

**Appliance Standards Awareness Project  
Alliance to Save Energy  
American Council for an Energy-Efficient Economy  
California Energy Commission  
Natural Resources Defense Council  
Northwest Energy Efficiency Alliance**

June 7, 2019

Mr. Jeremy Dommu  
U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
Building Technologies Program, EE—5B  
1000 Independence Ave. SW  
Washington, DC 20585-0121

**Re: Request for Information for Energy Conservation Standards for Small Electric Motors; EERE-2019-BT-STD-0008**

Dear Mr. Dommu:

This letter provides comments from the Appliance Standards Awareness Project, Alliance to Save Energy, American Council for an Energy-Efficient Economy, California Energy Commission, Natural Resources Defense Council and Northwest Energy Efficiency Alliance on the Department of Energy's (DOE) Request for Information (RFI) related to standards for small electric motors. We appreciate the opportunity to provide input.

DOE has seemingly cut off consideration of expanded scope, probably the single most important potential opportunity for saving energy in this docket, at the very outset and done so without explanation. We address that concern first. We also are concerned that DOE may be intending to inappropriately limit the efficiency levels considered. We address that second. Finally, we provide input on several other issues raised by DOE in the RFI.

**DOE should not seek a quick determination of no change. Rather, DOE must carefully consider the savings potential from both expanded scope and higher efficiency levels.**

DOE missed the statutory deadline for issuing either a proposed rule amending standards or a determination that no change is warranted in March of 2016. While we appreciate that DOE is finally initiating this review, we are concerned that DOE is short-circuiting the process to arrive at a quick determination that no change is warranted. DOE appears to have already rejected scope expansion and

the RFI appears to raise the question of whether levels higher than current standards for regulated motors should even be considered. DOE must fully evaluate both expanded scope and higher efficiency levels.

**DOE must evaluate the potential for expanding scope.**

The biggest savings opportunity for small motors likely entails expanding the scope of coverage. Several common motor types (e.g., shaded pole, permanent split capacitor, split phase) that have typical efficiency performance levels well below regulated small motors are not covered by any current motor standards. Other types (e.g., brushless permanent magnet motors) have superior performance yet are not covered by standards.

DOE initially appeared focused on the potential for energy savings through expanded scope when it issued a test procedure Request for Information (RFI) in July 2017. (82 Federal Register 35468) That RFI recognized that the existing regulatory coverage of the DOE small motors standards is far narrower than what the market commonly considers a “small motor.” (“DOE may consider setting test procedures for motors that are considered “small” by customers and the electric motor industry but are not currently subject to the small electric motor test procedures.” (82 Federal Register 35470)) DOE stated that it intended to review a prior determination regarding the legal limitations on DOE small motor regulations and that it also recognized a broad authority to regulate electric motors. (“DOE regulation defines “electric motor” as a machine that converts electrical power into rotational mechanical power.” (82 Federal Register 35470)) DOE’s intent at the time of the test procedure RFI appeared to be to develop a regulatory approach to small motors that reflected the market.

Unfortunately, DOE has, without explanation, made an about-face since the 2017 test procedure RFI. In the new energy conservation standards RFI, DOE states that it is “currently not considering any changes to the scope of applicability of energy conservation standards for small electric motors.” (84 Federal Register 14029) DOE provides no explanation for this decision, and fails to even solicit input on this point, making clear that it is a closed matter at the very outset of the standards docket. Why? We are left to speculate. One reasonable conclusion is that DOE is more interested in a quick determination to leave the standards unchanged than a careful review of the potential to cost-effectively save energy through expanded scope.<sup>1</sup>

We strongly urge DOE to revert to the approach outlined in the 2017 test procedure RFI and carefully consider broadening scope to address a wide range of motors that the market considers “small.” An approach that carefully considers expanded scope, in addition to increased efficiency levels for currently regulated motors, is necessary to meet the statute’s energy conservation purpose.

**DOE must evaluate higher efficiency levels for currently regulated small motors.**

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<sup>1</sup> DOE also appears to dismiss the scope expansion contemplated by its prior test procedure RFI in the proposed rule for small electric motor and electric motor test procedures (84 Fed Reg 17004). DOE simply states without explanation in that document that “DOE is not proposing any changes to the scope of the applicability of the electric motor test procedure” (*Id.* at 17010).

DOE asks in the RFI whether the maximum available efficiency levels in Table II-7 should be considered. (*Id.* at 14034) This question and others in this section of the RFI appear to be fishing for a rationale to not even consider higher standards. Failing to fully evaluate not only currently available efficiency levels, but also higher levels that have been shown in previous dockets and through DOE analysis to be technologically feasible, would be unheard of and contrary to EPCA's requirement that DOE "achieve the maximum improvement in energy efficiency" that "is technologically feasible and economically justified."<sup>2</sup>

DOE states that the maximum available efficiency level for the representative class of polyphase motors that DOE has been able to find in catalogs exceeds the minimum standard by two percentage points. For CSCR motors, the regulated small motor type with the highest sales volume, DOE states that the current standard equals the maximum available efficiency DOE has been able to locate in catalogs. DOE must thoroughly investigate higher levels than those shown in Table II-7. DOE evaluated and considered higher levels for both polyphase and CSCR motors in the docket culminating in the 2010 final rule and must do so for this docket as well.

In the previous docket, DOE adopted Trial Level Standard 7 for capacitor-start motors, the second highest TSL. DOE constructed the TSLs in that docket of different "Efficiency Levels" (ELs) for each of the motor types (CSIR and CSCR) since these motors are ready substitutes for one another. TSL 7 consisted of EL 7 for CSIR motors (77.6% efficiency for the representative CSIR motor) and EL 3 for CSCR motors (81.7% efficiency for the representative CSCR motor). (75 Federal Register 10915) DOE evaluated *five* efficiency levels for CSCR motors above the level adopted in the final rule. (*Id.* see Table IV.10 at 10897). DOE also evaluated higher levels than those adopted for polyphase motors and the highest polyphase motor efficiency level was about 4 percentage points higher than the standard adopted. DOE showed that these higher levels for CSCR and polyphase motors would result in significant additional savings.

#### *Higher levels may be currently available*

DOE found in the 2010 docket that motors meeting some of the higher evaluated ELs were available at the time. For example, DOE estimated that 15% of CSCR motor sales attained efficiencies exceeding the level adopted in the final rule. (*Id.* at 10904) It seems unlikely that the market has stopped offering these higher efficiency levels. But even if it has, the prior availability of these higher levels demonstrates that they are technologically feasible and must be evaluated in the current docket.

We also note that in the new RFI, DOE only provides information on the representative equipment classes. DOE should investigate all equipment classes to determine if higher levels are available in any of the regulated classes. DOE standards cover another 18 equipment classes of CSCR motors. DOE should review manufacturer literature and other sources including DOE's own testing data to determine if products exceeding the minimum standards are available in other equipment classes.

DOE must keep in mind that manufacturer catalog ratings do not tell the whole story about a product's efficiency. DOE regulations permit manufacturers to rate their products conservatively. As a result,

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<sup>2</sup> 42 U.S.C. 6295(o)(2)(A).

motors rated as just meeting the efficiency level of a given standard may be more efficient. DOE should investigate whether motors rated as just meeting the standards exceed them.

### *Technologically feasible levels*

EPCA requires DOE to consider the maximum level of technologically feasible energy efficiency improvement. That level may not be available in products that are commercially available today. For example, in the 2010 docket, DOE found that existing technologies could be used to manufacture CSCR motors at levels above those then available in the market (EL 7 and EL 8 in that docket).

It is not surprising that achievable efficiency levels are not necessarily currently available for purchase. First-cost consideration is paramount in the motor market. Original equipment manufacturers (OEMs) purchase many small motors for incorporation into their products and equipment. For the purchaser of the OEM product, motor efficiency is a hidden attribute. As a result, it is challenging for motor manufacturers to be able to offer products that offer marginally better efficiency but that cost a little more, even if such improvements would ultimately be cost-effective to the end user. Standards policy can provide the basis for making cost-effective improvements to motors that will not otherwise be achieved by market forces. Therefore, DOE should thoroughly investigate whether efficiency levels beyond those currently available in the market can be attained. DOE conducted an analysis using modeling in the prior final rule and should carry out a similar analysis in the current docket.

### **Definitions**

In the current RFI, DOE has asked whether regulatory definitions for the three types of regulated motors are needed or whether references to industry-based standards would suffice. (*Id.* at 14029) We believe it would be helpful for DOE to provide regulatory definitions for the three motor topologies covered by current regulations. We recommend that DOE's experts and consultants review any existing industry definitions and feedback received in response to this RFI and develop proposed definitions for feedback at the next phase of this rulemaking process. We note that motor definitions have historically proven to be a difficult topic, with some motor manufacturers making slight changes to their motors (e.g. extending a shaft's length) to evade regulatory coverage. Therefore, it is essential that DOE subject any regulatory definitions to careful scrutiny by its own experts as well as all external stakeholders.

### **Equipment classes**

In response to DOE's inquiry about merging product classes, (*Id.* at 14031) we recommend that a separate equipment class for capacitor-start induction run (CSIR) motors is no longer needed since capacitor-start capacitor run (CSCR) motors serve the same market needs and are currently subject to identical performance standards. DOE indicates in the RFI that CSIR motors are no longer offered in the market, providing further evidence that the separate product class is not needed.

### **Technology options**

We recommend that DOE evaluate all the technology options in Table II.5. As DOE notes, these technology options were evaluated in the rulemaking that culminated in the 2010 final rule. We are not aware of any reason why these options do not remain viable.

In summary, we strongly urge DOE to conduct a thorough analysis of potentially expanding scope and to consider increased efficiency levels for currently regulated motors.

Sincerely,



Andrew deLaski  
Executive Director  
Appliance Standards Awareness Project



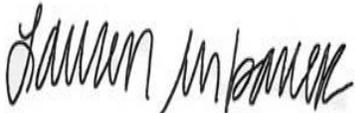
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