

October 13, 2015

Ms. Abigail Daken
US Environmental Protection Agency
1200 Pennsylvania Avenue
Washington, DC 20460

Dear Ms. Daken:

The Consortium for Energy Efficiency (CEE) respectfully submits the following comments in response to the *ENERGY STAR® Draft 1 Version 1.0 ENERGY STAR Commercial Boilers Eligibility Criteria* (Draft Specification), released by the US Environmental Protection Agency (EPA) on August 28, 2015.

CEE is the binational organization of energy efficiency program administrators and a staunch supporter of the ENERGY STAR® Program. CEE members are responsible for ratepayer funded efficiency programs in 45 US states, the District of Columbia, and seven Canadian provinces. In 2013, CEE members directed nearly \$6.4 billion of the \$8 billion in energy efficiency and demand response program expenditures in the two countries. These comments are offered in support of the local activities CEE members carry out to actively leverage the ENERGY STAR brand. CEE consensus comments are offered in the spirit of strengthening ENERGY STAR so it may continue to serve as the national marketing platform for energy efficiency.

CEE highly values the role ENERGY STAR plays in differentiating energy efficient products and services that the CEE membership supports locally throughout the US and Canada. We appreciate the opportunity to provide these comments.

While ENERGY STAR Recognition for Commercial Boilers May Prove Beneficial, an Equipment Specification Alone is Unlikely to Ensure Energy Savings In the Field

CEE supports the EPA decision to address energy savings opportunities in the commercial boiler market, so long as EPA can do so in a manner consistent with the brand promise. Commercial boilers represent significant energy use in the commercial sector, and currently over 40 CEE members offer measures related to high efficiency commercial boilers. Additionally, there are multiple high efficiency models from a number of manufacturers in the market. Condensing

models can achieve efficiencies of over 90 percent thermal efficiency (TE), while noncondensing models typically only reach 85 percent TE. CEE members conclude that condensing models offer significant energy savings potential.

However, condensing boilers require low return water temperature in order to achieve their potential efficiencies. Additionally, controls such as an outdoor temperature reset control are essential to enable the boiler to achieve efficient performance in field. However, many commercial boilers are installed in retrofit applications where the system design or the operating conditions do not allow the necessary return temperatures required for condensing performance. In these conditions a condensing boiler may not represent a significant energy savings over a high performing noncondensing boiler.

The ENERGY STAR logo is a powerful market tool for differentiating efficient products, and the rated efficiencies of commercial boilers lend themselves to such differentiation. However, due to the impacts of system design and return water temperature on condensing operation, customers may not be able to realize the energy savings resulting from the installation and use of a condensing commercial boiler without addressing other elements of their heating system. For instance, when a 94 percent TE condensing boiler operates in a noncondensing mode, the field efficiency of that equipment is approximately the same as a properly installed 85 percent TE boiler, an almost ten percent decrease in performance. While determining the frequency of these improper installations is challenging, one recent review of residential boilers found that due to these issues, on average condensing boilers were operating 6 percent below their rated efficiencies. CEE is therefore concerned about the potentially negative impacts that may arise from introducing recognition in this area until the impacts of system design and return water temperature are better addressed.

In situations where condensing operation is possible, the proposed level of 94 percent TE represents significant energy savings and provides differentiation for top performers in the market. However, program administrators are moving away from a singular focus on rated equipment efficiencies for this product category. Instead, programs are focusing efforts on educating owners and installers about the requirements for high efficiency operation, verifying that distribution systems are capable of returning low water temperatures and that they are operated to do so, and promoting the proper installation and commissioning of controls such as outdoor temperature reset controls. In the recent revision of the *CEE Commercial Boiler Systems Initiative*, we chose not to provide differentiation among condensing products, instead focusing on differentiation between condensing and noncondensing products. This reflected an increased emphasis on ensuring that systems incorporating condensing boilers were designed and operated in a manner that allows the equipment to reach rated efficiencies, while moving the market to properly installed and operated condensing equipment to avoid a false sense of savings from highly rated equipment that is not properly installed and operated. In the field, a properly installed 90 percent TE boiler will operate at higher efficiencies than an improperly

specified and installed 94 percent TE model that will reach efficiencies similar to an 85 percent TE boiler if it is not able to function in condensing mode.

CEE therefore believes that while ENERGY STAR recognition could provide meaningful differentiation in the market, condensing products can only meet the brand promise when installed in a system that allows them to operate to their rated efficiencies. Thus, recognition criteria based on rated efficiency that does not provide support for necessary education, training, or verification that these products are installed in a system that allows for high efficiency operation is inadequate to delivering on the brand promise.

Thank you for your consideration of these comments. Please contact CEE Senior Program Manager George M. Chapman at (617) 337-9262 with any questions.

Sincerely,



Ed Wisniewski
Executive Director