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July 10, 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 Proposed Rulemaking on 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) is California's primary energy policy and planning agency. Among its other duties, the Energy Commission has long had a statutory mandate to reduce energy consumption in California through minimum efficiency standards and codes for appliances and buildings. We recognize the importance of working closely with the U.S. Department of Energy (DOE) to lead efficiency efforts that will save the nation billions of dollars in reduced energy costs and avoid many million metric tons of greenhouse gases.

The Energy Commission appreciates DOE's effort to update its efficiency standards for residential and mobile-home gas-fired furnaces and strongly supports a final rule that achieves at least 92% annual fuel utilization efficiency (AFUE) levels for non-weatherized gas furnaces and mobile home gas furnaces. We offer these comments in support of the proposed standard and to encourage DOE to go even further and adopt higher efficiency standards that DOE has already found to be cost-effective and technologically feasible.

I. Improved furnace standards are a key component in meeting climate goals.

Beginning with the passage of the landmark California Global Warming Solutions Act of 2006,[1] California committed to meeting aggressive climate goals by reducing greenhouse gas emissions to 1990 levels by 2020, to 40% below 1990 levels by 2030, and to 80% below 1990 levels by 2050.[2] The Energy Commission is responsible for several key policies and activities to achieve these goals, including:

- Achieving zero net energy in newly constructed residential buildings by 2020 and in newly constructed commercial buildings by 2030 through the adoption of building energy efficiency codes.[3]
- Doubling the efficiency of California's buildings by 2030 through statewide collaboration on codes, standards, and market research programs.[4]
- Adopting and implementing cost-effective and technologically feasible appliance efficiency standards to protect California's economy, environment, and public welfare.[5]
- Establishing an Action Plan under Assembly Bill 758 (Skinner, Chapter 470, Statutes of 2009) for achieving a comprehensive program to dramatically increase the efficiency of existing buildings.[6]
- Implementing the California Clean Energy Jobs Act (Proposition 39) to provide $2.5 billion in funding for energy efficiency and clean energy projects in California's public schools (K-12) and community colleges.[7]

Acting on these mandates, the Energy Commission has aggressively pursued appliance efficiency standards for products for which it has not been preempted by federal appliance law, adopted the most stringent building codes in the nation despite being unable to improve the energy efficiency of heating, ventilation and air-conditioning equipment and other covered products due to federal preemption, and produced a final draft Existing Buildings Energy Efficiency Action Plan under Assembly Bill 758. As a result of these activities and those of its sister agencies, the California Air Resources Board and the California Public Utilities Commission, California is leading the way on climate change,

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[1] Cal. Assem. Bill No. 32 (2005-2006 Reg. Sess.), codified at Cal. Health & Safety Code § 38500, et seq.
[2] Cal. Health & Safety Code § 38550; Governor's Exec. Order No. B-30-15 (Apr. 29, 2015); Governor's Exec. Order No. S-3-05 (June 1, 2005).
[3] See California Energy Commission, *2013 Integrated Energy Policy Report*, pp. 34 et seq., available at: http://energy.ca.gov/2013publications/CEC-100-2013-001/CEC-100-2013-001-CMF-small.pdf.
[4] *Id.* at pp. 29-33; Governor Brown's 2015 Inaugural Address (Jan. 5, 2015), available at: http://gov.ca.gov/news.php?id=18828.
[5] Cal. Pub. Res. Code §§ 25402(c), 25007, 25001.
[6] Cal. Assem. Bill No. 758 (2009-2010 Reg. Sess.), codified at Cal. Pub. Res. Code § 25943; California Energy Commission, Existing Buildings Energy Efficiency Action Plan – Draft (Mar. 2015), available at http://www.energy.ca.gov/ab758/documents/.
[7] Cal. Sen. Bill No. 73 (2013-2014 Reg. Sess.), codified at Cal. Pub. Res. Code § 26225 et seq.

recently joining 11 subnational entities in signing a memorandum of understanding to limit global warming to no more than 2 degrees Celsius.[8]

DOE's outdated and weak standards for furnaces, among other covered products, have formed a significant barrier to California being able to achieve its climate goals through cost-effective codes and standards for new and existing buildings. California is at a critical point in its fight to reduce greenhouse gases. Any further delay in adopting stringent federal furnace standards threatens to set California back in its efforts to double energy efficiency in existing buildings by 2030 and to achieve zero net energy buildings in 2020.

II. California is preempted from setting more efficient furnace standards, undermining the state's ability to meet its climate goals.

More stringent furnace efficiency standards are an important part of the state's portfolio for meeting its climate goals. But California, like all of the states, has been preempted from setting more stringent furnace efficiency standards since 1987, when Congress incorporated the 1978 California furnace standards as the first federal furnace standards.[9] This means that furnace standards for California have remained substantially the same for almost 40 years.

This is why, in 2005 and 2008, California joined several other states in lawsuits against DOE after DOE failed to adopt stringent standards for furnaces.[10] In these cases, the states criticized DOE for missing deadlines to update the 1987 statutory standards, and for adopting a furnace rule that increased the standards from 78% AFUE to only 80%, despite higher standards being both technologically feasible and cost-effective.[11] DOE agreed in both of these cases to correct the deficiencies through subsequent rulemakings.

During 2009, California joined manufacturers and energy efficiency advocates to negotiate a rule on furnaces, reaching an agreement on a 90% AFUE standard for the northern tier of states. After DOE adopted this through a direct final rule and faced legal challenges from the gas industry, California joined Massachusetts and New York as amicus curiae in support of DOE's standards.[12] Nonetheless, DOE entered into a consent decree to reconsider, again, the federal furnace standards.

DOE's current rulemaking provides DOE an invaluable opportunity to save up to 4.11 quads and 206.5 million metric tons of carbon dioxide emissions through the adoption of stringent

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[8] Global Climate Leadership Memorandum of Understanding (MOU), available at: http://gov.ca.gov/docs/Under_2_MOU.pdf.
[9] National Appliance Energy Conservation Act, Pub. L. 100-12 (1987).
[10] *New York v. Bodman* and *Natural Resources Defense Council v. Bodman*, Consolidated C.A. Nos. 05 Civ. 7807 (JES) and 05 Civ. 7808 (JES) (U.S.D.C., S.D.N.Y) (failure to meet deadlines for adopting standards); *New York v. DOE*, Nos. 08-311-ag(L), 08-312-ag(con) (failure to adopt most cost-effective and feasible standard).
[11] Final Rule, 72 Fed. Reg. 65136 (Nov. 19, 2007).
[12] American Public Gas Assn. v. DOE, Case No. 11-1485 (D.C. Cir.).

standards for residential and mobile home gas furnaces. It has been 28 years since the nation has seen any substantial improvement in efficiency standards for residential non-weatherized gas furnaces; nearly 40 years in California. The Energy Commission is pleased to provide its strong support for DOE's proposal to adopt at least a 92% AFUE nationwide.

III. A nationwide 92% AFUE standard is cost-effective and technologically feasible; a 95% AFUE standard is even better.

The Energy Commission supports DOE's proposal to adopt Trial Standard Level (TSL) 3, a 92% AFUE nationwide for both non-weatherized gas furnaces and mobile home gas furnaces. As DOE's own analysis and data show, this level of efficiency is cost-effective not only for the northern region, but for the rest of the United States, and for California.[13]

However, DOE can do more. Federal appliance law requires that in any amended energy conservation standard that DOE prescribes, the standard must achieve the *maximum* improvement in energy efficiency that is technologically feasible and economically justified.[14] TSL 4, a 95% AFUE standard nationwide, is that standard. DOE's own analysis already shows that this level is cost-effective for the entire nation.[15] As Pacific Gas and Electric Company details in its comments to DOE, the Energy Commission believes that DOE's assumptions in the life-cycle cost and savings analysis are too conservative.[16] Adjusting these assumptions as recommended by Pacific Gas and Electric Company will demonstrate even greater savings at less cost than the NOPR indicates. DOE should also consider including a learning curve for installation of condensing furnaces in existing buildings, resulting in even lower costs than assumed in the NOPR. Revising its analysis to incorporate more accurate assumptions about these items can allow DOE to assess more properly the economic justification for TSLs 3 and 4.

The Energy Commission understands that DOE may be concerned about impacts to manufacturers at TSL 4, as DOE's manufacturer impact analysis suggests that under certain scenarios, there may be a significant incremental cost to industry to comply with TSL 4 compared with TSL 3. But even under a pessimistic scenario, the significant benefit to consumers, both in terms of dollar savings and air quality impacts, far outweighs the impact on manufacturers. Moreover, the Energy Commission is concerned that DOE has failed to consider important mitigating factors in its manufacturer impact analysis: (a) recognition that fuel switching, to the limited extent that it occurs, has small impact on manufacturers

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[13] DOE, Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Residential Furnaces, p. 8-37, Table 8.5.1 (Feb. 10, 2015) [hereafter Residential Furnaces TSD]; Pacific Gas and Electric Company comments on the Notice of Proposed Rulemaking on energy conservation standards for residential furnaces (July 10, 2015), p. 6 (showing results for California specifically).

[14] 42 U.S.C. § 6295(o)(2)(A).

[15] Residential Furnaces TSD, Table 8.5.1; NOPR, 80 Fed. Reg. 13120, 13165 (Mar. 12, 2015) (showing that TSL 4 is cost-effective for the majority of consumers).

[16] See Pacific Gas and Electric Company comments on the Notice of Proposed Rulemaking on energy conservation standards for residential furnaces (July 10, 2015).

because heat pumps are generally manufactured by the same companies with very similar market shares that manufacturer non-weatherized gas furnaces, and (b) the future impact of the learning curve on the incremental cost of manufacturing compliant furnaces. The Energy Commission recommends that DOE further investigate these market realities, as they will show less manufacturer impact at TSL 4, further justifying DOE in adopting TSL 4 as the standard.

Finally, DOE should consider the timing of its proposal when it considers the TSLs. First, furnaces have an estimated 22-year lifetime.[17] This means that the furnace that is installed in 2021 will have the same level of energy consumption for 22 years before a more efficient furnace will take its place. DOE should carefully consider what type of furnaces it wants to have in place for 22 years before it promulgates another update to the standard.

Second, there is at least a ten-year gap between when DOE publishes its final rule on these standards and when the next federal update to the standards will occur (five years until DOE takes up another rulemaking, and another five years to the effective date). Given these extreme time lags juxtaposed against the criticality of taking prompt advantage of opportunities presented by technology advances, DOE should endeavor to achieve the greatest level of efficiency that is technologically feasible and economically justified. DOE almost certainly will not have another chance like this for ten years; if history is telling, this could be DOE's last chance for 28 years. DOE owes it to the states that are preempted from acting on their own behalf not to make suboptimal decisions when it changes a standard.

IV. Highly efficient furnaces benefit low-income consumers.

California is sensitive to the higher first costs for efficient appliances that may result from improved energy efficiency standards. However, it does not see this as a significant barrier to a stringent furnace efficiency standard. First, although retail prices for a 92% AFUE residential non-weatherized gas furnace are currently significantly higher than for 80% AFUE furnaces, the Energy Commission expects that equipment prices will come down significantly both with the ability to scale production and by setting an efficient baseline that will eliminate the premium pricing that manufacturers currently attach to more efficient products. Second, we also expect that retrofit installation costs will come down as the industry provides innovative solutions to address venting and condensate removal in all retrofits, and the orphaned water heater issue for some retrofits.

The Energy Commission is concerned that keeping cheap, inefficient products on the market actually creates greater harm to low-income consumers than retaining these products. Low-income consumers spend more of their income on utility costs than higher income customers. As a result, low-income consumers are the least able to afford the higher energy consumption resulting from inefficient appliances. In addition, for low-income tenants in California, the split incentive between building owners and tenants means that low-income consumers do not have a choice in the efficiency of the fixtures, yet they pay

[17] NOPR, 80 Fed. Reg. 13120, 13122 (Mar. 12. 2015).

the costs for the energy consumed by the cheaper, inefficient products selected by their landlords. Higher efficiency standards on installed appliances, like furnaces, eliminate this split incentive, addressing important environmental and affordability issues for low-income tenants.

V. Conclusion

The Energy Commission appreciates the opportunity to comment on DOE's proposed energy conservation standards for residential and mobile home gas furnaces, and looks forward to a final rule that maximizes the cost-effective and technologically feasible energy savings that DOE has analyzed in its proposal. If you have any questions about these comments, please contact Bill Pennington, Efficiency Division Senior Technical and Program Advisor, at (916) 698-0604 or Bill.Pennington@energy.ca.gov.

Sincerely,

ROBERT B. WEISENMILLER
Chair

ANDREW McALLISTER, Ph.D.
Lead Commissioner for Efficiency