



Ms. Brenda Edwards  
U.S. Department of Energy  
Building Technologies Program  
Mailstop EE-5B  
1000 Independence Avenue, SW.  
Washington, DC 20585-0121

Re: Notice of Proposed Rulemaking (NOPR) for Energy Conservation Standards for Residential Furnaces

Docket Number: **EERE-2014-BT-STD-0031**  
RIN: **1904-AD20**

Dear Ms. Edwards:

Northeast Energy Efficiency Partnerships (NEEP) and the undersigned organizations thank the Department of Energy for the opportunity to comment on its Notice of Proposed Rulemaking (NOPR) for Residential Gas Furnaces. We represent a broad and diverse group of stakeholders from across the Northeast and Mid-Atlantic region that are very interested in the ultimate result of this rulemaking process, for the Final Rule will have direct and significant impacts to our states, communities and territories. NEEP works collaboratively with a network of stakeholders that span state energy officials, efficiency program administrators, local efficiency advocates and many others to maximize the benefits associated with federal appliance standards rulemakings. Doing so provides economic benefits while protecting public health and the environment.

The effort to set strong energy efficiency standards for Residential Gas Furnaces is of paramount importance for the Northeast/Mid-Atlantic states for a number of key reasons: our states face some of the most aggressive energy use and carbon emission reduction goals in the country and are home to consumers who live with energy costs that surpass most of the nation and that unnecessarily burden the economy. This rulemaking also comes at a time when our region's states – the New England states in particular - are dealing with a new reality of winter time energy price spikes due to natural gas and electric transmissions capacity constraints. Maximizing natural gas savings through energy efficiency is an alternative pathway to helping meet the region's energy needs instead of costlier and potentially more environmentally damaging solutions – such as expanded gas pipelines and electricity transmission build outs.

Residential Gas Furnaces have experienced an unprecedented history of fits and starts with respect to minimum efficiency standards over the past 14 years. The Northeast and Mid-Atlantic region brings a wealth of experience regarding gas furnace efficiency and have been actively involved in many efforts to establish minimum efficiency performance requirements. Various states and organizations from the Northeast and Mid-Atlantic have been actively pursuing and advocating for condensing levels ( $\geq 90\%$  AFUE) for over 10 years. Although this list is not exhaustive, here are some of the more focused efforts over the years to secure condensing level furnace standards;

- Five states in the region including Rhode Island, Vermont, Maryland, New Hampshire and Massachusetts adopted state legislation between 2004 and 2006 for condensing level minimum standards (90% AFUE)<sup>1</sup>.
- Several states in the region (Massachusetts, Connecticut, New York, New Jersey) in conjunction with other efficiency advocates (Natural Resources Defense Council, Massachusetts Union of Public Housing Tenants, Texas ROSE) brought suit against DOE over the 2007 final rule for Furnaces. DOE agreed to remand the rule and conduct a revision by 2011.

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<sup>1</sup> The furnace standards adopted in Maryland and New Hampshire only applied to natural gas and propane furnaces installed in new construction.



- Massachusetts (Department of Energy Resources and the Attorney General's office) submitted a Petition for a waiver from preemption to US DOE in October of 2009. The Petition was supported by the six largest natural gas distribution companies in Massachusetts.
- New England Governors' Conference establishes resolution- "BE IT FURTHER RESOLVED that the New England states agree to request federal waivers to establish a nation-leading 90% efficiency standard for natural gas furnaces in the region to be implemented as determined by the individual states; and will also seek to set high efficiency standards for other heating systems, including those using non-regulated fuels, in order to reduce emissions and heating costs."
- Broad group of regional stakeholders support condensing Furnace standards included in the 2009 "Consensus agreement" and the subsequent 2011 Direct Final Rule.
- Regional stakeholders involved in discussions with industry including representatives from AHRI and AGA in 2012 to develop a waiver process that sought to allow a very limited amount of sales of non-condensing furnaces to be sold under strict circumstances.

**We feel it is long past due for the federal standards process to adopt condensing levels. While we support the Department's latest proposed efficiency levels as defined by TSL 3 (92% AFUE for non-weatherized furnaces), we believe the analysis supports even more stringent efficiency levels as described in TSL 4 (95% AFUE).**

The undersigned stakeholders offers a number of additional comments that we hope the Department will consider as it develops their Final Rule for Residential Gas Furnaces.

1. Economic analyses (Life Cycle Cost and Net Present Value) project important economic savings to consumers across the country, and the Northeast region in particular, for TSLs 3 (proposed) and 4.
  - a. The Life Cycle Cost (LCC) savings from an average consumer's perspective for Northern replacement installations is \$489, while the new construction LCC is \$1541. The Net present Value for the entire "northern" region is approximately \$9.2 Billion, of which the Northeast/Mid-Atlantic represents over a quarter of those economic benefits.
  - b. At the same time, we would argue that the proposed efficiency levels do not quite satisfy the Department's charge to adopt standards that represent the maximum improvement in energy efficiency that is technologically feasible and economically justified, and would result in the significant conservation of energy. According to the Department's own assessment, "DOE's quantitative analysis would have likely led to proposed standards at those levels (TSL 4), given the potential for significant additional energy and carbon savings. However, as discussed above, the unique cumulative burden on manufacturers from this rule and the furnace fans rule is an important concern for DOE".
    - a. DOE cites the Manufacturer Impact analysis, namely the Industry Net Present Value (INPV) as key metrics for assessing how the cumulative regulatory burden of this standard would impact the industry. One of the main drivers for a reduction in INPV is the marked drop in shipments in the Departments analysis due to a 92% standard (roughly 3.4 million shipments nationally in 2020 would fall to 3.1 million shipments in 2021 at TSL 3 and 3.0 million shipments for TSL 4). We take exception with the premise that the growth in sales of other technologies (heat pumps, electric furnaces, etc.) fall outside the economic scope of the INPV<sup>2</sup>. It is more likely that any shifting that happens from gas furnace to other heating options would be a growth opportunity or benefit to many of the same furnace manufacturers. We suggest DOE estimate

<sup>2</sup> "In DOE's current regulatory analysis, potential changes in the benefits and costs of a regulation due to changes in consumer purchase decisions are included in two ways. First, if consumers forego a purchase of a product in the standards case, this decreases sales for product manufacturers, and the cost to manufacturers is included in the MIA...."



- that industry overlap and include those economic benefits into the INPV/MIA. Instead of simply accounting for the lost revenues associated with this decrease in furnace sales, we suggest that the Department also factor in the benefits those same manufacturers are gaining in the growing markets related to heat pumps and other emerging heating technologies. The Department went to unprecedented lengths to quantify cases of fuel switching that the new standards might cause and included those impacts in the lifecycle cost and national impact analyses. It seems appropriate and consistent to go to similar lengths to estimate these cross over benefits in the manufacturer impact analysis.
- b. Analysis also demonstrates that the proposed standards would provide important benefits to low-income consumers.
    - i. Roughly 75% of consumers in the Low-income subcategory receive net benefits from the proposed efficiency standards. As shown by DOE's consultant during the April hearing, this estimate does not reflect that low income consumers are disproportionately renters, as discussed below. When this factor is incorporated, the portion of low income consumers benefitting from improved standards will rise. To help support those low-income consumers that don't project net benefits, we suggest that rate-payer funded efficiency programs provide a useful platform to help low-income consumers afford the upfront cost differential.
    - ii. Besides the positive impacts on Low-income homeowners, strong furnace efficiency standards would ensure efficient equipment being used in rental properties. Standards address the stubborn split incentive between first costs which are the responsibility of the landlord and the energy bills which are the responsibility of the renter. With the general low-income population disproportionately renting, standards lower high energy bills for those consumers least able to afford them.
  2. National Impact Analysis projects important energy savings for the nation and the Northeast and Mid-Atlantic in particular
    - a. The proposed levels (92% AFUE) will bring over 10.8 Billion therms in gas savings to the Northern region over the 30 year analysis. The Northeast/Mid-Atlantic region would see over a quarter of those benefits.
    - b. Savings would be increased by 60% if DOE were to adopt the cost effective levels described in TSL 4 (95% AFUE). We do not believe the Department's assessment of regulatory burden accurately reflects the true impact on manufacturers. See comment above for details.
  3. Emissions Analysis projects important carbon savings for the Northeast and Mid-Atlantic region.
    - a. 105.5 million metric tons of CO<sub>2</sub> emissions reduced nationally at TSL 3, translates to roughly 25 million metric tons in CO<sub>2</sub> emissions reductions regionally.
    - b. 163.2 million metric tons of CO<sub>2</sub> emissions reduced nationally at TSL 4, translates to roughly 40 million metric tons of CO<sub>2</sub> emission reductions regionally.
  4. Accurate assumptions drive accurate analysis. A recent program evaluation report conducted in Massachusetts ([High Efficiency Heating Equipment Impact Evaluation \(March 2015\)](#)) provides additional in-field data to assist the Department in building accurate energy savings analyses.
    - a. As compared to DOE's per unit savings estimates, the Massachusetts study indicates that DOE may have underestimated per unit energy savings. DOE projects approximately 83 therms of savings for 95% AFUE gas furnaces with an 80% AFUE baseline. The report concluded that 95% AFUE gas furnaces achieve 109 therms of verified savings with an 80% AFUE baseline.
      1. The objective of the evaluation was to determine gross energy savings for gas furnaces and boilers installed through the HEHE program and refine the



estimates of baseline efficiency and heating consumption. The evaluation sought to answer the following researchable questions:

- a. How much energy is being saved for the average installation of efficient space heating equipment through the Massachusetts HEHE program?
  - b. How does the in situ efficiency of standard efficiency furnaces and boilers that are installed outside of the program compare to their rated efficiency?
  - c. How does the in situ efficiency of existing equipment that is retired early compare to its rated efficiency?
  - d. How are condensing boilers being installed and controlled, as it relates to their potential savings?
- ii. The report also found that average baseline energy use as 606 therms compared to the 541 therms annual consumption for baseline 80% for Northern region in DOE analysis. This data should be considered when developing final baseline energy consumption levels.

In order to develop a strong and informed Final Rule that will deliver maximum cost effective savings to the country and ultimately consumers, the issues we have identified above must be considered and addressed. The Northeast/Mid-Atlantic stakeholders remain committed to assisting the Department in their effort to develop such a rule. Thank you for your consideration.

Sincerely,

Susan E. Coakley, Executive Director

**Supporting Organizations;**

**Charlie Harak, Esquire  
National Consumer Law Center, on behalf of its low-income clients.**

**Asa Hopkins, Director of Energy Policy and Planning  
Vermont Public Service Department**