



National Electrical Manufacturers Association

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Submitted Via Email: [Ronald.piers-de-raveschoot@ec.europa.eu](mailto:Ronald.piers-de-raveschoot@ec.europa.eu)

Mr. Ronald Piers de Raveschoot  
Policy Officer, Energy Efficiency  
European Commission - DG ENER

**NEMA Comments on Draft Ecodesign Requirements for Electric Motors and Variable Speed Drives**

Reference Number: EU Directive 2009125

Dear Mr. Raveschoot,

On behalf of its Members, The National Electrical Manufacturers Association (NEMA), submits these comments on draft EU Ecodesign Requirements for Electric Motors and Variable Speed Drives. These comments are submitted on behalf of NEMA Motor and Generator Section Member companies. These comments were developed in discussion with NEMA counterpart in Europe, CEMEP.

NEMA represents nearly 350 electrical equipment and medical imaging manufacturers that make safe, reliable, and efficient products and systems. Our combined industries account for 360,000 American jobs in more than 7,000 facilities covering every state. Our industry produces \$106 billion shipments of electrical equipment and medical imaging technologies per year with \$36 billion exports.

If you have any questions on this submission, please contact Alex Boesenberg of NEMA at 703-841-3268 or [alex.boesenberg@nema.org](mailto:alex.boesenberg@nema.org)

Sincerely,

A handwritten signature in blue ink that reads 'Philip A. Squair'.

Philip Squair  
Vice President, Government Relations  
National Electrical Manufacturers Association

## **NEMA Comments on Draft Ecodesign Requirements for Electric Motors and Variable Speed Drives**

1. NEMA agrees with CEMEP position that the focus of future regulations (including this one) should be on systems efficiency, not component efficiency. We further agree that this particularly regulatory action should be discontinued.
2. The draft regulation is vague in terms of definitions of covered products. We note that the March 2017 letter from CEMEP on this subject did mention concern of scope of affected products, but no changes appear evident in the Draft regulation. While a narrow scope helps avoid cost in terms of redesign and compliance reporting, a narrow scope could also increase the number of “close enough” products that can be used as less-costly substitutes for more expensive regulated products. This could create loopholes and undercut sales of compliant products, thereby reducing program effectiveness.
3. We echo CEMEP concerns for lack of enforcement, and note that fair, reasonable enforcement is only possible with clear scope and regulations.
4. It appears that all single phase small electric motors are included in the affected scope of coverage of the draft EU regulation. NEMA and CEMEP have a joint position against the regulation of these motors owing to limited energy savings potential and lack of corresponding cost-benefit<sup>1</sup>. Greater distinction in the draft regulation among subtypes of single phase general-purpose motors to include distinction of design limitations in each subtype and clear applicability or non-applicability of standards to special- and definite-purpose motors is recommended.
5. Product definitions in the draft regulations today appear to reference laymen’s terms, rather than point to specific product definitions in publicly available industry-backed references or Standards. These should be clarified, per our comment regarding scope in item 2.
6. The projection of energy savings claim of 57 TWh by 2020 in item 7 of the Act appears vastly overstated and no analytical evidence is provided to justify this or other savings estimates. NEMA experience with these matters leads us to believe that these estimates are overstated by a factor of 10. This inaccuracy should be corrected to preclude a well-intended but ill-informed attempt to achieve those impossible estimates.
7. Overall there appears to be little if any test data to support the proposed performance levels in the Act or Annex. NEMA internal data does not support the Commission’s conclusion that it is capable to achieve the levels outlined in the draft regulation. We request the EU share its supporting data which justifies

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<sup>1</sup> <https://www.nema.org/Standards/Pages/Small-Electric-Motors.aspx>

and illustrates these levels as achievable prior to the next review of this draft regulation. If such data does not yet exist, that underlines the need to discontinue this activity while proper data gathering and analysis is conducted. Any other approach will disrupt the market and burden consumers.

NEMA believes the EU should have supporting data prior to establishing IE4 standards in this Act. Per Table 1 from IEC 60034-30-1, IE3 and IE4 levels are not possible for any single phase motors, and only some single phase motors are even capable of achieving IE2. Additionally, we have concerns regarding the limitations of repeatable, accurate testing and the physical realities of manufacturing variation.

8. Similarly, the justification for establishing requirements for Variable Speed Drives lacks the proper cost/benefit that would normally accompany this large of a scope increase. There is more value in establishing process control and the use of drives when appropriate.
9. The IE1 and IE2 energy efficiency levels proposed in the Annex for Variable Speed Drives are also not harmonized with IEC Standards for these products. Both IEC Standard 61800-9-2 and EN 50598-2 provide performance requirements for variable speed drives. NEMA proposes the EUC harmonize with IEC Standard 61800-9-2.
10. As we have noted in preceding comments, NEMA believes the EUC should abandon this regulatory effort. If the Commission firmly intends to continue regulatory action, at the very least the proceeding should pause while essential IED standards revisions (e.g. 61800-9-2) are completed.
11. Table 6 of the Annex defines “Maximum power losses for IE class determination of VSDs” without justifying those levels. For example, for a rated motor power of 110kW the maximum VSD power losses at rated torque producing current and 90% rated motor stator frequency are 6.94kW for IE1 and 4.16kW for IE2 respectively. Technical substantiation and explanation for the values in these tables must be provided.
12. Page 7 of the Annex proposes to set performance requirements for variable speed drives under 0 (zero) load conditions. These products typically do not operate at zero speed under load, so this requirement makes no sense. Instead, if the Commission proceeds, it should allow for a low speed (~10 Hz) as being representative. This speed point is supported within the applicable test standards.
13. The procedures for determination of total losses of electric motors should be clearly referenced to the methods in IEC 60034-2-1 or 60034-2-2 by using the standards designations.
14. Table 7 of the Annex states that total losses (1- $\eta$ ) for motors with a rated output

of above 150 kW and equal or below 1000 kW should not exceed the value calculated based on the declared  $\eta$  by more than 10%. This value of 10% originates from Table 20 of IEC 60034-1 but is currently in revision to be changed to 15% to align with the up to 150kW value. The tolerance in the draft EU regulation should therefore change to 15% to harmonize with the emerging new version of 60034-1 to account for both manufacturing variations and testing uncertainty.

15. Annex 2 Part 1 should clearly identify the test procedure to be used; either IEC 60034-2-1 B1 (for polyphase motors) or 60034-2-2 (for single speed motors).

16. Annex 2 Part 2 should clearly identify the test procedure to be used as IEC 61800-9-2.

17. Annex 2 Part 2 does not appear to allow the use of Alternate Efficiency Determination Methods (AEDM). This should be allowed, since modeling efficiency of products during design and construction is commonplace compared to physical testing and provides a better representation of the nominal efficiency for actual product.