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

August 30, 2019

Sofie Miller
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Docket Number EERE–2017–BT–STD–0062/RIN 1904–AD38: Notice of Data Availability for Procedures, Interpretations, and Policies for Consideration of New or Revised Energy Conservation Standards for Consumer Products

Dear Ms. Miller:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), California Energy Commission (CEC), Consumer Federation of America (CFA), National Consumer Law Center, on behalf of its low-income clients (NCLC), and Northwest Energy Efficiency Alliance (NEEA) on the notice of data availability (NODA) for procedures, interpretations, and policies for consideration of new or revised energy conservation standards for consumer products (the "Process Rule"). 84 Fed. Reg. 36037 (July 26, 2019). We appreciate the opportunity to provide input to the Department.

In the Process Rule NOPR, DOE proposed defining "significant" energy savings as 0.5 quads or a 10% reduction in energy consumption over a 30-year period. However, the NOPR did not specify whether the 0.5 quads referred to site, source, or full-fuel-cycle energy use, and the NOPR also lacked clarity around the reference to a 30-year period. In the NODA, DOE notes that energy savings data presented in the NOPR had combined source energy and full-fuel-cycle energy, and DOE has now switched to presenting energy savings from historical rulemakings in terms of site energy use.

We continue to urge DOE to maintain the Department's existing interpretation of "significant" energy savings. We also have several concerns with the data presented in the NODA. Below we provide our detailed comments. In summary:

- DOE should not establish any arbitrary thresholds for defining "significant" energy savings
- DOE has yet to make a clear proposal regarding potential thresholds for "significant" energy savings
- We are concerned that DOE would consider using site energy use for any evaluation of energy savings from energy conservation standards
- DOE has still not provided an "apples-to-apples" comparison of energy savings from historical rulemakings

DOE should not establish any arbitrary thresholds for defining "significant" energy savings. As we described in detail in our comments on the NOPR, we do not believe that DOE's proposal to establish energy-savings thresholds is consistent with *Herrington* or Congress' intent.[1] We recognize that there are cases where the energy savings and associated benefits of a potential amended standard do not outweigh the costs. But the Energy Policy and Conservation Act (EPCA) already clearly provides DOE with the ability in such a situation to make a determination that no change to the standard is warranted.[2] In contrast, DOE's proposal to establish arbitrary thresholds for defining "significant" energy savings would eliminate the Department's ability to even evaluate the relative costs and benefits of a standard that did not meet the thresholds. Importantly, establishing any savings thresholds would mean that DOE could not pursue a standard that did not meet the thresholds even if such a standard would impose no costs. As we outlined in our comments on the NOPR, there have been a number of instances where DOE analyses have identified efficiency improvements that have no first-cost impact. Establishing arbitrary thresholds would potentially deny billions of dollars in cost-effective savings for consumers and businesses, including "cost-free" savings. For the broad range of thresholds presented in the NODA, applying those thresholds to the 57 historical rules would have resulted in approximate lost energy bill savings of between $5 billion and $300 billion.[3]

DOE has yet to make a clear proposal regarding potential thresholds for "significant" energy savings. As described above, we continue to believe that DOE should not establish any arbitrary thresholds for defining "significant" energy savings. We also note that DOE has yet to make a clear proposal regarding any potential thresholds. In the NOPR, DOE proposed energy savings thresholds of "0.5 quads of energy saved over a 30-year period" or "an energy savings improvement of at least 10 percent."[4] However, as we described in our comments on the NOPR, the NOPR did not specify whether the 0.5 quads would be measured as site, source, or full-fuel-cycle energy use nor whether the "30-year period" referred to savings attained within a 30-year period or lifetime savings attained by products sold over a 30-year period.[5] DOE notes in the NODA that the Department "determined that the national energy savings data from the 57 energy conservation standards rulemakings mentioned in the NOPR are a mixture of source and full-fuel-cycle energy savings." In the NODA, DOE has now switched to presenting energy savings data in terms of site energy use, but the Department did not clarify the metric for the proposed threshold or state, if the proposed threshold is now to be based on site energy use, whether the proposed level is still 0.5 quads. DOE also has not clearly defined the 30-year period.

DOE's proposal in the NOPR was also unclear with respect to the 10% threshold. The proposed regulatory language stated that the max-tech energy savings would be compared to the total energy use of the product "to calculate a potential percentage improvement in energy efficiency or reduction in energy usage."[6] However, a percentage improvement in efficiency is not the same thing as a reduction

[1] https://www.regulations.gov/document?D=EERE-2017-BT-STD-0062-0126.
[2] 42 U.S.C. 6295(m)(1); 42 U.S.C. 6316(a).
[3] Assuming the savings are electricity savings and an electricity price of $0.118/kWh (or $34.6 billion/quad of site energy savings). ($0.118/kWh is the average of the national average electricity prices for the residential and commercial sectors for 2018.) Table II.1 in the NODA shows that at the low end of the energy savings threshold and reduction in energy use range, 5 of the 57 rules would not have met the threshold, representing 0.3% of the total site energy savings of 54.64 quads, or 0.16 quads. At the high end, 36 of the 57 rules would not have met the threshold, representing 16.2% of the total site energy savings, or 8.87 quads.
[4] 84 Fed. Reg. 3946 (February 13, 2019).
[5] https://www.regulations.gov/document?D=EERE-2017-BT-STD-0062-0126.
[6] 84 Fed. Reg. 3946.

in energy use.[7] The NOPR further stated that the energy savings would not be "significant" if the comparison "does not yield an energy savings improvement of at least 10 percent," but it is unclear what "energy savings improvement" means in the context of comparing a value of energy savings to a value of energy use.

We are concerned that DOE would consider using site energy use for any evaluation of energy savings from energy conservation standards. We recognize that for purposes of DOE test procedures, measured energy consumption must reflect site energy use. However, DOE has always used source energy use (or more recently, full-fuel-cycle energy use) in evaluating energy savings from standards rulemakings. In a policy statement published in 2011, DOE stated its intent to switch from using source energy (or primary energy) to full-fuel-cycle energy to more fully capture the impacts of standards on total energy use and greenhouse gas emissions in response to recommendations from the National Academy of Sciences (NAS).[8]

There would be two major problems if DOE were to instead use site energy use in any evaluation of the impact of energy conservation standards. First, site energy savings do not accurately reflect the total impact of standards on national energy consumption. For products that consume electricity, the total reduction in energy use (i.e. the reduction in full-fuel-cycle energy use) from a standard is roughly three times greater than the reduction in site energy use due to losses in electricity generation, transmission, and distribution in addition to the energy consumed to extract, process, and transport the fuels burned at power plants.[9] Site energy use also does not reflect the total reduction in energy use from standards that save natural gas due to the upstream energy consumed in extracting, processing, and transporting gas. Evaluating energy savings from standards rulemakings based on site energy use would thus significantly underestimate the impact on national energy consumption.

Second, using site energy use does not provide a fair comparison between electricity savings and natural gas savings. As noted above, the full-fuel-cycle energy savings from a standard that saves electricity are roughly three times greater than the site energy savings, while for a standard that saves natural gas, the full-fuel-cycle energy savings are only about 10% greater than the site energy savings.[10] For example, two standards—one that saves electricity and one that saves natural gas—may each save 1 quad of site energy. But the standard that saves electricity would save about 3 quads of energy on a full-fuel-cycle basis, while the standard that saves natural gas would save about 1.1 quads. Therefore, comparisons of standards on a site energy basis would be misleading.

DOE has not provided an "apples-to-apples" comparison of historical rulemakings. The NODA states that "DOE has now restated the results of each rulemaking on a site energy basis for the purpose of making an 'apples-to-apples' comparison of the results of each rulemaking." However, DOE does not in fact appear to have provided an "apples-to-apples" comparison. First, in the document referenced in the NODA showing the 57 rules,[11] the analysis periods listed for each rule range from 24 years to 30 years. In

[7] For example, raising the efficiency of a furnace from 80 AFUE to 95 AFUE represents a percentage improvement in efficiency of 19% (95/80 – 1), but a reduction in energy use of 16% ((95-80) / 95).
[8] 76 Fed. Reg. 51281 (August 18, 2011).
[9] For example, with a site-to-power plant conversion factor of 9,500 Btu/kWh and a full-fuel-cycle multiplier of 1.04, the full-fuel-cycle energy use would be 2.9 times greater than the site energy use ((9,500 * 1.04) / 3,412).
[10] See, for example, Table 10B.3.1 in the Technical Support Document for the final rule for commercial pre-rinse spray valves: https://www.regulations.gov/document?D=EERE-2014-BT-STD-0027-0046.
[11] https://www.regulations.gov/document?D=EERE-2017-BT-STD-0062-0144.

addition, for rules prior to 2013, DOE reported in each final rule the energy savings over 30 years (or over a shorter time period). Since 2013, DOE has reported energy savings from 30 years of sales. In particular for products with long lifetimes (e.g. boilers and distribution transformers), savings from 30 years of sales are significantly greater than savings over 30 years. The NODA does not explain whether DOE accounted for these differences.

Second, for the 2010 and 2014 rules for small electric motors and electric motors, respectively, it appears that the percentage savings may have been calculated in very different ways. Specifically, it appears that the percentage savings for small electric motors reflect the reduction in losses, while for electric motors they reflect the reduction in motor energy use.[12] The choice of using the reduction in losses versus the reduction in product energy use for motors (and other similar products such as transformers) yields very different results. For example, raising motor efficiency from 90% to 95% represents a reduction in losses of about 50%, but a reduction in product energy use of just 5%.[13]

Finally, as described above, comparing site energy savings does not provide an "apples-to-apples" comparison when evaluating a set of rules that affect both electric and gas products. For example, the site energy savings listed in the document referenced in the NODA would suggest that the 2016 rule for residential boilers will save more energy (0.137 quads) than the 2016 rule for dehumidifiers (0.100 quads).[14] But in fact, the total energy savings (reported as full-fuel-cycle energy savings in each rule) for dehumidifiers (0.30 quads) are about twice as great as those for residential boilers (0.16 quads).[15]

In conclusion, we continue to urge DOE not to establish any thresholds for defining "significant" energy savings. However, if DOE does pursue thresholds, the Department must first publish a clear proposal for public comment.

Thank you for considering these comments.

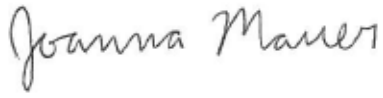
Sincerely,

[12] The document referenced in the NODA shows percentage savings of 52.0% and 0.7% for small electric motors and electric motors, respectively. For small electric motors, the product energy savings, after taking into account the base case efficiency distribution, are 13%, 27%, and 10% for the representative polyphase, capacitor-start induction-run, and capacitor-start capacitor-run motors, respectively. The reduction in losses are 30%, 54%, and 28%. 75 Fed. Reg. 10904, 10918 (March 9, 2010). For electric motors, the product energy savings, after taking into account the base case efficiency distribution, are 2%, 1%, and 1% for Representative Units 1, 2, and 3, respectively. The reduction in losses are 10%, 8%, and 9%. https://www.regulations.gov/document?D=EERE-2010-BT-STD-0027-0108, pp. 8-31, 8-35, 8-36, 8-37.

[13] For example, for 10 HP motors, the input powers for two motors with efficiencies of 90% and 95% would be 11.1 HP (10/0.90) and 10.5 HP (10/0.95), respectively. The motor losses would be 11% for the 90% efficient motor (1/0.9 – 1) and 5% for the 95% efficient motor (1/0.95 – 1). The reduction in losses would be just over 50% ((0.11 – 0.05) / 0.11) while the reduction in motor energy use would be 5% ((11.1 – 10.5) / 11.1).

[14] https://www.regulations.gov/document?D=EERE-2017-BT-STD-0062-0144.

[15] 81 Fed. Reg. 2320 (January 15, 2016); 81 Fed. Reg. 38338 (June 13, 2016).



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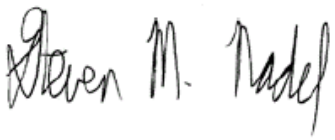

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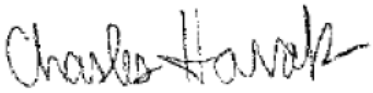

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