raise the requirement only for fans with blade span less than or equal to 36”, for which the 2017 criteria are lower than the proposed Version 4.0 specification. For these fans, the proposed levels are 59% above minimum efficiency levels. EPA considered establishing separate criteria for hugger fans, but did not see any opportunity for distinction beyond ENERGY STAR.

Computer Monitors: EPA is adjusting the stringency of the current criteria to further differentiate the most efficient models for consumers and better balance recognition across all major size bins.

Clothes Washers: EPA proposes to increase the stringency for standard washers so that they exceed new ENERGY STAR levels that will take effect early in 2018. Acknowledging differentiation in the performance of small volume washers, EPA is pleased to introduce criteria enabling small washers to earn ENERGY STAR Most Efficient recognition. The updated criteria for standard washers will offer x% energy and y% water savings compared to a conventional model.

Dehumidifiers: EPA proposes adding ENERGY STAR Most Efficient recognition for dehumidifiers with less than 75 pints/day capacity. The criteria will offer 26% savings over conventional models. Data associated with currently qualified ENERGY STAR modes suggest models from a range of manufacturers will be eligible for recognition.

Dishwashers: EPA has maintained the 2017 criteria for standard sized dishwashers, including the minimum cleaning performance floor. While the ENERGY STAR Most Efficient list has grown steadily in this category, with 21 models from 13 brands currently recognized, this represents just 10% of the market.

Dryers: EPA proposes maintaining the criteria for dryers. New to ENERGY STAR Most Efficient in 2017, 11 electric dryers from five brands currently meet the ENERGY STAR Most Efficient normal setting criteria, representing 8% of the market.

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, and the consumer value in terms of

savings and functionality remains significant at the current levels. For boilers, the 2017 criteria remain the best means of differentiating top energy savers; however, EPA continues to seek opportunities beyond AFUE to further distinguish gas boiler energy performance. EPA has made a modest edit to the wording of the system status and messaging criteria, to clarify our intention regarding “recommending a specific action” via a consumer alert.

Refrigerators-Freezers: EPA has maintained the refrigerator-freezer recognition criteria in 2018. While there is strong representation among top freezer models, only 2% of side-by-sides and 5% of bottom freezers currently make the cut for ENERGY STAR Most Efficient. In conjunction with EPA recognition of use of climate friendly refrigerants through the [ENERGY STAR Emerging Technology Award](#), EPA will be initiating efforts to highlight partners’ use of low global warming potential refrigerants and assist with messaging to consumers about the benefits of this advancement.

Ventilating Fans: EPA has maintained the ventilating fan recognition criteria in 2018. For bathroom/utility fans, the current criteria continue to represent an exclusive subset of products. While a substantial number of in-line fan models with airflow below 150 cfm are recognized, there is limited opportunity to increase the levels for higher cfm fans. EPA anticipates revising the ENERGY STAR specification in 2018, and thus will reconsider ENERGY STAR Most Efficient criteria for 2019 recognition.

Windows: No changes are planned for the 2018 residential window recognition criteria. Although recognized windows are available from over 39 product brand owners, they still represent a relatively small percentage of the market.

The proposed ENERGY STAR Most Efficient 2018 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.

Category	ENERGY STAR Most Efficient 2018 Recognition Criteria																				
Boilers*	Gas Powered Boilers: 95% AFUE or higher. Oil Powered Boilers: 90% AFUE or higher																				
Ceiling Fans	High speed efficiency as per V3.0 spec ≥ 300 cfm/watt -or- Efficiency as per 10 CFR 430 Subpart B, Appendix U (cfm/W)																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Blade span D (inches)</th> <th style="width: 50%;">Efficiency (CFM/W)**</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">19" \leq 36"</td> <td style="text-align: center;">$\geq 1.03D + 60.43$</td> </tr> <tr> <td style="text-align: center;">> 36"</td> <td style="text-align: center;">$\geq 3.88D - 42.17$</td> </tr> </tbody> </table>	Blade span D (inches)	Efficiency (CFM/W)**	19" \leq 36"	$\geq 1.03D + 60.43$	> 36"	$\geq 3.88D - 42.17$														
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Clothes Washers	<table border="1" style="width: 100%; border-collapse: collapse; margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="width: 33%;">Clothes Washer Capacity</th> <th style="width: 33%;">Integrated Modified Energy Factor (IMEF)</th> <th style="width: 33%;">Integrated Water Factor (IWF)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">≤ 2.5 cu-ft</td> <td style="text-align: center;">≥ 2.2</td> <td style="text-align: center;">≤ 3.8</td> </tr> <tr> <td style="text-align: center;">> 2.5 cu-ft</td> <td style="text-align: center;">≥ 2.92</td> <td style="text-align: center;">≤ 3.2</td> </tr> </tbody> </table>	Clothes Washer Capacity	Integrated Modified Energy Factor (IMEF)	Integrated Water Factor (IWF)	≤ 2.5 cu-ft	≥ 2.2	≤ 3.8	> 2.5 cu-ft	≥ 2.92	≤ 3.2											
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Dehumidifiers	Products with a capacity less than 75 pints/day must have an Energy Factor of 2.3 or higher.																				
Ductless AC and Heat Pumps*	Products must meet the following cooling and heating performance levels: 20 SEER, 12.5 EER, 10 HSPF (Heat pumps only); system status and messaging capabilities, variable capacity.																				
Geothermal Heat Pumps*	System status and messaging capabilities; variable capacity except water to water models.																				
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Computer Monitors	<p>Total Energy Consumption (E_{TEC}) in kilowatt-hours per year shall be calculated as follows:</p> $E_{TEC} = 8.76 \times (0.35 \times P_{ON} + 0.65 \times P_{SLEEP})$ <p>Where: P_{ON}= measured On Mode power in watts; P_{SLEEP}= measured Sleep Mode power in watts;</p> <p>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:</p> $E_{TEC_MAX} = 1.9 + (0.12 \times A) + [3.1 \times (r + C)]$ <p>Where:</p>																				

	<p>A = viewable screen area in square inches; r = Total Native Resolution in megapixels up to 5.0 megapixels total. Products with >5.0 megapixels Total Native Resolution can receive a maximum r of 5 megapixels; and</p> $C = \begin{cases} 1.9 & \text{if } A < 180 \text{ in}^2 \\ 2.7 & \text{if } 180 \text{ in}^2 \leq A < 220 \text{ in}^2 \\ 2.0 & \text{if } A \geq 220 \text{ in}^2 \end{cases}$														
Dishwashers*	<table border="1"> <thead> <tr> <th>Product Type</th> <th>Annual Energy Use (kWh/yr)</th> <th>Water Consumption (gallons/cycle)</th> </tr> </thead> <tbody> <tr> <td>Standard Dishwasher</td> <td>≤240</td> <td>≤3.2</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Test Cycle</th> <th>Cleaning Index</th> </tr> </thead> <tbody> <tr> <td>Heavy</td> <td>70</td> </tr> <tr> <td>Medium</td> <td>70</td> </tr> <tr> <td>Light</td> <td>70</td> </tr> </tbody> </table>	Product Type	Annual Energy Use (kWh/yr)	Water Consumption (gallons/cycle)	Standard Dishwasher	≤240	≤3.2	Test Cycle	Cleaning Index	Heavy	70	Medium	70	Light	70
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Furnaces*	AFUE 97% or higher; system status and messaging capabilities.														
Refrigerator-Freezers*	<p>Product must be ENERGY STAR certified and have an Annual Energy Consumption (AEC) of less than or equal to 637 kWh/year.</p> <p>Side-by-side and bottom freezer products must be at least 15% more efficient than federal requirements.</p>														
Ventilating Fans*	<p>Bathroom/utility fans: Efficacy at high speed (cfm/W): ≥10</p> <p>In line fans: Efficacy at high speed (cfm/W): ≥5</p>														
Residential Windows*	<p>U-factor ≤ 0.20 in all Zones</p> <p>SHGC in Northern Zone ≥ 0.20</p> <p>SHGC in North-Central Zone ≤ 0.40</p> <p>SHGC in South-Central and Southern Zones ≤ 0.25</p> <p>North American Fenestration Standard/Specification (NAFS) Performance Grade ≥15</p>														

*Proposed criteria carried over from 2017 for these categories.

¹ For purposes of this requirement, the manufacturer shall test the dryer according to the provisions in the DOE test procedure in 10 CFR 430, Subpart B, Appendix D2, but using from among all the cycle program, temperature, and dryness settings (including any such settings that can be downloaded after the initial purchase of the product) those that result in the greatest energy consumption. At the time of certification, the manufacturer shall report the most energy consuming cycle program, temperature and dryness settings used.

EPA will provide additional information regarding the roll out of ENERGY STAR Most Efficient 2018 recognition with the finalization of these criteria. Products recognized in 2017 that meet the ENERGY STAR Most Efficient 2018 criteria will automatically receive recognition.

EPA will hold a stakeholder webinar on **August 17th from 12pm to 2pm Eastern Time** to discuss the proposed 2018 recognition criteria. To participate in this webinar, [please register here by August 16th](#). Please share written comments no later than **August 28, 2017** with MostEfficient@energystar.gov. EPA plans to finalize these recognition requirements in September.

Thank you for your support of the ENERGY STAR program.

Sincerely,

A handwritten signature in black ink, appearing to read "Ann Bailey". The signature is fluid and cursive, with the first letter of each name being significantly larger than the others.

Ann Bailey, Director
ENERGY STAR Product Labeling