

ENERGY STAR® Most Efficient 2019 Stakeholder Comments

Topic	Comment Summary	EPA & DOE Responses
General		
ENERGY STAR Most Efficient Program	Five stakeholders expressed support for the ENERGY STAR Most Efficient program and highlighted the importance of recognizing efficient products on the market.	EPA appreciates the comments.
ENERGY STAR Most Efficient Program	Two stakeholders expressed the vital role ENERGY STAR Most Efficient plays in saving billions of dollars of energy savings to consumers and business each year.	EPA appreciates the comments.
ENERGY STAR Most Efficient Program	One stakeholder noted the lack of posted data and also stated that the ENERGY STAR Most Efficient criteria development process should align with that articulated in the Guiding Principles for the ENERGY STAR program.	ENERGY STAR Most Efficient is designed to identify and advance highly efficient products in the marketplace. ENERGY STAR Most Efficient complements the base ENERGY STAR program, identifying for a set of early adopter consumers and energy efficiency program sponsors, the most energy efficient of the ENERGY STAR certified products. The purpose of this complementary program calls for more rapid review and revision in line with an annual award. EPA has posted supporting data for the criteria provided for revision - for clothes washers, dehumidifiers, refrigerators, and TVs on the recognition criteria development webpage.
ENERGY STAR Program	EPA should consider establishing minimum acceptable functionality levels using appropriate performance test procedures in future ENERGY STAR specifications.	Ensuring that product performance is not compromised even as efficiency improves is a key tenet of ENERGY STAR. EPA continues to monitor the relationship between energy and water use and cleaning performance.
ENERGY STAR Most Efficient Program Categories	Two stakeholders asked that ENERGY STAR Most Efficient 2019 recognition be extended to products in the portfolio that could benefit from this higher tier, including: room air cleaners, room air conditioners, and sound bars. These products have ENERGY STAR market penetration of at least 20% in recent regional sales, so recognizing a higher efficiency level could enable the ENERGY STAR Retail Products Platform (ESRPP) program to more precisely target a tier to the most efficient technologies in alignment with EPA and guide future revisions to the ENERGY STAR specifications.	EPA will consider these expansions for ENERGY STAR Most Efficient 2020. Variable speed room air conditioners offer significant savings and thus may be appropriate for ENERGY STAR Most Efficient recognition.

<p>Connected Criteria in ENERGY STAR Most Efficient</p>	<p>One stakeholder requested EPA consider making products that meet the ENERGY STAR Most Efficient criteria and are also connected more prominent in the ENERGY STAR Most Efficient program for 2019 with an objective of potentially incorporating connectivity directly into program criteria in future years.</p>	<p>EPA appreciates this perspective and will consider steps the Agency can take in 2019 and in for future years.</p>
<p>Central Air Conditioners and Air Source Heat Pumps (Ducted and Ductless)</p>		
<p>Criteria</p>	<p>While one set of comments supported EPA's proposal of requiring that all ENERGY STAR air conditioners and heat pumps (ducted and ductless) provide heating and cooling (as applicable) at more than 3 capacity levels, another commenter offered compelling arguments for not moving forward with this proposal.</p>	<p>EPA is aware that not all currently-recognized ducted products will meet this criteria and is also aware that some products that do not meet this criteria are highly efficient and provide high sales volume. In further conversation, stakeholders brought up the idea that in some climates, two stage units meet the goals of the variable capacity requirement, providing comfort, efficiency, and grid stability at a lower cost than variable capacity units. EPA will not require variable capacity in 2019, but will investigate these claims further in the coming year, and will decide whether to require variable capacity in 2020.</p>
<p>Clothes Dryers</p>		
<p>Criteria</p>	<p>One stakeholder recommended EPA encourage stakeholders to report heat pump status in 2019 and state the intention to require reporting of that status in 2020.</p>	<p>In 2019, EPA will encourage partners to report heat pump status when certifying dryers, making it easier for utilities to incentivize these technologies in the market.</p>
<p>Clothes Washers</p>		
<p>Criteria</p>	<p>Two stakeholders supported EPA's proposal to include the minimum cleaning performance requirements for clothes washers in the ENERGY STAR Most Efficient 2019 proposal.</p> <p>One stakeholder stated EPA should not set criteria in areas beyond energy and water efficiency, even in ENERGY STAR Most Efficient.</p>	<p>As a voluntary program, ENERGY STAR is successful only as long as consumers have a positive association with the label. On occasion, requirements are added to prevent trade-offs between efficiency and performance. The need to ensure performance takes on added significance in context of ENERGY STAR Most Efficient where the levels are more stringent.</p>
<p>Criteria</p>	<p>One stakeholder requested the energy and water efficiency requirements to be differentiated in the criteria based on capacity.</p>	<p>Last year, EPA introduced criteria enabling small washers to earn ENERGY STAR Most Efficient recognition. While compact washers (< 1.6 cu-ft) are still excluded, the addition of criteria for small washers (\leq 2.5 cu-ft) to the separate criteria for large washers (> 2.5 cu-ft) provides some differentiation in the criteria based on capacity. For ENERGY STAR Most Efficient 2019, EPA will maintain the separate efficiency criteria for small and large washers.</p>

Criteria	One stakeholder requested the cleaning performance minimum score be lowered from EPA's proposal of 85 down to 80 for small and large washers.	The commenter provided no data with which to evaluate its recommendation to establish a lower cleaning performance threshold of 80 for small-size (≤ 2.5 cu-ft) front-loading clothes washers. During the recent webinar, EPA presented cleaning performance data showing two small-size clothes washer models with cleaning scores both over 90, and there has been no discernible relationship observed between cleaning performance and drum volume. EPA and DOE do not have sufficient information at this time to support establishing a lower cleaning performance threshold of 80 for small or large washers.
Criteria	Multiple stakeholders recommended EPA separate its efficiency criteria by product class, including for front load and top load clothes washers. They stated that the unique performance characteristics of different product classes merit separate efficiency criteria, and combining the efficiency criteria across multiple product classes limits consumer choice. They provided data demonstrating that the demand for front load clothes washers has plateaued, and noted that adding separate criteria for top loaders will allow consumers who plan on purchasing top loaders to have more efficient options.	EPA recognizes that top loader clothes washer technology is inherently less efficient than front loader, as noted by the commenter. ENERGY STAR Most Efficient is designed to highlight for consumers the best of the best in efficiency, which at present, front loaders represent.
Data	One stakeholder expressed concerns for the proposed minimum cleaning performance floor. The stakeholder highlighted no data has been provided to support the proposed cleaning level.	EPA has posted cleaning performance data from the pilot use of the test method and provided additional time for data review and comment.
Testing Requirements	One stakeholder expressed concern about testing burden-cost and logistical burden to equip their energy test lab for the performance test-and also stated that the case for including a cleaning floor has not been adequately made.	See Detailed Responses 1 and 2 in the Appendix.
Testing Method	Two stakeholders expressed concern about the lack of demonstrated repeatability and reproducibility of the draft cleaning performance test procedure.	See Detailed Response 2 in the Appendix.
Testing Method	One stakeholder expressed concern for the use of a test method before it is finalized and has the acceptance of stakeholders. They stated it is not a good precedent to treat draft test procedures as if they are final.	The test procedure followed the typical review process where it benefited from multiple rounds of stakeholder review and feedback. DOE used as a basis a vetted industry method with refinements added in response to lessons learned during lab testing, from stakeholder comments during the multiple draft comment periods, and confidential data and discussions submitted on its use.

Dehumidifiers

Criteria	One stakeholder strongly supported the proposed updates to the dehumidifier categories and efficacy criteria. They also supported EPA's harmonization with DOE and plan to increase stringency for 2020 instead of 2019.	EPA appreciates the support.
Criteria	One stakeholder expressed concern that EPA did not provide enough data or analysis to indicate how or why it has chosen the IEF recognition criteria.	EPA has posted a document on the ENERGY STAR Most Efficient recognition criteria development webpage that details a crosswalk between the efficacy metrics IEF and EF.

Refrigerators/Freezers

Criteria	<p>Three stakeholders supported EPA's proposal to adjust the levels for side-by-side and bottom freezer product types.</p> <p>Two of the stakeholders noted that market share based on their sales data is within the target range for ENERGY STAR Most Efficient.</p>	EPA appreciates the comments and the insights shared.
Criteria	One stakeholder supported EPA's plan to initiate efforts to highlight ENERGY STAR partners' use of low-GWP refrigerants and assist with consumer messaging on their use.	EPA appreciates the commenter's interest in this effort.
Criteria	One stakeholder expressed concern that EPA did not provide enough data or analysis to indicate how or why it has chosen certain product classes in the proposed recognition criteria.	EPA has posted data and analysis and offered additional time for review and comment. Currently available refrigerator technologies such as innovative refrigerants and variable speed compressors as well as advancements in vacuum-insulated panels (VIPs) yield significant efficiency improvement. EPA conservatively estimates at least 122 models from 36 brands are able to meet the proposed criteria, which is representative of 11% of the market.

Televisions

Criteria	<p>One stakeholder supported the high resolution allowance of 45% for TVs capable of Ultra High-Definition (UHD) in order to recognize the most efficient UHD-capable TVs. They noted that UHD TVs will consume more energy than non-UHD TVs because they provide a significantly enhanced viewing experience with more than 8 million individually addressable pixels (as defined by the Consumer Technology Association).</p>	<p>One stakeholder supported the UHD allowance of 45% for TVs capable of Ultra High-Definition (UHD) in order to recognize the most efficient UHD-capable TVs. Two stakeholders suggested that EPA lower the UHD allowance to 20% noting that 2016 regional sales data from the ENERGY STAR Retail Products Platform (ESRPP). They also stated that the power consumption gap between HD and UHD TVs has decreased significantly in the past five years and there is only a 13% difference, on average, when comparing models on the California Energy Commission (CEC) appliance database. EPA reviewed the ENERGY STAR Most Efficient TVs analysis, which is posted on the ENERGY STAR Most Efficient webpage, and concluded that a UHD allowance of 20% would be overly restrictive when coupled with the requirement that TVs also be certified to the ENERGY STAR Version 8.0 specification. While EPA has some uncertainty regarding which models will meet the Version 8.0 requirements, the Agency does anticipate numerous models dropping from the qualified product list in early 2019. Further, our analysis of currently certified UHD models showed only 1% of UHD models could meet the criteria were the UHD adder reduced to 20%. EPA appreciates the ESRPP data and comments and recognizes that progress can be made specific to the efficiency of UHD. EPA does plan to reduce this adder meaningfully in Version 9 and potentially for ENERGY STAR Most Efficient 2020.</p>
Criteria	<p>Two stakeholders supported the reintroduction of TVs as an ENERGY STAR Most Efficient category in 2019. They suggested that EPA lower the UHD allowance to 20% and noted that their 2016 sales data showed that 41% of their TV sales would be able to meet with an allowance of 20%. They also stated that the power consumption gap between HD and UHD TVs has decreased significantly in the past five years and is only 13% on average when comparing models on the California Energy Commission (CEC) appliance database.</p> <p>These stakeholders requested that EPA revisit the ENERGY STAR Most Efficient 2019 criteria analysis and the data they provided during the Version 8.0 specification development to support their position that the UHD allowance should be decreased. Lastly, they suggested that EPA decouple the energy consumption impact of UHD from other high-end features that accompany UHD, like High Dynamic Range (HDR).</p>	

Windows

Criteria	<p>Two stakeholders supported EPA's proposal to maintain the ENERGY STAR Most Efficient criteria for windows.</p>	<p>EPA appreciates the comments.</p>
Criteria	<p>Two stakeholders encouraged EPA to consider including skylights, tubular daylighting devices, and doors.</p> <p>One stakeholder recommended including the following criteria for doors:</p> <ul style="list-style-type: none"> • Greater than 1/2 lite doors with the performance criteria of .2 U (same as windows) 	<p>EPA continues to be concerned about the relatively small energy impacts of skylights, tubular daylighting devices, and doors, along with issues of availability of much higher performance versions of these products for an ENERGY STAR Most Efficient category. EPA is open to ideas and research from industry that address these issues.</p>

Appendix

Detailed
Response 1

DOE estimates that running the three cleaning performance replications on the Warm wash cycle will require approximately one full day of additional test time, beyond the requirements of performing Appendix J2 test. Based on discussions with manufacturers over the course of previous DOE rulemakings and ENERGY STAR program activities, DOE understands that all major clothes washer manufacturers who are ENERGY PARTNERS, as well as all major third-party testing laboratories, already have the capability to perform the AHAM cleaning performance tests. For these manufacturers and testing laboratories, the implementation of this proposed test method would not require any upgrades to test facilities or new training for staff. By mirroring the existing AHAM test method, DOE is leveraging the existing laboratory capabilities and expertise within the clothes washer industry.

In addition, during the webinar on September 11, 2018, DOE clarified that the cleaning performance wash cycles can be performed “after” (as opposed to “immediately after”) all test cycles required for Appendix J2. DOE understands that the phrase “immediately after” may have implied a time limit between the two types tests, or that the energy test and cleaning test must be performed in the same laboratory. DOE understands that AHAM cleaning performance tests may need to be performed in a different lab than Appendix J2 energy and water tests, in part due to practical differences in equipment setup, test materials, measurement equipment, etc. between the two test methods. DOE believes that this clarification will allow for any reasonable time that may be required to transport the washer to a different test lab for the cleaning performance tests, if necessary. EPA has maintained the cleaning floor and the associated test method in the final recognition criteria.

<p>Detailed Response 2</p>	<p>DOE notes that the proposed test method is based on AHAM's HLW-1-2013 test method; with the exception of using DOE test cloth instead of 100% cotton towels, sheets, and pillowcases as the load material. DOE also notes that the AHAM HLW-1-2013 test method is derived from the IEC 60456 test method, which is used by the European Union (EU) and other regions for measuring clothes washer performance. HLW-1-2013 and IEC 60456 are among the best available and well-established test methods in the world for measuring clothes washer cleaning performance.</p> <p>By basing its test method on HLW-1-2013, which in turn is derived from IEC 60456, DOE is leveraging the decades of testing and experience that have gone into the development of these test methods. To the extent that concerns regarding repeatability and reproducibility persist in the current versions of these test methods, DOE expects that the IEC and AHAM procedures will continue to undergo regular revisions to provide further improvements in the test measurements. Such improvements would then be reflected in the DOE test method by updating DOE's references to the latest version of the AHAM test method.</p> <p>DOE notes that the repeatability and reproducibility associated with the IEC (and by extension, AHAM) cleaning performance scores is suggested by the following:</p> <ul style="list-style-type: none">• IEC Technical Report 62617 provides an "expanded uncertainty value" of +/- 0.04 (i.e. a confidence interval of +/- 4%) for the IEC 60456 cleaning performance measurement for front-loading washers. This expanded uncertainty value represents a confidence interval to assess measurements performed at multiple laboratories following reproducibility conditions.• EU verification requirements allow a 4% tolerance on the measured cleaning performance score (Commission Regulation 1015/2015, Annex III, Table 1). EPA has maintained the cleaning floor and the associated test method in the final recognition criteria. <p>In addition, following the release of the Draft 1 Test Method, DOE analyzed confidential test data, which provides a comparison between DOE test cloth and AHAM 100% cotton load materials when performing the HLW-1-2013 test method. The test data yielded the following general conclusions:</p> <ul style="list-style-type: none">• The overall test results using DOE test cloth are extremely similar to results using AHAM 100% cotton load.• The repeatability of test results is such that the measured range of performance scores across multiple clothes washers is sufficiently larger than the run-to-run variation on an individual unit; i.e., the test method adequately differentiates product performance to identify cleaning performance trends among different models on the market.• The variation of the data indicated a repeatability confidence interval of approximately +/- 0.05 (i.e. 5%). Reproducibility could not be assessed by DOE because all of the tests were performed at a single laboratory. <p>Additionally, DOE testing of commercial clothes washers in 2014 showed typical run-to-run variability in cleaning score was within a range of +/- 1.5 across the 3 cycle replications (out of a total cleaning score of around 90), which reflects better than +/- 2% variability. EPA has maintained the cleaning floor and the associated test method in the final recognition criteria.</p>
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