



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

OFFICE OF
AIR AND RADIATION

August 28, 2015

Dear ENERGY STAR® Commercial Boiler Manufacturer or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) has launched the development of an ENERGY STAR specification for commercial boilers and is pleased to share with you the Draft 1 Version 1.0 ENERGY STAR Commercial Boilers Eligibility Criteria. This letter provides an overview of the ENERGY STAR program, explains the opportunity for commercial boilers, and highlights key elements of the Draft 1 specification.

ENERGY STAR Overview

ENERGY STAR is a voluntary program with approximately 16,000 private and public sector partners. More than 2,000 manufacturers currently participate in the program, qualifying over 40,000 product models across more than 70 product categories, including nearly 20 commercial products. A complete list of ENERGY STAR product categories can be found at www.energystar.gov/Products. The ENERGY STAR is an influential label that is recognized by over 85 percent of Americans nationwide. Products that earn the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy efficiency guidelines.

The ENERGY STAR program benefits partners by benefiting their customers. Last year alone, Americans, with the help of ENERGY STAR, saved \$34 billion on utility bills. In doing so, they prevented more than 300 million metric tons of greenhouse gas (GHG) emissions and provided over \$12 billion in benefits to society due to reduced damages from climate change. Nearly 700 utilities and other energy efficiency program sponsors, servicing over 87 percent of U.S. households in 50 states, leverage ENERGY STAR to deliver greater energy efficiency. Consistent with our commitment to helping consumers save money and reduce their environmental impact, EPA seeks to expand the ENERGY STAR program as new opportunities arise.

In assessing the suitability of new products for inclusion in the ENERGY STAR program and establishing ENERGY STAR product performance specifications, EPA makes use of a set of well-tested program principles. In consideration of these principles, EPA ensures that product categories proposed for inclusion in the ENERGY STAR portfolio will yield significant energy savings on a national basis. EPA pursues products where product energy consumption and performance can be measured and verified with testing, and when establishing eligibility criteria, EPA proposes levels that maintain or enhance product performance such that performance is not traded for efficiency. Additionally, the Agency sets specifications that enable purchasers to recover their investments in greater efficiency within a reasonable period of time, and such that more than one manufacturer can meet them. For more information, the ENERGY STAR Guiding Principles are available at www.energystar.gov/ProductDevelopment.

ENERGY STAR Opportunity

In commercial buildings, space and water heating dominate the gas usage, representing more than 90% of total energy consumption. High efficiency commercial boilers provide a viable opportunity for significant energy and cost savings.

EPA's initial scoping assessment indicates that the market for commercial boilers is growing, driven primarily by the construction of multi-family housing, schools, and hospitals to meet demands of our growing population. Based on information provided by the Business Research Group on U.S. commercial boiler market trends, EPA estimates that the current installed base for commercial boilers is about 1.6 million units, resulting in an annual gas load of 15.0 billion therms. Based on historical uptake in the commercial sector, an ENERGY STAR label for commercial boilers could yield significant savings in new construction and replacement installations.

In reviewing the Air Conditioning, Heating and Refrigeration Institute (AHRI) certified product performance directory of available products, EPA found that there is sufficient differentiation in energy performance and a wide variety of high efficiency products, providing a good opportunity for ENERGY STAR to recognize manufacturers that currently offer high efficiency designs to consumers. The proposed performance level of 94.0% Thermal Efficiency (TE) provides the best combination of product availability and savings. ENERGY STAR recognition of high efficiency boilers will help to move the market toward higher efficiencies, encouraging manufacturers to introduce new equipment that bring greater savings to the consumer.

Draft 1 Version 1.0 Eligibility Criteria

The Draft 1 Version 1.0 Commercial Boilers specification includes minimum Thermal Efficiency and turndown ratio criteria. Thermal Efficiency is widely used by manufacturers to rate energy performance of commercial boilers and is supported by the federal test method, 10 CFR Part 431.86. Turndown ratio allows the boiler to operate over a wide range of firing rates to meet variable loads and thus increase the overall efficiency of the boiler. Other energy efficiency programs, such as the Federal Energy Management Program (FEMP) and Consortium for Energy Efficiency (CEE) also promote the capability to vary heating output by modulating the burner, recommending a minimum turndown ratio.

Key elements of the Draft 1 specification include:

1. **Scope.** Commercial boilers up to and including 2.5 MBtu/h in capacity are eligible under this Version 1.0. EPA understands that commercial boilers above 2.5 MBtu/h are typically custom designed and field assembled depending on the application. This product customization could impact the product performance making it difficult to establish standardized criteria. Thus, this version 1 concentrates on smaller products.
2. **Qualification Criteria.** EPA is proposing an energy efficiency performance level of 94.0% TE and a turndown ratio of 5:1. The 94.0% TE level aligns with current FEMP requirements and in combination with the 5:1 turndown ratio, reflects the performance of the top 18% of models currently available in the marketplace.
3. **Test Methods.** EPA proposes adopting the federal test method for commercial boilers, 10 CFR Part 431.86, for purposes of ENERGY STAR certification.

More details regarding EPA's rationale for proposing these requirements are included in note boxes throughout the draft specification document.

Comment Submittal Process

Stakeholders are encouraged to provide written comments for EPA consideration to Commercialboilers@energystar.gov by **September 25, 2015**. All comments will be posted to the ENERGY STAR Product Development website unless the submitter requests otherwise.

EPA plans to host a stakeholder meeting on **September 09, 2015 from 1 to 3 pm EDT**, to discuss the Draft 1 specification and address initial stakeholder comments and questions. To participate in this webinar, [please register here](#) by Tuesday, September 08. Stakeholders are encouraged to inform EPA of any industry events that may conflict with this proposed date.

To track EPA's progress in developing the ENERGY STAR Commercial Boilers specification, visit the Product Development website at www.energystar.gov/newspeccs and click on "Commercial Boilers".

Please direct any specific questions to Abigail Daken at EPA, daken.abigail@epa.gov or 202-343-9375 and Sarah Medepalli, ICF International, at sarah.medepalli@icfi.com or 202-677-5201. Thank you for taking the time to review this draft specification. I look forward to working with you over the next few months.

Sincerely,



Abigail Daken
U.S. Environmental Protection Agency
ENERGY STAR HVAC Program