

Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Natural Resources Defense Council
Northwest Energy Efficiency Alliance
National Consumer Law Center

June 14, 2022

Ms. Julia Hegarty
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office, EE-2B
1000 Independence Avenue SW
Washington, DC 20585

RE: Docket Number EERE-2021-BT-STD-0020: Energy Conservation Standards for Consumer Pool Heaters

Dear Ms. Hegarty:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), Natural Resources Defense Council (NRDC), Northwest Energy Efficiency Alliance (NEEA), and the National Consumer Law Center (NCLC) on behalf of its low-income clients on the notice of proposed rulemaking (NOPR) for consumer pool heaters standards. 87 Fed. Reg. 22640 (April 15, 2022). We appreciate the opportunity to provide input to the Department.

In the NOPR, DOE has proposed standards that would provide both large national energy savings as well as significant cost savings for consumers.¹ The majority of these savings arise from electric pool heaters, wherein DOE has proposed a standard level that requires efficient heat pump pool heaters. We strongly support DOE's proposal to include all electric pool heaters, inclusive of both electric resistance and heat pump pool heaters, within a single product class.

While we are generally supportive of DOE's proposal, we believe there is room for improvement for both the gas and electric pool heater proposed standard levels. For gas pool heaters, DOE's proposed standard level reflects the highest non-condensing efficiency level (EL) evaluated, which assumes an active-mode thermal efficiency of 84%. However, there are non-condensing gas pool heater models on the market across a broad range of capacities rated at 85% thermal efficiency, which DOE did not analyze as a potential standard level. In addition, the maximum technologically feasible (max-tech) levels for both gas and electric pool heaters include additional technology options that reduce standby/off-mode power usage: a seasonal off switch and a switch mode power supply. We encourage DOE to consider standard levels that reflect the proposed standard levels plus these additional technology options for both gas and electric pool heaters. We also believe DOE is likely underestimating

¹DOE estimates 0.49 quads of full-fuel-cycle energy savings (Table V.12) and 2.39 or 0.95 billion USD in consumer benefits (Table V.14) at a 3% and 7% discount rates, respectively. 87 Fed. Reg. 22698, 22699.

cost savings from higher efficiency gas pool heaters. More details regarding these suggestions as well as other issues are discussed below.

We support a single product class for all electric pool heaters. In the NOPR, DOE is proposing to establish the first energy conservation standards for electric pool heaters. The proposed single product class for electric pool heaters is inclusive of both inefficient electric resistance pool heaters and highly efficient heat pump pool heaters. We do not believe electric resistance heaters provide any unique utility, and a separate product class for electric resistance pool heaters would significantly undermine the energy and cost savings benefits of the proposed rule. A single product class for all electric pool heaters is consistent with the 2010 final rule for water heater energy conservation standards, where DOE determined that electric heat pump water heaters did not warrant a separate product class.² We agree with DOE that electric heat pump and electric resistance pool heaters should be included within the same product class and thus subject to a single energy conservation standard.

We encourage DOE to evaluate a standard level for gas pool heaters which incorporates an active-mode thermal efficiency of 85%. For gas pool heaters, the proposed standard level assumes an active-mode thermal efficiency of 84%, which is estimated to represent nearly half the market by the 2028 compliance date.³ However, there are non-condensing gas pool heaters from multiple manufacturers in DOE's Compliance Certification Database (CCD)⁴ and the California Energy Commission's Modernized Appliance Efficiency Database (MAEDBs)⁵ with 85% thermal efficiency at capacities ranging from 150,000 to 750,000 Btu/hr. While DOE evaluated a higher EL associated with a condensing gas pool heater, DOE did not evaluate this higher non-condensing level. Therefore, we encourage DOE to evaluate an EL based on the most efficient non-condensing gas pool heaters on the market.

We encourage DOE to consider standard levels for both electric and gas pool heaters that reflect the proposed standards plus the addition of a seasonal off switch and a switch mode power supply. For ELs representing electric heat pump pool heaters, increased evaporator surface area is listed as the assumed technology option to reach higher efficiencies up to the level that DOE proposes to adopt (EL4).⁶ Meanwhile, multiple technology options including a seasonal off switch and a switch mode power supply are assumed at the max-tech level (EL5). We expect that adding a seasonal off switch, for example, to the proposed standard level for electric pool heaters would increase energy savings with minimal impacts on incremental cost or manufacturing considerations. State regulations for heat pump pool heaters in California,⁷ Connecticut,⁸ and Florida⁹ already require an off switch mounted on the pool heater that permits shutoff without adjusting the thermostat. Hence, we encourage DOE to analyze and consider adopting a standard level for electric pool heaters equivalent to the proposed standard but

²75 Fed. Reg. 20112, 20135 (April 16, 2010).

³Estimated 45.3% market share (Table IV.18) in no-new standards case. 87 Fed. Reg. 22678.

⁴Accessed on June 6, 2022. www.regulations.doe.gov/certification-data/CCMS-4-Pool_Heaters.html?q=Product_Group_s%3A%22Pool%20Heaters%22

⁵Accessed on June 6, 2022. cacertappliances.energy.ca.gov/Pages/Search/AdvancedSearch.aspx

⁶Table IV.7. 87 Fed. Reg. 22661.

⁷CA Code of Regulations, Title 20, § 1605.3. www.law.cornell.edu/regulations/california/20-CCR-Sec-1605-3

⁸Chapter 298, Section 16a-48. www.cga.ct.gov/current/pub/chap_298.htm#sec_16a-48

⁹Chapter 4, Section R403.10.1. up.codes/viewer/florida/fl-energy-conservation-code-2017/chapter/RE_4/residential-energy-efficiency#RE_4

with reduced standby/off-mode energy usage associated with use of a seasonal off switch and/or a switch mode power supply.

Similarly, DOE incorporated a seasonal off switch and a switch mode power supply only at the max-tech level for gas pool heaters (EL3), which assumes use of condensing technology. However, the standby/off-mode power reduction from a seasonal off switch and/or a switch mode power supply would benefit all gas pool heaters. Thus, we encourage DOE to analyze and consider adopting a standard level for gas pool heaters equivalent to the proposed standard with reduced standby/off-mode power associated with a seasonal off switch and/or a switch mode power supply.

We support DOE's conclusion that the potential for fuel switching as a result of the proposed standard levels is limited. At the DOE public meeting on May 4, one stakeholder argued that the proposed standards could result in fuel switching from electric to gas pool heaters due to the higher cost of electric heat pump pool heaters compared to gas pool heaters meeting the proposed standards.¹⁰ However, we believe that such fuel switching is unlikely. First, in the NOPR, DOE explains that the costs associated with switching from an electric pool heater to a gas pool heater (e.g., having to extend a gas line) would likely limit switching.¹¹ Second, heat pump pool heaters already make up more than 90% of the electric pool heater market.¹² Third, the estimated incremental cost increase for most consumers affected by the proposed standard for electric pool heaters is only \$133.¹³ In other words, DOE's proposal for electric pool heaters will result in minimal added cost for most purchasers. For comparison, the incremental cost increase for most consumers affected by the proposed standard for gas pool heaters is \$178.¹⁴ Finally, the estimated average first-year operating cost of heat pump pool heaters is less than half that of gas pool heaters at DOE's proposed standard levels.¹⁵ Therefore, we support DOE's conclusion that it is unlikely that fuel switching will occur as a direct result of the proposed standards.¹⁶

We believe DOE is likely underestimating cost savings from higher efficiency gas pool heaters. DOE used natural gas prices from two EIA sources,¹⁷ and estimated future price trends using the EIA 2021 Annual Energy Outlook (AEO).¹⁸ However, DOE could be underestimating future natural gas prices significantly using this approach. As the movement towards electrification grows and the efficiencies of gas appliances improve, both customer base and overall natural gas sales will likely decline over time. For example, a 2022 analysis conducted by the NRDC estimated the impact of customer exits (i.e., consumers who switch to electric appliances and disconnect from the gas system) on gas prices for the remaining customers. NRDC's analysis, summarized in their recent consumer water heater comments,¹⁹ found that gas prices would exceed 600% of the AEO projections in the Pacific and Mid-Atlantic regions

¹⁰EERE-2021-BT-STD-0020-0009, pp. 5-6, 34-37, www.regulations.gov/document/EERE-2021-BT-STD-0020-0009

¹¹87 Fed. Reg. 22680.

¹²Heat pump pool heaters (ELs 1-5) represent 92% of the market (Table IV.17). 87 Fed. Reg. 22678.

¹³Incremental cost difference between the most common projected heat pump level (EL2, 59.1% projected market share in no-new standards case) and proposed standard level (EL4). Table V.2. 87 Fed. Reg. 22692.

¹⁴Incremental cost difference between EL1 (projected 43.6% market share in no new standards case) and proposed standard level, EL2 (projected 45.3% market share in no new standards case). Table IV.18. 87 Fed. Reg. 22678.

¹⁵\$380 (Table V.2) vs. \$871 (Table V.4) estimated first-year operating cost. 87 Fed. Reg. 22692, 22693.

¹⁶EERE-2021-BT-STD-0020-0005, p. 9-27. www.regulations.gov/document/EERE-2021-BT-STD-0020-0005

¹⁷www.eia.gov/electricity/data/eia861m/; www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm

¹⁸www.eia.gov/outlooks/aeo/tables_side.php

¹⁹EERE-2017-BT-STD-0019-0037. www.regulations.gov/comment/EERE-2017-BT-STD-0019-0037

under multiple electrification scenarios. These results are consistent with other studies indicating that remaining gas customers see large cost increases as the number of gas customers and overall gas energy usage declines.^{20,21} Thus, DOE may be significantly underestimating the operating cost savings from potential amended standards for gas pool heaters.

Thank you for considering these comments.

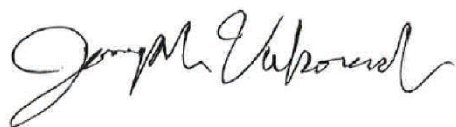
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²⁰Massachusetts D.P.U. 20-80. [thefutureofgas.com/content/downloads/2022-03-21/3.18.22%20-%20Independent%20Consultant%20Report%20-%20Decarbonization%20Pathways.pdf](https://www.thefutureofgas.com/content/downloads/2022-03-21/3.18.22%20-%20Independent%20Consultant%20Report%20-%20Decarbonization%20Pathways.pdf)

²¹L.W. Davis & C. Hausman. Who Will Pay for Legacy Utility Costs? www.nber.org/papers/w28955