



**PLUMBING-HEATING-COOLING  
CONTRACTORS ASSOCIATION®**  
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October 6, 2022

Ms. Julia Hegarty  
U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
Building Technologies Office, EE-5B  
1000 Independence Avenue, SW.  
Washington, DC, 20585-0121

Re: EERE-2014-BT-STD-0031; RIN 1904-AD20

The Plumbing-Heating-Cooling Contractors—National Association (PHCC) is the oldest construction trades association in the country representing approximately 3,200 plumbing and HVACR contractors employing over 64,000 professionals across the United States. Since 1883, this organization and its members have focused on the safe installation and maintenance of plumbing and HVAC systems.

PHCC is grateful for the opportunity to comment on the Notice of proposed rulemaking (NOPR) concerning Energy Conservation Standards for Consumer Gas Furnaces. Members of this association have been a primary source for the installation of these products for many years. PHCC supports the use of energy efficient products when those products are technically feasible and economically justified. This association's members are typically the direct point of contact with users of these products and as such, bear the burden of explaining the changes to products due to federal regulation.

PHCC has on prior occasion, expressed concern for the elimination of non-condensing products from the marketplace and does not support the recommended standard efficiency levels that would mandate condensing technology for consumer gas furnaces (both NWGF and MHGF). This association believes there are numerous parts of the NOPR that are overly optimistic, do not reflect current market conditions, make inaccurate assumptions, and minimize installation issues for condensing type products.

We note that the Department begins with a brief historical synopsis of the development of this rule and shows DOE concern for the lateness of releasing a rule. To rectify the tardiness of this and other rules, DOE has committed to processing a significant number of rules by the end of 2022.

DOE has had various iterations of this rule for many of the intervening years and in fact was positioned to release an industry consensus rule late in 2015 or early 2016 but by the government's own decision did not complete the action.

DOE notes (literally in a footnote) that an early effort at this was grounded in the ability to create regional standards. That effort would have allowed non-condensing products in the south and



mandated condensing products in the north. This iteration was litigated and agreed to be remanded for rework. At this point, it is worth pointing out that the reason for regional standards was to create a pathway for higher efficiency products that could not be justified on a national scale due to the differences in usage and energy consumptions in the different climate zones. Regional standards were not established as an act of creative thinking, there was a definite purpose, finding a way to justify energy savings.

As the outcome of settled litigation, this regulatory work was to be reconsidered. Perhaps it was said, perhaps it was not, but it was generally conceded that DOE encouraged parties to figure out what a consensus solution to this issue might be. A broad coalition of industry parties consisting of energy advocates, manufacturers, gas utilities, product distributors, and installation contractors met for several months to work out a compromise. PHCC was involved in these discussions at that time.

An agreement was reached that created a category of small capacity non-condensing furnaces (something that originally existed per EPCA) and a category of larger capacity furnace that would be condensing only. This was a compromise, some parties did not want this, some wanted a larger capacity level for non-condensing, and others thought this was just right. Not everyone got what they wanted but the coalition got to a point that all could live with. This proposal was submitted to the DOE. Additionally, as pointed out in this rulemaking, this scenario actually increased the energy savings and also minimized economic impacts on certain consumers.

Unfortunately, that rule was never published by the Department and was eventually withdrawn. There were factors that influenced this action, but those factors were not of the industry's doing. The Department speaks to all the work that has been done and relies on much of the historical work to develop the NOPR that is being considered today. Unfortunately, there was little value placed on the significant resources expended on this compromise. If the DOE truly wishes to resolve its backlog of rulemakings, why does it not issue a rule which the industry has wrestled with and come to a level of agreement on?

Today we consider a proposal to establish consumer furnace standards to replace the litigated regional standards (as a reminder, non-condensing in the south, condensing in the north) with a mandatory condensing standard across the board. It seems highly ironic that the originally proposed standard (agreed to be too stringent and problematic) and a secondarily proposed standard (that solves problems and maximizes energy savings) would be replaced with an extremely stringent standard mandating the penultimate Trial Standard Level which will create negative impacts for manufacturers and consumers.

Additionally, the currently proposed rule addresses stand-by and off-cycle energy use. It is interesting that the DOE recognizes this energy is *de minimis* (Latin for lacking significance or so minor as to merit disregard) and cannot be considered in comparison to the overall energy consumption of the equipment. It appears that the significant energy savings is 2.5 watts compared to 11 watts (baseline).



In terms of percentage, this might be considered significant but in reality, this is beyond compare to the almost 19% reduction (15 points over 80%) in fuel consumption (measured in ten's of thousands or hundreds of thousands of Btu's).

Further there is confusion in the rule as to exactly what this amounts to, Table I.4 (P.13) shows a \$26 annual benefit with a 2-year payback and elsewhere the numbers show a lower benefit (\$2.60 with a 2-year payback) It is unclear which information is correct but 2.5 kw saved, 24 hours a day for 365 days a year (@ 15¢/Kilowatt hour) is about \$3.29. On an annual basis, this seems to be truly de minimis.

The proposed rule spends considerable time debating the reason clients select certain efficiency levels of products. It seems there is considerable difference of opinion among the DOE and various stakeholders. One is left to think that no one really knows why this happens except the person buying the product.

The Department gives credence to some consumer awareness of products but does not always believe these same consumers will follow logical economic arguments. DOE relies on a number of studies and references which are 20 to 30 years old, maybe these arguments are still valid, but products and pricing have changed in the interim. An example of this consumer awareness may be found in the abundance of LED lighting being used across the spectrum of building occupancies. Lower cost, lower maintenance, and high levels of performance have moved the market.

High efficiency furnaces are likely similar. Clients are aware of energy costs and maintenance issues. When accurate energy savings projections are delivered, high efficiency products will sell. Sales are strongly inhibited by obstacles in the market. Difficult installations will greatly affect the installation costs. Venting issues are prime examples, excessive vent lengths, significant building modifications, drainage issues, or nuisance condensing vent plumes are major distractors.

PHCC continues to disagree with DOE regarding venting issues and believes this is a major drawback in challenging installations. While some survey information has been provided to DOE, it has been not been considered valid. The Department continues to value input from parties other than those who deal with clients and installation issues on a regular basis.

The Department does not believe commercial customers will value higher efficiency because typically owners do not pay operating bills or considers operating costs as write-offs. This logic is not accurate, clients are looking for best case operating expenses. The pressure on business performance is ever increasing. An owner that offers higher quality facilities has an advantage in the market. The idea that write-offs are desirable is mis-guided, owners are always better off to keep their income and suffer the tax situation, overspending on expenses is simply throwing money away. (Businesses don't get taxed at 100% or more).



Successful contractors have done quite well marketing properly sized high efficiency equipment when the installation warrants it. Across the board applications will leave some clients in a negative position. DOE cannot decide for others the energy savings and economic considerations that those owners may value, the Department is not free to pick and choose or invent factors that suit their needs.

Numerous tables in the proposed rule indicate the trend for products to be moving to high efficiency, particularly in the northern climates where the heating loads have more economic impact, all without mandating condensing products. MHGF products lag behind in this category likely due to the economic pressures experienced by many of these building occupants.

DOE spends considerable time discussing the oversizing of equipment. It is believed that 70% oversizing is not unusual. This may be true in older equipment but current models will have problems with oversizing. Excessive temperature rise can be detrimental to the life of the furnace, selecting excessive fan speed to compensate for the excess temperature rise will produce very drafty conditions.

The Department cites ACCA references to limit oversizing to 40%, that does not mean contractors will typically do that. Professional contractors have sizing software to assist in equipment selection, the installation industry has been emphasizing right-sizing of equipment for several years to provide comfortable indoor conditions and longevity of installed products.

Of course, equipment comes in certain capacity increments (unless premium variable capacity equipment is selected). Rarely does a sizing calculation land exactly on a manufacturer's listed product capacity. In most instances the next size break will be selected unless the calculation exceeds a listed rating by an insignificant amount.

While the ACCA reference suggests a limit of 40%, common equipment increments of 10,000 Btu per hour would only exceed that percentage on very small equipment. PHCC believes the 35% oversize factor cited by DOE is overstated. This also overstates the number of consumers who would select to downsize to a non-condensing product.

Contractors will be reluctant to select equipment below the design day capacity. Consumers will agree to many things when the weather is decent. When that same consumer is faced with design conditions or worse, they will forget the agreed upon selection that was made with the contractor.

Additionally, DOE assumes that consumers would have financial incentive to downsize products (P. 212). This statement seems to confirm that costs are indeed an issue for a significant concern for many consumers and these same consumers are aware of these economic impacts.

The Department has provided discussion of many factors related to heat pumps. It certainly seems that in today's regulatory environment, the answer to all heating questions is heat pump. Heat pumps are a handy answer to the question of fuel switching. DOE relies on data from 2016



and makes some updates to account for 2020 conditions, but is this enough? Does the Department consider the conditions that will result from the impending refrigerant changes?

DOE clearly assumes the price of heat pump equipment will go down, yet material prices have soared in the post Covid world. Supply chain issues have disrupted the market. PHCC believes the costs related to heat pump product is significantly understated. PHCC further questions the allocation of costs for additional power capacity when converting to a heat pump and believes that the fractions of installations requiring this is also understated.

For that matter, the Department has understated equipment costs for gas furnace products as well. This results from the same material cost and supply chain issues referenced for heat pumps.

PHCC believes that the installation labor costs are not near today's contractor rates. While anti-trust considerations limit PHCC's ability to aggregate this financial data, it is likely that anyone who has recently had work done would agree that a residential rate between \$50 to \$64 per hour and a commercial rate between \$68 and \$89 per hour is very low. This understated cost will greatly affect the economic calculations in the model.

PHCC further disagrees with the various Social Cost and Health Cost factors included in the rulemaking. These factors are currently in litigation and while an injunction was lifted and a court order has permitted their use pending resolution of the litigation, the risk of these factors being eliminated would have a great impact on the viability of the rule at a later date. It may be necessary to determine whether these factors represent a major question in law.

Stakeholders have suggested that new standards will cause some consumers to repair products or use alternate heating methods such as space heaters or even running ovens for heat. DOE finds little reason to support these ideas because contractors are not doing much of that type of work today. The problem with the DOE stance is that contractors don't have to do this today as there is ready access to non-condensing products.

A comparison for this would be in the air conditioning world. At one time, contractors would replace the outdoor unit of an air conditioning system when major components (compressors) failed. Once refrigerants changed, the indoor & outdoor equipment and line sets had to be changed. The added costs drove certain consumers to seek compressor replacements. This was not what the repair industry preferred but it is what consumers could afford.

The added costs will certainly impact low income and fixed income consumers. Incentives may be available to assist with this, but the costs will still remain and must be considered in the LCC and PBP.

PHCC agrees that energy insecurity is a significant concern and that access to gas products and non-condensing products remains a huge solution to this issue.



PHCC believes that information related to fuel switching and repairs in Tables V.3 & V.4 are understated.

PHCC questions whether Table V.5 & V.6 properly considers consumers who have existing high efficiency products and replace with new high efficiency products and what those impacts on the model might be. Further, in Table V.6, the third highest percentage of consumers with net costs is the selected TSL 8. This level is about double the net costs of TSL 7, the level that is similar to the proposed and rescinded 2015 rule.

In summary, PHCC maintains its opposition to the elimination of non-condensing products from the market based on venting issues, hardship installations, and the questions it has regarding the accuracy of the Departments projections and calculations.

PHCC believes a simpler solution would have been to re-engage with stakeholders to determine the acceptability and feasibility of the previously negotiated standard levels that included a smaller capacity category for non-condensing furnaces.

Thank you for the consideration of these comments, PHCC is willing to work towards an equitable energy future and supports the appropriate use of high efficiency gas products.

Respectfully submitted,

Charles R. White  
VP Regulatory Affairs  
PHCC—National Association