



# ENERGY STAR<sup>®</sup> Program Requirements for Boilers

## Partner Commitments

Following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacture and labeling of ENERGY STAR qualified products. The ENERGY STAR Partner must adhere to the following partner commitments:

### Qualifying Products

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1. Comply with current ENERGY STAR Eligibility Criteria, which define performance requirements and test procedures for boilers. A list of eligible products and their corresponding Eligibility Criteria can be found at [www.energystar.gov/specifications](http://www.energystar.gov/specifications).
2. Obtain certification of ENERGY STAR qualification from a Certification Body recognized by EPA for boilers prior to associating the ENERGY STAR name or mark with any product. As part of this certification process, products must be tested in a laboratory recognized by EPA to perform boiler testing.

### Using the ENERGY STAR Name and Marks

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3. Comply with current ENERGY STAR Identity Guidelines, which define how the ENERGY STAR name and marks may be used. Partner is responsible for adhering to these guidelines and ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance. The ENERGY STAR Identity Guidelines are available at [www.energystar.gov/logouse](http://www.energystar.gov/logouse).
4. Use the ENERGY STAR name and marks only in association with qualified products. Partner may not refer to itself as an ENERGY STAR Partner unless at least one product is qualified and offered for sale.
5. Provide clear and consistent labeling of ENERGY STAR qualified boilers.
  - 5.1. The ENERGY STAR mark must be clearly displayed in product literature (i.e., user manuals, spec sheets, etc.) and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed.
  - 5.2. It is also recommended that the mark appear on the top/front of the product and on the product packaging.

### Verifying Ongoing Product Qualification

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6. Participate in third-party verification testing through a Certification Body recognized by EPA for boilers.
7. Comply with tests that EPA/DOE may conduct at its discretion on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at the government's request.

### Providing Information to EPA

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8. Provide unit shipment data or other market indicators to EPA annually to assist with creation of ENERGY STAR market penetration estimates, as follows:

- 8.1. Partner must submit the total number of ENERGY STAR qualified boilers shipped in the calendar year or an equivalent measurement as agreed to in advance by EPA and Partner. Partner shall exclude shipments to organizations that rebrand and resell the shipments (unaffiliated private labelers).
- 8.2. Partner must provide unit shipment data segmented by meaningful product characteristics (e.g., type, capacity, presence of additional functions) as prescribed by EPA.
- 8.3. Partner must submit unit shipment data for each calendar year to EPA or an EPA-authorized third party, preferably in electronic format, no later than March 1 of the following year.

Submitted unit shipment data will be used by EPA only for program evaluation purposes and will be closely controlled. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;

9. Report to EPA any attempts by laboratories or Certification Bodies (CBs) to influence testing or certification results or to engage in discriminatory practices.
10. Notify EPA of a change in the designated responsible party or contacts within 30 days using the My ENERGY STAR Account tool (MESA) available at [www.energystar.gov/mesa](http://www.energystar.gov/mesa).

### **Training and Consumer Education**

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11. Partner shall comply with the following, product-specific requirements concerning training and education:
  - Offer and encourage training to distributors and/or contractors on the following issues: system venting, condensate removal, code compliance, and proper use of the Manual J calculation, or other equivalent calculation, in order to encourage proper sizing of equipment.

### **Performance for Special Distinction**

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In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures, and should keep EPA informed on the progress of these efforts:

- Provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.
- Consider energy efficiency improvements in company facilities and pursue benchmarking buildings through the ENERGY STAR Buildings program.
- Purchase ENERGY STAR qualified products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR qualified product information to employees for use when purchasing products for their homes.
- Feature the ENERGY STAR mark(s) on Partner website and other promotional materials. If information concerning ENERGY STAR is provided on the Partner website as specified by the ENERGY STAR Web Linking Policy (available in the Partner Resources section of the ENERGY STAR website), EPA may provide links where appropriate to the Partner website.
- Ensure the power management feature is enabled on all ENERGY STAR qualified displays and computers in use in company facilities, particularly upon installation and after service is performed.
- Provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR qualified products.
- Provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR website, etc. The plan may be as simple as

providing a list of planned activities or milestones of which Partner would like EPA to be aware. For example, activities may include: (1) increasing the availability of ENERGY STAR qualified products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrating the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) providing information to users (via the website and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products; and (4) building awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event.

- Join EPA's SmartWay Transport Partnership to improve the environmental performance of the company's shipping operations. The SmartWay Transport Partnership works with freight carriers, shippers, and other stakeholders in the goods movement industry to reduce fuel consumption, greenhouse gases, and air pollution. For more information on SmartWay, visit [www.epa.gov/smartway](http://www.epa.gov/smartway).
- Join EPA's Climate Leaders Partnership to inventory and reduce greenhouse gas emissions. Through participation, companies create a credible record of their accomplishments and receive EPA recognition as corporate environmental leaders. For more information on Climate Leaders, visit [www.epa.gov/climateleaders](http://www.epa.gov/climateleaders).
- Join EPA's Green Power Partnership. EPA's Green Power Partnership encourages organizations to buy green power as a way to reduce the environmental impacts associated with traditional fossil fuel-based electricity use. The partnership includes a diverse set of organizations including Fortune 500 companies, small and medium businesses, government institutions as well as a growing number of colleges and universities. For more information on Green Power, visit [www.epa.gov/greenpower](http://www.epa.gov/greenpower).



# ENERGY STAR® Program Requirements Product Specification for Boilers

## Eligibility Criteria DRAFT Version 2.1

Following is the Version 2.1 product specification for ENERGY STAR qualified boilers. A product shall meet all of the identified criteria if it is to earn the ENERGY STAR.

### 1) **Definitions:** Below are the definitions of the relevant terms in this document.

- A. **Residential Boiler:** A self contained fuel burning appliance for supplying low pressure steam or hot water for space heating applications. A heating unit that meets this definition and also provides hot water for domestic or other use is considered a boiler for purposes of this agreement (see Combination Space-Heating and Water Heating Appliance below).
- B. **Combination Space-Heating and Water Heating Appliance:** Appliance that provides both space conditioning (boiler) and hot water heating with one appliance or energy source. The combination appliance circulates hot water from the water heater through a heat exchanger in the air handler. A blower will move the heated air through a standard duct system. In the summer, an air conditioner is connected to the exchanger and the system functions similarly, with cool air being pushed through the ductwork.
- C. **Product Family:** A group of models sufficiently similar that the energy performance of all members may be predicted from the energy performance of representative models. Generally, this will be a regular range of sizes of a similar type, design and construction, and having a common designation as catalogued. Differentiators for product families include but are not limited to: heating medium (water vs. steam); fuel type (oil vs. gas); location (indoors vs. outdoors); trim (bare boiler, boiler-burner unit, packaged boiler); draft (natural, mechanical – induced vs. forced); and burner type (atmospheric vs. power).
- D. **AFUE:** The Annual Fuel Utilization Efficiency ("AFUE") measures the amount of fuel converted to space heat in proportion to the amount of fuel entering the boiler. This is commonly expressed as a percentage.
- E. **CAafue:** The Combined Appliance Annual Fuel Utilization Efficiency ("CAafue") is the effective efficiency of the combined appliance in performing the function of space heating.
- F. **Manual J Calculation:** A calculation performed to determine the heating load for a residence or small commercial building. The calculation includes site-specific characteristics such as regional weather data, building framing materials, building insulation levels, building air infiltration levels and window area. The calculation follows procedures and protocols developed by the Air Conditioning Contractors of America.

### 2) **Scope:**

- A. **Included Products:** Products that meet the definitions of a residential boiler as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B.
- B. **Excluded Products:** Boilers intended for commercial installation and/or with a rating of 300,000 Btu per hour energy or higher are not eligible for ENERGY STAR.

**3) Qualification Criteria:**

- A. Energy Efficiency Requirements: To qualify for ENERGY STAR, residential boilers shall meet a minimum 85% AFUE (CAafue).
- B. Significant Digits and Rounding:
  - a. All calculations shall be carried out with actual measured or observed values. Only the final result of a calculation shall be rounded. Calculated results shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.
  - b. Unless otherwise specified, compliance with specification limit shall be evaluated using exact values without any benefit from rounding.

**4) Test Requirements:**

- A. Representative Models shall be selected for testing per the following requirements:
  - a. For qualification of an individual product model, the representative model shall be equivalent to that which is intended to be marketed and labeled as ENERGY STAR.
  - b. For qualification of a product family, any model within that product family can be tested and serve as the representative model.
- B. When testing residential boilers, the following test methods shall be used to determine ENERGY STAR qualification:

<b>Table 1: Test Methods for ENERGY STAR Qualification</b>	
<b>ENERGY STAR Requirement</b>	<b>Test Method Reference</b>
AFUE	10 CFR part 430 Subpart B, Appendix N
CAFUE	ANSI/ASHRAE 124-1991 " <i>Methods of Testing for Rating Combination Space-Heating and Water-Heating Appliances</i> "

**Note:** When the primary heating source of the combined appliance is a residential boiler, the CAafue shall be the same as the AFUE of the boiler as determined by DOE test procedures specified in 10 CFR 430 Subpart B, Appendix N.

- 5) **Effective Date:** The ENERGY STAR Boiler specification shall take effect on **April 1, 2002**. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on its 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.
- 6) **Future Specification Revisions:** EPA reserves the right to change this 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.