Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Natural Resources Defense Council

February 18, 2022

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-0044/RIN: 1904-AE41: Proposed Determination for Energy Conservation Standards for Commercial Clothes Washers**

Dear Mr. Berringer:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), and the Natural Resources Defense Council (NRDC) on the notice of proposed determination (NOPD) for commercial clothes washers. 86 Fed. Reg. 71840 (December 20, 2021). We appreciate the opportunity to provide input to the Department.

In the NOPD, DOE has made a preliminary determination that new standards are not warranted for commercial clothes washers (CCWs). This determination appears largely based on a set of untested assumptions that stronger standards would have unacceptable impacts upon one of the dominant manufacturers of CCWs, Alliance Laundry Systems.[1] These assumptions rely heavily on the conclusions reached in the 2014 Final Rule for CCW standards. However, we believe circumstances involving Alliance have changed since the conclusion of the prior rulemaking more than seven years ago. Alliance was purchased in 2015 by a Chicago-based investment firm, BDT Capital Partners, with the stated intent of giving Alliance access to additional capital. Alliance released a statement shortly after being acquired by BDT stating that the partnership would allow them to accelerate the execution of their proven growth strategy and continue to invest in new and innovative products.[2] Currently, Alliance offers an expanded lineup of washers, including an Energy Star rated top-loading residential clothes washer (RCW) and multiple higher efficiency CCWs. Some of these high-efficiency CCW models were added to the Energy Star database in 2021. As discussed in more detail below, we believe that a more thorough review of standards options is likely to find cost-effective energy and water savings, and that Alliance is fully capable of serving the market with products that meet revised CCW standards.

In addition to DOE's incomplete LVM analysis, there are several issues the Department should address that could yield significant increases in estimated energy and water savings from a revised CCW standard. First, we urge DOE to amend CCW standards to reflect proposed changes to the clothes

[1]86 Fed Reg. 71857.
[2]Crain's Chicago Business, www.chicagobusiness.com/article/20150807/NEWS01/150809878/bdt-capital-partners-buys-alliance-laundry-systems

washer test procedure and metrics. Second, we encourage DOE to remove the equipment class distinction between top-loading and front-loading CCWs. Third, we urge DOE to reconsider spin speed increase as a viable technology option that could substantially reduce energy usage with minimal manufacturer impacts. Next, we encourage DOE to evaluate maximum feasible technology (max-tech) levels beyond models currently on the market. Finally, we encourage DOE to capture low-power energy mode usage for CCWs. We believe addressing these concerns would yield more substantial energy and water savings than those estimated in the NOPD. Based on these concerns as well as the apparent changes since 2014 regarding the LVM, we urge DOE to reconsider this proposed determination.

**We urge DOE to more thoroughly analyze their assumptions regarding manufacturer impacts based on changes that have occurred since the previous rulemaking.** Although Alliance Laundry Systems is one of the largest US manufacturers of commercial laundry equipment, DOE designated Alliance in prior rulemakings as a "Low Volume Manufacturer" (LVM) based on the much larger market share of the RCW market held by some of its competitors in the CCW market. DOE contends that scale economies in RCW manufacturing convey fungible benefits to Alliance's CCW competitors, and that Alliance is thus entitled to deference in the manufacturer impact analysis. However, DOE's assessment of Alliance's position in the market appears to rest entirely on analysis completed more than seven years ago, as DOE asserts in the NOPD that "conditions described in the December 2014 Final Rule continue to persist."[3]

However, DOE did not re-interview Alliance or any other manufacturer in preparation for this NOPD,[4] and offers little data to justify this claim. We believe circumstances involving Alliance have in fact changed since the prior rulemaking. Alliance was purchased in 2015 by a Chicago-based investment firm, BDT Capital Partners, giving them access to additional capital. Indeed, as Chip Dunn, Managing Director at BDT, stated at the time "Alliance has built its industry-leading position by investing in its people, innovating across its product portfolio and delivering unmatched customer service. Our long-term capital will provide a solid foundation and long runway to continue to pursue exciting growth opportunities around the world."[5]

Further, whatever the merits of DOE's general approach to designating Alliance as an LVM, we find that the chain of assumptions made in the NOPD are not well supported. For example, DOE asserts in the NOPD that "the LVM continues to sell top-loading CCWs only at the baseline efficiency level, and top-loading CCWs continue to represent the large majority of the market for CCWs."[6] However, DOE has not provided any new data or information to substantiate these claims about the relative shares of new top-loading and front-loading CCWs in the current market. In the same section of the NOPD, DOE goes on to say that a "change in standards for the top-loading equipment class would require product investments and capital expenditures that disproportionately impact the LVM, which operates at lower production volumes, procures components in smaller quantities, and has less access to capital than the large, more diversified competitor."[7]

[3]86 Fed Reg. 71855.
[4]EERE-2019-BT-STD-0044-0012, p. 36. www.regulations.gov/document/EERE-2019-BT-STD-0044-0012
[5]Alliance Laundry Systems, "BDT Capital Partners, LLC Agrees to Acquire a Majority Stake in Alliance Laundry Systems from Ontario Teachers", press release, August 6, 2015.
[6]86 Fed Reg. 71855.
[7]86 Fed Reg. 71855.

Again, several assumptions here appear untested. First, Alliance's main competitor's top loading CCW product is likely produced in volumes similar to that of Alliance, as that model is far less efficient than allowed under current RCW standards. Any standards-driven incremental improvements in the legacy design of either company's top-loading CCWs are unlikely to be spread across other washer production unless the standard level were to reach that of the standard for top-loading RCWs, which is currently and likely to remain much more stringent than the CCW standard. In essence, both companies have legacy offerings of top-loading CCWs, and a revised standard would not necessarily disproportionately impact Alliance. Additionally, if a revised CCW standard were to be framed around the consolidation of the separate top-loading and front-loading equipment classes (as we recommend below), Alliance would be well positioned to compete due to its strong product line-up of high-efficiency front-loading washers, and the retirement, rather than retooling, of what is likely to be fully depreciated equipment supporting its legacy top-loading CCW production.

**We urge DOE to amend CCW standards to be based on the new clothes washers test procedure and energy and water usage metrics.** In September 2021, DOE published a proposed rulemaking with significant changes to the test procedure for both CCWs and RCWs to improve representativeness.[8] Some of the key changes include:

- Energy and water usage metrics are based on lbs. of clothes washed rather than washer capacity
- Remaining moisture content (RMC) is measured for all test cycles rather than the cold-cold cycle
- Warm wash testing is performed on the hottest and coldest warm wash/cold rinse settings

We support these proposed changes and believe they will provide a more accurate representation of real-world energy and water usage for clothes washers. Furthermore, we expect that these changes may result in a significant change in the relative rankings and range of energy and water efficiency ratings for currently available CCWs. For example, a recent NEEA study showed significant rank order changes between washers when comparing cold/cold RMCs and warm/cold RMCs for the same test loads.[9] Moreover, DOE's preliminary testing for RCW standards using the new Appendix J test procedure suggests significant rank order changes may be expected with the new AEER and WER metrics. Thus, we urge DOE to evaluate CCWs in a manner consistent with the RCWs standards analysis and determine appropriate AEER and WER standard levels.

Furthermore, EPCA requires that the test procedure for CCWs be the same as the test procedure established by DOE for RCWs.[10] DOE's preliminary analysis for RCWs suggest that subsequent RCW standards will be based on the new Appendix J. We understand that manufacturers would be required to use the new Appendix J by the compliance date of amended RCW standards. Concurrently, if CCW standards are not amended, we understand CCWs would still be tested using the old Appendix J2 at least until the completion of the next rulemaking on CCW standards (assuming that rulemaking resulted in a revised standard). In other words, absent new standards for CCWs, the two products will soon be rated under different test procedures. Thus, DOE should clarify how the CCW NOPD interacts with EPCA requirements.

[8] 86 Fed. Reg. 49140.
[9] #20-317, Coming Clean: Revealing Real-World Efficiency of Clothing Washers, 2020. neea.org/resources/coming-clean-revealing-real-world-efficiency-of-clothes-washers
[10] 86 Fed. Reg. 71841.

**We encourage DOE to eliminate the equipment class distinction between top-loading and front-loading CCWs to enable greater savings.** Under current CCW standards, a top-loading washer can consume nearly 50% more energy and more than twice as much water as a front-loading washer of the same capacity. Our calculations, using efficiency distributions from the NOPD, suggest CCW energy use could be reduced by 21% if all CCWs met the current market-weighted front-loading washer efficiency.[11] The most recent Energy Star clothes washer specification has consolidated efficiency requirements into a single CCW product class.[12] Differences in cycle time were the primary reason for the initial distinction between top-loading and front-loading CCWs. However, DOE acknowledges in the NOPD, as in the 2014 Final Rule, that cycle time differences between top-loading and front-loading washers has diminished and that cycle time has become a less meaningful differentiator between the two.[13] We do not believe that top-loading washers provide a distinct utility for the purchasers of such commercial laundry equipment, and we thus encourage DOE to consider a single equipment class for all CCWs.

**We urge DOE to include spin speed increase as a viable technology option.** DOE's analysis for the prior CCW standards rulemaking, which did not screen out spin screen increase as a technology option, showed that CCW drying energy usage for multi-family installations and laundromats represent more than two-thirds of total energy consumption.[14] Thus, technologies that target reduction in RMC and resulting drying energy, like spin speed increase, have significant potential to reduce energy usage. NEEA's CCW standards request for information (RFI) comments discussed how a 2019 teardown analysis showed that a simple change to a higher power motor (0.33 to 0.4 hp) could result in a 25% reduction in Appendix J2-tested drying energy.[15] We do not believe such a change would require a complete platform overhaul for CCW manufacturers, necessitate a need for "greenfield" factories, or a change in business model (e.g., reliance on foreign sourcing or production), as discussed by DOE in the NOPD.[16]

However, DOE screened out spin speed increase with no clear explanation apart from stating "a CCW could implement significantly faster spin speeds, but at the risk of more frequent or severe damage to internal bearings, requiring more frequent repairs or replacement."[17] If there is evidence that an increase in spin speed could increase maintenance and repair costs, those costs should be incorporated in the economic analysis. However, we do not believe that should be a reason to screen out an increase in spin speed as a technology option, particularly in the absence of data confirming that the postulated mechanical problems would be either frequent or severe. Given the large potential energy savings highlighted above, we believe it is likely that any potential increase in repair and replacement costs will be more than offset by the energy savings from higher spin speeds. Thus, we believe DOE should consider spin speed increase as a viable technology option to reduce CCW energy use.

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[11]Based on Table IV.9 in the NOPD, market average MEFs are 1.50 and 2.20 for top- and front-loading CCWs, respectively. DOE estimates that top-loading CCWs comprise 66% of the market. Thus, the market average MEF is 1.74. Increasing this market average MEF to 2.20 (consistent with all front-loading CCWs) yields a 21% reduction in energy use ((2.20–1.74)/2.20).

[12]Energy Star, Clothes Washers Final Specification, Version 8.1 (2021), www.energystar.gov/products/clothes_washer_specification_version_8_0

[13]86 Fed. Reg. 71844.

[14]EERE-2012-BT-STD-0020-0036, pp. 7-8, 9. www.regulations.gov/document/EERE-2012-BT-STD-0020-0036

[15]EERE-2019-BT-STD-0044-0008, www.regulations.gov/comment/EERE-2019-BT-STD-0044-0008

[16]86 Fed. Reg. 71857.

[17]86 Fed. Reg. 71852.

**We encourage DOE to evaluate max-tech levels beyond models currently on the market.** In the NOPD, DOE selected max-tech efficiency levels (ELs) based on the maximum available efficiencies in the market, resulting in max-tech levels that are less than 5% higher than those evaluated for the 2014 rulemaking.[18] Given this apparent stagnation of efficiency present in the CCW market, we encourage DOE to evaluate max-tech levels that are higher than the maximum available efficiencies. The NOPD states that DOE was unable to determine that higher ELs would represent commercially viable (i.e., technologically feasible) CCWs, because they were unable to determine the impact that higher ELs would have on consumer-related aspects of CCW performance (e.g., cleaning ability, cycle time, etc.) and reliability.[19] However, DOE screened in six technologies in the NOPD but did not determine (e.g., via teardowns) which of these technologies are currently in the market or what combination of technologies are needed to reach CCW market max-tech levels.[20] This information along with estimates of the efficiency improvements gained by each of these technology options would be useful in determining a true max-tech level. Many of these technologies are already present in the market for RCWs and have no impact on customer utility (e.g., more efficient motors). Regarding CCW reliability, as discussed above in relation to spin speed increase, any potential increases in repair costs should be included in the economic analysis rather than when determining technological feasibility. Higher max-tech levels would yield larger potential energy and water savings from amended standards.

**We encourage DOE to capture low-power energy mode usage for CCWs.** While CCWs perform more wash cycles than RCWs on average, they still spend most of their time in low-power, standby, or off modes. RCW energy usage is currently represented by the IMEF metric, which incorporates low-power mode energy consumption, while CCWs are rated using MEF, which excludes such low-power mode energy consumption. DOE's analysis for the 2014 Final Rule showed CCW standby powers ranging from 0.88 to 5.44 W and 5.80 to 10.21 W for CCWs with no vend displays and vend price only displays, respectively.[21] The low end of the range with no vend displays (e.g., more analogous to RCWs) is consistent with baseline RCWs (~0.9 W) discussed in DOE's preliminary analysis for the ongoing RCW standards rulemaking.[22] These results suggest there is an opportunity to reduce CCW standby power by 5 W (44 kWh/yr) or more. A 2020 NEEA study showed similar results for both RCW and CCW standby power consumption.[23] Thus, standby power represents a significant opportunity for energy savings in CCWs and we encourage DOE to explore additional options to capture CCW standby power usage.

In the NOPD, DOE reiterated a potential backsliding concern wherein including low-power consumption could permit an increase in CCW active-mode energy usage.[24] DOE stated in the washer test procedure proposed rulemaking that any determination on inclusion of low-power mode energy use for CCWs would be made as part of this CCW standards rulemaking.[25] However, DOE is not proposing to address

[18]MEF = 2.3 vs. 2.2 for top-loaders and MEF = 1.6 vs. 1.55 for front-loaders.
[19]86 Fed. Reg. 71851, 71852.
[20]Adaptive water fill controls; advanced agitation concepts for top-loading machines; motor efficiency improvements including direct-drive motors; spray rinse or similar water-reducing rinse technology; thermostatically controlled mixing valves; water recirculation loop.
[21]EERE-2012-BT-STD-0020-0036, p. 5-19. www.regulations.gov/document/EERE-2012-BT-STD-0020-0036
[22]EERE-2017-BT-STD-0014-0027, p. 5-29. www.regulations.gov/document/EERE-2017-BT-STD-0014-0027
[23]#20-317, Coming Clean: Revealing Real-World Efficiency of Clothing Washers, 2020. neea.org/resources/coming-clean-revealing-real-world-efficiency-of-clothes-washers
[24]86 Fed. Reg. 71847.
[25]86 Fed. Reg. 49180.

standby power in the NOPD and is instead mirroring conclusions from the December 2014 Final Rule.[26] We believe that updating the existing standards for CCWs would help alleviate the backsliding concern. We also encourage DOE to explore additional options for incorporating standby power. For example, DOE could consider different product classes for CCWs depending on the display type.

**We encourage DOE to analyze energy and water usage of CCWs installed in on-premise laundry (OPL) facilities.** DOE's energy and water usage analysis for CCWs focuses only on laundromats and multi-family installations. However, some CCWs within scope are installed in facilities like nursing homes, fire stations, gyms, salons, bed-and-breakfast lodging, etc. A 2017 CEC study[27] on these OPL facilities suggested their usage is significantly higher than CCWs used in laundromats and multi-family laundries.[28] DOE reviewed the CEC study but concluded that a larger study with a greater geographic area would be more applicable. However, we have no reason to believe that the results of this study are not representative of the U.S. since the OPL facilities discussed are ubiquitous. Further, estimating OPL energy and water usage using limited data is preferable to ignoring it entirely. Thus, we encourage DOE to investigate energy and water usage in these OPL facilities for the CCW standards analysis.

**We encourage DOE to analyze the impact of CCW standards on consumers, including low-income households.** In the NOPD, DOE states that "amending the CCW standards could benefit consumers, including small business owners and low-income consumers."[29] DOE goes on to say that the Department "has not, however, conducted a consumer impacts analysis for the present rulemaking because it has tentatively determined that significant and disproportionate impacts to the LVM would outweigh the benefits of more stringent standards with respect to national energy and water savings." In other words, DOE appears to have weighed economic considerations as it pertains to the impact on CCW manufacturers but not to those who purchase and use CCWs. Multi-family laundry and laundromat facilities are overwhelmingly used by low-income households. NEEA's comments on the CCW standards RFI provide additional discussion on the economic burden that inefficient CCW energy and water usage can have on low-income households and small business owners.[30] Thus, we encourage DOE to analyze the full economic impact of CCW standards.

Thank you for considering these comments.

Sincerely,

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[26] 79 Fed. Reg. 74501 (December 15, 2014).
[27] "TRC Energy Services: Docket On-Premise Laundromat Dryers Market Survey Report, Docket Number: 17-AAER-01, 2017, efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-AAER-01
[28] While focused on dryers, cycles/day in some OPL categories exceeded 10x that for multi-family CCW installations.
[29] 86 Fed. Reg. 71855.
[30] EERE-2019-BT-STD-0044-0008, www.regulations.gov/comment/EERE-2019-BT-STD-0044-0008

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