DOE takes major step forward in advancing new furnace efficiency standard

Blog post by Andrew deLaski, executive director of Appliance Standards Awareness Project

On Friday, the US Department of Energy (DOE) released a revised proposal for home furnace minimum energy efficiency standards, the latest step in a long-running docket to update the original standards which took effect in 1992 and have been largely unchanged since then. Under today's Supplemental Notice of Proposed Rulemaking (SNOPR), most new furnaces would reach an efficiency of at least 92%. The big difference between today's proposal and the original proposal issued last year is that DOE has created a class of small furnaces and proposed to leave the standard unchanged at 80% efficiency for these products. ASAP and ACEEE along with several manufacturers, utilities, and consumer groups endorsed the concept of a separate class for small furnaces.

The size break chosen by DOE in today's proposal for delineating small furnaces, an input capacity of 55,000 Btu per hour or less, would result in significant consumer savings. But, DOE could further boost savings by increasing the efficiency standard for larger furnaces to 95%.

New standard will save more natural gas than any other national standard

DOE's original proposal, issued in March 2015, would have required all new furnaces to meet or exceed a 92% efficiency standard. Today's revised proposal is designed to exclude small furnaces that are often employed in warm climates, small homes, or very efficient homes. Furnace size is often correlated with annual heating energy use; therefore, the economics of high efficiency furnaces tend to be more positive the larger the furnace. According to DOE, about 85% of households are expected to install a furnace with an input capacity greater than 55,000 Btu per hour or greater.

DOE estimates that the standard proposed today will reduce US energy use by 2.9 quadrillion Btu's (quads) over 30 years of sales, which is enough to meet all of New England's gas and propane heating needs for 16 years. The savings from this standard rank it as the biggest end-use natural gas saver of any standard ever issued. Considering both electricity and natural gas, it is among the biggest saving standards completed within the past three years (the commercial air conditioner standard was the largest overall). Savings from furnace standards are large because space heating is the biggest residential energy use, and the improvement from 80% to 92% efficiency will typically reduce space heating energy consumption by about 13%. If the standard is increased to 95% efficiency, as we recommend, DOE estimates the savings will increase to 4.1 quads, or enough to meet all of New England's gas and propane heating needs for 23 years. Energy savings from new standards will result in significant greenhouse gas emissions reductions—DOE estimates savings of 143 million metric tons of carbon dioxide over 30 years of sales from the new proposed standards, equivalent to taking 30 million cars off the road for a year. Boosting the standard to 95% efficiency would increase carbon dioxide savings to 211 million metric tons, equivalent to the annual emissions of 45 million cars.

Average consumer savings reach about $700

According to DOE, the revised proposed standard would have large benefits for consumers, saving a total of $5.6 to $21.7 billion over 30 years of sales after considering both the energy savings of the new standard and the higher up-front cost of the more-efficient furnaces. If the

standard is increased to 95% efficiency, DOE estimates the net consumer savings will increase to $7.4 to $29 billion. Accounting for potential increases in up-front costs, the average consumer would save about $700 over the life of a new furnace which meets the proposed new standard levels.

Good news for low income consumers

New furnace standards are especially good news for low income consumers. Low income families are disproportionately renters and often get stuck with the heating bill for the cheapest, least efficient furnace a landlord can find. Even in new, owner-occupied homes, inefficient furnaces can be common because the builder who picks the furnace does not get the benefit of the lower monthly heating bills.

Furnaces meeting the new standard are already widely available from all manufacturers. About 50% of furnace sales in 2015 met or exceeded the 92% efficiency level.

Standby standards add to savings

The new proposal re-affirms previous proposed standards for standby and off-mode electrical energy use issued in 2015. These limit the amount of power that furnaces can use for controls and other electrical components when they are not heating. The proposed standards would set maximum electrical use in standby and off mode to 8.5 watts, resulting in national energy savings of another 0.3 quads and savings of another $1.3 to $4 billion over thirty years of sales on top of the savings from the increased natural gas fuel efficiency standards.

DOE is seeking comments on the new proposed standard and a final rule is expected around the end of this year. New standards would take effect five years after the final rule is published.

Steve Nadel, executive director of the American Council for an Energy-Efficient Economy, contributed to this blog post