



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

OFFICE OF  
 AIR AND RADIATION

September 18, 2017

Dear ENERGY STAR® Partners and Stakeholders:

The U.S. Environmental Protection Agency (EPA) is pleased to announce final recognition criteria for ENERGY STAR Most Efficient 2018. This letter outlines the final criteria.

These criteria will recognize the most efficient ENERGY STAR products in 2018 across 13 product categories: Air Source Heat Pumps and Central Air Conditioners, Boilers, Ceiling Fans, Clothes Washers, Dehumidifiers, Dishwashers, Dryers, Computer Monitors, Furnaces, Geothermal Heat Pumps, Refrigerator-Freezers, Ventilation Fans, and Residential Windows. Products that meet the 2018 criteria will deliver significant savings over a conventional product as noted below:

<b>Product Category</b>		<b>Energy Savings</b>
Boilers		14%
Ceiling Fans		66%
Central AC and Air Source Heat Pumps		20-30%
Clothes Dryers	Compact Ventless 240V	43%
	Electric (All Other)	28%
Clothes Washers	≤ 2.5 cu-ft	24% (and 36% water savings)
	> 2.5 cu-ft	43% (and 45% water savings)
Dehumidifiers		23%
Ductless AC and Heat Pumps		25-35%
Dishwashers		22% (and 36% water savings)
Geothermal Heat Pumps		20-40%
Furnaces		18%
Monitors		24%
Refrigerators		15%
Ventilating Fans	Bathroom/Utility	85%
	In-Line	44%
Windows		Savings vary by climate, house construction, and number and type of windows replaced.

*\*Note: In the case of appliances and HVAC equipment, energy use of a product that meets ENERGY STAR Most Efficient 2018 criteria is compared to the federal standard.*

## **Overview of Comments on and Revisions to the ENERGY STAR Most Efficient 2018 Proposals**

EPA hosted a webinar on August 17<sup>th</sup> to discuss stakeholder feedback on the 2018 proposed recognition criteria and also reviewed the nine sets of written comments submitted. The majority of commenters voiced overall support for the program as a tool for moving the market for efficient products forward and for the proposed 2018 criteria. Product-specific feedback requesting changes was offered on a subset of the proposals. EPA considered this feedback carefully and has revised the criteria for Residential Clothes Washers, Dryers, and Dehumidifiers in response. EPA also made very modest updates to a number of the HVAC recognition criteria documents to clarify system status and messaging requirements, and has updated the HVAC Narrative Guide.

Many commenters were in favor of separate of criteria for compact ventless 240V dryers, and cited larger selection of ENERGY STAR Most Efficient models as a key reason. In order to recognize the full suite of highly efficient heat pump models in this product class, EPA has made a slight adjustment to the criteria.

Commenters were likewise largely supportive of our adding small volume ( $\leq 2.5$  cu-ft) washers, with a couple recommending tighter maximum water criteria. After further consideration, EPA found that a modest change would not affect the models otherwise eligible for recognition, and has revised the water criteria to deliver even greater savings.

EPA received a comment that the level proposed for dehumidifiers was such that only whole home dehumidifiers would be recognized. After further research, EPA concurred, and the final criteria have a separate level for plug-in dehumidifiers, at 2.2 EF. A small set of dehumidifiers can meet this level now, and additional products' tested EF indicate they are extremely close to meeting this level. Additionally, EPA will separate the list of recognized dehumidifiers into plug-in and whole home groups, based on definitions as set out in the dehumidifiers specification. For 2018, both recognition and grouping into plug-in or whole home will be based on EPA research into products on our list. In 2019 and beyond, brand owners will need to submit optional QPX information on their products' type through their CB to be considered for ENERGY STAR Most Efficient.

Responses to the full range of comments can be found in the attached ENERGY STAR Most Efficient 2018 Comment Response document. You may view this and comments received at [www.energystar.gov/mostefficient](http://www.energystar.gov/mostefficient) by following the link to "ENERGY STAR Most Efficient 2018 criteria."

### **ENERGY STAR Most Efficient 2018 Categories and Recognition Criteria**

Recognition criteria have been finalized for all categories except televisions, with small revisions made to the proposals for dehumidifiers, clothes dryers and clothes washers. EPA is still engaging with stakeholders on the ENERGY STAR Version 8.0 television specification. Once this specification development process is completed, EPA will evaluate if establishing ENERGY STAR Most Efficient criteria for televisions is viable for 2018.

Final criteria for ENERGY STAR Most Efficient 2018 are summarized below. In addition to meeting these performance requirements, 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 available at [www.energystar.gov/mostefficient](http://www.energystar.gov/mostefficient) by following the link to "ENERGY STAR Most Efficient 2018 criteria."

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 $\geq 300$ cfm/watt -or- Efficiency as per 10 CFR 430 Subpart B, Appendix U (cfm/W) <table border="1"> <thead> <tr> <th>Blade span D (inches)</th> <th>Efficiency (CFM/W)**</th> </tr> </thead> <tbody> <tr> <td>19" <math>\leq</math> 36"</td> <td><math>\geq 1.03D + 60.43</math></td> </tr> <tr> <td>&gt; 36"</td> <td><math>\geq 3.88D - 42.17</math></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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Dehumidifiers	Products with a capacity less than 75 pints/day: Whole home dehumidifiers must have an Energy Factor of 2.3 or higher; plug-in dehumidifiers must have an Energy Factor of 2.2 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. <table border="1"> <thead> <tr> <th>Product type</th> <th>EER</th> <th>COP</th> </tr> </thead> <tbody> <tr> <td>Closed Loop Water-to-Air/GHP</td> <td>17.1</td> <td>3.6</td> </tr> <tr> <td>Open Loop Water-to-Air GHP</td> <td>21.1</td> <td>4.1</td> </tr> <tr> <td>Closed Loop Water-to-Water GHP</td> <td>16.1</td> <td>3.1</td> </tr> <tr> <td>Open Loop Water-to-Water GHP</td> <td>20.1</td> <td>3.5</td> </tr> <tr> <td>DGX</td> <td>16.0</td> <td>3.6</td> </tr> </tbody> </table>	Product type	EER	COP	Closed Loop Water-to-Air/GHP	17.1	3.6	Open Loop Water-to-Air GHP	21.1	4.1	Closed Loop Water-to-Water GHP	16.1	3.1	Open Loop Water-to-Water GHP	20.1	3.5	DGX	16.0	3.6		
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Computer Monitors	Total Energy Consumption ( $E_{TEC}$ ) in kilowatt-hours per year shall be calculated as follows: $E_{TEC} = 8.76 \times (0.35 \times P_{ON} + 0.65 \times P_{SLEEP})$ Where: $P_{ON}$ = measured On Mode power in watts; $P_{SLEEP}$ = measured Sleep Mode power in watts;  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: $E_{TEC\_MAX} = 1.9 + (0.12 \times A) + [3.1 \times (r + C)]$ Where: A = viewable screen area in square inches;																				

	<p><math>r</math> = Total Native Resolution in megapixels up to 5.0 megapixels total. Products with &gt;5.0 megapixels Total Native Resolution can receive a maximum <math>r</math> of 5 megapixels; and</p> <p style="margin-left: 40px;">1.9 if <math>A &lt; 180 \text{ in}^2</math></p> <p><math>C =</math> 2.7 if <math>180 \text{ in}^2 \leq A &lt; 220 \text{ in}^2</math></p> <p style="margin-left: 40px;">2.0 if <math>A \geq 220 \text{ in}^2</math></p>																	
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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>																	

<sup>1</sup> For purposes of this requirement, the manufacturer shall test the dryer according to the provisions in the DOE test procedure in 10 CFR Part 430 Subpart B Appendix D2, but where the drying temperature setting can be chosen independently of the program, it shall be set to the maximum. At the time of certification, for each basic model the manufacturer shall report per this criteria section the energy performance (CEF), the cycle program name, the temperature setting, the dryness setting, as well as any settings enabled by default, and the time taken to complete the energy test cycle (as defined in the ENERGY STAR Version 1.1 specification, Section 5C).

## ENERGY STAR Most Efficient 2018 Recognition

ENERGY STAR certified products meeting these requirements will be highlighted as ENERGY STAR Most Efficient for 2018 at: [www.energystar.gov/moste efficient](http://www.energystar.gov/moste efficient) beginning January 1, 2018. Shortly, EPA will begin distributing the 2018 ENERGY STAR Most Efficient designation to brand owners of eligible products. As a reminder, usage guidelines are available at [www.energystar.gov/most\\_efficient\\_criteria](http://www.energystar.gov/most_efficient_criteria). As new products are certified that meet the criteria, EPA will contact partners and invite them to augment their product listing with the following:

- A product image. Product images can be in any common format (jpg, png,gif), should include only one product - do not include other people and objects- be a minimum of 250 pixels wide, and for best results, be on a single color background, preferably white; and
- A product description for use on the web page (i.e., key features and functionalities, MSRP - for windows and HVAC only).

To ensure the greatest utility of the ENERGY STAR Most Efficient webpage to consumers, EPA will only highlight products that are currently available for sale in the U.S. As such, EPA reminds partners that it is critical that they keep product availability information with their Certification Bodies current.

For all HVAC product categories **except boilers**, partners must apply for recognition for all products new to ENERGY STAR Most Efficient in order for the Agency to verify the system status and messaging and variable capacity requirements. To this end, partners must submit a narrative description of how their communications system and associated products and controllers meet the requirements. EPA has provided a guide to speed the recognition process by ensuring that narratives address all the information EPA needs. EPA recognizes that these narratives apply to series of related products and only expects one submission for the entire series. For all partners with CAC, ASHP, Ductless AC or HP, or DGX and water to air heat pump products recognized in 2017, EPA will contact you if we are not certain your product meets the updated language about alerts. In cases where products will need to be updated to meet the intent, EPA will work with partners individually to establish reasonable timing to update the product without losing ENERGY STAR Most Efficient recognition. For window products, partners will need to apply for recognition for all products new to ENERGY STAR Most Efficient in order for the Agency to verify that a product meets the recognition criteria outlined above. Since the recognition criteria have not changed, window products recognized in 2017 need not be resubmitted and EPA will distribute the ESME 2018 graphic. Detailed instructions can be [found on this website](#).

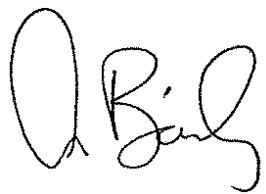
The ENERGY STAR Most Efficient 2018 designation is intended for use at point-of-sale on point-of-purchase materials, product literature, and websites. It may not be factory-applied to products or product packaging. Failure to abide by these guidelines may result in loss of recognition. EPA will highlight recognized products on the ENERGY STAR Most Efficient 2018 web page through December 31, 2018.



We look forward to working with you to promote your products earning ENERGY STAR Most Efficient recognition in 2018. Please e-mail [MostEfficient@energystar.gov](mailto:MostEfficient@energystar.gov) with any questions.

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 name "Ann" written in a large, open loop and the last name "Bailey" written in a more compact, cursive style.

Ann Bailey, Director  
ENERGY STAR Product Labeling