



Oct 15, 2015

U.S. Department of Energy  
Building Technologies Program  
Via email: [ResFurnaces2014STD0031@ee.doe.gov](mailto:ResFurnaces2014STD0031@ee.doe.gov)

RE: Notice of Data Availability, Energy Conservation Standards for Residential Furnaces; docket number EERE-2014-BT-STD-0031

This letter provides comments on behalf of the Natural Resources Defense Council regarding the Department of Energy's (DOE's) Notice of Data Availability (NODA) for Energy Conservation Standards for Residential Furnaces. 80 FR 55038 (September 14, 2015). We appreciate the opportunity to provide input.

### **I. General Comment on the NODA Approach**

Overall, we are delighted that DOE has evaluated a standard that varies with a furnaces' heating capacity, and see the NODA analysis as strongly supporting such an approach.

An updated energy efficiency standard for residential gas furnaces is urgently needed, and the single efficiency level proposed in the Notice of Proposed Rulemaking meets the statutory criteria, is justified by DOE's NOPR analysis, and would deliver very large energy savings and consumer and environmental benefits.

With an eye towards even better outcomes, NRDC was one of several parties that suggested that DOE consider setting two efficiency levels based on capacity. Our expectation was that doing so could significantly increase consumer benefits while improving outcomes for manufacturers, gas utilities and efficient installers, and still deliver a very high level of energy savings and environmental benefits. Our July 10, 2015 comments on the Notice of Proposed Rulemaking (NOPR) provide detailed explanation of our reasoning.

The substantially superior consumer outcomes indicated by the NODA relative to the NOPR proposal clearly justify further detailed evaluation by DOE and the development of a supplementary NOPR (SNOPR) for a two-capacity efficiency standard. We have had extensive discussions with a wide spectrum of stakeholders both before and after publication of the NODA, and while there are diverse perspectives on the most appropriate capacity threshold, we expect that such an approach would be well received.

We support the approach outlined in the NODA and look forward to DOE issuing a SNOPR in a timely fashion. We anticipate that the detailed, comprehensive analysis contained in an SNOPR will be useful in facilitating further discussions among stakeholders, as well as providing another opportunity to provide input to this important standard.

### **II. Additional Analytic Enhancements to Address in an SNOPR**

We recognize that DOE incorporated some analytic enhancements in the NODA that had been proposed by various stakeholders in their NOPR comments. However, we appreciate the prompt effort on the NODA,

#### **About NRDC**

NRDC is a national, non-profit environmental organization with more than 2 million members and activists. Since 1970, our lawyers, engineers, scientists, and other environmental specialist have worked to protect the world's natural resources, public health, and the environment. NRDC's top institutional priorities include curbing global warming and creating a clean energy future. NRDC has long advocated for energy efficiency as a critical component in meeting our energy demands and climate goals, now and in the future. NRDC has a long history of involvement in setting standards. NRDC has spent decades working to build and improve the Department of Energy's ("DOE") federal appliance standards programs because of the important energy, environmental, and consumer benefits of appliance efficiency standards. NRDC participated in the enactment of the first federal legislation establishing efficiency standards and has been active in all significant rulemakings since then.

and recognize that not all useful analytic enhancements and revisions may have been included at this point. We view it as essential that an SNOPI incorporate several enhancements that NRDC explained in detail in our NOPR comments, and which are summarized here:

- a) Include ‘learning curve’ measures, and in particular, lower-cost installation measures that will likely emerge for homes with relatively challenging installation conditions for condensing furnaces;
- b) Include the benefits to manufacturers of electric heating equipment in the industry impact analysis;
- c) Revisit and adjust the assumed ‘source’ energy factor for electricity;
- d) Extend the analysis of low income household impacts, including the significance of the mix of renting and ownership (e.g., with the latter not directly exposed to installation costs); and
- e) Qualitatively explore the likely performance of gas utility energy efficiency programs to deliver consumer and energy savings.

### **III. Choosing the Most Beneficial Capacity Threshold**

The main question to be addressed in an SNOPI is just what capacity threshold is best for a two-tier standard. (There is also a question about whether to choose 92 percent or 95 percent AFUE for the larger models, but as discussed in Section IV, it appears clear that 95 percent AFUE is the appropriate choice).

A key objective in choosing a capacity threshold is to capture most of the energy and cost savings potential of high efficiency furnaces as well as encouraging learning and development of new technology that will reduce installation costs in currently challenging home types, while simultaneously allowing homes with the lowest heating load, either because of their location in warm climate zones or their small size and appropriate weatherization, to use the 80 percent efficient furnaces where those are significantly more cost-effective. Encouraging utility efficiency programs that improve insulation and weatherization in new and existing homes, and reducing the risk and extent of negative impacts on manufacturers are valuable secondary objectives. A suitable threshold should cover many well-weatherized, moderate-size row houses, or well-insulated homes in a mild or warm climate, as well as multifamily housing. This will encourage and reward effective gas utility energy efficiency programs focusing on the whole home, and will greatly reduce the fraction of households that would have a net life cycle cost increase as a result of the standard, while still capturing the energy efficiency opportunity.

The NODA analysis suggests that the most appropriate capacity threshold lies between 50 kbtu/h and 65 kbtu/h input capacity. The former has greater energy savings and total consumer savings, and the latter results in fewer consumers who would experience higher costs under the standard.<sup>1</sup> While it appears from the NODA analysis that benefits taper off quickly, we encourage DOE to perform a broader range of analyses in the SNOPI, e.g., from 40 kbtu/h to 75 kbtu/h, to ascertain and demonstrate that an appropriate threshold is chosen. Further, considering a broader range of possible thresholds may be worthwhile in providing a more robust assessment, given the analytic enhancements that DOE may make to the SNOPI analysis relative to the NOPR and the NODA.

### **IV. DOE Should Adopt a 95% AFUE Condensing Standard, Not 92%, Above the Capacity Threshold**

While DOE noted in the NOPR that it strongly considered a 95% AFUE standard (80 FR 13119), the Secretary tentatively concluded that the potential negative impacts on manufacturers would outweigh the consumer, environmental and energy-saving benefits relative to 92% AFUE. Balancing these considerations is

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<sup>1</sup> When setting energy efficiency standards, we believe it is generally appropriate and most consistent with the Energy Policy Conservation Act to focus the consumer analysis on the total consumer savings. This results in the largest overall economic benefits and those benefits will, between different standards, be well disbursed among consumers. For furnaces the potential costs and benefits are larger and for this reason we believe it makes sense to compare the percentage of consumers who experience savings and the percentage that experience costs.

essential to good policy outcomes, and is required under NAECA. (42 U.S. Code § 6295 (o).) Similarly, the NODA focuses primarily on 92 percent AFUE.

DOE should revisit this, and adopt a 95% AFUE for the larger furnaces, regardless of the capacity threshold it adopts. The benefits of a 95% AFUE standard to customers and the environment appear so disproportionate to the manufacturer impacts that it would be unreasonable for DOE to set the standard at a 92% AFUE standard. In both the NODA and NOPR analyses, a 95% AFUE would deliver far greater consumer savings, energy savings and reduction in carbon pollution.

Absent a 95% AFUE standard, there does not appear to be any practical way to recoup these potential benefits. The manufacturer impacts identified in the NOPR from a 95% AFUE standard pale in comparison. *Even under the worst-case manufacturer earnings scenario* in the NOPR for a national 95% AFUE standard rather than a 92% standard, the consumer benefits exceed the reduction in manufacturer value by more than an order of magnitude (i.e., \$5.0 billion of additional consumer savings foregone in exchange for preserving \$0.2 billion in manufacturers' net present value; that's an extraordinary ratio of worse than 20:1, with consumers losing a lot to save manufacturers a little). In the best-case manufacturer impact scenario, manufacturer value increases with a 95% AFUE standard. The most likely value may lie somewhere in between.

We recognize the importance of a vibrant, profitable manufacturing industry, appreciate the technology contributions that manufacturers have made and continue to deliver, and share the view that careful consideration of manufacturer impacts is essential. But it would be unreasonable for DOE to forgo the overwhelming consumer benefits simply to avoid a comparatively small consumer impact. Surely there's a better way to preserve manufacturer value. Similarly, the present value of reduced CO<sub>2</sub>-eq emissions is \$1.9 billion higher with a 95% AFUE standard compared to 92%; that's a large multiple of the worst-case reduction in manufacturer value of \$0.2 billion.

## V. Conclusion

In brief, we urge DOE to:

- 1) **Promptly produce an SNOPR incorporating the capacity-based approach;**
- 2) **Incorporate several analytic enhancements in the SNOPR as discussed above;**
- 3) **Adopt a 95% Annual Fuel Utilization Efficiency (AFUE) condensing standard that covers the substantial majority of furnace installations;**
- 4) **Adopt an 80% AFUE standard for furnaces below a specified maximum capacity threshold;**
- 5) **Set an appropriate capacity threshold that provides a suitable balance of benefits.**

Thank you for considering these comments, and let us know if we can help in any way, at any time. We would be glad to provide further information or answer any questions.

Respectfully submitted,

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