

CALIFORNIA ENERGY COMMISSION

COMMISSIONER JOSEPH ANDREW McALLISTER, PH.D.
1516 NINTH STREET, MS-34
SACRAMENTO, CA 95814-5512
www.energy.ca.gov



October 14, 2015

U.S Department of Energy
Building Technologies Office
Attn: Ms. Brenda Edwards
Mailstop EE-5B
1000 Independence Avenue SW
Washington, DC 20585-0121
via Regulations.gov

Re: California Energy Commission's comments on the Notice of Data Availability for energy conservation standards for residential furnaces

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

Dear Ms. Edwards:

The California Energy Commission (Energy Commission) has reviewed the U.S. Department of Energy's (U.S. DOE) Notice of Data Availability (NODA), which contains a cost-effectiveness analysis for furnace standards based on heating capacity and which suggests a two-tier, capacity-based approach where larger sized furnaces meet a higher annual fuel utilization efficiency (AFUE) standard, while smaller sized furnaces continue to meet an 80 percent AFUE standard.

The U.S. DOE's March 10, 2015 Notice of Proposed Rulemaking (NOPR) for residential furnace standards (80 Fed. Reg. 13119 (Mar. 10, 2015)) demonstrated that a nationwide 95 percent AFUE standard was cost-effective. The Energy Commission continues to support this nationwide approach to the federal furnace standards as essential to achieving our greenhouse gas reduction and energy efficiency goals, technically feasible and economically justified for both new and existing buildings, and long overdue.

The Energy Commission is very concerned about the impact that a two-tier capacity-based approach would have on new construction in the nation, particularly given the preemptive effect of the federal appliance standards on state building codes. The federal appliance law (42 U.S.C. § 6297(f)(3)) limits the ability of states to incorporate more efficient built-in appliances in their building codes by setting the federal appliance standards as the maximum efficiency (the ceiling, not the floor) that can be mandated by code. This means that under the existing standard, the most efficient gas furnace that California can require *in new construction* is one with 80 percent AFUE, virtually the

same standard that California put in place in the 1970s. This is especially detrimental in a state like California, which utilizes sixteen different climate zones, at least two of which have more than 5,000 heating degree days, where a more efficient furnace in either new or existing buildings would be extremely cost-effective. Instead, California has tried to ensure that furnaces are properly sized for the heating load, in an effort to ensure that if an inefficient furnace is installed, it is at least doing the most efficient job that it can.

A two-tier capacity-based approach would create a difficult situation for California: either the state could continue to ensure that furnaces are properly sized, which may mean installing a smaller-size furnace with a lower efficiency standard, or it could require larger furnaces to be installed, but sacrifice proper sizing to get a more efficient product. This is an untenable approach, particularly where it is *always* cost-effective to install a properly-sized condensing furnace in new construction.

Meanwhile, because of the lower cost of non-condensing furnaces, consumers in existing buildings are likely to end up with less efficient, smaller furnaces, even if it is cost-effective to install a more efficient, larger furnace, because of the lower capital cost of the smaller furnaces. This is especially a challenge for tenants, including many who are low-income consumers, who do not have a choice in the efficiency of their heating equipment. The NODA approach would retain virtually the same standard that has been in effect since 1978 for these consumers in California. Given the significant improvements in heating technology and their decreasing costs, as demonstrated in the recent NOPR, this is unacceptable.

This makes it imperative that if the U.S. DOE continue down the path mapped in the NODA, that it do the following:

- Define a small furnace in such a way that it would not be easily manipulated to avoid higher efficiency products. A capacity cutoff at 45 kBtu/hr would help achieve this goal by ensuring that smaller furnaces are used only for homes with small heating loads, while also achieving the most energy savings of any of the cutoff points, as shown in NODA Table III.8.
- Increase the AFUE for small furnaces to reflect improvements in energy efficiency that have occurred since 1978. The NODA analysis does not contain any analysis other than 80 percent AFUE, which essentially leaves the standard unchanged for this class of products. DOE should analyze alternative levels in addition to 80 percent AFUE for small furnaces to determine whether cost-effective, technologically feasible levels exist that achieve greater energy savings.
- Set the AFUE for large furnaces at the level that achieves the maximum improvement in energy efficiency that is technologically feasible and economically justified. Under the NODA analysis in Table III.8, this number is 98 percent AFUE, which yields 5.8 quads of energy savings compared with 4.2 quads at the next highest standard.

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At this critical point in the fight against climate change, the U.S. DOE is under an obligation to set the standards that would achieve the most energy savings, and commensurate greenhouse gas reductions, that are cost-effective and technologically feasible. A national standard at 95 percent AFUE does this, and the U.S. DOE's NOPR shows that this is cost-effective and feasible with condensing technologies. However, if the U.S. DOE continues down the path of the NODA, then the Energy Commission urges the U.S. DOE to publish a final rule that at minimum incorporates the recommendations above. If you have any questions about these comments, please contact Patrick Saxton, Advisor to Commissioner McAllister, at (916) 654-4274 or Patrick.Saxton@energy.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Andrew McAllister", with a long horizontal flourish extending to the right.

J. ANDREW MCALLISTER, Ph.D.
Commissioner
Policy Lead for Energy Efficiency