

Appliance Standards Awareness Project  
National Consumer Law Center, on behalf of its low-income clients  
Natural Resources Defense Council

December 28, 2020

Mr. Bryan Berringer  
U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
Building Technologies Office, EE-5B  
1000 Independence Avenue SW  
Washington, DC 20585

**RE: Docket Number EERE–2019–BT–STD–0039/RIN 1904-AE32: Request for Information for Energy Conservation Standards for Dishwashers**

Dear Mr. Berringer:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), National Consumer Law Center, on behalf of its low-income clients (NCLC), and Natural Resources Defense Council (NRDC) on the request for information (RFI) for energy conservation standards for dishwashers. 85 Fed. Reg. 64981 (July 24, 2020). We appreciate the opportunity to provide input to the Department.

DOE must evaluate potential amended standards for dishwashers. Data on current models show that there is wide availability of dishwashers that consume significantly less energy and water than the current standards. Furthermore, DOE test data and investigation conducted by EPA show that very efficient dishwashers can provide excellent performance across a range of attributes that may be important to consumers. Finally, DOE should eliminate the recently established product class for short-cycle dishwashers.

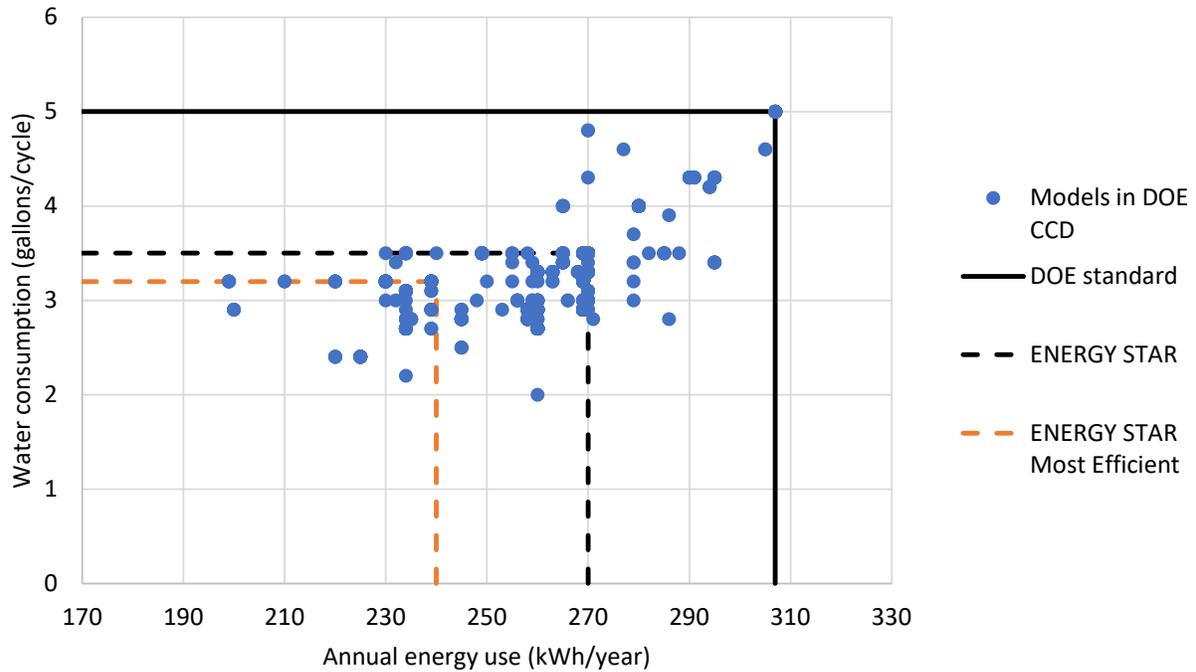
**There is significant opportunity to strengthen the standards for dishwashers.** The current DOE standards for standard-size dishwashers specify a maximum energy use of 307 kWh/year and a maximum water consumption of 5.0 gallons/cycle. As of 2019, more than 90% of dishwasher sales met the ENERGY STAR levels,<sup>1</sup> which limit energy use and water consumption to 270 kWh/year and 3.5 gallons/cycle, respectively. Furthermore, as shown in figure 1 below, there are many dishwashers that use less energy and water than the ENERGY STAR levels, including models that are more efficient than the ENERGY STAR Most Efficient levels.<sup>2</sup> (The ENERGY STAR Most Efficient levels specify a maximum energy use of 240 kWh/year and a maximum water consumption of 3.2 gallons/cycle.)

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<sup>1</sup> <https://www.energystar.gov/sites/default/files/asset/document/2019%20USD%20Summary%20Report.pdf>.

<sup>2</sup> Models in the DOE Compliance Certification Database as of December 11, 2020.

**Figure 1. Energy and water use of standard-size dishwasher models as compared to the current DOE standards and the ENERGY STAR and ENERGY STAR Most Efficient levels**



The efficiency levels of available models demonstrate that there is significant potential to strengthen the standards for dishwashers. In addition, EPA found that the ENERGY STAR Most Efficient levels are cost-effective relative to the current DOE standards, with a payback of less than 4 years.<sup>3</sup>

**Dishwashers that consume significantly less energy and water than the current standards can provide very good performance across a range of attributes.** As part of the recent rulemaking establishing a separate product class for short-cycle dishwashers, DOE tested 31 dishwasher models.<sup>4</sup> DOE’s testing included an evaluation of cleaning performance with “light,” “medium,” and “heavy” soil loads according to the ENERGY STAR test method for cleaning performance.<sup>5</sup> Figure 2 below shows the cleaning index for the “heavy” soil load and the measured weighted-average annual energy use for each tested model, and figure 3 shows the same cleaning index along with the measured weighted-average water consumption.<sup>6</sup> The data show that there does not appear to be much of a relationship between cleaning performance and energy or water use, and there are models with very low energy or water use that provide very good cleaning performance with a heavy soil load.

<sup>3</sup>

[https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Draft%201%20Version%207.0%20Residential%20Dishwasher%20Data%20%26%20Analysis%20Package%20-%20Rev.%20May%202020\\_0.xlsx](https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Draft%201%20Version%207.0%20Residential%20Dishwasher%20Data%20%26%20Analysis%20Package%20-%20Rev.%20May%202020_0.xlsx).

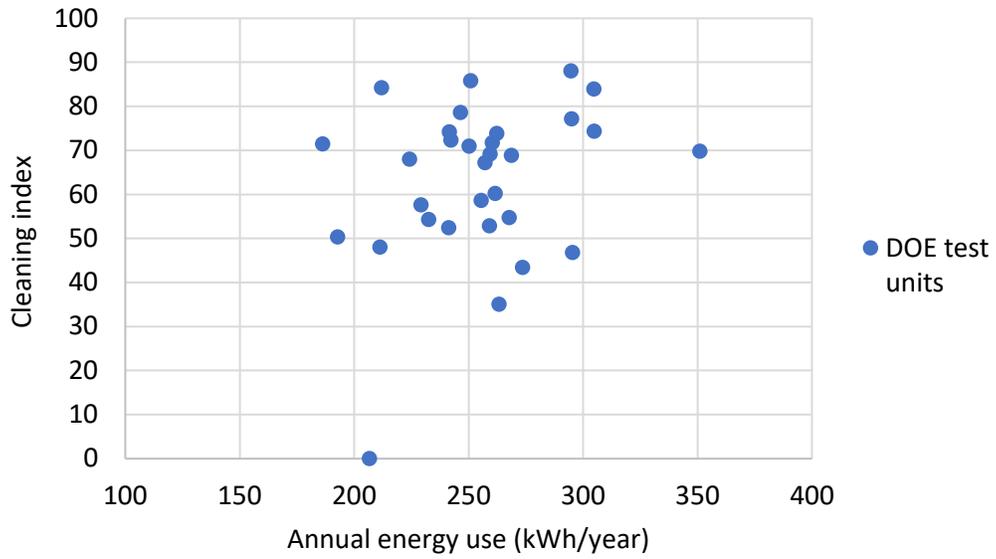
<sup>4</sup> <https://www.regulations.gov/document?D=EERE-2018-BT-STD-0005-3213>.

<sup>5</sup>

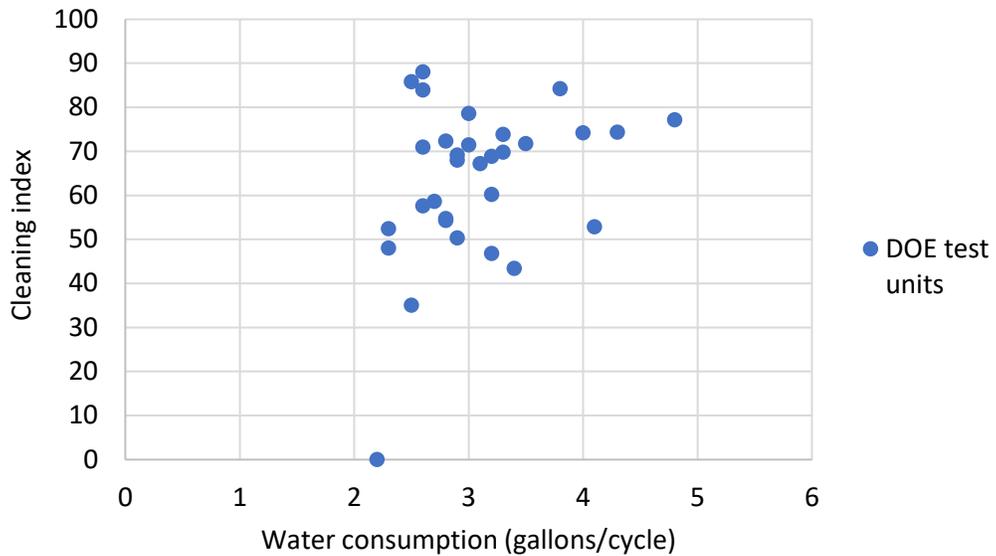
[https://www.energystar.gov/sites/default/files/specs//ENERGY%20STAR%20Final%20Test%20Method%20for%20Determining%20Residential%20Dishwasher%20Cleaning%20Perfor%20%20%20\\_0.pdf](https://www.energystar.gov/sites/default/files/specs//ENERGY%20STAR%20Final%20Test%20Method%20for%20Determining%20Residential%20Dishwasher%20Cleaning%20Perfor%20%20%20_0.pdf).

<sup>6</sup> In general, it is more difficult for dishwashers to achieve high cleaning index scores with the “heavy” soil load than with the “medium” or “light” soil loads.

**Figure 2. Cleaning index for the “heavy” soil load and measured weighted-average annual energy use for each dishwasher model in DOE’s test sample**



**Figure 3. Cleaning index for the “heavy” soil load and measured weighted-average water consumption for each dishwasher model in DOE’s test sample**



Furthermore, DOE's testing found that there are models that consume significantly less energy and water than the current standards that provide very good cleaning performance with all three soil loads. For example, Unit A, which has measured energy use and water consumption levels of 242 kWh/year and 2.8 gallons/cycle, respectively, achieved a cleaning index greater than 70 with all three soil loads.<sup>7</sup>

In addition, EPA investigated a wide range of performance attributes as part of their research in support of the ENERGY STAR Draft 1 Version 7.0 specification for dishwashers, which includes energy and water use levels that are equivalent to the ENERGY STAR Most Efficient criteria (240 kWh/year and 3.2 gallons/cycle). Specifically, EPA investigated the cleaning performance, drying performance, noise performance, cycle time, and overall owner satisfaction/consumer rating of models that would meet the draft specification (i.e., models that meet the ENERGY STAR Most Efficient criteria for energy and water use).<sup>8</sup> EPA's investigation relied on ratings from *Consumer Reports* and web-scraped data provided by ENERGY STAR Retail Products Platform sponsors and found the following:

- Cleaning performance: All the models rated by *Consumer Reports* that meet the draft specification received a rating of "Very Good" or "Excellent" on washing performance.
- Drying performance: The average drying performance rating of all the models rated by *Consumer Reports* was 3.8,<sup>9</sup> and the average rating of the models meeting the draft specification was 3.6.
- Noise performance: The average noise performance rating of all the models rated by *Consumer Reports* was 4.0, and the average rating of the models meeting the draft specification was 4.1. The web-scraped data showed that all ENERGY STAR Most Efficient dishwashers are rated as being quiet.
- Cycle time: The average cycle time of all the models rated by *Consumer Reports* was 148 minutes with a range of 90 to 215 minutes, and the average cycle time of the models meeting the draft specification was 142 minutes with a range of 95 to 175 minutes.
- Owner satisfaction/consumer rating: The average owner satisfaction rating of all the models rated by *Consumer Reports* was 3.56, and the average rating of the models meeting the draft specification was 4.36. The web-scraped data showed that ENERGY STAR Most Efficient models are rated higher on average than non-ENERGY STAR certified models.

In sum, EPA's investigation found that dishwashers that meet the ENERGY STAR Most Efficient criteria for energy and water use provide very good cleaning performance; good drying performance that is similar to the average performance of all dishwashers; very quiet operation; average cycle times that are similar to (and slightly lower than) those of all dishwashers; and very high levels of overall consumer satisfaction.

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<sup>7</sup> <https://www.regulations.gov/document?D=EERE-2018-BT-STD-0005-3213>. The ENERGY STAR Most Efficient specification requires a minimum cleaning index of 70 with all three soil loads.

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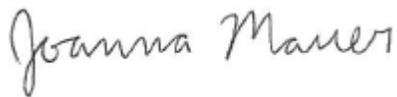
[https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Draft%201%20Version%207.0%20Residential%20Dishwasher%20Data%20%26%20Analysis%20Package%20-%20Rev.%20May%202020\\_0.xlsx](https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Draft%201%20Version%207.0%20Residential%20Dishwasher%20Data%20%26%20Analysis%20Package%20-%20Rev.%20May%202020_0.xlsx).

<sup>9</sup> *Consumer Reports* provides ratings of Poor, Fair, Good, Very Good, and Excellent, which EPA translated to numerical values of 1 for Poor to 5 for Excellent.

**DOE should eliminate the recently established product class for short-cycle dishwashers.** In the RFI, DOE seeks data regarding the consideration of standards for the short-cycle product class,<sup>10</sup> which DOE established in a final rule published in October.<sup>11</sup> We maintain that establishing this product class was unlawful and urge DOE to eliminate it. To the extent that DOE is committed to proceeding in spite of the inherent illegality, we remind DOE that it would only compound the illegality to select standards for the short-cycle product class that are less stringent than the existing standards for dishwashers.

Thank you for considering these comments.

Sincerely,



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Appliance Standards Awareness Project



Charles Harak, Esq.  
National Consumer Law Center  
(On behalf of its low-income clients)



Joe Vukovich  
Energy Efficiency Advocate  
Natural Resources Defense Council

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<sup>10</sup> 85 Fed. Reg. 64982.

<sup>11</sup> 85 Fed. Reg. 68723 (October 30, 2020).