



ENERGY STAR® Program Requirements For Commercial Packaged Boilers

Partner Commitments

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

Qualifying Products

1. Comply with current ENERGY STAR Eligibility Criteria, which define performance requirements and test procedures for commercial packaged boilers. A list of eligible products and their corresponding Eligibility Criteria can be found at www.energystar.gov/specifications.
2. **Prior to associating the ENERGY STAR name or mark with any product**, obtain written certification of ENERGY STAR qualification from a Certification Body recognized by EPA for commercial packaged boilers. As part of this certification process, products must be tested in a laboratory recognized by EPA to perform commercial packaged boiler testing. A list of EPA-recognized laboratories and Certification Bodies can be found at www.energystar.gov/testingandverification.

Using the ENERGY STAR Name and Marks

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.
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 in the U.S. and/or ENERGY STAR partner countries.
5. Provide clear and consistent labeling of ENERGY STAR certified commercial packaged boilers.
 - 5.1. The ENERGY STAR mark must be clearly displayed on the top/front of the product (on product labels and/or as a permanent mark), in product literature (i.e., user manuals, spec sheets, etc.) and on the manufacturer's Internet site where information about ENERGY STAR certified models is displayed.
 - 5.2. It is also recommended that the mark appear on the product packaging.

Verifying Ongoing Product Qualification

6. Participate in third-party verification testing through a Certification Body recognized by EPA for commercial packaged boilers, providing full cooperation and timely responses. EPA/DOE may also, at its discretion, conduct tests on products that are referred to as ENERGY STAR certified. These products may be obtained on the open market, or voluntarily supplied by Partner at the government's request.

Providing Information to EPA

7. Provide unit shipment data or other market indicators to EPA annually to assist with creation of ENERGY STAR market penetration estimates, as follows:
 - 7.1. Partner must submit the total number of ENERGY STAR certified commercial packaged 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).
 - 7.2. Partner must provide unit shipment data segmented by meaningful product characteristics (e.g., type, capacity, presence of additional functions) as prescribed by EPA.
 - 7.3. 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. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner.
8. Report to EPA any attempts by recognized laboratories or Certification Bodies to influence testing or certification results or to engage in discriminatory practices.
9. 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.

Performance for Special Distinction

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, and communicate 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.
- 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.



ENERGY STAR Program Requirements Product Specification for Commercial Packaged Boilers

Eligibility Criteria Version 1.0

Following is the **Version 1.0** product specification for Commercial Packaged 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. Commercial Boiler¹: A type of packaged low pressure boiler with a capacity at full load rated input of 300,000 Btu per hour (Btu/hr) or more, which is distributed in commerce: (1) for heating or space conditioning applications in commercial buildings; or (2) for service water heating in buildings, excluding those products that meet the definition of Hot Water Supply Boiler.
- B. Hot Water Supply Boiler²: A packaged boiler designed for heating potable water for purposes other than space heating, with an input rating from 300,000 Btu/hr to 12,500,000 Btu/hr and of at least 4,000 Btu/hr per gallon of stored water.
- C. Packaged Boiler¹: A boiler that is shipped complete with heating equipment, mechanical draft equipment and automatic controls in one or more sections but is not custom designed and/or field constructed.
- D. Thermal Efficiency (TE)¹: The ratio of the heat energy (Btu/hr) absorbed by the water, or the water and steam, to the higher heating value for the fuel burned.
- E. Turndown Ratio: The ratio of the boiler's maximum nameplate firing rate (Btu/hr) to the lowest nameplate firing rate (Btu/hr).
- F. Basic Model¹: All 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 efficiency.

2) Scope:

- A. Included Products: Only products that meet the definitions of both a commercial boiler and packaged boiler, as specified herein, which are marketed for sale in the commercial market are eligible for ENERGY STAR certification.
- B. Excluded Products: The following products are not eligible for certification under this specification:

¹ Based on definitions in 10 CFR Subpart E §431.82. When in conflict, the definitions in 10 CFR Subpart E §431.82 take precedence.

² Based on definitions in 10 CFR Subpart G §431.102. When in conflict, the definitions in 10 CFR Subpart G §431.102 take precedence.

- a. Products that are covered under other ENERGY STAR product specifications. The list of specifications currently in effect can be found at www.energystar.gov/specifications.
- b. Commercial boilers with a capacity greater than 2,500,000 Btu/hr.

3) **Certification Criteria:**

- A. **Energy Efficiency Requirements:** To certify to ENERGY STAR, commercial packaged boilers shall meet the following minimum requirements:
 - a. Thermal Efficiency \geq 94.0%
 - b. Turndown Ratio \geq 5:1
- B. **Significant Digits and Rounding:**
 - a. All calculations shall be carried out with actual measured (unrounded) values. Only the final result of a calculation shall be rounded.
 - b. Unless otherwise specified below, compliance with specification limits shall be evaluated using exact 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.
- C. **Reporting Requirements**
 - a. Report whether models are certified to UL 795 *Standard for Commercial-Industrial Gas Heating Equipment*, ANSI Z21.13-2014/CSA 4.9 *Gas-Fired Low Pressure Steam and Hot Water Boilers*, another combustion safety certification, or none.

4) **Test Requirements:**

- A. One of the following sampling plans shall be used for purposes of testing for ENERGY STAR certification:
 - 1) A single unit is selected, obtained, and tested. The measured performance of this unit and of each subsequent unit manufactured must be equal to or better than the ENERGY STAR specification requirements. Results of the tested unit may be used to qualify additional individual model variations within a basic model as long as the definition for basic model provided in Section 1, above, is met; or
 - 2) Units are selected for testing and results calculated according to the sampling requirements defined in 10 CFR Part 429, Subpart B § 429.60 and/or § 429.70. The certified rating must be equal to or better than the ENERGY STAR specification requirements. Results of the tested unit may be used to qualify additional model variations within a basic model as long as the definition for basic model provided in Section 1, above, is met. Further, all individual models within a basic model must have the same certified rating based on the applicable sampling criteria. This rating must be used for all manufacturer literature, the qualified product list, and certification of compliance to DOE standards.
- B. When testing commercial packaged boilers, the following test methods shall be used to determine ENERGY STAR certification:

Table 1: Test Methods for ENERGY STAR Certification

ENERGY STAR Requirement	Test Method Reference
Thermal Efficiency	10 CFR Part 431.86
Turndown Ratio*	UL 795 or ANSI Z21.13-2014/CSA 4.9

*Turndown ratio may be demonstrated for ENERGY STAR certification and verification through UL795 or ANSI Z21.13-2014/CSA 4.9 safety certification documentation.

5) Effective Date:

The ENERGY STAR Commercial Packaged Boilers specification is effective immediately. To certify 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 on which a unit is considered to be completely assembled.

6) Future Specification Revisions:

EPA 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 certification is not automatically granted for the life of a product model.