

Appliance Standards Awareness Project  
American Council for an Energy-Efficient Economy  
National Consumer Law Center  
Natural Resources Defense Council

February 6, 2023

Mr. Jeremy Dommu  
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-2016-BT-STD-0004: Energy Conservation Standards for Circulator Pumps**

Dear Mr. Dommu:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), National Consumer Law Center (NCLC) on behalf of its low-income clients, and the Natural Resources Defense Council (NRDC) on the notice of proposed rulemaking (NOPR) for energy conservation standards for circulator pumps. 87 Fed. Reg. 74850 (December 6, 2022). We appreciate the opportunity to provide input to the Department.

As discussed in the NOPR, a 2016 ASRAC circulator pump working group (CPWG) approved two term sheets with consensus recommendations regarding scope, metric, test procedures, energy conservation standards, and labeling and certification requirements. We support DOE's proposed standards for circulator pumps, which reflect the CPWG recommendations, and urge the Department to move quickly to publish a final rule. DOE estimates the proposed standards would provide nearly 0.5 quads of full-fuel cycle (FFC) energy savings and 0.7 to 1.8 billion USD in net present value (NPV) savings for consumers.<sup>1</sup> As described in more detail below, we support DOE's proposal of a single equipment class and standard level for all covered circulator pump types, which is consistent with the CPWG recommendations. We also support DOE's proposal to specify compliance with the circulator energy index (CEI) standard using the least consumptive control method but encourage the Department to require the additional reporting of ratings with the most consumptive control method. Finally, we encourage DOE to better characterize the number of circulator pump installations that could benefit from speed control technologies.

**We support DOE's proposal of a single equipment class and standard level for all circulator pumps.**

The first recommendation of the November 2016 CPWG term sheet was to group circulator pumps into a single equipment class; the recommended CEI standard for the single circulator pump equipment class varies only as a function of hydraulic output power.<sup>2</sup> As discussed in the NOPR, while three primary

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<sup>1</sup>NPV estimates are 1.8 and 0.7 billion USD at 3% and 7% discount rates, respectively.

<sup>2</sup>EERE-2016-BT-STD-0004-0098, p. 1. [www.regulations.gov/document/EERE-2016-BT-STD-0004-0098](http://www.regulations.gov/document/EERE-2016-BT-STD-0004-0098)

types of circulator pumps exist along with different housing materials,<sup>3</sup> none of these variants result in meaningful differences in obtainable CEI ratings. Thus, DOE has proposed a single product class and single efficiency level (CEI = 1.0) for all circulator pumps. We support this proposal, which is consistent with the CPWG recommendations.

**We support DOE's proposal to specify compliance with the CEI standard using the least consumptive control method but encourage the Department to require the additional reporting of ratings with the most consumptive method.** In the NOPR, DOE proposes that compliance with the standards will be determined when the circulator pump is operated using its least consumptive control mode.<sup>4</sup> The advantage of this proposal, where CEI ratings are based on the least consumptive control method, is that it highlights the energy savings potential for circulator pumps with variable-speed controls. DOE notes that rating circulator pumps with the most consumptive control mode would reduce the ability of rated CEI to characterize the degree of energy savings possible across circulator pump models.<sup>5</sup> In other words, many circulator pump basic models would receive very similar ratings (e.g., from testing at their maximum fixed speed) even though in practice one pump may consume considerably less energy if controls were utilized in the field.

While we agree with DOE's rationale for specifying compliance with the CEI standard based on the least consumptive control method, we encourage DOE to require manufacturers to also report CEI ratings based on the most consumptive control mode, which would be consistent with HI 41.5-2022. Specifying CEI ratings based on only the least consumptive control method could obscure the fact that some circulator pumps used in the field in a fixed-speed mode may have real-world energy usage exceeding the standard. Requiring manufacturers to report ratings based on both the least and most consumptive control modes would better inform purchasers and could help promote the utilization of energy-efficient controls.

**We encourage DOE to better characterize what percentage of circulator pump installations could benefit from speed control.** DOE's proposed trial standard level (TSL) 2 assumes use of a single-speed electronically commutated motor (ECM). DOE's analysis shows that per-unit energy use could be reduced by 48% and 64% relative to TSL 2 through the use of variable-speed proportional pressure (TSL 3) and differential temperature (TSL 4) controls, respectively.<sup>6</sup> However, the NOPR states that the Secretary is concerned about the uncertainty regarding the potential real-world energy savings at TSL 3 and TSL 4 since some end-use appliances may not be able to respond to these variable-speed controls.<sup>7</sup> For example, circulator pump controls assumed at higher TSLs require that the end-use application, such as a boiler, is able to integrate ECM controls in order to reduce motor speed and resulting energy usage. While we acknowledge this uncertainty, given the large potential energy savings estimated by DOE at TSL 3 and TSL 4,<sup>8</sup> we encourage DOE to more fully characterize the number of circulator pump installations that can benefit from variable-speed control.

Thank you for considering these comments.

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<sup>3</sup>Circulator pumps may be wet-rotor, dry-rotor close-coupled, or dry-rotor mechanically-coupled. Pump housings are commonly made from cast iron, bronze, or stainless steel.

<sup>4</sup>87 Fed. Reg. 74862.

<sup>5</sup>87 Fed. Reg. 74863.

<sup>6</sup>Technical Support Document, p. 7-9. [www.regulations.gov/document/EERE-2016-BT-STD-0004-0121](http://www.regulations.gov/document/EERE-2016-BT-STD-0004-0121)

<sup>7</sup>87 Fed. Reg. 74904.

<sup>8</sup>DOE estimates up 0.8 and 1.0 quads of cost-effective FFC savings at TSL3 and TSL4, respectively.

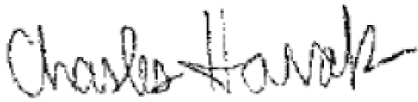
Sincerely,



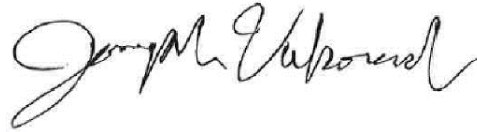
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