[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 431

[EERE-2020-BT-STD-0007]

RIN 1904-AE63

Energy Conservation Program: Energy Conservation Standards for Electric Motors

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Direct final rule; confirmation of effective and compliance dates.

SUMMARY: The U.S. Department of Energy ("DOE") published a direct final rule to establish new and amended energy conservation standards for electric motors in the *Federal Register* on June 1, 2023. DOE has determined that the comments received in response to the direct final rule do not provide a reasonable basis for withdrawing the direct final rule. Therefore, DOE provides this document confirming the effective and compliance date of those standards.

DATES: The effective date of September 29, 2023, for the direct final rule published June 1, 2023 (88 FR 36066) is confirmed. Compliance with the new standards established in the direct final rule is required on and after June 1, 2027.

ADDRESSES: The docket for this rulemaking, which includes *Federal Register* notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials, is available for review at *www.regulations.gov*. All documents in the docket are listed in the *www.regulations.gov* index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure.

The docket webpage can be found at *www.regulations.gov/docket/EERE-2020-BT-STD-0007*. The docket webpage contains instructions on how to access all documents, including public comments, in the docket.

For further information on how to submit a comment or review other public comments and the docket, contact the Appliance and Equipment Standards Program staff at (202) 287-1445 or by email: *ApplianceStandardsQuestions@ee.doe.gov*.

FOR FURTHER INFORMATION CONTACT:

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, 20585-0121. Email: *ApplianceStandardsQuestions@ee.doe.gov*.

Ms. Kristin Koernig, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 586-3593. Email: *Kristin.koernig@hq.doe.gov*.

SUPPLEMENTARY INFORMATION:

I. Authority

The Energy Policy and Conservation Act, Pub. L. 94-163, as amended ("EPCA"),[1] authorizes DOE to issue a direct final rule establishing an energy conservation standard for a covered equipment on receipt of a statement submitted jointly by interested persons that are fairly representative of relevant points of view (including representatives of manufacturers of covered products, States, and efficiency advocates), as determined by the Secretary, that contains recommendations with respect to an energy or water conservation standard that are in accordance with the provisions of 42 U.S.C. 6295(o) or 42 U.S.C. 6313(a)(6)(B), as applicable. (42 U.S.C. 6316(a); 42 U.S.C. 6295(p)(4))

The direct final rule must be published simultaneously with a notice of proposed rulemaking ("NOPR") that proposes an energy or water conservation standard that is identical to the standard established in the direct final rule, and DOE must provide a public comment period of at least 110 days on this proposal. (42 U.S.C. 6295(p)(4)(A)–(B)) Not later than 120 days after issuance of the direct final rule, DOE shall withdraw the direct final rule if (1) DOE receives one or more adverse public comments relating to the direct final rule or any alternative joint recommendation; and (2) based on the rulemaking record relating to the direct final rule, DOE determines that such adverse

[1] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Pub. L. 116-260 (Dec. 27, 2020), which reflect the last statutory amendments that impact Parts A and A-1 of EPCA.

public comments or alternative joint recommendation may provide a reasonable basis for withdrawing the direct final rule. (42 U.S.C. 6295(p)(4)(C)) If DOE makes such a determination, DOE must proceed with the NOPR published simultaneously with the direct final rule and publish in the *Federal Register* the reasons why the direct final rule was withdrawn. (*Id.*)

After review of comments received, DOE has determined that it did receive adverse comments on the direct final rule. However, based on the rulemaking record, the comments did not provide a reasonable basis for withdrawing the direct final rule under the provisions in 42 U.S.C. 6295(p)(4)(C). As such, DOE did not withdraw this direct final rule and allowed it to become effective. Although not required under EPCA, DOE customarily publishes a summary of the comments received during the 110-day comment period and its responses to those comments. This document contains such a summary, as well as DOE's responses, for electric motors.

II. Electric Motors Direct Final Rule

A. Background

In a final rule published on May 29, 2014, DOE prescribed the current energy conservation standards for electric motors manufactured on and after June 1, 2016 ("May 2014 Final Rule"). 79 FR 30934. These standards are set forth in DOE's regulations at title 10 of the Code of Federal Regulations ("CFR") section 431.25.

On May 21, 2020, DOE published an Early Assessment Review Request for Information, in which it stated that it was initiating an early assessment review to determine whether any new or amended standards would satisfy the relevant requirements of EPCA for a new or amended energy conservation standard for electric motors and sought information related to that effort. 85 FR 30878.

On March 2, 2022, DOE published the preliminary analysis for electric motors. 87 FR 11650 ("March 2022 Preliminary Analysis"). In conjunction with the March 2022 Preliminary Analysis, DOE published a technical support document ("TSD") which presented the results of the in-depth technical analyses in the following areas: (1) Engineering; (2) markups to determine equipment price; (3) energy use; (4) life cycle cost ("LCC") and payback period ("PBP"); and (5) national impacts ("March 2022 Prelim TSD"). The results presented included the current scope of electric motors regulated at 10 CFR 431.25, in addition to electric motors above 500 horsepower, air-over electric motors, and additional expanded scope electric motors.

On November 16, 2022, DOE received a joint recommendation for amended energy conservation standards for electric motors ("November 2022 Joint Recommendation").[2] The November 2022 Joint Recommendation represented the motors industry, energy efficiency organizations, and utilities (collectively, "the Electric Motors Working Group").[3] The November 2022 Joint Recommendation addressed

[2] The Joint Recommendation is available in the docket for this rulemaking at *www.regulations.gov/comment/EERE-2020-BT-STD-0007-0035*.

[3] The members of the Electric Motors Working Group included American Council for an Energy-Efficient Economy ("ACEEE"), Appliance Standards Awareness Project ("ASAP"), National Electrical

energy conservation standards for medium electric motors that are 1-750 hp and polyphase, and air-over medium electric motors. On December 9, 2022, DOE received a supplemental letter to the November 2022 Joint Recommendation from the Electric Motors Working Group.[4] The supplemental letter provided additional guidance on the recommended Super Premium/IE4 levels for open medium electric motors rated 100 hp to 250 hp, and a recommended compliance date for the November 2022 Joint Recommendation.

After carefully considering the November 2022 Joint Recommendation for amending energy conservation standards for electric motors submitted by the Electric Motors Working Group, DOE determined that these recommendations were in accordance with the statutory requirements of 42 U.S.C. 6295(p)(4) for the issuance of a direct final rule and published a direct final rule on June 1, 2023 ("June 2023 Direct Final Rule"). 88 FR 36066. DOE also evaluated whether the November 2022 Joint Recommendation satisfies 42 U.S.C. 6295(o), as applicable, and found that the recommended standard levels would result in significant energy savings and are technologically feasible and economically justified. 88 FR 36066, 36140-36144. Accordingly, the consensus-recommended efficiency levels for electric motors were

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Manufacturers Association ("NEMA"), Natural Resources Defense Council ("NRDC"), Northwest Energy Efficiency Alliance ("NEEA"), Pacific Gas & Electric Company ("PG&E"), San Diego Gas & Electric ("SDG&E"), and Southern California Edison ("SCE"). DOE notes that in a separate letter, the New York State Energy Research and Development Authority ("NYSERDA") expressed support for the Joint Recommendations submitted to DOE on November 15, 2022; as well as in the supplemental letter submitted December 9, 2023. (NYSERDA, No. 36, at p.1)

[4] The supplemental letter is available in the docket for this rulemaking at *www.regulations.gov/comment/EERE-2020-BT-STD-0007-0036*

adopted as the new and amended standard levels in the June 2023 Direct Final Rule. 88 FR 36066, 36144-36145.

These standards, which are expressed as nominal full-load efficiency values, apply to all equipment listed in Table II-1 through Table II-3 and manufactured in, or imported into, the United States starting on June 1, 2027. The June 2023 Direct Final Rule provides a detailed discussion of DOE's analysis of the benefits and burdens of the new and amended standards pursuant to the criteria set forth in EPCA. 88 FR 36066, 36140-36144.

Table II-1 Nominal Full-Load Efficiencies of NEMA Design A, NEMA Design B and IEC Design N, NE, NEY or NY Motors (Excluding Fire Pump Electric Motors and Air-Over Electric Motors) at 60 Hz

Motor Horsepower/ Standard Kilowatt Equivalent	Nominal Full-Load Efficiency (%)							
	2 Pole		4 Pole		6 Pole		8 Pole	
	Enclosed	Open	Enclosed	Open	Enclosed	Open	Enclosed	Open

1/.75	77.0	77.0	85.5	85.5	82.5	82.5	75.5	75.5
1.5/1.1	84.0	84.0	86.5	86.5	87.5	86.5	78.5	77.0
2/1.5	85.5	85.5	86.5	86.5	88.5	87.5	84.0	86.5
3/2.2	86.5	85.5	89.5	89.5	89.5	88.5	85.5	87.5
5/3.7	88.5	86.5	89.5	89.5	89.5	89.5	86.5	88.5
7.5/5.5	89.5	88.5	91.7	91.0	91.0	90.2	86.5	89.5
10/7.5	90.2	89.5	91.7	91.7	91.0	91.7	89.5	90.2
15/11	91.0	90.2	92.4	93.0	91.7	91.7	89.5	90.2
20/15	91.0	91.0	93.0	93.0	91.7	92.4	90.2	91.0
25/18.5	91.7	91.7	93.6	93.6	93.0	93.0	90.2	91.0
30/22	91.7	91.7	93.6	94.1	93.0	93.6	91.7	91.7
40/30	92.4	92.4	94.1	94.1	94.1	94.1	91.7	91.7
50/37	93.0	93.0	94.5	94.5	94.1	94.1	92.4	92.4
60/45	93.6	93.6	95.0	95.0	94.5	94.5	92.4	93.0
75/55	93.6	93.6	95.4	95.0	94.5	94.5	93.6	94.1
100/75	95.0	94.5	96.2	96.2	95.8	95.8	94.5	95.0
125/90	95.4	94.5	96.2	96.2	95.8	95.8	95.0	95.0
150/110	95.4	94.5	96.2	96.2	96.2	95.8	95.0	95.0
200/150	95.8	95.4	96.5	96.2	96.2	95.8	95.4	95.0
250/186	96.2	95.4	96.5	96.2	96.2	96.2	95.4	95.4
300/224	95.8	95.4	96.2	95.8	95.8	95.8	--	--
350/261	95.8	95.4	96.2	95.8	95.8	95.8	--	--
400/298	95.8	95.8	96.2	95.8	--	--	--	--
450/336	95.8	96.2	96.2	96.2	--	--	--	--
500/373	95.8	96.2	96.2	96.2	--	--	--	--
550/410	95.8	96.2	96.2	96.2	--	--	--	--
600/447	95.8	96.2	96.2	96.2	--	--	--	--
650/485	95.8	96.2	96.2	96.2	--	--	--	--
700/522	95.8	96.2	96.2	96.2	--	--	--	--
750/559	95.8	96.2	96.2	96.2	--	--	--	--

Table II-2 Nominal Full-Load Efficiencies of NEMA Design A, NEMA Design B and IEC Design N, NE, NEY or NY Standard Frame Size Air-Over Electric Motors (Excluding Fire Pump Electric Motors) at 60 Hz

Motor Horsepower/ Standard Kilowatt Equivalent	Nominal Full-Load Efficiency (%)							
	2 Pole		4 Pole		6 Pole		8 Pole	
	Enclosed	Open	Enclosed	Open	Enclosed	Open	Enclosed	Open
1/.75	77.0	77.0	85.5	85.5	82.5	82.5	75.5	75.5
1.5/1.1	84.0	84.0	86.5	86.5	87.5	86.5	78.5	77.0
2/1.5	85.5	85.5	86.5	86.5	88.5	87.5	84.0	86.5
3/2.2	86.5	85.5	89.5	89.5	89.5	88.5	85.5	87.5
5/3.7	88.5	86.5	89.5	89.5	89.5	89.5	86.5	88.5
7.5/5.5	89.5	88.5	91.7	91.0	91.0	90.2	86.5	89.5
10/7.5	90.2	89.5	91.7	91.7	91.0	91.7	89.5	90.2
15/11	91.0	90.2	92.4	93.0	91.7	91.7	89.5	90.2
20/15	91.0	91.0	93.0	93.0	91.7	92.4	90.2	91.0
25/18.5	91.7	91.7	93.6	93.6	93.0	93.0	90.2	91.0
30/22	91.7	91.7	93.6	94.1	93.0	93.6	91.7	91.7
40/30	92.4	92.4	94.1	94.1	94.1	94.1	91.7	91.7
50/37	93.0	93.0	94.5	94.5	94.1	94.1	92.4	92.4

60/45	93.6	93.6	95.0	95.0	94.5	94.5	92.4	93.0
75/55	93.6	93.6	95.4	95.0	94.5	94.5	93.6	94.1
100/75	95.0	94.5	96.2	96.2	95.8	95.8	94.5	95.0
125/90	95.4	94.5	96.2	96.2	95.8	95.8	95.0	95.0
150/110	95.4	94.5	96.2	96.2	96.2	95.8	95.0	95.0
200/150	95.8	95.4	96.5	96.2	96.2	95.8	95.4	95.0
250/186	96.2	95.4	96.5	96.2	96.2	96.2	95.4	95.4

Table II-3 Nominal Full-Load Efficiencies of NEMA Design A, NEMA Design B and IEC Design N, NE, NEY or NY Specialized Frame Size Air-Over Electric Motors (Excluding Fire Pump Electric Motors) at 60 Hz

Motor Horsepower/ Standard Kilowatt Equivalent	Nominal Full-Load Efficiency (%)							
	2 Pole		4 Pole		6 Pole		8 Pole	
	Enclosed	Open	Enclosed	Open	Enclosed	Open	Enclosed	Open
1/.75	74.0	--	82.5	82.5	80.0	80.0	74.0	74.0
1.5/1.1	82.5	82.5	84.0	84.0	85.5	84.0	77.0	75.5
2/1.5	84.0	84.0	84.0	84.0	86.5	85.5	82.5	85.5
3/2.2	85.5	84.0	87.5	86.5	87.5	86.5	84.0	86.5
5/3.7	87.5	85.5	87.5	87.5	87.5	87.5	85.5	87.5
7.5/5.5	88.5	87.5	89.5	88.5	89.5	88.5	85.5	88.5
10/7.5	89.5	88.5	89.5	89.5	89.5	90.2	--	--
15/11	90.2	89.5	91.0	91.0	--	--	--	--
20/15	90.2	90.2	91.0	91.0	--	--	--	--

As required by EPCA, DOE also simultaneously published a NOPR proposing the identical standard levels contained in the June 2023 Direct Final Rule. 88 FR 35765 (June 1, 2023). DOE considered whether any adverse comment received during the 110-day comment period following the publication of the June 2023 Direct Final Rule may have provided a reasonable basis for withdrawal of the direct final rule under the provisions in 42 U.S.C. 6295(p)(4)(C).

III. Comments on the June 2023 Direct Final Rule

As discussed in section I of this document, not later than 120 days after publication of a direct final rule, DOE shall withdraw the direct final rule if (1) DOE receives one or more adverse public comments relating to the direct final rule or any alternative joint recommendation; and (2) based on the rulemaking record relating to the direct final rule, DOE determines that such adverse public comments or alternative joint recommendation may provide a reasonable basis for withdrawing the direct final rule. (42 U.S.C. 6295(p)(4)(C)(i))

DOE received comments in response to the June 2023 Direct Final Rule from the interested parties listed in Table III.1.

Table III.1 List of Commenters with Written Submissions in Response to the June 2023 Direct Final Rule

Commenter(s)	Abbreviation	Comment No. in the Docket	Commenter Type
Air-conditioning, Heating, and Refrigeration Equipment	AHRI	54	Industry Original Equipment Manufacturer ("OEM") Trade Association
Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE)	CA IOUs	51	Utilities
Peter Faragasso	Faragasso	47	Individual
Sean Hogan	Hogan	50	Individual
Johnson Controls	JCI	53	OEM Manufacturer
Richard Spotts	Spotts	52	Individual
Michael Ravnitzky	Ravnitzky	49	Individual

A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.[5] The following sections discuss the substantive comments DOE received on the June 2023 Direct Final Rule as well as DOE's determination that the comments do not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule.

A. General Comments

In comments submitted in response to the June 2023 Direct Final Rule, the CA IOUs, Faragasso, Spotts, and Ravnitzky expressed support for the energy conservation standard levels specified in the June 2023 Direct Final Rule. (CA IOUs, No. 51 at p. 1; Faragasso, No. 47 at p. 1; Spotts, No. 52 at p. 1; Ravnitzky, No. 49 at p. 1) DOE has determined that these comments are supportive of the standards adopted in the June 2023 Direct Final Rule.

AHRI and JCI opposed the June 2023 Direct Final Rule. (AHRI, No. 54 at pp. 1-9; JCI, No. 53 at p. 1-2) Specifically, AHRI opposed the energy conservation standards for air-over electric motors. AHRI further requested that DOE withdraw the June 2023 Direct Final Rule to comply with EPCA's requirements based on the lack of interested persons that are fairly representative of the relevant point of view and the receipt of their comments, which AHRI believes provides a reasonable basis for withdrawal. (AHRI, No. 54 at pp. 2-3, 7-8) However, as discussed in more details in the remainder of this

[5] The parenthetical reference provides a reference for information located in the docket of DOE's rulemaking to develop energy conservation standards for electric motors. (Docket No. EERE-2021-BT-STD-0035, which is maintained at *www.regulations.gov*). The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

document, DOE has determined that these comments do not provide a reasonable basis to withdraw the June 2023 Direct Final Rule.

Hogan did not support or oppose the rule and commented on inverter motors (Hogan, No. 50 at p. 1) and, as discussed in more details in the remainder of this document, DOE has determined that this comment is not adverse.

B. Stakeholder Representation

Under 42 U.S.C. 6295(p)(4), interested persons that are fairly representative of relevant points of view, as determined by DOE, may submit a joint recommendation to the Department for new or amended energy conservation standards. AHRI stated that EPCA defines those interested persons as representatives of manufacturers of covered products, States, and efficiency advocates. AHRI contends that the joint stakeholders that came together for the recommendation are not "fairly representative" of the relevant points of view required to publish a direct final rule according to EPCA's requirements in 42 U.S.C. 6295(p)(4)(A) because the list does not include manufacturers of covered products, nor any trade association that represent manufacturers of covered products. AHRI commented that, as a trade association representing manufacturers of covered products, its members should have been taken into consideration before the June 2023 Direct Fina Rule was issued. (AHRI, No. 54 at pp. 7-8)

In response, DOE first notes that the direct final rule authority in 42 U.S.C. 6295(p)(4) applies to electric motors through the crosswalk provision at 42 U.S.C. 6316(a). As part of that crosswalk provision, any reference to a covered "product" is

replaced with a reference to covered "equipment." (42 U.S.C. 6316(a)(3)) As a result, 42 U.S.C 6295(p)(4) would read, in relevant part, "[o]n receipt of a statement that is submitted jointly by interested persons that are fairly representative of relevant points of view (including representatives of manufacturers of covered equipment, States, and efficiency advocates), as determined by the Secretary…" (42 U.S.C. 6316(a)(3); 42 U.S.C. 6295(p)) The November 2022 Joint Recommendation includes a trade association, NEMA, which represents more than 23 manufacturers of electric motors. The November 2022 Joint Recommendation also includes energy-efficiency advocacy organizations and utilities. Additionally, DOE notes that one of the parties to the November 2022 Joint Recommendation, NEEA, is an alliance of utilities and partners that pools resources and shares risks to transform the market for energy efficiency to the benefit of all consumers in the Northwest and whose 20-member Board consists of representatives from the Bonneville Power Administration, consumer- and investor-owned electric and natural gas utilities, state government, and public interest and efficiency industry organizations. Finally, DOE also notes that NYSERDA expressed support for the Joint Agreement. As a result, DOE has determined that the November 2022 Joint Recommendation was submitted by interested persons who are fairly representative of relevant points of view on this matter.

C. Electric Motors Used as a Component of a Covered Product or Equipment

AHRI commented that component regulation imposes design constraints and limits innovation without guaranteeing energy savings because covered products are already regulated. AHRI stated that regardless of the efficiency of a given product's

individual components, such products must ultimately meet an efficiency standard, and, therefore, little or no additional energy savings would be achieved. AHRI commented that component regulation would impose significant cost to manufacturers and consumers and the burden DOE would impose on manufacturers of covered products by expanding the scope of the electric motor test procedure, and ultimately standards, is not outweighed by any corresponding benefit to consumers or the nation. (AHRI, No. 54 at p. 2) AHRI added that DOE should apply a finished-product approach to energy efficiency regulations. Specifically, AHRI commented that it strongly opposes DOE's plan to expand the existing scope of coverage of electric motors to include air-over electric motors. AHRI added that embedded motor testing, and ultimately energy conservation standards, would save minimal, if any, energy and would create needless testing, paperwork, and record-keeping requirements that would raise costs for consumers. In addition, AHRI commented that the timing of the proposed changes would exacerbate supply chain disruption, further delaying products reaching U.S. consumers and inflating the cost of finished goods. AHRI commented also that component regulation imposes design constraints and limits innovation without guaranteeing energy savings and that covered products are already regulated. Further, AHRI asserted that OEMs already consider more efficient electric motors when identifying what design options to apply to meet new finished product standards. (AHRI, No. 54 at pp. 3, 8)

JCI commented that it remained opposed to DOE's revised definition and resulting scope expansion to mandate new test procedures to include special and definite purpose motors, which specifically includes air-over, inverter, synchronous motors as well as the newly defined category of "small non-small electric motors" ("SNEMs") as

such motors are already being regulated at the system level at 10 CFR 431.25 and for which there is a clear exemption as noted under 42 U.S.C. 6317(b)(3). JCI also stated its opposition to component level regulation for DOE covered products. JCI commented that "double regulation" of finished goods and the components embedded within the finished goods stifles innovation by reducing design engineers' ability to weigh trade-offs between different technologies. JCI asserted that, as a matter of practice, motors are typically not the least efficient component within an air-conditioner, heat pump, or associated furnace and by limiting the choices of system components, designers could be forced to forego greater total system benefits and add unnecessary cost due to the lack of design flexibility. JCI further commented that generic motor efficiency ratings will not result in significant savings benefits and will increase cost to consumers. JCI stated that consumers who purchase JCI equipment generally do not evaluate potential savings or performance features based on individual components (*i.e.*, motors) but rather on the overall system performance of the equipment. (JCI, No. 53 at pp. 1-2)

On the issue of energy savings resulting from regulating components, DOE received similar comments in response to the March 2022 Preliminary Analysis that were addressed in the June 2023 Direct Final Rule. Specifically, as highlighted in a previous DOE report, motor energy savings potential and opportunities for higher efficiency electric motors in commercial and residential equipment would result in overall energy savings. [6] In addition, some manufacturers advertise electric motors as resulting in

[6] U.S. DOE Building Technology Office, Energy Savings Potential and Opportunities for High-Efficiency Electric Motors in Residential and Commercial Equipment, December 2013. Available at: *www.energy.gov/eere/buildings/downloads/motor-energy-savings-potential-report*

energy savings in HVAC equipment.[7] 88 FR 36066, 36103. Therefore, DOE disagrees with the notion that an increase in motor efficiency would not necessarily result in improved efficiency of the equipment the motor is incorporated into. In addition, when establishing any new or amended energy conservation standards for other covered equipment or products incorporating electric motors, DOE analyzes the current market to establish the baseline performance and would account for any improvements due to increased motor efficiency. As a result, any motor improvement would be later reflected in the covered equipment/product subsequent rulemakings. Therefore, DOE has determined that these comments do not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule

Additionally, the June 2023 Direct Final Rule did not include inverter-only motors, synchronous motors, and SNEMs. Instead, the June 2023 Direct Final Rule retained the scope of the electric motors currently regulated at 10 CFR 431.25 and expanded the scope to electric motors that meet the same criteria as described at 10 CFR 431.25(g) but otherwise have a horsepower greater than 500 and less than or equal to 750 hp; and to those that otherwise have an air-over enclosure or a specialized frame size and an air-over enclosure. 88 FR 36066, 36079-36081 For these electric motors, the energy conservation standards adopted in the June 2023 Direct Final rule would preserve the technologies and frame sizes that exist today on the market *(i.e.*, AC induction polyphase designs in the same NEMA frame sizes). *Id*. at 88 FR 36097 Accordingly, DOE disagrees with the comments from AHRI and JCI that the adopted standards could limit

[7] See, for example, Nidec and ABB: acim.nidec.com/motors/usmotors/industry-applications/hvac; bit.ly/3wEIQyu.

innovation by imposing design constraints or reducing design engineers' ability to weigh trade-offs between different technologies.

Therefore, DOE has determined that these comments do not provide a reasonable basis for withdrawal of the June 2023 Direct Final.

D. Original Equipment Manufacturer Industry Burden

AHRI commented that DOE declined to address industry's concerns in the electric motor test procedure final rule, citing that DOE stated comments related to any potential standards that DOE may consider for electric motors will be discussed in the separate energy conservation standards rulemaking docket (EERE–2020–BT–STD–0007).[8] AHRI noted that it had raised concerns specifically regarding air-over motors in response to the March 2022 Preliminary Analysis[9]. (AHRI, No. 54 at p. 2) Also in response to the March 2022 Preliminary Analysis, AHRI added that it filed joint comments with the Association of Home Appliance Manufacturers regarding the OEM certification compliance burden and increases to costs without increases to finished good efficiency. AHRI commented that DOE failed to address these comments in the June 2023 Direct Final Rule and accompanying NOPR because DOE assessed that the majority of the stakeholder concerns stemmed from regulating SNEMs and air-over SNEMs. AHRI asserted that even if a minority of the concerns was given to air-over motors, that would not absolve DOE of its statutory duty in determining whether a

[8] *See* 87 FR 63588, 63591 (Oct. 10, 2022).
[9] In their comments, AHRI refers to this publication as a Notice of Data Availability.

standard is economically justified. AHRI commented that DOE must consider the economic impact of the standard on the manufacturers and on the consumers of the products subject to such standard and, in the case of air-over motors, finished goods manufacturers can be either the manufacturer or the consumer, depending on how the component is purchased. (*Id*. at pp. 2-3)

AHRI further commented that some OEMs purchase complete air-over motors for incorporation while other OEMs buy motor components and assemble the motor into the equipment. In the latter case, AHRI stated that the OEM would be considered a motor manufacturer and undergo the time and cost to certify that the motor meets any pertinent standards. AHRI added that the expanded scope of the June 2023 Direct Final Rule would redefine OEMs as electric motor manufacturers and that, for imported equipment, the expanded scope would impact OEMs who purchase air-over motor components and air-over motors that are not already sold on the U.S. market. However, AHRI commented that DOE did not include these manufacturer impacts in the standards June 2023 Direct Final Rule analysis. Specifically, AHRI commented that the shipments estimates used in the analysis are underestimated and questioned whether DOE included air-over motors included in OEM equipment. (AHRI, No. 54 at p. 4) In addition, AHRI commented that any OEMs that are considered a motor manufacturer would also be subject to new requirements for establishing or verifying performance in an independent laboratory. AHRI asserted that these air-over motor specific costs were not included. AHRI noted that the March 2022 Prelim TSD included minor increases in installation cost as efficiency levels rise attributed to the additional cost of an electrician (*Id*. at p. 5) AHRI commented that such regulatory burdens have left manufacturers in an almost

constant state of redesign and testing and that innovation was no longer as important as just modifying products to meet new and ever-changing regulatory burdens. (*Id*. at p. 8)

Regarding the shipments estimate, as previously noted, the air-over motors that are subject to the June 2023 Direct Final Rule are limited to those meeting the same criteria as described at 10 CFR 431.25(g) but otherwise have an air-over enclosure or a specialized frame size and an air-over enclosure. Specifically, these are electric motors with horsepower greater than or equal to 1 hp, that are NEMA Design A or B and are built in standard NEMA frame size[10] or specialized frame size (or IEC equivalents). This excludes most electric motors included in heating, ventilation, air-conditioning, and refrigeration ("HVACR") equipment manufactured by AHRI, which typically are not NEMA Design A or B, have different frame constructions, or are single phase motors. Therefore, DOE believes the shipments estimate used in the June 2023 Direct Final rule is correct as it is not intended to include the totality of the air-over electric motor market.

The manufacturer impact analysis ("MIA") for this rulemaking specifically examines the conversion costs that electric motor manufacturers (including OEMs that also manufacture electric motors) would incur due to the analyzed energy conservation standards for electric motors in comparison to the revenue and free cash electric motor manufacturers receive. In addition, the MIA includes the additional testing costs for newly regulated equipment to comply with new efficiency standards.[11] Regarding OEMs

[10] More specifically, are built in a three-digit or four-digit NEMA frame size (or IEC metric equivalent), including those designs between two consecutive NEMA frame sizes (or IEC metric equivalent), or an enclosed 56 NEMA frame size (or IEC metric equivalent).
[11] See section IV.G of the June 2023 Direct Final Rule. 88 FR 36006, 36112.

who purchase components of an air-over motor, DOE notes that motors assembled this way are a minority of overall motors covered by the June 2023 Direct Final Rule. In addition, for motors that are assembled this way, the conversion costs associated with the new and amended energy conservation standards would not be significant as the OEM is not manufacturing the components that would have to be changed, and those conversion costs would be incurred by the component manufacturers, which are typical motor manufacturers (*i.e.*, included as NEMA members) and the focus of the manufacturer impact analysis conducted in the June 2023 Direct Final Rule. Therefore, DOE has determined that these comments do not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule. JCI commented that it understands DOE's authority to impose requirements on manufacturers of covered products, but does not agree with DOE's definition that equipment importers should be responsible for embedded electric motor test and certification requirements if indeed this is the case. JCI commented also that it was not clear if DOE's revised definition of "air-over" and "manufacturer," which specifically includes importation and assembly, would result in importers of finished goods like JCI being responsible for embedded motor standards and testing. (JCI, No. 53 at p. 2)

In the June 2023 Direct Final Rule, DOE did not establish revised definitions for "air-over" and "manufacturer." Therefore, DOE does not consider this comment to be an adverse comment. The definition of "air-over electric motor" was established by the test procedure final rule published on October 19, 2022. 87 FR 63588, 63609. The definition of "manufacture" and "manufacturer" can be found at 10 CFR 431.2 and were not revised by the June 2023 Direct Final Rule. Finally, DOE clarifies that any electric motor in

scope that is imported into the United States would need to comply with the new and amended energy conservation standards adopted in the June 2023 Direct Final Rule.

E. Replacement Motor Certification Burden

AHRI commented that HVACR and water heating equipment are built, tested, and certified as a complete design and that slight changes to the motors can have significant and unexpected impacts on performance and efficiency. AHRI stated that there are a variety of safety standards affected by air flow in addition to the performance standards and that the testing of all legacy equipment because of a motor change would be cost and resource prohibitive. In addition, AHRI noted that testing could be impractical if the HVACR or water heating equipment was out of production because OEMs would be forced to rebuild an out-of-production unit for the purpose of testing the new motor or risk abandoning a reasonable repair path for consumers. AHRI asserted that some equipment may not be able to be retroactively designed with new motors due to new energy conservation standards or refrigerant changes. (AHRI, No. 54 at pp. 5-6)

JCI commented that DOE did not account for the cost burden of certifying replacement motors for legacy equipment, which it believes would be required per the revised scope definition. JCI stated that certifying replacement motors to new energy conservations standards for legacy equipment would likely require the building of at least partial, if not complete, prototypes as well as substantial investment in test time to cover dozens of different legacy applications for products still within their expected service life. JCI add that its legacy product offering ranges in size from 1 ton to over 120 tons (nominal cooling) for its rooftop and residential offerings and has dozens of unique electric motor applications still within their remaining service life. JCI commented also

that in cases where a new energy conservation standard results in a new, larger NEMA frame size, it may not be possible to develop such a product and thus result in premature equipment replacement or a special one-off design which will greatly increase cost to consumers. JCI requested that DOE consider the negative impacts of the June 2023 Direct Final Rule and rescind the revised definition scope of covered motors. (JCI, No. 53 at p. 2)

While DOE conducts a MIA to address the industry burden on the manufacturer of the considered covered equipment, DOE typically does not include the impacts to other manufacturers. The MIA for this rulemaking specifically examined the conversion costs that electric motor manufacturers (including OEMs that also manufacture electric motors) would incur due to the analyzed energy conservation standards for electric motors in comparison to the revenue and free cash electric motor manufacturers receive. The OEM testing and certification costs were not included in the MIA, and neither were the OEM revenues and free cash flows, as these costs and revenue are not specific to electric motor manufacturers. However, as noted by the Electric Motors Working Group, the adopted standards for air-over electric motors[12] are not expected to cause broad market disruption. (Electric Motors Working Group, No. 35 at p. 4In addition, as noted in in section IV.C of the June 2023 Direct Final rule, DOE fixed the frame size, which remained the same across efficiency levels. 88 FR 36066, 36097. As such, the energy conservation standards adopted in the June 2023 Direct Final Rule would preserve the

[12] The majority of the electric motors for which the June 2023 Direct Finale rule is establishing new and amended standards are not incorporated into HVACR equipment. Electric motors with a horsepower greater than or equal to 100 hp and less than or equal to 250 hp and those with a horsepower greater than 500 hp and less than or equal to 750 hp are larger motors that are not used as components.

frame sizes of electric motors on the market today. Consequently, although DOE did not include any OEM testing and certification costs in the June 2023 Direct Final Rule, DOE does not estimate these impacts to be significant. Therefore, DOE has determined that these comments do not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule.

AHRI commented that DOE used an average application lifetime of 15 years for applications driven by electric motors and came to an average lifetime of 11.8 years for the 5 hp air-over motor. AHRI noted that DOE has used much longer equipment lifetimes for some AHRI products, such as air-cooled commercial package air conditioners and heat pumps where DOE used a lifetime of 33.88 years for 30-ton equipment in a rulemaking.[13] AHRI asserted that such equipment could have two or three motor replacements during its lifetime and that if the replacement motor becomes unavailable, the entire OEM product would have to be replaced rather than repaired. In addition, AHRI commented that DOE did not account for the potential unavailability of the motors in use in today's HVACR equipment as well as the cost to OEMs, and ultimately to the consumer, of retroactively designing equipment in use today for motors that become unavailable upon new standards. (AHRI, No. 54 at p. 5)

DOE notes that the Electric Motors Working Group stated the adopted standards for air-over electric motors would avoid market disruption. (Electric Motors Working Group, No. 35 at p. 4) In addition, the adopted levels would preserve key criteria that are

[13] DOE Commercial Unitary Air Conditioners and Heat Pumps ASRAC Working Group meeting March 21-22, 2023. Available at *https://www.regulations.gov/document/EERE-2022-BT-STD-0015-0080*

used to identify suitable replacement motors,[14] such as frame sizes, voltages, horsepower, pole configurations, enclosure constructions, and mountings, and DOE believes drop-in replacement motors would remain available and there would be no major market disruption, as highlighted by the Electric Motors Working Group. DOE further notes that OEM equipment can usually accommodate different models of motors and online cross-referencing tools[15] exist to help consumers identify motors that can be used as drop-in replacements. Therefore, DOE has determined that these comments do not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule.

F. Regulatory Burden

AHRI stated that the burdens of the June 2023 Direct Final Rule would be added to an already large industry burden due to other regulatory bodies requiring redesign and recertification of products made by its members. AHRI described the regulatory actions that will impact its products: (1) UL 60335-2-40 will be required for all cooling equipment on January 1, 2024; (2) the American Innovation and Manufacturing Act requires the use of low global warming potential ("GWP") refrigerants in residential and light commercial air conditioners, which AHRI expects to be required within two years and will require updated safety standards to address refrigerant leaks because GWP refrigerants are more flammable, and in commercial refrigeration equipment, which has a statutory deadline of October 7, 2023; (3) new federal efficiency levels and metrics with compliance dates ranging from January 1, 2024 to January 1, 2025 for variable

[14] See "How to cross reference an OEM motor." Available at hvacknowitall.com/blog/how-to-cross-reference-an-oem-motor (last accessed September 28, 2023); Rheem and Ruud PROTECH "Selecting a Motor." Available at *assets.unilogcorp.com/267/ITEM/DOC/PROTECH_51_100998_33_Catalog.pdf* (last accessed September 28, 2023

[15] See www.emotorsdirect.ca/hvac.

refrigerant flow ("VRF") equipment, dedicated outdoor air systems, computer room air conditioners, air cooled three-phase small central air conditioners and heat pumps and VRF with a cooling capacity less than 65,000 Btu/h, and commercial fans; (4) California's regulation of commercial fans required on November 16, 2023; and (5) test procedures that are currently in the rulemaking process for commercial package air conditioners and heat pumps, single package vertical air conditioners and heat pumps, package terminal air conditioners and heat pumps, and water source heat pumps. (AHRI, No. 54 at pp. 6-7)

The June 2023 Direct Final Rule examined the cumulative regulatory burden that affects the manufacturers of the covered equipment (*i.e.*, electric motors). 88 FR 36066, 36133-36134. As previously stated, DOE typically does not include the impacts to other manufacturers. Therefore, DOE has determined that this comments does not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule.

G. EPCA Requirements

AHRI commented that EPCA requires that any proposed new or amended energy conservation standards must result in significant energy savings and be technologically feasible and economically justified and cited to 42 U.S.C. 6295(o). AHRI commented that it does not believe that the energy conservation standards in the June 2023 Direct Final Rule comply with this requirement. (AHRI, No. 54 at p. 8)

In the June 2023 Direct Final Rule, DOE determined that the adopted energy conservation standards would result in significant energy savings and are technologically feasible and economically justified and provided supporting analysis. 88 FR 36066,

36072, 36120-36146. For the reasons discussed in the June 2023 Direct Final Rule, DOE has determined that the comment provided by AHRI does not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule.

H. Other Comments

AHRI commented that DOE's electric motors test procedure, which would rate motor efficiency at full load, fails to adequately capture representative load conditions for finished products and equipment that is largely optimized for, and regulated on, part-load performance. AHRI commented also that regulating special and definite purpose motors, particularly with the proposed third-party nationally recognized certification program requirements, will add cost, reduce market choices, and do little, if anything, to realize further energy savings. AHRI asserted that full-load operating temperature in testing may be greater than the rated operating temperature of the motor while it is operating in its intended air over application, which AHRI claimed to be particularly problematic for air-over motors. AHRI stated that DOE was working in other areas to design test procedures that reward part-load performance and that it was inexplicable that DOE proposed to do the opposite here. (AHRI, No. 54 at p. 3)

DOE notes that this comment relates to the electric motors test procedure and is not related to the June 2023 Direct Final Rule. As such, DOE does not consider this comment as an adverse comment for the June 2023 Direct Final Rule.

Ravnitzky requested clarification on whether the June 2023 Direct Final Rule applied to small electric motors, dedicated purpose pool pump motor, and motors that are

used in consumer products. (Ravnitzky, No. 49 at p. 1) DOE clarifies that the June 2023 Direct Final Rule amends and establishes energy conservation standards for electric motors that meet the newly adopted scope criteria at 10 CFR 431. 25 and are in the scope of subpart B of 10 CFR part 431. Section 431.11 specifies that subpart B does not cover "small electric motors," which are addressed in subpart X of 10 CFR part 431 and does not cover electric motors that are "dedicated-purpose pool pump motors," which are addressed in subpart Z of 10 CFR part 431. *See* 10 CFR 431.11. Therefore, the June 2023 Direct Final Rule does not apply to small electric motors or dedicated purpose pool pump motors. In addition, while the scope of the June 2023 Direct Final Rule does not differentiate electric motors by end-use applications, it only includes electric motors that operate on polyphase power supply and is unlikely to include electric motors incorporated in consumer products (which typically operate on single phase power supply). Accordingly, DOE does not consider the comment from Ravnitzky to be an adverse comment.

Ravnitzky commented that there are many small business manufacturers of electric motors and that DOE should provide exemptions, waivers, or alternative standards for small businesses and provide sufficient time for small businesses to adjust to the new requirements. (Ravnitzky, No. 49 at pp. 1-2)

DOE notes that manufacturers subject to DOE's energy efficiency standards may apply to DOE's Office of Hearings and Appeals for exception relief under certain circumstances. Manufacturers should refer to 10 CFR part 1003 for additional details.

Therefore, DOE has determined that the comment from Ravnitzky does not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule. .

Hogan commented that for permanent capacitive split phase motors ("PSC"), the motor efficiency decreases dramatically as the capacitor degrades and that efficiency loss is the dominant failure mode for PSC motors. Hogan added that DOE's analysis only considered the “as-built" efficiency of the motor and that DOE should have determined the actual running efficiency of motors over their entire operating life for several operating environments and applications that degrade over time due to partial demagnetization. Hogan also stated that the inverter drive efficiency also degrades over time. Further, Hogan disagreed with DOE’s analysis, which assumed that the price of permanent magnet inverter motors would decline to that comparable of three phase motors, and stated that the induction motor would always have a cost advantage. Hogan also noted that inverter drive motors only produce greater efficiency in applications as a result of variable shaft speed. (Hogan, No. 50 at p. 1)

PSC motors, permanent magnet inverter motors, and inverter drives were not included in the scope of products for which DOE established and amended energy conservation standards in the June 2023 Direct Final Rule. Instead, in the LCC and national impact analysis (“NIA”) analysis, DOE added a scenario to account for the fact that some consumers may choose to purchase a synchronous electric motor (*i.e.*, a permanent magnet inverter motors, out of scope of the June 2023 Direct Final Rule) rather than a more efficient NEMA Design A or B electric motor or select to purchase a variable speed drive (*i.e.*, an inverter drive) in combination with a compliant electric

motor. DOE developed a consumer choice model to estimate the percentage of consumers that would purchase a synchronous electric motor based on the payback period of such investment. 88 FR 36066, 36104. As part of this sensitivity analysis DOE did not assume any decline in price for permanent magnet inverter motors. Instead, DOE assumed that the price of a more efficient NEMA Design A or B electric motor would increase compared to a baseline NEMA Design A or B electric motor. [16] DOE acknowledges that there is uncertainty around the efficiency of permanent magnet inverter motors and inverter drives which may degrade over time. In the June 2023 Direct Final Rule, DOE noted that there is uncertainty as to which rate such substitution would occur due to the uncertainty in the estimated savings from speed controls, installation costs, and selected decision criteria, and DOE did not incorporate this scenario as part of the reference analysis. *Id*. As such, this analysis was not used to justify the adopted standards in the June 2023 Direct Final Rule. [17] Therefore, DOE has determined that this comment does not provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule.

Hogan commented that the efficiency of residential and commercial motors can be increased higher than what is proposed by DOE at minimal costs when wired for three phase power in comparison to using an inverter drive. Hogan added that DOE should reasonably require good efficiency for single phase alternative current ("AC") motors for many fractional horsepower motors (*i.e.*, horsepower less than 1) and otherwise advance efficiency through three phase power. (Hogan, No. 50 at p. 1)

[16] See Table 8C.2.1 in Appendix 8C of the June 2023 Direct Final Rule Technical Support Document.
[17] See Appendix 8C of the June 2023 Direct Final Rule Technical Support Document.

As noted previously, the scope of the June 2023 Direct Final Rule only includes electric motors that operate three phase power supply (*i.e.*, AC induction polyphase electric motors). 88 FR 36066, 36079-36081 In addition, the scope of the June 2023 Direct Final Rule includes motors with horsepower equal to or greater than 1 horsepower. . *Id* As such, DOE did not analyze technology options for single phase AC motors and fractional horsepower motors (*i.e.*, with horsepower less than 1) in the June 2023 Direct Final Rule and does not consider the recommendation from Hogan to provide a reasonable basis for withdrawal of the June 2023 Direct Final Rule .

IV. Impact of Any Lessening of Competition

EPCA directs DOE to consider any lessening of competition that is likely to result from new or amended standards. (42 U.S.C. 6295 (p)(4)(A)(i) and (C)(i)(II); 42 U.S.C. 6295(o)(2)(B)(i)(V)) It also directs the Attorney General of the United States ("Attorney General") to determine the impact, if any, of any lessening of competition likely to result from a proposed standard and to transmit such determination to the Secretary within 60 days of the publication of a proposed rule, together with an analysis of the nature and extent of the impact. (42 U.S.C. 6295(o)(2)(B)(i)(V) and (B)(ii)) To assist the Attorney General in making this determination, DOE provided the Department of Justice ("DOJ") with copies of the June 2023 Direct Final Rule, the corresponding NOPR, and the June 2023 Direct Final Rule TSD for review. DOE has published DOJ's comments at the end of this document.

In its letter responding to DOE, DOJ concluded that, based on its review, it is unlikely that the proposed energy conservation standards for electric motors would have a significant adverse impact on competition.

V. Review Under the National Environmental Policy Act of 1969

Pursuant to the National Environmental Policy Act of 1969 ("NEPA"), DOE had analyzed the direct final rule in accordance with NEPA and DOE's NEPA implementing regulations (10 CFR part 1021). DOE determined that this rule qualifies for categorical exclusion under 10 CFR part 1021, subpart D, appendix B5.1 because it is a rulemaking that establishes energy conservation standards for consumer products or industrial equipment, none of the exceptions identified in B5.1(b) apply, no extraordinary circumstances exist that require further environmental analysis, and it meets the requirements for application of a categorical exclusion. *See* 10 CFR 1021.410. Therefore, DOE determined that promulgation of this direct final rule is not a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA and does not require an environmental assessment or an environmental impact statement.

VI. Conclusion

In summary, based on the previous discussion, DOE has determined that the comments received in response to the direct final rule for new and amended energy conservation standards for electric motors do not provide a reasonable basis for

withdrawal of the direct final rule. As a result, the energy conservation standards set forth in the direct final rule became effective on September 29, 2023. Compliance with these standards is required on and after June 1, 2027.

Signing Authority

This document of the Department of Energy was signed on October 16, 2023, by Jeffrey Marootian, Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on October 16, 2023.

Jeffrey M. Marootian

Digitally signed by Jeffrey M. Marootian
Date: 2023.10.16 09:10:01 -04'00'

Jeffrey Marootian
Principal Deputy Assistant Secretary for
Energy Efficiency and Renewable Energy

Appendix

August 21, 2023

Ami Grace-Tardy
Assistant General Counsel for
Legislation, Regulation and Energy Efficiency
U.S. Department of Energy
Washington, DC 20585
Ami.Grace-Tardy@hq.doe.gov

Re: Energy Conservation Standards for Electric Motors, DOE Docket No. EERE-2020-BT-STD-0007

Dear Assistant General Counsel Grace-Tardy:

I am responding to your June 20, 2023 letter seeking the views of the Attorney General about the potential impact on competition of proposed energy conservation standards for electric motors.

Your request was submitted under Section 325(o)(2)(B)(i)(V) of the Energy Policy and Conservation Act, as amended (EPCA), 42 U.S.C. 6295(o)(2)(B)(i)(V), which requires the Attorney General to determine the impact of any lessening of competition likely to result from proposed energy conservation standards. The Attorney General's responsibility for responding to requests from other departments about the effect of a program on competition has been delegated to the Assistant Attorney General for the Antitrust Division in 28 CFR § 0.40(g). The Assistant Attorney General for the Antitrust Division has authorized me, as the Policy Director for the Antitrust Division, to provide the Antitrust Division's views regarding the potential impact on competition of proposed energy conservation standards on his behalf.

In conducting its analysis, the Antitrust Division examines whether a proposed standard may lessen competition, for example, by substantially limiting consumer choice, by placing certain manufacturers at an unjustified competitive disadvantage, or by inducing avoidable inefficiencies in production or distribution of particular products. A lessening of competition could result in higher prices to manufacturers and consumers.

We have reviewed the proposed standard contained in the Notice of Proposed Rulemaking and the related Technical Support Document. We have also reviewed public comments and information provided by industry participants.

Based on this review, our conclusion is that the proposed energy conservation standards for electric motors are unlikely to have a significant adverse impact on competition.

Sincerely,
/s/
David G.B. Lawrence Policy Director