



Ms. Brenda Edwards  
U.S. Department of Energy  
Building Technologies Program  
Mailstop EE-2J  
1000 Independence Avenue, SW.  
Washington, DC 20585-0121

March 28, 2012

Re: Framework Document for Residential Boilers

Docket Number: **EERE-2012-BT-STD-0047**  
RIN: **1904-AC88**

Dear Ms. Edwards,

Thank you for the opportunity to comment on the recently released Framework Document for residential boilers. Northeast Energy Efficiency Partnerships (NEEP) and our regional partners look forward to providing our unique perspective throughout this rulemaking.

The Northeast region has a particular interest in this rulemaking, as a large majority of residential boilers, both gas and oil, are installed and operated in our region. The Northeast is home to 4.3 million of the nation's 6.9 million gas boilers (62 percent) and 3.6 million of the nation's 3.9 million oil boilers (92 percent)<sup>1</sup>. The combination of their broad use and their individual annual energy needs creates a significant energy footprint at the local, regional and national levels. When considering the millions of boilers in use throughout the region, every small improvement to the efficiencies of these products add up to important energy and economic savings for residents of the Northeast United States.

According to an Appliance Standards Awareness Project (ASAP) [analysis](#), annual gas savings due to more stringent efficiency standards are potentially 14.1 Tbtu at the national level (in 2025), resulting in \$158 million in annual consumer savings (in 2025)<sup>2</sup>. Our region's portion of these national potential savings estimates would be significant. With nearly a third (31 percent) of all boilers in the region 20 years old or older, we would expect new standards may have an even more immediate impact on the region as consumers replace an aging stock.

Strong efficiency standards for residential boilers, or lack thereof, has been a major concern to many Northeast states for nearly a decade. Several states in our region recognized the fact that significant energy savings were available through efficient boilers and pursued the opportunities associated with improved minimum efficiencies. Between 2005 and 2006, Massachusetts, Rhode Island, and Vermont each passed legislation to develop state-level minimum efficiency standards for Boilers at levels exceeding those that were in place at the federal level.<sup>3</sup> During the same time, ratepayer funded energy efficiency programs across the region have implemented aggressive promotional activities to drive market uptake of ENERGY STAR qualified boilers.

For those 3.6 million Northeast households that specifically heat with oil boilers, the increasing costs of fuel oil creates a heavy burden, especially on low-income households. Since 2012, heating oil has sold at upwards of \$4/gallon in the region, and a large percentage of homes in the region use around 800

---

<sup>1</sup> Energy Information Agency's [2009 Residential Energy Consumption Survey \(RECS\)](#), HC6.8 Space Heating in Northeast Region

<sup>2</sup> Oil savings were not projected

<sup>3</sup> Noted states adopted 84% AFUE standards for both gas and oil boilers



gallons or more in a winter<sup>4</sup>. A season's worth of energy costs at that amount of use could total \$3200 or more. \$3200 represents 17 percent of total income for a household of three at 100 percent of the poverty level<sup>5</sup>, and 10 percent of household income for a family of two at 200 percent of the poverty level. Reducing fuel oil needs through the use of highly-efficient oil boilers, can alleviate financial pressure on consumers, particularly for low and moderate income households. Since low and moderate income families live disproportionately in apartments, they are subject to paying the utility bills for heating systems they have no control over; the classic split (landlord-tenant) incentive. Strong minimum efficiency standards represent an important mechanism to ensure all consumers are guaranteed a basic level of efficiency.

The effort to set strong energy efficiency standards for Residential Boilers is of paramount importance for Northeast states, as we seek to meet some of the most aggressive energy/emission reduction goals in the country. Strong federal energy efficiency standards for this product category will help meet these goals by reducing consumption of natural gas and home heating oil, significantly reducing carbon pollution and creating new economic opportunities.

We applaud the hard work that the Department has put into the development of this Framework Document. We see this standards-setting process as a vital mechanism in transforming the market towards high efficiency HVAC products and systems in our region and the rest of the country. Our comments are organized by specific issue below;

- 1. Evaluate efficiency levels (Candidate Standard Level) that represent condensing technology for oil boilers**
  - The Northeast region urges the Department to include a Candidate Standard Level (CSL) in their Preliminary Technical Support Document (PTSD) representative of condensing oil boiler technology.
  
- 2. Maintain Combination Units in the Scope of Coverage**
  - NEEP encourages DOE to maintain the inclusion of these units as part of the preliminary scope of coverage. We heard manufacturers report during the public workshop that they project combination units to be a growing market. We support the Department's intention to modify the current testing procedure in order to establish a means of accurately measuring the energy use, and consequent efficiency, of combination products. We believe there may be exciting efficiency opportunities through the use of combination technologies. By establishing an efficiency metric, an associated test procedure, and a minimum efficiency standard, we believe those opportunities will become clearer.
  
- 3. Investigate boiler Standby/Off mode standards**
  - Because savings opportunities associated with boiler standby/off mode requirements are not well documented, it behooves the Department to continue their investigation into characterizing them. The Department, while maintaining sensitivity to any testing burden these standards may exact on manufacturers, should nonetheless consider all options at this stage.
  - While standby and off mode energy use make up a very small fraction of a boiler's total energy use, this should not lead the Department to forego further analysis of savings potential.

---

<sup>4</sup> Estimate provided by Mike Ferrante of the [Massachusetts Oilheat Council](#)

<sup>5</sup> U.S. Department of Health and Human Services; <http://aspe.hhs.gov/poverty/13poverty.cfm>



4. **Local Market Assessments should help supplement/corroborate DOE's boiler information**
  - o With development in the market since the last boiler rulemaking, DOE should secure more recent market data (product costs, installation costs, maintenance costs, efficiency spectrum of existing stock, etc) in order to conduct a truly accurate analysis. DOE should not simply rely on its previous market assessments.
  - o NEEP will continue to solicit market information from our network of energy efficiency stakeholders in the Northeast and Mid-Atlantic regions.
  - o Energy Efficiency Programs in Massachusetts are jointly conducting a Furnace/Boiler market assessment at the time of the Framework Document comment period. Results from the research are expected to be available later in 2013. NEEP will be sure the Department is made aware of the report's availability as soon as the report becomes public. The report may include Massachusetts boiler market data on:
    - i. Installation costs
    - ii. Efficiency spectrum of existing stock
    - iii. Historic shipment information
  
5. **Consider expanding the use of Prescriptive Requirements**
  - o The Department should explore the adoption of additional prescriptive requirements for boilers, especially for those efficiency opportunities that the current metric, Annual Fuel Utilization Efficiency (AFUE), does not capture.
  - o DOE recognizes that there are technology options that can improve the efficiency of boilers but that are not captured by the current metric (AFUE). Efficiency of the boiler's circulation pump is one of those components that goes unmeasured by AFUE. Circulation pumps, along with other components, may be good candidates for new prescriptive requirements.
  
6. **Regional transition to Low Sulfur Fuel use may improve cost effectiveness of high efficiency oil boiler standards**
  - o Several northeast states have already, or will be, adopting [Low Sulfur Fuel \(LSF\) requirements](#) for home heating oil. The transition may have effects on the maintenance needs of oil boilers as well as possible changes to the hardware.
  - o Some maintenance costs associated with oil boilers become unnecessary through the use of LSF. Soot, a byproduct of the oil combustion process, accumulates in traditional oil boilers and needs to be removed regularly. The use of LSF should reduce the need or regularity of such cleaning. DOE should investigate how the absence of soot might also lead to changes in needed hardware and cost reductions associated with such changes.
  
7. **The ENERGY STAR program and other new mechanisms to identify higher efficiency boiler products are likely to drive market growth towards higher efficiencies.**
  - o The web-based tool ([www.toptenusa.org](http://www.toptenusa.org)) will allow consumers to identify the 10 most efficient boilers available in the US market. The category is being developed in 2013 and it is unclear whether it will include an oil boiler category.
  - o [ENERGY STAR Most Efficient Program](#) (2013) includes a specification level for gas boilers.
  - o These tools will likely help drive uptake of condensing technologies which should reduce the future installation costs associated with this technology option through the increased volume of installs and experienced gained.



In order to develop a sound Technical Support Document for Residential Boilers, we urge the Department to consider the points raised in this letter. We in the Northeast are hopeful that the Department will seize this exciting opportunity to maximize cost-effective energy savings associated with these products. Feel free to contact us with clarifications or comments. Thank you again for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Susan E. Coakley".

Susan E. Coakley, Executive Director