

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

July 3, 2024

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–0014/RIN 1904–AF58: Direct Final Rule for Energy Conservation Standards for Residential Clothes Washers**

Dear Dr. Shapiro:

The Appliance Standards Awareness Project (ASAP), Alliance for Water Efficiency (AWE), American Council for an Energy-Efficient Economy (ACEEE), Consumer Federation of America (CFA), Consumer Reports (CR), Earthjustice, National Consumer Law Center, on behalf of its low-income clients (NCLC), Natural Resources Defense Council (NRDC), Northwest Energy Efficiency Alliance (NEEA), and Pacific Gas and Electric Company (PG&E) write to provide our strong support for the U.S. Department of Energy's (DOE's) Direct Final Rule (DFR) establishing amended energy conservation standards for residential clothes washers. 89 Fed. Reg. 19026 (March 15, 2024).

Our organizations include consumer advocates, efficiency and environmental advocates, and a utility; we have worked for decades advocating for energy and water efficiency standards that provide large savings for consumers and significant cuts in carbon dioxide and other air pollutant emissions. Our coalition includes organizations that are leaders in testing appliances; conducting field studies on appliance energy use; evaluating emerging technologies; developing and implementing programs to increase the market share of efficient products; analyzing the impacts of improved efficiency standards; and producing the energy powering appliances. Our coalition also includes leading environmental groups and organizations that advocate for consumers and, in particular, low-income consumers.

**We strongly support the standards in the DFR.** The standards in the DFR reflect the joint recommendation that we submitted to DOE in September 2023 with the Association of Home Appliance

Manufacturers (AHAM),<sup>1</sup> which was supported by States and additional utilities.<sup>2</sup> The standards for clothes washers were part of a package of recommendations for six products (refrigerators/freezers, miscellaneous refrigeration products, residential clothes washers, clothes dryers, dishwashers, and cooking products). We appreciate that DOE has published DFRs consistent with our joint recommendation for all six products.

The new standards for clothes washers, which are equivalent to the current ENERGY STAR levels for standard-size top-loading and front-loading washers, will primarily improve the efficiency of top-loading machines.<sup>3</sup> The standards will provide large national energy and water savings—0.7 quadrillion Btus of energy and 1.9 trillion gallons of water over 30 years of shipments—and cut carbon dioxide emissions by 14 million metric tons.<sup>4</sup> DOE’s analysis shows that consumers purchasing a top-loading washer will save \$23 on average on their annual utility bills relative to models just meeting the current standards.<sup>5</sup> Taking into account the additional upfront cost, consumers will save \$111 on average over the life of a top-loading washer.<sup>6</sup>

**The standards in the DFR will particularly benefit low-income consumers.** Low-income households spend three times more of their income on energy costs compared to non-low-income households;<sup>7</sup> the utility bill savings from the new standards will therefore benefit low-income households in particular. In addition, low-income households are disproportionately renters, who often are unable to choose their own clothes washer and yet typically pay the utility bills;<sup>8</sup> the new standards will ensure that landlords purchase clothes washers that do not unnecessarily contribute to high utility bills for their tenants. DOE found that the average payback period for all low-income households at the standard levels in the DFR is 3.5 years or less for each of the product categories.<sup>9</sup>

**Top-loading clothes washers meeting the new standards provide improved washing performance relative to less efficient models.** Nearly three-quarters of ENERGY STAR top-loading models tested by *Consumer Reports* (including both agitator and non-agitator models) received a washing performance score of 4 or 5, while only slightly more than one-quarter of non-ENERGY STAR models achieved such ratings.<sup>10</sup> These data suggest that the new standards will improve washing performance for top-loading

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<sup>1</sup> <https://www.regulations.gov/comment/EERE-2014-BT-STD-0005-12811>.

<sup>2</sup> See Docket No. EERE-2017-BT-STD-0003-0104 (supporting statement from the New York State Energy Research and Development Authority, California Energy Commission, and Massachusetts Department of Energy Resources, dated October 5, 2023); Docket No. EERE-2017-BT-STD-0003-0107 (supporting statement from San Diego Gas and Electric and Southern California Edison, dated October 17, 2023).

<sup>3</sup> More than 90% of current sales of standard-size front-loading washers already meet the ENERGY STAR levels: 89 Fed. Reg. 19061-62. The ENERGY STAR levels are equivalent to Efficiency Level (EL) 2.

<sup>4</sup> 89 Fed. Reg. 19028-29.

<sup>5</sup> <https://www.regulations.gov/document/EERE-2017-BT-STD-0014-0510>. p. 8-43. Tables 8.5.3.

<sup>6</sup> 89 Fed. Reg. 89 Fed. Reg. 19028. Table I.2.

<sup>7</sup> <https://www.aceee.org/sites/default/files/pdfs/u2006.pdf>.

<sup>8</sup> Nearly 90% of renters pay some or all of their energy bills:

<https://www.eia.gov/consumption/residential/data/2020/hc/pdf/HC%209.2.pdf>.

<sup>9</sup> 89 Fed. Reg. 19089-91. DOE adopted Trial Standard Level (TSL) 2.

<sup>10</sup> <https://www.consumerreports.org/appliances/washing-machines/top-load-agitator-washer/c32002/>;  
<https://www.consumerreports.org/appliances/washing-machines/top-load-he-washer/c37107/>. Accessed April 1, 2024.

machines. While front-loading washers will be largely unaffected by the new standards,<sup>11</sup> all but one front-loading model rated by *Consumer Reports* received a washing performance score of 4 or 5, and nearly 80% received a 5.<sup>12</sup>

**The standards in the DFR will not negatively impact other performance attributes.** As part of the analysis for this rulemaking, DOE conducted extensive testing to evaluate any impacts of more stringent standards on performance characteristics. DOE found that the standards proposed in the March 2023 notice of proposed rulemaking (NOPR) (i.e., efficiency level [EL] 3 for standard-size top-loading and front-loading washers) would not require any substantive reduction in hot water temperature and would not preclude the ability to provide mechanical action (“wear and tear”) scores comparable to the scores for units at lower efficiency levels.<sup>13</sup> In fact, for top-loading washers, DOE found that higher-efficiency units provide less wear and tear (i.e., are gentler on clothes) than less efficient machines. In the DFR, DOE adopted efficiency levels that were one EL lower than those proposed for both top-loaders and front-loaders (i.e., EL 2). The recently finalized standards thus can be achieved with wash temperatures and “wear and tear” scores that are comparable to (or better than) those of lower-efficiency units.

**The standards in the DFR will not require an increase in cycle time.** DOE’s testing in support of the DFR found no discernable relationship between efficiency and cycle time.<sup>14</sup> Furthermore, the ranges of cycle times for models meeting the standard levels adopted for both top-loading and front-loading washers are no higher than for units at lower efficiency levels. Specifically, for top-loaders, units in DOE’s test sample meeting the standard level adopted have cycle times that range from around 35 minutes to around 65 minutes, while models at lower efficiency levels have cycle times that range from around 35 minutes to around 70 minutes. For front-loaders, units meeting the standard level adopted have cycle times that range from around 40 minutes to around 55 minutes, while models at lower efficiency levels have cycle times that range from around 35 minutes to around 65 minutes.<sup>15</sup> These data suggest that the standards in the DFR will not necessitate any increase in cycle time.

**There is no evidence that the frequency of running multiple washer cycles has increased over time or will increase in the future as a result of the standards in the DFR.** As DOE described in the DFR, the average number of clothes washer cycles per year declined from 292 in the 2005 Residential Energy Consumption Survey (RECS) to 210 in the 2020 RECS.<sup>16</sup> During the same period, DOE noted that the average household size has remained essentially unchanged. This decline in clothes washer usage aligns with a significant increase in average clothes washer capacity from 2.52 cu. ft. in 1991 to 4.25 cu. ft. in 2020.<sup>17</sup> In addition, measured data on clothes washer usage showed that the average number of loads per household per day declined from 0.81 in 1999 to 0.71 in 2023, and average daily per-capita water use for clothes washing declined from 15.0 gallons/day in 1999 to 5.8 gallons/day in 2023.<sup>18</sup> In other words, there is no evidence that consumers are running multiple cycles in response to improved

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<sup>11</sup> For standard-size front-loading washers, more than 90% of current sales already meet the standard levels adopted in the DFR: 89 Fed. Reg. 19061-62. DOE adopted EL 2 for standard-size front-loading washers.

<sup>12</sup> <https://www.consumerreports.org/appliances/washing-machines/front-load-washer/c28739/>. Accessed April 1, 2024.

<sup>13</sup> <https://www.regulations.gov/document/EERE-2017-BT-STD-0014-0059>.

<sup>14</sup> 89 Fed. Reg. 19107.

<sup>15</sup> 89 Fed. Reg. 19106.

<sup>16</sup> 89 Fed. Reg. 19066.

<sup>17</sup> 89 Fed. Reg. 19053.

<sup>18</sup> <https://www.regulations.gov/comment/EERE-2017-BT-STD-0014-0508>.

efficiency standards. Furthermore, as described above, the standards in the DFR will not negatively impact performance; in fact, test data on clothes washers that already meet the new standards suggest that washing performance will improve. Therefore, there is no reason to believe that the frequency of running multiple cycles will increase in the future as a result of the standards in the DFR.

**The standards in the DFR can be met across the entire capacity range of top-loading washers.** DOE’s main analysis for the DFR incorporates increases in washer capacity at higher efficiency levels, reflecting the Department’s observations of higher-efficiency models currently on the market.<sup>19</sup> However, DOE also analyzed alternate pathways that manufacturers could take to meet the standards in the DFR; this additional analysis shows that standard-size top-loading washers with capacities of 1.6 cu. ft., 3.2 cu. ft., and 4.0 cu. ft. can all meet the standards without any increase in capacity.<sup>20</sup> Therefore, the standards in the DFR will not preclude the availability of smaller-capacity washers.

**We do not expect the standards in the DFR to have any impact on product reliability.** The standards in the DFR can be met with straightforward design changes that have already been incorporated in many models on the market today. As noted above, the new standards for standard-size top-loading and front-loading washers are equivalent to the current ENERGY STAR levels; as of 2022, 61% of sales of clothes washers were ENERGY STAR-certified.<sup>21</sup> DOE’s analysis for the DFR shows that the new standards can be met through design changes such as using a direct-drive motor and higher spin speeds.<sup>22</sup> Furthermore, as shown in figure 1 below, historical RECS data show that the distribution of clothes washer age remained largely unchanged between 2005 and 2020 as clothes washer efficiency improved. Therefore, we do not expect the standards to have any impact on product reliability.

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<sup>19</sup> The current efficiency metrics, IMEF and IWF, include an inherent bias towards larger-capacity washers. However, the new EER and WER metrics eliminate this capacity bias. Smaller-capacity washers will therefore be able to achieve higher efficiency levels than are achievable under the current metrics: 89 Fed. Reg. 19108-09.

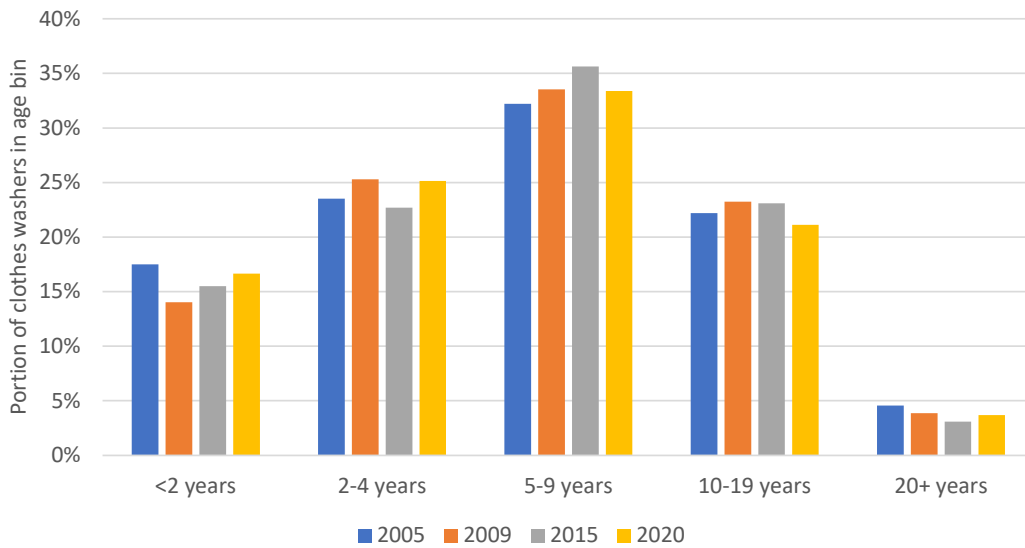
<sup>20</sup> <https://www.regulations.gov/document/EERE-2017-BT-STD-0014-0510>. pp. 5-36, 5-37.

<sup>21</sup>

<https://www.energystar.gov/sites/default/files/asset/document/2022%20Unit%20Shipment%20Data%20Summary%20Report.pdf>.

<sup>22</sup> <https://www.regulations.gov/document/EERE-2017-BT-STD-0014-0510>. pp. 5-22, 5-30. The adopted standard levels are equivalent to EL 2 for both top-loading and front-loading standard-size washers.

**Figure 1. Distribution of clothes washer age in RECS 2005, RECS 2009, RECS 2015, and RECS 2020<sup>23</sup>**



Thank you for considering these comments.

Sincerely,

*Joanna Mauer*

Joanna Mauer  
Deputy Director  
Appliance Standards Awareness Project

*On behalf of—*  
*Alliance for Water Efficiency*  
*American Council for an Energy-Efficient Economy*  
*Consumer Federation of America*  
*Consumer Reports*  
*Earthjustice*  
*National Consumer Law Center, on behalf of its low-income clients*  
*Natural Resources Defense Council*  
*Northwest Energy Efficiency Alliance*  
*Pacific Gas and Electric Company*

*ASAP organizes and leads a broad-based coalition effort that works to advance, win, and defend new appliance, equipment, and lighting standards that cut emissions that contribute to climate change and other environmental and public health harms, save water, and reduce economic and environmental burdens for low- and moderate-income households.*

<sup>23</sup> <https://www.eia.gov/consumption/residential/>.

*AWE is a national, stakeholder-based 501(c)(3) nonprofit with more than 500 member organizations dedicated to the efficient and sustainable use of water. AWE provides a forum for collaboration around policy, information sharing, research, education, and stakeholder engagement on water efficiency and the water-energy connection.*

*ACEEE, a nonprofit research organization, develops policies to reduce energy waste and combat climate change. Its independent analysis advances investments, programs, and behaviors that use energy more effectively and help build an equitable clean energy future.*

*CFA is an association of more than 250 non-profit consumer and cooperative groups that was founded in 1968 to advance the consumer interest through research, advocacy, and education.*

*CR was founded in 1936 at a time when consumers had very few options to gauge the value, quality, or authenticity of goods and services. Today, CR's membership has grown to over 6 million members who fight with their voices and choices for a fair and just marketplace. As a mission-driven, independent, nonprofit member organization, CR continues to empower and inform consumers, incentivize corporations to act responsibly, and helps policymakers prioritize the rights and interests of consumers in order to shape a truly consumer-driven marketplace.*

*Earthjustice is the premier nonprofit public interest environmental law organization, wielding the power of law and the strength of partnership to protect people's health, to preserve magnificent places and wildlife, to advance clean energy, and to combat climate change.*

*NCLC has worked for consumer justice and economic security for low-income and other disadvantaged people in the U.S. since 1969 through its expertise in policy analysis and advocacy, publications, litigation, expert witness services, and training. Throughout its history, NCLC has advocated for policies and programs that increase energy efficiency in the homes of low-income consumers and that, therefore, reduce their energy bills.*

*NRDC is an international nonprofit environmental organization with more than 3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Beijing, and Delhi (an office of NRDC India Pvt. Ltd).*

*NEEA is a non-profit organization working to encourage the development and adoption of energy-efficient products, practices, and services. Funded by regional utilities, NEEA is a collaboration of 140 utilities and efficiency organizations working together to advance energy efficiency in the Northwest on behalf of more than 13 million consumers. This unique partnership has helped make the Northwest region a national leader in energy efficiency.*

*PG&E represents one of the largest combined gas and electric utilities in the Western U.S., serving over 16 million customers across northern and central California. As an energy company, PG&E advocates for appliance efficiency standards to cut costs and reduce consumption while maintaining or increasing consumer utility of products. PG&E has a responsibility to its customers to advocate for standards that accurately reflect the climate and conditions of its respective service areas.*