



# ENERGY STAR® Program Requirements Product Specification for Clothes Washers

## Eligibility Criteria Draft 1 Version 6.0

Following is the **Draft 1 Version 6.0** product specification for ENERGY STAR qualified clothes washers. A product shall meet all of the identified criteria if it is to earn the ENERGY STAR.

**Note:** In the Version 6.0 specification revision, EPA is proposing changes to the eligibility criteria for commercial clothes washers. The text boxes below discuss the changes being proposed, EPA's rationale for these changes, and highlight several topics on which the Agency is particularly seeking stakeholder feedback. EPA also welcomes comments on all proposals included in this Draft 1 specification. Please send comments via email to [appliances@energystar.gov](mailto:appliances@energystar.gov) no later than August 29, 2011.

- 1) **Definitions:** Below are the definitions of the relevant terms in this document.
  - A. **Residential Clothes Washer:** A consumer product designed to clean clothes, utilizing a water solution of soap and/or detergent and mechanical agitation or other movement, and must be one of the following classes: automatic clothes washers, semi-automatic clothes washers, and other clothes washers.
  - B. **Commercial Clothes Washer:** A soft-mounted front-loading or soft-mounted top-loading clothes washer that:
    - (1) Has a clothes compartment that:
      - (i) For horizontal-axis clothes washers, is not more than 3.5 cubic feet; and
      - (ii) For vertical-axis clothes washers, is not more than 4.0 cubic feet; and
    - (2) Is defined for use in:
      - (i) Applications in which the occupants of more than one household will be using the clothes washer, such as multi-family housing common areas and coin laundries; or
      - (ii) Other commercial applications.
  - C. **Modified Energy Factor:** Modified Energy Factor ("MEF") is the present energy efficiency measure for all clothes washers. MEF is the quotient of the cubic foot capacity of the clothes container divided by the total clothes washer energy consumption per cycle, with such energy consumption expressed as the sum of the machine electrical energy consumption, the hot water energy consumption, and the energy required for removal of the remaining moisture in the wash load. The units are cubic feet per kilowatt-hours (kWh) per cycle (ft<sup>3</sup>/kWh/cycle). The higher the value, the more efficient the clothes washer.
  - D. **Basic Model:** Units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.
  - E. **Water Factor:** Water factor ("WF") is the present water efficiency calculation that allows the comparison of clothes washer water consumption independent of clothes washer capacity. The term is expressed as gallons per cycle per cubic feet. WF is the quotient of the total weighted per-cycle water consumption divided by the capacity of the clothes washer. The lower the value, the more efficient the clothes washer.

**Note:** For Version 6.0, EPA is proposing to harmonize its definition of a Commercial Clothes Washer with the applicable Department of Energy (DOE) definition contained in 10 CFR § 431.152. With this proposed change, EPA's intent is to provide more clarity and consistency for stakeholders. In general, EPA does not believe this definition change will have a practical impact on which commercial washers are eligible to earn the ENERGY STAR label. However, EPA has noted several possible exceptions to this. Namely, there are a couple of ENERGY STAR qualified commercial clothes washers that exceed the DOE horizontal-axis upper capacity limit of 3.5 cubic feet. Under the harmonized definition, one or both of these models may no longer be eligible to earn the ENERGY STAR label. EPA seeks feedback from stakeholders on this issue and more broadly, on the proposal to harmonize with the DOE definition of a Commercial Clothes Washer.

In addition, consistent with other recent appliance specification revisions, EPA is proposing to amend the definition for Basic Model to be consistent with 10 CFR § 430.2 and DOE's clarified interpretation of the Basic Model definition ( see, Federal Register Vol. 76, No. 44, page 12429). For further explanation on the Basic Model definition, please refer to DOE's final rule.<sup>1</sup>

**Scope:**

- F. **Included Products:** Products that meet the definition of a residential or commercial clothes washer as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B.
- G. **Excluded Products:** Clothes washers with a capacity of less than 1.6 ft<sup>3</sup> and/or are configured in any way other than a front- or top-loading design are not eligible for ENERGY STAR. Also, all-in-one washer-dryers are not eligible for ENERGY STAR. Products that are covered under other ENERGY STAR product specifications are not eligible for qualification under this specification.

2) **Qualification Criteria:**

- A. **MEF and WF Requirements:**

**Table 1: ENERGY STAR Criteria for Clothes Washers**

Residential Clothes Washers	MEF $\geq$ 2.0 WF $\leq$ 6.0
Commercial Clothes Washers	MEF $\geq$ 2.2 WF $\leq$ 4.5

**Note:** In anticipation of new Federal minimum standards for commercial clothes washers that become effective January 8, 2013, EPA has reviewed the current ENERGY STAR criteria for commercial clothes washers. Under the new Federal standards, a front-loading commercial washer's Modified Energy Factor (MEF) must be greater than or equal to 2.0 and Water Factor (WF) must be less than or equal to 5.5. Since these levels meet or exceed the current ENERGY STAR criteria (2.0 MEF and 6.0 WF), EPA has determined a criteria revision is necessary in order for the program to continue to label commercial clothes washers.

Based on initial research and stakeholder outreach, EPA believes there will continue to be cost-effective, technologically feasible options to enhance the efficiency level of commercial clothes washers beyond the Federal minimum. Stakeholders have supported a pathway that would continue to allow commercial clothes washers to earn the ENERGY STAR label and did not support the alternative of sun-setting coverage of commercial washers when the new minimum standards become effective in 2013.

Some stakeholders have also raised concerns that wash and rinse performance of clothes washers may be diminished as efficiency requirements are strengthened. EPA welcomes feedback on the possibility of incorporating a cleaning and/or rinse performance requirement into the ENERGY STAR clothes washer specification through a future specification revision process. In addition, EPA welcomes feedback on potentially applicable industry test method(s) and their status. EPA does not, however, intend to consider cleaning and/or rinse performance requirements through this Version 6.0 revision

<sup>1</sup> DOE Final Rule available at: [http://www1.eere.energy.gov/buildings/appliance\\_standards/pdfs/cce\\_finalrule\\_notice.pdf](http://www1.eere.energy.gov/buildings/appliance_standards/pdfs/cce_finalrule_notice.pdf)  
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**EPA will not be proposing revisions to the criteria for residential clothes washers through this specification revision.**

With these considerations in mind, for Version 6.0, EPA is proposing to strengthen the ENERGY STAR criteria for commercial clothes washers to a MEF greater than or equal to 2.2 and WF less than or equal to 4.5, harmonizing with the Consortium for Energy Efficiency (CEE) current Tier 2 level. These new levels are shown in Table 1, above. EPA believes that these identified performance levels will allow the program to continue to serve as a differentiator in the market of highly efficient cost-effective models. EPA has also noted that a number of utility programs are currently rebating commercial clothes washers at the proposed level.

Currently, there are four manufacturers that produce ENERGY STAR qualified commercial clothes washers. All four manufacturers have products that would meet the proposed criteria. In total, approximately 22 models, representing 43 percent of current ENERGY STAR qualified commercial clothes washers, meet the proposed criteria. Although EPA does not have data as to the total number of commercial clothes washers available on the market, based upon initial market research and conversations with manufacturers, the Agency believes the proposed levels will be able to successfully designate the top performers. EPA welcomes additional information regarding the total number of commercial washers available on the U.S. market.

Based on review of the analysis presented in the 2009 DOE Technical Support Document (TSD), EPA expects purchasers will see a payback that is within a reasonable amount of time. The total lifetime savings (including water, gas, and/or electricity savings) for an ENERGY STAR qualified front-loading commercial clothes washer model over a non-ENERGY STAR qualified front-loading commercial clothes washer model is estimated between \$350 and \$580 for multi-family housing, depending on if the unit uses gas or electric water heating and/or drying. Savings at a Laundromat location is estimated at \$340. DOE estimated that the vast majority of Laundromat locations utilize gas for water heating and drying. Further information will be provided during the commercial clothes washer webinar.

Significant Digits and Rounding:

- a. All calculations shall be carried out with directly measured (unrounded) values.
  - b. Unless otherwise specified, compliance with specification limits shall be evaluated using directly measured or calculated values without any benefit from rounding.
  - c. Directly measured or calculated values that are submitted for reporting on the ENERGY STAR website shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.
- B. Model Numbers: Model numbers used for ENERGY STAR qualified product submissions shall be consistent with Federal Trade Commission (FTC) and Department of Energy (DOE) submissions.

**Note:** Consistent with other appliance specification revisions, EPA is proposing to revise the model number language to clarify that model numbers used for ENERGY STAR qualified product submissions should be equivalent to those used in compliance reports submitted to FTC and DOE. Currently in Version 5.1, EPA requires that model numbers used to follow FTC and DOE guidelines. EPA welcomes feedback on this proposed change.

3) **Test Requirements:**

- A. One of the following sampling plans shall be used to test for qualification to ENERGY STAR:
  - a. A representative unit shall be selected for testing based on the definition for Basic Model provided in Section 1. above; or
  - b. Units shall be selected for testing per the sampling requirements as defined in Table 2:

**Table 2: ENERGY STAR  
Sampling Requirements for Clothes Washers**

Residential Clothes Washers	10 CFR § 429.20, which references 10 CFR § 429.11
Commercial Clothes Washers	10 CFR § 429.46, which references 10 CFR § 429.11

**Note:** In response to stakeholder feedback and consistent with other appliance specification revision efforts, EPA has made explicit reference to the latest DOE sampling procedures (found in the March 7, 2011, Federal Register Vol. 76, No. 44, on page 12456) for purposes of qualification testing. This added language formalized the current practice, to allow manufacturers the option to demonstrate qualification based on a single test or leverage testing performed for purposes of minimum efficiency standards. EPA welcomes feedback on this proposed change.

- B. When testing clothes washers, the following test methods shall be used to determine ENERGY STAR qualification:

**Table 3: Test Methods for ENERGY STAR Qualification**

Efficiency Requirement	Test Method Reference
MEF	10 CFR 430, Subpart B, Appendix J1
WF	

- 5) **Effective Date:** The ENERGY STAR Clothes Washer specification shall take effect on the dates specified in Table 4. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the date (e.g., month and year) on which a unit is considered to be completely assembled.

**Table 4: Specification Effective Dates**

Residential Clothes Washer Effective Date	Commercial Clothes Washer Effective Date
January 20, 2012	January 8, 2013

**Note:** EPA is proposing the Version 6.0 specification containing new criteria for commercial washers be effective on January 8, 2013, thus aligning with the date on which the new Federal standard for commercial washers becomes effective. EPA welcomes stakeholder feedback on the proposed effective date.

- 6) **Future Criteria Revisions:** ENERGY STAR reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. In the event of a specification revision, please note that the ENERGY STAR qualification is not automatically granted for the life of a product model.