Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Consumer Federation of America
National Consumer Law Center, on behalf of its low-income clients
Natural Resources Defense Council
Northwest Energy Efficiency Alliance

April 17, 2023

Dr. Carl Shapiro
U.S. Department of Energy
Office of General Counsel, EE-5B
1000 Independence Avenue SW
Washington, DC 20585

RE: Docket Number EERE–2014–BT–STD–0005/RIN 1904–AD15: Supplemental Notice of Proposed Rulemaking for Energy Conservation Standards for Consumer Conventional Cooking Products

Dear Dr. Shapiro:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), Consumer Federation of America (CFA), National Consumer Law Center, on behalf of its low-income clients (NCLC), Natural Resources Defense Council (NRDC), and Northwest Energy Efficiency Alliance (NEEA) on the supplemental notice of proposed rulemaking for energy conservation standards for consumer conventional cooking products. 88 Fed. Reg. 6818 (February 1, 2023). We appreciate the opportunity to provide input to the Department.

We strongly support the proposed standards for cooking products. DOE has proposed performance-based standards for cooking tops and prescriptive requirements for conventional ovens that would provide meaningful energy savings for the nation and cost savings of up to $1.7 billion for U.S. consumers. Furthermore, the proposed standards would avert about 22 million metric tons of CO_2 emissions and 52 thousand tons of NO_X emissions over 30 years of sales and improve indoor air quality.

DOE's analysis underscores why performance-based standards for electric and gas cooking tops are warranted. Because cooking tops have never had to meet any cooking efficiency standards, energy use across individual models varies significantly. The measured energy consumption of the least efficient electric smooth element cooking top in DOE's test sample is almost 30% greater than that of the most efficient unit; for gas cooking tops, the least efficient unit

consumes nearly 50% more energy than the most efficient unit.[1] Manufacturers to date have had little incentive to reduce energy use, and many models on the market have likely not been specifically designed with features meant to improve cooking efficiency. Therefore, simple design changes that target energy efficiency can significantly reduce energy consumption.

For gas cooking tops, DOE has ensured that models with features valued by consumers, such as high input rate (HIR) burners and continuous cast-iron grates, would be able to meet the proposed standard. Furthermore, the Department notes that roughly half of the gas cooking top models on the market, including entry-level models, already meet the proposed standard. DOE's proposed standards would thus significantly reduce energy consumption while preserving consumer utility.

We support a single product class for gas cooking tops. In the SNOPR, DOE reviewed gas cooking tops on the market and concluded that products marketed as "commercial-style" cannot be distinguished from standard residential-style products based on performance characteristics or consumer utility.[2] DOE measured the energy consumption of burners in a sample of gas cooking tops and concluded that there's "no statistically significant difference" in the relationship of burner input rate to normalized per-burner energy consumption across cooking tops marketed as either residential-style or commercial-style. Furthermore, DOE notes that features such as HIR burners and continuous cast-iron grates, which are typically advertised for commercial-style cooking tops, are present in residential-style models as well.[3] Thus, we support DOE's decision to analyze a single product class for gas cooking tops.

DOE's proposed standard for gas cooking tops ensures that consumers would have access to the features generally available on the market today. HIR burners allow consumers to perform high heat cooking, and continuous cast-iron grates are useful for heavy pans or to easily shift cookware between burners. In the SNOPR, DOE recognized the utility of these features and therefore only evaluated models for its analysis with at least one HIR burner (> 14,000 Btu/hour) and continuous cast-iron grates.[4] This approach ensured that gas cooking top models with both of these features could comply with the proposed standard. Furthermore, Figure 1, which presents the annual energy use of tested gas cooking tops with different numbers of HIR burners, shows that there is no clear relationship between the number of HIR burners and measured energy use. This suggests that well-designed cooking tops can be both energy efficient and have multiple HIR burners.

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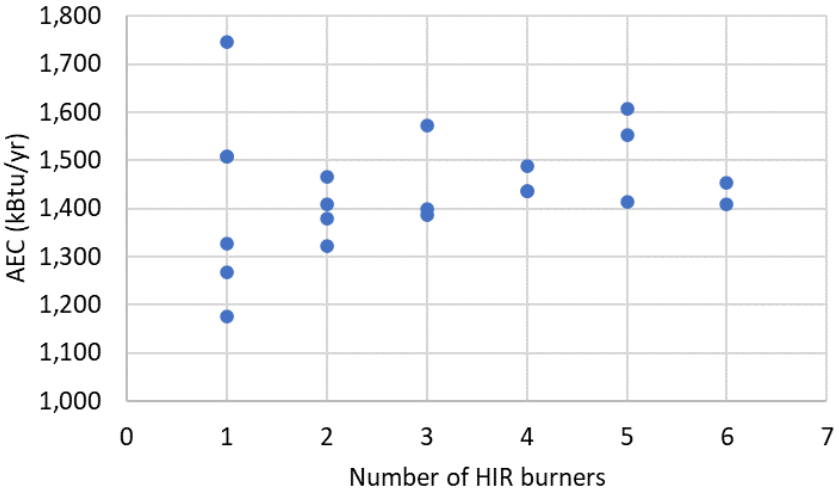
[1] For electric smooth element cooking tops and gas cooking tops in DOE's test sample, integrated annual energy consumption (IAEC) values ranged from 177 to 226 kWh/year and 1,187 to 1,756 kBtu/year, respectively. https://www.regulations.gov/document/EERE-2014-BT-STD-0005-0090. pp. 5-32 – 5-34.

[2] https://www.regulations.gov/document/EERE-2014-BT-STD-0005-0090. p. 3-3.

[3] https://www.regulations.gov/document/EERE-2014-BT-STD-0005-0090. p. 3-5.

[4] 88 Fed. Reg. 12604.

Figure 1. Annual active mode energy consumption (AEC) as a function of the number of HIR burners for DOE's gas cooking top test sample[5]



DOE estimates that roughly half of the gas cooking tops on the market already meet the proposed standard. Gas cooking top models with features such as steel grates, non-continuous grates, and/or burners with input rates less than 14,000 Btu/hour, which represent over 40% of the current market, were screened out of the analysis.[6] DOE's test data show that these models already meet the proposed efficiency level and therefore would not be impacted by the proposed standard. In fact, the three gas cooking top models in DOE's test sample that did not meet the screening criteria use 14-21% less energy than the level proposed in the SNOPR.[7] Of the models in the test sample that were not screened out of the analysis, 4% would achieve the proposed efficiency level.[8] Thus, in total, DOE estimates that nearly 50% of the gas cooking tops on the market, including entry-level models, already meet the proposed standard.

DOE's proposed standards would improve indoor air quality. In the SNOPR, DOE requested comment on any health impacts of the proposed rule from on-site emissions from gas cooking products.[9] DOE noted that in general, higher efficiency burner systems correlate with more complete combustion and therefore a more efficient conversion of the energy content in the gas to thermal energy.[10] As the American Lung Association (ALA) discusses in their comments on the SNOPR, combustion of methane from gas appliances such as cooking products can increase indoor exposure to harmful pollutants like nitrogen dioxide (NO_2) and carbon monoxide (CO). ALA notes that these pollutants can result in increased risk of heart disease, stroke, ozone-related illness, and asthma. Thus, DOE's proposed standards, by reducing in-

[5] https://www.regulations.gov/document/EERE-2014-BT-STD-0005-0090. p. 5-33.
[6] 88 Fed. Reg. 12604.
[7] 88 Fed. Reg. 12605.
[8] Ibid.
[9] 88 Fed. Reg. 6864.
[10] 88 Fed. Reg. 6863-6864.

home gas combustion, would improve indoor air quality and reduce exposure to pollutants that harm human health.

DOE may be overestimating the incremental costs to meet efficiency level (EL) 3 for electric smooth element cooking tops. For electric smooth element cooking tops, EL 3 represents models that use induction technology. In the analysis for the SNOPR, DOE estimates that the average installation cost for induction-type cooking tops at EL 3 would be $400.06, which includes $134.50 for electric wiring upgrades to accommodate a higher amperage product. In the SNOPR analysis, due to the lack of information about the existing amperage of the electrical circuits in homes, the Department assumed that 50% of the user population would need wiring upgrades to meet EL 3.[11] However, wiring upgrades may be necessary even in the base case. Many standard size (30 inch) products on the market – both electric resistance and induction models – use 40 amps,[12] and the majority of modern 240-volt electric stoves already require a 50-amp breaker.[13] Homes with older electric cooking tops and smaller breaker capacities (*i.e.*, 30 amps) may be required to update the wiring to accommodate newer models, regardless of the efficiency. Thus, we believe DOE may be overestimating the costs associated with wiring upgrades for EL 3.

Additionally, in the SNOPR analysis, in analyzing historical prices of cooking products, DOE examined prices of electric cooking products as a whole and implemented a price trend based on Producer Price Index (PPI) data for "electric household ranges, ovens surface cooking units, and equipment." However, we would expect that the price trends associated with induction technology, which currently represent a very small portion of the cooking top market, will be significantly different than the overall price trends of electric cooking products. In particular, we would expect that the prices of induction cooking tops would decline faster than those for the mature and established technologies that make up most electric cooking tops as a whole. Therefore, by not addressing price learning specifically for induction technology, we believe DOE may be overestimating future product prices for models meeting EL 3.

We believe that DOE's assignment of efficiency levels in the no-new-standards case reasonably reflects actual consumer behavior. DOE used the models in its test sample and the current market distribution to help derive the base case efficiency distribution in 2027 for cooking tops and ovens, respectively. We agree with DOE's determination that the Department's method of assigning cooking product efficiencies, which is in part random, is more representative of actual consumer behavior than assigning efficiencies based solely on

[11] https://www.regulations.gov/document/EERE-2014-BT-STD-0005-0090. p. 8-17.
[12] See for example, this GE electric resistance model, https://www.homedepot.com/p/GE-30-in-5-3-cu-ft-Electric-Range-with-Self-Cleaning-Oven-in-Stainless-Steel-JB645RKSS/206942923, and this Samsung induction model https://www.homedepot.com/p/Samsung-30-in-6-3-cu-ft-Slide-In-Induction-Range-with-Self-Cleaning-Oven-in-Stainless-Steel-NE63B8211SS/320714840.
[13] https://homeinspectioninsider.com/wire-breaker-size-electric-stoves/.

cost-effectiveness. As DOE describes in the SNOPR, there are various market failures as well as aspects of consumer preference that significantly impact how products are chosen by consumers.[14] For example, the split-incentive or principal-agent problem is likely to affect large home appliances like cooking products. There are often misaligned incentives in rental properties where the landlord purchases and installs the cooking product while the renter is responsible for paying the utility bill. DOE further notes that consumers tend to underestimate the energy use of large energy-intensive appliances like conventional cooking products, resulting in less cost-effective purchases. We therefore believe that DOE's assignment of efficiency levels in the no-new-standards case is sufficiently representative of actual consumer behavior.

We encourage DOE to further investigate the design considerations that may drive differences in efficiency among open element cooking tops. For electric open (coil) element cooking tops, DOE did not identify any technology options for improving efficiency.[15] As a result, the Department did not consider any higher efficiency levels above the baseline level, which represented an IAEC of 199 kWh/year. However, DOE's test data indicates that lower IAECs are feasible; for example, test unit #2 in DOE's test sample had an IAEC of 185 kWh/year.[16] Therefore, we believe that there may be potential efficiency levels beyond the baseline level. We encourage DOE to further investigate what may be driving the efficiency differences among electric open element models. Alternatively, DOE could consider an efficiency-level approach for this product class, which would establish efficiency levels based on actual products in the market.

We encourage DOE to develop test procedures and establish performance-based standards for conventional ovens. In the SNOPR, DOE analyzed prescriptive standards for ovens due to the absence of a test procedure.[17] While we support the proposed standards for conventional ovens, performance-based standards have the potential to achieve significantly greater savings than prescriptive requirements. For example, performance-based standards could allow DOE to consider additional design options such as improved insulation and door seals.[18] DOE should therefore work to establish test procedures and potential future performance-based standards for these products.

[14] 88 Fed. Reg. 6856.
[15] 88 Fed. Reg. 6840.
[16] https://www.regulations.gov/document/EERE-2014-BT-STD-0005-0090. p. 5-32.
[17] 88 Fed. Reg. 6831.
[18] https://www.regulations.gov/document/EERE-2014-BT-STD-0005-0090. p. 4-5.

Thank you for considering these comments.

Sincerely,

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