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Part II

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10 CFR Part 431
Energy Conservation Program: Test Procedures for Electric Motors and Small Electric Motors; Final Rules

DEPARTMENT OF ENERGY

10 CFR Part 431

[Docket No. EERE–2008–BT–TP–0008]

RIN 1904–AC05

Energy Conservation Program: Test Procedures for Electric Motors and Small Electric Motors

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

ACTION: Final rule.

SUMMARY: On January 5, 2011, the U.S. Department of Energy (DOE) issued a supplemental notice of proposed rulemaking to amend the test procedures for electric motors and small electric motors. That supplemental proposal, along with an earlier proposal from December 22, 2008, form the basis for today's action to amend the current test procedures used to measure the energy efficiency of electric and small electric motors. These changes will be mandatory to demonstrate compliance with the current energy efficiency standards starting 180 days after publication. The final rule clarifies the scope of regulatory coverage for electric motors and ensures the accurate and consistent measurement of electric motor and small electric motor energy efficiency through changes to the current test procedures. These changes also clarify certain regulatory terms and language related to electric motors and small electric motors, clarify the scope of energy conservation standards for electric motors, update references to several industry and testing standards for electric motors, incorporate by reference and update alternative test methods that manufacturers may use when certifying polyphase and single-phase small electric motors as compliant, and specify the determination of efficiency requirements for small electric motors.

DATES: *Effective date:* June 4, 2012.

Compliance dates: The final rule changes will be required for equipment testing starting October 31, 2012. Representations either in writing or in any broadcast advertisement respecting energy consumption must also be made using the revised DOE test procedure starting on October 31, 2012. DOE is also establishing a compliance date for energy conservation standards for IEC 100 mm frame series electric motors (as well as motors built in a frame that is not necessarily a NEMA-equivalent but otherwise covered under EISA 2007) that is June 4, 2015. The incorporation by reference of certain publications listed in the rule was approved by the Director of the Federal Register on June 4, 2012.

ADDRESSES: The docket is available for review at *http://www.regulations.gov,* including **Federal Register** notices, framework documents, public meeting attendee lists and transcripts, comments, and other supporting documents/materials. Link to the docket by entering EERE–2008–BT–TP–0008 in the ''Search ID'' window. All documents in the docket are listed in the *http://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.

A link to the docket web page can be found at: *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/small_electric_motors.html* for small electric motors and *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/electric_motors.html* for electric motors. This web page will contain a link to the docket for this notice on the regulations.gov site.

For further information on how to review the docket, contact Ms. Brenda Edwards at (202) 586–2945 or by email: *Brenda.Edwards@ee.doe.gov.*

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SUPPLEMENTARY INFORMATION: This final rule incorporates by reference the following standards into part 431:

(1) CSA C390–10, Test methods, marking requirements, and energy efficiency levels for three-phase induction motors, March 2010.

(2) CSA C747–09, Energy efficiency test methods for small motors, October 2009.

(3) IEC Standard 60034–1, Rotating Electrical Machines, Part 1: Rating and Performance, Section 4: Duty, clause 4.2.1 and Figure 1, February 2010.

(4) IEC Standard 60034–12, Rotating Electrical Machines, Part 12: Starting Performance of Single-Speed Three-Phase Cage Induction Motors, clauses 5.2, 5.4, 6, and 8, and Tables 1, 2, 3, 4, 5, 6, and 7, September 2007.

(5) The following provisions of IEEE Standard 112–2004, Test Procedure for Polyphase Induction Motors and Generators, approved February 9, 2004:

(i) Section 6.3, Efficiency Test Method A, Input-Output; and

(ii) Section 6.4, Efficiency Test Method B, Input-Output with Loss Segregation.

(6) IEEE Standard 114–2010, Test Procedure for Single-Phase Induction Motors, approved September 30, 2010.

(7) The following provisions of NEMA Standards Publication MG1–2009, Motors and Generators, 2009:

(i) Section I, General Standards Applying to All Machines, Part 1, Referenced Standards and Definitions, paragraphs 1.18.1, 1.18.1.1, 1.19.1.1, 1.19.1.2, 1.19.1.3, and 1.40.1;

(ii) Section I, General Standards Applying to All Machines, Part 4, Dimensions, Tolerances, and Mounting, paragraphs 4.1, 4.2.1, 4.2.2, 4.4.1, 4.4.2, 4.4.4, 4.4.5, and 4.4.6, Figures 4–1, 4–2, 4–3, 4–4, and 4–5, and Table 4–2;

(iii) Section II, Small (Fractional) and Medium (Integral) Machines, Part 12, Tests and Performance—AC and DC Motors, paragraphs 12.35.1, 12.38.1, 12.38.2, 12.39.1, 12.39.2, and 12.40.1, 12.40.2, 12.58.1, and Tables 12–2, 12–3, and 12–10; and

(iv) Section II, Small (Fractional) and Medium (Integral) Machines, Part 14, Application Data—AC and DC Small and Medium Machines, paragraphs 14.2 and 14.3.

(8) The following provisions of NEMA Standards Publication MG1–1967, Motors and Generators, January 1968:

(i) Part 11, Dimensions; and

(ii) Part 13, Frame Assignments—A–C Integral-Horsepower Motors.

(9) NFPA Standard 20–2010, Standard for the Installation of Stationary Pumps for Fire Protection, section 9.5, approved August 26, 2009.

Copies of the CSA standards are available from the Canadian Standards Association, Sales Department, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, L4W 5N6, Canada, 1–800–463–6727, or go to *http://www.shopcsa.ca/onlinestore/welcome.asp.*

Copies of the IEC standards are available from the International Electrotechnical Commission Central Office, 3, rue de Varembé, P.O. Box 131, CH–1211 GENEVA 20, Switzerland, +41 22 919 02 11, or go to *http://webstore.iec.ch.*

Copies of the IEEE standards are available from the Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855–1331, 1–800–678–IEEE (4333), or *http://www.ieee.org/web/publications/home/index.html.*

Copies of the NEMA standard are available from the National Electrical Manufacturers Association, 1300 North

17th Street, Suite 1752, Rosslyn, Virginia 22209, 703–841–3200, or go to *http://www.nema.org/.*

Copies of the NFPA standard are available from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169–7471, 617–770–3000, or go to *http://nfpa.org/.*

Table of Contents

I. Authority and Background

Title III of the Energy Policy and Conservation Act (42 U.S.C. 6291, *et seq.;* ''EPCA'' or, ''the Act'') sets forth a variety of provisions designed to improve appliance and commercial equipment energy efficiency. (All references to EPCA refer to the statute as amended through the Energy Independence and Security Act of 2007 (EISA 2007), Public Law 110–140 (December 19, 2007)). Part C of Title III (42 U.S.C. 6311–6317), which was subsequently redesignated as Part A–1 for editorial reasons, establishes an energy conservation program for certain industrial equipment, which includes electric motors and small electric motors, the subject of today's notice. (42 U.S.C. 6311(1)(A), 6313(b))

Under EPCA, this program consists essentially of three parts: (1) Testing, (2) labeling, and (3) Federal energy conservation standards (referred to herein as ''energy conservation standards,'' ''energy efficiency levels,'' or ''energy efficiency standards''). The testing requirements consist of test procedures that manufacturers of covered products or equipment must use as the basis for certifying to DOE that their products or equipment comply with the applicable energy conservation standards adopted under EPCA and for making representations about the efficiency of those products or equipment. Similarly, DOE must use these test requirements to determine whether the products or equipment comply with any relevant standards promulgated under EPCA.

In the Energy Policy Act of 1992 (EPACT 1992), Public Law 102–486 (October 24, 1992), Congress amended EPCA to establish: (1) Energy conservation standards, (2) test procedures, (3) compliance certification, and (4) labeling requirements for certain electric motors.[1] In addition, EPACT 1992 directed the Secretary of Energy to determine whether energy conservation standards for small electric motors would be technologically feasible and economically justified, and would result in significant energy savings.[2] On October 5, 1999, DOE issued a final rule setting forth procedures to determine the energy efficiency of electric motors. 64 FR 54114. After determining that energy conservation standards for small electric motors would be technologically feasible and economically justified, see 71 FR 38799 (July 10, 2006), DOE initiated a rulemaking to begin the development of standards for small electric motors.[3] Related to these efforts was DOE's publication of a final rule prescribing test procedures for small electric motors. 74 FR 32059 (July 7, 2009). That rule followed from an earlier December 2008 proposal to amend test procedures for electric and small electric motors. See 73 FR 78220 (December 22, 2008). DOE finalized key provisions related to small electric motor testing in the July 2009 final rule, but opted to solicit further comment on certain issues from the December 2008 proposal. To this end, DOE issued a supplemental notice of proposed rulemaking, which also raised other related issues. 76 FR 648 (January 5, 2011) Today's final rule addresses these remaining issues.

1. Electric Motors

EPCA, through EPACT 1992, initially required that DOE adopt the then-current test procedures prescribed by the National Electrical Manufacturers Association (NEMA) in its MG1–1987 publication and those procedures contained in IEEE Standard 112 (Test Method B) when determining an electric motor's efficiency. (42 U.S.C. 6314(a)(5)(A)) MG1 is a voluntary industry standards publication produced by NEMA that facilitates communication between manufacturers and users about the selection and application of electric motors and generators. MG1 provides practical information to electric motor manufacturers and users concerning the construction, testing, performance, and safety of alternating current (AC) and direct current (DC) motors and generators. IEEE Standard 112 (Test Method B) is an industry-accepted test method that outlines the methods and

[1] EPCA, as amended by EPACT 1992, had previously defined an ''electric motor'' as any motor which is a general purpose T-frame, single-speed, foot-mounting, polyphase squirrel-cage induction motor of the National Electrical Manufacturers Association, Design A and B, continuous rated, operating on 230/460 volts and constant 60 Hertz line power as defined in NEMA Standards Publication MG1–1987. (42 U.S.C. 6311(13)(A) (1992)) Through subsequent amendments to EPCA, Congress removed this definition and replaced it with the heading ''Electric motors'' and added language denoting two new subtypes of electric motors: general purpose electric motor (subtype I) and general purpose electric motor (subtype II). (See 42 U.S.C. 6311(13)(A)–(B) (2010))

[2] EPCA, as amended by EPACT 1992, defines the term ''small electric motor'' to mean a NEMA general purpose alternating current single-speed induction motor, built in a two-digit frame number series in accordance with NEMA Standards Publication MG1–1987. (42 U.S.C. 6311(13)(G))

[3] A single-phase small electric motor is a rotating electrical machine that operates on single-phase electrical power, which refers to a single alternating voltage sinusoidal waveform. Similarly, a polyphase small electric motor is a rotating electrical machine that operates on three-phase electrical power, which refers to the sinusoidal waveforms of three supply conductors that are offset from one another by 120 degrees. Small electric motors are generally used as components to drive commercial and industrial pumps, fans, conveyors, and other equipment that require low power. 73 FR 78220, 78221 n.2 (December 22, 2008).

calculations that manufacturers should use to determine their electric motors' full-load efficiencies. EPCA required DOE to conform its procedures to any amendments to these protocols unless the Secretary determines, by rule, that the amended procedures are not reasonably designed to produce results that reflect energy efficiency, energy use, and estimated operating costs, and would be unduly burdensome to conduct. (42 U.S.C. 6314(a)(5)(B)) Consistent with this requirement, DOE has amended its regulations to incorporate more recent versions of these procedures.

In addition, DOE incorporated Canadian Standards Association (CSA) C390–93, ''Energy Efficiency Test Methods for Three-Phase Induction Motors'' into the October 5, 1999, final rule as a widely recognized alternative that is consistent with IEEE Standard 112 (Test Method B). 64 FR 54114 (October 5, 1999).[4] In light of changes to the CSA test procedure, DOE reexamined and updated its test procedures consistent with its practice of ensuring that the latest industry practices (and related equivalent procedures) are incorporated into DOE's regulations.

The testing protocols considered by DOE have all been updated—MG1 on April 9, 2010, IEEE Standard 112 (Test Method B) on February 9, 2004, and CSA C390 on March 22, 2010 (''Test methods, marking requirements, and energy efficiency levels for three-phase induction motors''). Consistent with its obligations under EPCA, DOE had proposed to incorporate the most current versions of the IEEE and NEMA protocols into its regulations. 73 FR 78220 (December 22, 2008).

2. Small Electric Motors

Among its many requirements, EPCA requires DOE to prescribe test procedures for those small electric motors for which the Secretary of Energy makes a positive determination that energy conservation standards would be technologically feasible and economically justified, and would result in significant energy savings. (42 U.S.C. 6317(b)(1)) Consistent with this requirement, DOE indicated it would initiate the development of test procedures for certain small electric motors. 71 FR 38807 (July 10, 2006).

DOE proposed possible test methods for measuring the energy efficiency of both small electric motors and electric motors in the December 2008 notice of proposed rulemaking (NOPR). 73 FR 78220. For small electric motors, DOE proposed to base its test procedure on IEEE Standard 114–2001, ''Test Procedure for Single-Phase Induction Motors,'' IEEE Standard 112–2004, ''Test Procedure for Polyphase Induction Motors and Generators,'' and CSA C747–94, ''Energy Efficiency Test Methods for Single- and Three-Phase Small Motors.'' [5] DOE proposed these three procedures based in part on their wide use and acceptance by small electric motor manufacturers.

On July 7, 2009, DOE published a final rule adopting test procedures for measuring the energy efficiency of small electric motors. 74 FR 32059. However, certain subsidiary issues raised in response to the December 2008 NOPR required additional consideration by DOE. These issues are addressed in today's final rule.

3. Supplemental Notice of Proposed Rulemaking

In January 2011, DOE published a supplemental notice of proposed rulemaking (SNOPR) that attempted to address a variety of issues related to the test procedures for electric motors and small electric motors. 76 FR 648. Among these issues included those items that remained unresolved from the July 2009 test procedure final rule, along with other issues raised in the interim since that rule's publication.

For electric motors, the SNOPR proposed to clarify certain terms and language in the DOE regulations. Specifically, DOE proposed to revise the definitions of certain terms related to electric motors, clarify the scope of energy conservation standards for electric motors, and update references to several industry and testing standards for electric motors. These proposals were made in an effort to help clarify the scope of regulatory coverage for electric motors and ensure the accurate and consistent measurement of energy efficiency.

For small electric motors, the SNOPR proposed to revise the definitions of certain terms, incorporate by reference and update alternative test methods for polyphase and single-phase small electric motors, and specify the determination of efficiency requirements. As with electric motors, DOE made these proposals to ensure the accurate and consistent measurement of energy efficiency.

For both motor types, the January 2011 SNOPR invited comments on the issues presented and requested comments, data, and other information that would enable DOE to promulgate a final rule. In response, DOE received comments addressing its supplemental notice. Today's notice addresses these issues.

4. General Test Procedure Rulemaking Process

EPCA, through 42 U.S.C. 6314, sets forth the criteria and procedures DOE must generally follow when prescribing or amending test procedures for commercial or industrial equipment. That provision generally requires that a test procedure that is either prescribed or amended shall be reasonably designed to produce test results which measure energy efficiency, energy use, and the estimated annual operating cost of a type of covered equipment during a representative average use cycle or period of use. (42 U.S.C. 6314(a)(2)) In instances where the test procedure is one that determines annual operating costs, the costs must be calculated from energy use measurements taken during a representative average use cycle and from the average unit costs of the energy needed to operate such equipment. (See 42 U.S.C. 6314(a)(3))

When amending a test procedure, DOE must determine the extent to which a proposed procedure will alter the measured energy efficiency of a given type of covered equipment when compared to the current procedure. (See 42 U.S.C. 6314(a)(5)(C) (incorporating the procedural steps of 42 U.S.C. 6293(e) for electric motors)) As described later in this notice, DOE compared IEEE Standard 112–1996 (Test Method B) and CSA C390–93 with IEEE Standard 112–2004 (Test Method B) and CSA C390–10, respectively, and determined that there were no substantive differences that would alter the measured efficiency of the covered motors.

II. Summary of the Final Rule

Today's final rule, which is based on feedback received in response to the December 2008 and January 2011 notices, amends the current DOE test procedures and definitions for electric motors and small electric motors. These changes will not affect the measured efficiency of this equipment. Instead, these changes will primarily clarify certain terms, language and the scope of energy conservation standards for electric motors. They will also minimize any potential ambiguity contained in the test procedures for electric motors and small electric motors.

[4] See also MG1–1993 with Revision 1, section MG1–12.58.1, which states: ''Efficiency and losses shall be determined in accordance with IEEE Std 112 or Canadian Standards Association Standard C390.''

[5] The IEEE Standards addressed in this notice are generally listed chronologically by their last date of revision and adoption rather than their sequential number.

Electric Motors

Today's rule makes four changes with respect to electric motors. First, it clarifies the definitions for ''electric motor,'' ''fire pump motor,'' ''general purpose electric motor (subtype I),'' ''general purpose electric motor (subtype II),'' and ''NEMA Design B motor.'' Each of these terms was either added or modified by EISA 2007. Additionally, the rule clarifies that the term ''general purpose electric motor'' denotes a ''general purpose motor'' to ensure the use of consistent terminology in DOE's regulations. These revisions, in addition to addressing the specific comments raised by interested parties, will help ensure that the test procedures are applied appropriately.

Second, today's final rule clarifies the scope of existing energy conservation standards for electric motors (10 CFR 431.25).

Third, the rule updates the references to (1) NIST Handbook 150–10, ''Efficiency of Electric Motors,'' and the associated NIST Handbook 150–10 checklist, (2) IEC standards documents, (3) CSA C390, (4) CSA C747, (5) NEMA MG1, and (6) IEEE Standard 112 throughout subpart B of 10 CFR part 431.

Finally, today's rule removes the guidance from appendix A to subpart B, of 10 CFR part 431. That guidance, which will be updated to maintain consistency with the more recent amendments made by EISA 2007, will be posted on DOE's Web site as a vehicle for DOE to periodically update its interpretive guidance with respect to the treatment of certain aspects related to electric motors. Separating this guidance and placing it on the agency's public Web site will enable DOE to periodically update this guidance more expeditiously in response to public feedback and changing conditions in the industry. The updates may also serve as the basis for future rulemaking amendments as required.

Small Electric Motors

Today's final rule addresses two related matters that clarify the codified definition of ''small electric motor'' and should alleviate any potential undue testing burden related to small electric motors. These changes will help clarify aspects of the July 2009 final rule for small electric motors.

First, the rule clarifies the terms ''represented efficiency value'' and ''average full-load efficiency'' for small electric motors.

Second, the rule adds CSA C747–09 and CSA C390–10 as alternative test procedures that manufacturers may use for measuring the energy efficiency of polyphase small electric motors. After receiving comments and data from multiple interested parties, DOE found that both test methods are equivalent to IEEE Standard 112 Test Methods A and B, respectively, which were adopted in the July 2009 final rule. DOE is also updating its current CSA C747 references to account for the latest version of that protocol.

Finally, although DOE had contemplated in the SNOPR providing a method to validate an alternative efficiency determination method (AEDM) for small electric motors, including the statistical requirements needed to substantiate the AEDM, it has elected to address these requirements in a separate rulemaking currently under development. To this end, DOE has initiated a separate rulemaking effort to address the AEDM requirements for all products and equipment for which DOE has test procedures, including motors.

The revisions are summarized in the table below and addressed in detail in the following section. Note that all citations to 10 CFR part 431 in today's notice refer to the current version of 10 CFR part 431. The corresponding revisions to the regulatory text follow the preamble to this final rule.

TABLE II.1—SUMMARY OF CHANGES PROMULGATED IN THIS FINAL RULE AND AFFECTED SECTIONS OF 10 CFR PART 431

Section in 10 CFR Part 431	Summary of modifications
Section 431.11 of Subpart B—Purpose and Scope	• Clarifies that subpart B is applicable to ''electric motors,'' but not ''small electric motors.''
Section 431.12 of Subpart B—Definitions	• Revises the definitions of ''accreditation,'' ''definite purpose motor,'' ''general purpose electric motor (subtype I),'' ''general purpose electric motor (subtype II),'' and ''nominal full-load efficiency.'' • Adds new definitions for ''electric motor,'' ''fire pump motor,'' ''general purpose electric motor,'' and ''NEMA Design B motor.'' • Removes definition of ''general purpose motor.''
Section 431.14 of Subpart B—Sources for information and guidance	• Moves the list of references from 431.15 into a new section.
Section 431.15 of Subpart B—Materials incorporated by reference	• Updates reference to CSA–C390. • Updates references to IEC standards. • Updates reference to IEEE Standard 112. • Updates reference to NEMA MG1.
Section 431.18 of Subpart B—Testing Laboratories	• Updates reference to NIST Handbook 150–10.
Section 431.19 of Subpart B—Department of Energy recognition of accreditation bodies.	• Updates references to IEEE Standard 112 and CSA C390.
Section 431.20 of Subpart B—Department of Energy recognition of nationally recognized certification programs.	• Updates references to IEEE Standard 112 and CSA C390 for electric motors.
Section 431.25 of Subpart B—Energy conservation standards and effective dates.	• Removes the existing 431.25(a). • Clarifies the scope of efficiency standards in 431.25(a) through (d). • Inserts kilowatt equivalent power ratings in the efficiency standard tables.
Section 431.31 of Subpart B—Labeling Requirements	• Updates reference to NEMA MG1.
Appendix A to Subpart B—Policy Statement for Electric Motors Covered Under the Energy Policy and Conservation Act.	• Removes appendix A to subpart B; guidance will be posted on the DOE Appliance Standards Program website.
Appendix B to Subpart B—Uniform Test Method for Measuring Nominal Full-Load Efficiency of Electric Motors.	• Updates references to NEMA MG1, IEEE Standard 112, and CSA C390.
Section 431.441 of Subpart X—Purpose and Scope	• Clarifies that subpart X is applicable to ''small electric motors,'' but not ''electric motors.''
Section 431.443 of Subpart X—Materials incorporated by reference	• Updates reference to CSA C747. • Adds reference to CSA C390. • Updates references to IEEE Standard 112 and 114.

TABLE II.1—SUMMARY OF CHANGES PROMULGATED IN THIS FINAL RULE AND AFFECTED SECTIONS OF 10 CFR PART 431—Continued

Section in 10 CFR Part 431	Summary of modifications
Section 431.444 of Subpart X—Test procedures for measurement of energy efficiency.	• Updates reference to CSA C747. • Adds reference to CSA C390. • Updates reference to IEEE Standard 114.
Section 431.445 of Subpart X—Determination of small electric motor efficiency.	• Adds additional guidelines on use of a certification program and references section 431.447 for small electric motors. • Clarifies the term ''represented average full-load efficiency'' and renames as ''required average full-load efficiency''.
Section 431.447 of Subpart X—Department of Energy recognition of nationally recognized certification programs.	• Adds a section on nationally recognized certification programs for small electric motors similar to section 431.20 for electric motors.
Section 431.448 of Subpart X—Procedures for recognition and withdrawal of recognition of certification programs.	• Adds a section on procedures for recognition of certification programs for small electric motors similar to section 431.21 for electric motors.

As noted earlier, DOE developed today's rule after considering input, including written comments, from a variety of interested parties that represent a variety of interests. All commenters, their corresponding abbreviations and type are listed in Table II.2 below. The issues raised by these commenters are addressed in the various discussions that follow.

TABLE II.2—SUMMARY OF SNOPR COMMENTERS

Company	Abbreviation	Interested party type
Baldor Electric Co	Baldor	Manufacturer.
WEG Electric	WEG	Manufacturer.
Advanced Energy	Advanced Energy	Independent Test Laboratory.
National Electrical Manufacturers Association	NEMA	Trade Association.
Northwest Energy Efficiency Alliance	NEEA	Efficiency/Environmental Advocate.
Grundfos Pumps Co	Grundfos	Manufacturer.
Habasit America, Rossi Gearmotor Division	Rossi	Manufacturer.
GEA Mechanical Eq. US, Inc	GEA	Manufacturer.
Northwest Energy Efficiency Alliance, Appliance Standards Awareness Project, American Council for an Energy Efficient Economy, Earthjustice, Natural Resources Defense Council, Alliance to Save Energy.	NEEA, et al	Efficiency/Environmental Advocate Group.
National Electrical Manufacturers Association and the American Council for an Energy Efficient Economy.	NEMA and ACEEE	Trade Groups.

III. Discussion

A. Definition of Electric Motor

Before the enactment of EISA 2007, EPCA defined the term ''electric motor'' as any motor that is a general purpose T-frame, single-speed, foot-mounting, polyphase squirrel-cage induction motor of the National Electrical Manufacturers Association, Design A and B, continuous rated, operating on 230/460 volts and constant 60 Hertz line power as defined in NEMA Standards Publication MG1–1987. (See 42 U.S.C. 6311(13)(A) (2006)) Section 313(a)(2) of EISA 2007 removed that definition, inserted a new ''Electric motors'' heading, and created two new subtypes of electric motors: General purpose electric motor (subtype I) and general purpose electric motor (subtype II). (42 U.S.C. 6311(13)(A)–(B)(2011)) In addition, section 313(b)(2) of EISA 2007 established energy conservation standards for four types of electric motors: general purpose electric motors (subtype I) (i.e., subtype I motors) with a power rating of 1 to 200 horsepower; fire pump motors; general purpose electric motor (subtype II) (i.e., subtype II motors) with a power rating of 1 to 200 horsepower; and NEMA Design B, general purpose electric motors with a power rating of more than 200 horsepower, but less than or equal to 500 horsepower. (42 U.S.C. 6313(b)(2)) These standards were set out in statutory provisions that referenced specific tables from the 2006 version of NEMA MG1. All of these standards apply to covered motors that are manufactured alone or as a component of another piece of equipment. The term ''electric motor'' (which frequently appears throughout EPCA, as amended by EISA 2007, and various subparts of 10 CFR part 431) was left undefined. Consequently, DOE noted that the absence of a definition may cause confusion about which electric motors are required to comply with mandatory test procedures and energy conservation standards. 73 FR 78225.

In the December 2008 NOPR, DOE proposed to clarify the EISA 2007 term ''electric motor'' to mean any of the following four types of motors: a subtype I motor, a fire pump motor, a subtype II motor, or a NEMA Design B general purpose electric motor. 73 FR 78225 and 78235. In DOE's view, applying the term ''electric motor'' in this manner would clarify that the test procedures prescribed for electric motors would also apply to each of the four types of motors. 73 FR 78225. In the January 2011 SNOPR, DOE revisited this issue and proposed to broadly define ''electric motor'' to mean ''a machine which converts electrical power into rotational mechanical power.'' 76 FR 651.

In a comment submitted jointly with other interested parties, the Northwest Energy Efficiency Alliance (NEEA) responded to the SNOPR and asserted that DOE could create either a broad, high-level definition of electric motor that is carefully broken down into various subtypes of electric motors, or a narrow definition exclusive to these electric motors that are currently subject to standards. Ultimately, NEEA agreed with the approach proposed by DOE to

broadly define an electric motor. NEEA believed that this approach would minimize confusion by providing stability to the ''electric motor'' definition. It added that DOE's proposed approach could provide the foundation for extending standards to other electric motors not currently covered by DOE regulations. Further, they noted that using a narrower definition would have the disadvantage of requiring DOE to redefine the term ''electric motor'' each time the scope of energy conservation standards for electric motors changes. (NEEA, et al., No. 24 at p. 2) [6]

Separately, a joint comment from NEMA and ACEEE supported DOE's intent to modify the definition for ''electric motors'' to include a common definition of the term. However, NEMA and ACEEE added that the proposed definition was too broad, stating that such a definition would make all references to ''electric motor'' in subparts B and U of 10 CFR part 431 apply to all possible types of motors, including direct current, single-phase, variable speed, and multi-speed motors. In their view, the proposal would eliminate qualifiers that are necessary to narrow the definition to include only motors for which energy efficiency standards are prescribed. Commenters also asserted that such a change would alter the ''covered equipment'' provision at 10 CFR 431.12 to include a set of motors for which no energy conservation standards are prescribed. NEMA and ACEEE suggested the following definition as an alternative for DOE to consider: ''Electric motor means a machine that converts electrical power into rotational mechanical power and is configured as a general purpose electric motor (subtype I) or general purpose electric motor (subtype II).''

Further, NEMA and ACEEE recommended that if DOE believes that fire pump motors require a classification separate from general purpose electric motors (subtype I and II), then the definition should be changed to, ''electric motor means a machine that converts electrical power into rotational mechanical power and is configured as a general purpose electric motor (subtype I) or general purpose electric motor (subtype II), including, but not limited to, fire pump electric motors.'' (NEMA and ACEEE, No. 25 at pp. 3 and 4)

Although Congress retained the term ''electric motors'' as part of EPCA, it removed the definition that had previously been in place. In its place, Congress added two new electric motor subtypes—general purpose electric motor (subtype I) and general purpose electric motor (subtype II). (See 42 U.S.C. 6311(13)) As NEMA and ACEEE observed in its comments to the recent framework document for electric motors, the removal of this definition also removed the prior limits that narrowly defined what types of motors would be considered as electric motors. These commenters asserted that DOE already has the statutory authority to regulate definite and special purpose motors. (ASAP and NEMA, No. 12.1 [7] at p. 1)

DOE believes that a definition for ''electric motor'' is necessary and today's rule retains the broader approach proposed in the SNOPR. The definition that DOE is adopting should be sufficiently broad to encompass all electric motor subtypes. At this time, while the definition covers a large set of motors, only those for which energy conservation standards have been set are currently regulated equipment—i.e., subtype I and II motors, fire pump motors that are subtype I or II motors, and Design B motors that are subtype I or II motors. This approach allows DOE to fill the definitional gap created by the EISA 2007 amendments while providing DOE with the flexibility to set energy conservation standards for other types of electric motors without having to continuously update the definition of ''electric motors'' each time DOE sets energy conservation standards for a new subset of electric motors. Accordingly, DOE is declining to adopt the approach suggested by NEMA and ACEEE.

B. Definition of General Purpose Electric Motors Subtypes I and II

Before the enactment of EISA 2007, EPCA defined a general purpose electric motor (subtype I) as a motor that meets the definition of ''general purpose'' that was in effect in DOE's regulations at the time of EISA 2007's enactment. (See 42 U.S.C. 6311(13)(A)(2006)) At that time, 10 CFR part 431 did not contain a definition of ''general purpose,'' but instead defined the term ''general purpose motor.'' That term was defined to refer to a motor designed in standard ratings with either:

(1) Standard operating characteristics and standard mechanical construction for use under usual service conditions, such as those specified in NEMA Standards Publication MG1–1993, paragraph 14.02, ''Usual Service Conditions,'' and without restriction to a particular application or type of application; or

(2) Standard operating characteristics or standard mechanical construction for use under unusual service conditions, such as those specified in NEMA Standards Publication MG1–1993, paragraph 14.03, ''Unusual Service conditions,'' or for a particular type of application, and which can be used in most general purpose applications. See 64 FR 54142 (codified at 10 CFR 431.12).

Consistent with the EISA 2007 amendments, DOE subsequently adopted this definition of ''general purpose motor'' as the definition of ''general purpose electric motor (subtype I).'' 74 FR 12058, 12071 (March 23, 2009) (codified at 10 CFR 431.12). DOE did not propose any changes to this definition in its December 2008 proposal. 73 FR 78220.

DOE also adopted a definition for ''general purpose electric motor (subtype II).'' 74 FR 12071 (codified at 10 CFR 431.12). This definition mirrored the statute, which defined this type of motor as one that incorporates the design elements of a subtype I motor but is configured as one of the following:

(i) A U-frame motor;

(ii) A Design C motor;

(iii) A close-coupled pump motor;

(iv) A footless motor;

(v) A vertical solid shaft normal thrust motor (as tested in a horizontal configuration);

(vi) An 8-pole motor (900 rpm); or

(vii) A polyphase motor with voltage of not more than 600 volts (other than 230 or 460 volts).

(See 42 U.S.C. 6311(13)(B))

Responding to comments received in response to the December 2008 NOPR, DOE proposed in the January 2011 SNOPR to clarify the definition for a subtype I motor. Particularly, DOE proposed adding parentheticals referring to either MG1 or IEC to denote those terms that were used by those protocols with respect to certain motors or motor characteristics. See 76 FR 652.

In the regulatory text following the proposed definition, DOE added a note to clarify that the descriptive elements in this definition followed by the parenthetical ''MG1'' must be construed

[6] Notations of this form appear throughout this document and identify statements made in written comments or at public hearings that DOE has received and has included in the docket for this rulemaking. For example, ''NEEA, et al., No. 24 at p. 2'' refers to: (1) A comment from advocates referred to collectively as the Northwest Energy Efficiency Alliance, et al.; (2) in document number 24 in the docket of this rulemaking; and (3) appearing on page 2 of the submission.

[7] This comment comes from the docket EERE–2010–BT–STD–0027 for electric motors standards and was jointly submitted on behalf of ACEEE, ASE, Advanced Energy, Earthjustice, NRDC, the Northeast Energy Efficiency Partnerships, and NEEA by NEMA and ASAP.

with reference to provisions in NEMA Standards Publication MG1–2009 and elements followed by the parenthetical ''IEC'' must be construed with reference to the International Electrotechnical Commission Standards. The note also stated that 10 CFR part 431, subpart B applies even if the NEMA or IEC-equivalent frame size or design element has been discontinued or is discontinued in the future. 76 FR 655, 665. DOE had intended for the note to help ensure that manufacturers apply the various technical characteristics included as part of the definition in a consistent and appropriate manner (examples of these types of characteristics include performance characteristics of NEMA Design A or IEC Design N motors). A similar note was also proposed for inclusion to follow the definition of a subtype II motor.

In distinguishing between subtype I and subtype II motors, DOE looks to whether the motor is configured to have one or more of the design or performance elements listed in the definition of subtype II motors at 42 U.S.C. 6311(13)(B). For example, a subtype I motor could be built in accordance with NEMA T-frame dimensions and could have the performance characteristics of a NEMA Design A motor. In contrast, a motor built with all of these same design elements but with the performance characteristics of a NEMA Design C motor would be a subtype II motor. To clarify this interpretation of the subtype II motor statutory definition, DOE proposed to modify the introductory text of the subtype II definition to read, ''means any general purpose electric motor that incorporates design elements of a general purpose electric motor (subtype I) but, unlike a general purpose electric motor (subtype I), is configured in one or more of the following ways.'' A list of the seven different characteristics added by EISA 2007 then followed. And consistent with the subtype I definition, DOE proposed to add references to MG1 and IEC standards in the subtype II definition to clarify the terms ''U-frame,'' ''NEMA Design C,'' and ''vertical solid shaft normal thrust motor.'' 76 FR 653.

The SNOPR also proposed to include a note as part of the definitions of ''general purpose electric motor (subtype I)'' and ''general purpose electric motor (subtype II)'' to indicate that electric motors that are built according to IEC standards but that otherwise meet the proposed definition of a subtype I or II motor, would be considered covered motors under EPCA, as amended by EISA 2007, even if the NEMA-equivalent frame size had already been discontinued. 76 FR 665. DOE explained that it proposed to add this note to address situations such as the one presented by IEC 100 millimeter (mm) frame sized motors, which DOE had previously indicated were not covered in large part because of the limitations imposed by the prior statutory definition of ''electric motor.'' *See* 76 FR 653 (explaining DOE's tentative determination that IEC 100 mm frame-sized motors were not covered under the previous statutory definition then in place for electric motors). DOE understands that these motors can be used in many of the same applications where other covered electric motors are used, such as fans, pumps, conveyors, machine tools, and gear reducers.

With respect to IEC 100 mm frame-sized motors that fall into the subtype I or II categories, DOE notes that under the previous statutory definition of ''electric motor,'' an electric motor was a motor that possessed certain characteristics. That statutory definition also referenced MG1–1987, an industry-developed guidance document. The inclusion of that reference to MG1–1987 suggested its significance with respect to whether a given motor would be considered an ''electric motor'' as defined under the statute. MG1–1987 omitted any specifications related to motors equivalent to an IEC 100 mm motor.

Meanwhile, NEMA and electric motor manufacturers had submitted information to DOE indicating that a motor that was equivalent to the IEC 100 mm motors—the 160-series T-frame motor—had already been discontinued by motor manufacturers. As a result of this information, coupled with the fact that the relevant industry guidance (MG1–1987) referenced in the prior statutory definition for ''electric motor'' no longer included any technical specifications related to the 160-series T-frame motor, DOE concluded that IEC 100 mm motors were not considered covered ''electric motors'' for purposes of statutory coverage. Therefore, DOE tentatively decided not to treat IEC 100 mm frame size motors as covered electric motors. 61 FR 60440, 60443 (November 27, 1996).

Upon reconsideration and in light of the EISA 2007 amendments to EPCA, which eliminated the previous and more limiting ''electric motor'' definition, DOE proposed as part of the January SNOPR to include both NEMA and IEC frame size motors as covered motors, regardless of whether the equivalent NEMA or IEC frame size had been discontinued. 76 FR 653.

NEEA viewed DOE's proposals for the definitions of ''general purpose electric motor (subtype I)'' and ''general purpose electric motor (subtype II)'' as reasonable. (NEEA, et al., No. 24 at p. 2) Other commenters focused on the proposed inclusion of the note to these definitions and made suggestions on how to characterize U-frame motors. NEMA and ACEEE supported DOE's proposal to include the IEC 100 mm frame size as covered equipment, but otherwise asserted that DOE failed to achieve this goal by the addition of its proposed ''note'' to the subtype I and II definitions. They explained that there were never alternating current motors in the NEMA 160T frame size and, therefore, no NEMA-equivalent to the IEC 100 mm frame size. For this reason, in their view, the added text included in the SNOPR to address the IEC 100 mm frame motor, which generally refers to frame sizes that have already been discontinued, would not cover IEC 100 mm frame motors. Also, NEMA stated that it is unaware of any discontinued T-frame sizes and expressed concern about using a ''note'' in the definitions section because, in the motor industry, a ''note'' to a standard is not viewed as part of the standard itself. (NEMA and ACEEE, No. 25 at pp. 4, 5)

As to the proposed definition for ''general purpose electric motor (subtype II)'' and how it relates to U-frame motors, NEMA and ACEEE also pointed out that the NEMA U-frame was discontinued as a standard frame size when the NEMA T-frame became the standard frame size. NEMA and ACEEE stated that despite the U-frame being directly referenced in the configurations for subtype II motors, the proposed note in the subtype I motor definition would, in their view, imply that motors constructed in a discontinued NEMA U-frame size would be considered a ''general purpose electric motor (subtype I).'' (NEMA and ACEEE, No. 25 at p. 6)

Responding to these comments, DOE has modified its approach. For the subtype I and II definitions, DOE removed the portion of the proposed note regarding discontinued frame sizes. Instead, DOE is adding language to the subtype I and II definitions to include frame sizes that are between two consecutive NEMA frame sizes or their IEC metric equivalents. This language extends coverage to those motors built in accordance with an IEC 100 mm frame. DOE notes that the modification to the subtype I ''note'' also addresses NEMA and ACEEE's concerns regarding U-frame motors and the potential confusion related to them in the context of the subtype I definition.

NEMA and ACEEE also stated that DOE's reference to MG1–2009 in the proposed definition of ''general purpose electric motor (subtype II)'' is incorrect, as dimensions for U-frame motors were not included in MG1–2009. Instead, they suggested that a more appropriate reference for DOE to use is a 1967 edition of a NEMA document entitled, ''NEMA Motor Standards,'' which, according to these commenters, later became known as a ''Condensed MG1.'' (NEMA and ACEEE, No. 25 at p. 6) DOE understands that the industry transitioned from the U-frame motor design to the T-frame motor design after publication of the 1967 edition of ''NEMA Motor Standards'' and that this industry standards document was the last to contain dimensional specifications for U-frame designs. Today's final rule accounts for this situation by adding language referencing NEMA MG1–1967 as part of the subtype II definition in 10 CFR 431.12. Specifically, the amended definition explicitly indicates that those motors built in accordance with the NEMA U-frame dimensions as described in that 1967 document will be treated as subtype II motors.

Additionally, interested parties expressed concern about when manufacturers of IEC 100 mm frame motors would need to comply with the appropriate energy efficiency standards. Given that DOE had previously decided that these motors were not covered, NEMA and ACEEE argued that requiring IEC 100 mm frame motors to comply with standards immediately could have ''serious repercussions on manufacturers and motor users where significant changes in the motor design and size may be required to achieve a sudden increase in efficiency of several NEMA nominal efficiency bands.'' (NEMA and ACEEE, No. 25 at pp. 5–6). Both requested that DOE establish a compliance date that is not less than three years after these motors become covered under 10 CFR 431.12 and that the required efficiency level be equivalent to that for a subtype II motor. Both also cited precedents under EPCA, noting specifically that amendments added by Congress through EPACT 1992 provided 60 months for compliance (42 U.S.C. 6313(b)(1)) and that the EISA 2007 amendments provided three years for compliance (42 U.S.C. 6313(b)) (NEMA and ACEEE, No. 25 at pp. 5–6)

In addition, Grundfos Pumps Co. expressed concern over the timing of enforcing standards for the IEC 100 mm frame size. Grundfos believed that a short grace period or no grace period will harm only foreign manufacturers. It requested a grace period of at least 12 months to minimize these effects. (Grundfos, No. 21 at p. 1).

DOE understands the concerns of motor manufacturers and realizes that a change from DOE's previous views regarding the coverage of these motors could have significant manufacturing redesign and financial impacts on manufacturers and users of such motors. DOE seeks to ensure that these motors satisfy the relevant efficiency standards as expeditiously as possible. Therefore, to mitigate the effects of this transition and to ensure that manufacturers have sufficient time to adjust to this change and certify compliance, DOE is allowing three years from the effective date of today's notice for IEC 100 mm frame series motors (as well as motors built in a frame that is not necessarily a NEMA-equivalent but otherwise covered under EISA 2007) to meet the EISA 2007 standards. The three-year timeline is consistent with the deadline recommended by NEMA and ACEEE and reflects the three years that manufacturers had to comply with energy conservation standards established in EISA 2007. The three-year compliance date also recognizes the change in DOE's previous views regarding 100 mm frame-sized motors. When standards for these 100 mm motors (as well as all other motors built in a frame that is not a direct NEMA-equivalent but is otherwise covered under EISA 2007) become effective, only those motors that also meet the subtype I or II definitions will be subject to the subtype I or subtype II standards, respectively.

Finally, DOE also received comments regarding voltage ratings as it pertains to subtype II motors. NEMA and ACEEE commented that DOE should clarify which voltages apply to this definition by making the language consistent with the subtype I definition. They suggested restating item (vii) of the definition to read ''is a polyphase motor with voltage of not more than 600 volts (other than 230 or 460 volts or *useable on 230 or 460 volts*).'' (NEMA and ACEEE, No. 25 at p. 6) Although the commenters did not offer an explicit reason for their proposed language, DOE has modified the language regarding subtype II voltages to distinguish the standard voltages associated with the definition for subtype I motors from the special voltages that could cause an electric motor to be classified as a subtype II motor. DOE has modified the subtype II definition to clarify that those motors that are not rated for 230 or 460 volts and cannot operate on 230 or 460 volts are subtype II motors because of their voltage rating. (Note that motors that are rated for 230 or 460 volts or can be used on 230 or 460 may also be deemed subtype II based on another characteristic—for example, by being a footless motor).

C. Definition of General Purpose Electric Motor

DOE proposed to amend the definition of ''general purpose motor'' in 10 CFR 431.12 by adding the word ''electric'' in front of the word ''motor'' to clarify that a general purpose motor is a type of electric motor. This proposed change would create consistency between the ''electric motor'' and ''general purpose electric motor (subtype I)'' definitions, the latter of which refers to a ''general purpose motor.'' (See 42 U.S.C. 6311(13)(A)) Additionally, DOE proposed updating the references to NEMA MG1 from NEMA MG1–1993 to the most recent publication, NEMA MG1–2009. Finally, DOE proposed adding text to the end of the definition emphasizing that the various examples of standard operating characteristics and mechanical construction cited as part of the definition were illustrative and not comprehensive. The purpose of the additional text was to reiterate the ''such as those specified'' qualifier used in the references to NEMA MG1–2009 in both the current and proposed ''general purpose electric motor'' definition.

Although DOE is not aware of any other standard operating characteristics and mechanical construction for usual or unusual service conditions, DOE anticipates that there may be now, or in the future, IEC or other standards that may develop such specifications. To address that possibility, DOE proposed to modify its definition to cover those electric motors that are designed in standard ratings and have either: (1) Standard operating characteristics and mechanical construction for use under usual service conditions, such as those specified in NEMA Standards Publication MG1–2009, paragraph 14.2, ''Usual Service Conditions,'' (incorporated by reference, *see* § 431.15) and without restriction to a particular application or type of application; or (2) standard operating characteristics or standard mechanical construction for use under unusual service conditions, such as those specified in NEMA Standards Publication MG1–2009, paragraph 14.3, ''Unusual Service Conditions,'' (incorporated by reference, *see* § 431.15) or for a particular type of application, and which can be used in most general purpose applications. 76 FR 665.

The proposed definition also included at the end a brief statement noting that ''[t]hese cited examples of standard

operating characteristics and mechanical construction are for illustrative purposes only.'' 76 FR 665.

In response to this proposal, NEMA and ACEEE raised concerns regarding this final sentence to the proposed definition for ''general purpose electric motor''. NEMA and ACEEE suggested that including this language would create confusion, nullify the current references to NEMA MG1, and invalidate the second part of the definition that lays out the characteristics and construction under unusual service conditions. In their view, the language of the proposed regulatory text appeared to apply only to electric motors designed for unusual service conditions. ACEEE and NEMA also questioned what other examples of ''standard operating characteristics and mechanical construction'' would qualify a motor as a general purpose electric motor. Finally, the commenters stated the added text should be removed from the definition to remove any confusion and ambiguity. (NEMA and ACEEE, No. 25 at p. 7)

DOE has reconsidered its proposed definition for ''general purpose electric motor'' and, in today's final rule, DOE is codifying the definition proposed in the SNOPR without the language noted above. Without that language, the definition remains consistent with previous versions of the definition codified in 10 CFR 431, with the exception of updated references to NEMA MG1. Additionally, DOE believes that this approach will not limit the scope of motors considered as ''general purpose electric motors'' for purposes of satisfying the standards prescribed by EISA 2007. DOE notes, however, that it is removing the proposed text because it is duplicative of the language in the current definition that already notes NEMA MG1 is an example of, but not the only standard for, standard operating characteristics and mechanical construction. DOE does not agree with commenters that the text would have added confusion to the existing definition because the text simply repeated the illustrative nature of the standard operating characteristics and mechanical construction listed in the definition.

Finally, today's rule moves the ''cannot be used in most general purpose applications'' qualifier used in the proposed update to the ''definite purpose motor'' definition to the beginning of the definition. This change does not alter the ''definite purpose motor'' definition as proposed, but clarifies that definite purpose motors cannot be used in most general purpose applications regardless of whether they are designed for unusual service conditions or for use on a particular type of application.

D. Definition of NEMA Design B Motor

In the December 2008 NOPR, DOE proposed a definition for the term ''NEMA Design B, general purpose electric motor'' that was based on the definition of general purpose electric motor provided in paragraph 1.19.1.2, ''Design B,'' of NEMA MG 1–2006 Revision 1, but with three changes. See 73 FR 78235. First, the proposed definition removed the reference to 50 hertz and corresponding performance characteristics because the EISA 2007-prescribed efficiency standards for ''NEMA Design B, general purpose electric motors'' at 42 U.S.C. 6313(b)(2)(D) cover only 60-hertz motors. (See NEMA MG–1 (2006) Table 12–11) Second, it limited the maximum rated slip at rated load (i.e., the amount of physical force a motor is designed to output) to less than 5 percent for motors with fewer than 10 poles, because the EISA 2007-prescribed energy conservation standards only cover 2-, 4-, 6-, and 8-pole motors and, according to the footnote to MG1–2006 paragraph 1.19.1.2, motors with 10 or more poles are permitted to have slip slightly greater than 5 percent. Third, it corrected the referenced 60-hertz locked-rotor current paragraph from 12.35.3 to 12.35.1, because there is no paragraph 12.35.3 in MG1–2006 and the table under paragraph 12.35.1 contains the maximum currents associated with a locked rotor.

In response to comments received regarding the 2008 NOPR, the January 2011 SNOPR incorporated several changes to the initially proposed ''NEMA Design B motor'' definition. In the SNOPR, DOE proposed to adopt a broad definition of a NEMA Design B motor to include provisions regarding 50 hertz motors. Furthermore, DOE proposed to update the reference to ''NEMA MG1–2006'' to reflect the 2009 version of this document (''NEMA MG1–2009''). Finally, DOE proposed eliminating references to NEMA Design B motors to remove any confusion that these motors are solely a subpart of general purpose electric motors because a NEMA Design B motor may be configured in a manner that falls outside of the general purpose electric motor category. 76 FR 653–54. DOE indicated that it is inaccurate and inconsistent with industry practice to narrowly categorize NEMA Design B motors as only a subset of general purpose electric motor (subtype I). Instead, in DOE's view, a NEMA Design B motor can also fall under the category of general purpose electric motor (subtype II), such as a footless NEMA Design B motor, or other type of electric motor. 76 FR 654.

NEMA and ACEEE expressed concerns over the proposed changes for NEMA Design B motors. Both pointed out that the term ''NEMA Design B'' has been included as part of the DOE's definition of ''electric motor'' (now as a part of the definition for ''general purpose electric motor (subtype I) and, by extension, the definition of ''general purpose electric motor (subtype II)'') since 10 CFR part 431 was first codified in 1999. They stated that it was not separately defined then, and there is no need to do so now. Instead, they indicated that the reference to NEMA MG1 for the meaning of ''Design B'' in the proposed definition of ''general purpose electric motor (subtype I)'' is sufficient. (NEMA and ACEEE, No. 25 at p. 8) NEMA and ACEEE also questioned why DOE did not incorporate a definition for NEMA Design A, NEMA Design C, or IEC Design N (which they stated is the equivalent to NEMA Design B) motors. (NEMA and ACEEE, No. 25 at p. 8) In its submitted comment, NEEA offered no explicit feedback on DOE's proposed definition for NEMA Design B motors, but instead deferred to electric motor industry experts for comments on the necessity for, and the use of, the ''NEMA Design B'' designation as a further sub-category. (NEEA, et al., No. 24 at p. 2)

In addition to the above comments, NEMA and ACEEE stated that EISA 2007 categorized ''electric motors'' into two groups, general purpose electric motors subtypes I and II. NEMA and ACEEE explained that they believed the standards in section 313(b)(2) of EISA 2007 are for four particular groupings of ''electric motors'' based on those two classifications. They added that the terms ''NEMA Design B'' and ''General Purpose'' are qualifiers used to identify particular characteristics of one such grouping of ''electric motor'' selected from these two classifications. (NEMA and ACEEE, No. 25 at p. 8) Furthermore, in response to the proposed definition, NEMA and ACEEE argued that the reasoning for proposing a definition of ''NEMA Design B motor'' in 10 CFR 431.12 appeared to be related, in their view, to DOE incorrectly changing the type of motors identified under section 313(b)(2) of EISA 2007 as ''NEMA Design B, General Purpose Electric Motors'' to that of a ''NEMA Design B motor that is a general purpose electric motor'' in 10 CFR 431.25(d). They believed that had DOE kept the original EISA 2007 language, it should be clear that no definition of ''NEMA Design B motor'' is required in part 431. With the

original language, they argued, it is clear that NEMA Design B is simply a qualifier for the broader term ''electric motor.'' They added that because this term, NEMA Design B, was not defined previously but was understood, it remains unnecessary to define it now. Finally, NEMA and ACEEE reiterated the connection between NEMA Design B and IEC Design N motors, and stated that the standards prescribed by section 313(b)(2)(D) of EISA 2007 should apply to both motor designs, but only those that also meet the definition of either subtype I or II motors. (NEMA and ACEEE, No. 25 at pp. 7–9)

While DOE appreciates the concerns raised by NEMA and ACEEE, DOE is broadly defining the term ''NEMA Design B motor'' to preserve its flexibility to regulate electric motors covered under EPCA. Additionally, DOE is codifying only the definition of ''NEMA Design B motor'' (rather than NEMA Design A, B, C and IEC Design N) because the most recent industry standard defining this term (NEMA MG1–2009) appears to contain typographical errors—namely, erroneous table references related to performance characteristics that NEMA Design B motors must meet (i.e., locked-rotor current). Therefore, DOE wishes to clarify its interpretation of the term ''NEMA Design B'' and is codifying that term in today's rule. For ''NEMA Design A'' and ''IEC Design N'' motors, DOE believes that the industry standards referenced in its definitions of subtype I and II motors do not contain any errors. Accordingly, referring the reader to the specific industry standards that define these terms should be sufficient and require no further clarification. Consequently, DOE is not inclined to codify these definitions at this time. However, for ''NEMA Design C,'' since the SNOPR's publication, DOE has become aware of a typographical error in MG1–2009's definition of this term. Although DOE is not defining this term today, in large part because such a definition had not been proposed, DOE may clarify its interpretation of this term in the future.

As discussed previously, DOE disagrees with NEMA and ACEEE that EISA 2007 narrowed the definition of ''electric motors'' to only subtype I and subtype II motors. DOE also disagrees that changing the description for the group of motors described as ''NEMA Design B, general purpose electric motors'' in EISA 2007 to a ''NEMA Design B motor that is a general purpose electric motor'' is confusing or problematic. The proposed modification to this language was designed to clarify the terminology without changing the meaning and to establish consistency with other covered electric motors.

Although DOE is currently taking a broad approach in defining ''NEMA Design B'' motors, these motors are only required to meet energy conservation standards to the extent to which the energy conservation standards at 10 CFR 431.25 apply. In other words, only those NEMA Design B motors that fall into either the subtype I or subtype II categories are required to meet the applicable subtype I or subtype II energy efficiency levels prescribed by EISA 2007. Those NEMA Design B motors that fall outside of subtype I or II are not required to satisfy specific energy conservation standards at this time. For these reasons, DOE is clarifying that a NEMA Design B motor that is configured as a general purpose electric motor (subtype I or II) must meet the standards prescribed at 10 CFR 431.25(d). See Section F. ''Energy Conservation Standards for Electric Motors,'' infra. This approach also addresses the concern that DOE's proposal attempted to regulate 50 Hz motors. Because general purpose electric motors (subtypes I and II) are 60 Hz motors by definition, 60 Hz motors are, therefore, the only motors that are currently required to meet energy conservation standards in 10 CFR 431.25.

E. Fire Pump Motors Definition

EPCA section 342(b), as amended by section 313(b)(1)(B) of EISA 2007, prescribes energy efficiency standards for fire pump motors, which were subsequently codified at 10 CFR 431.25(d). 74 FR 12072. However, EPCA, as amended by EISA 2007, does not define the term ''fire pump motor.'' DOE proposed in its December 2008 NOPR to define ''fire pump motor'' as ''a Design B polyphase motor, as defined in NEMA MG1–2006, rated 500 horsepower (373 kW) or less, 600 volts or less, and that is intended for use in accordance with the National Fire Protection Association (NFPA) Standard 20–2007, 'Standard for the Installation of Stationary Pumps for Fire Protection.'" 73 FR 78235. DOE based this proposed definition primarily on the scope of the Underwriters Laboratories (UL) Standard 1004A–2001, ''Fire Pump Motors,'' and NFPA Standard 20–2007.

DOE's January 2011 SNOPR raised the possibility of modifying the proposed ''fire pump motor'' definition from the December NOPR by adding a publication date for the cited NFPA standard, making a correction to the title of the relevant NFPA standard, and adding a citation to UL Standard 1004–5 (2008). (This UL standard is the latest version to address fire pump motors.) This revised proposal would define a fire pump motor as an electric motor that is required to meet the performance and construction requirements set forth by NFPA Standard 20–2010, section 9.5, and UL Standard 1004–5 (2008). Based on its understanding of fire pump motors, DOE does not believe that these motors are necessarily a subset of general purpose electric motors (as defined in the January 2011 SNOPR). With this understanding, DOE, consistent with the statute, proposed that all fire pump motors, irrespective of whether they meet the design constraints of subtype I motors, would each be subject to the same efficiency level—i.e., the more lenient standards afforded to subtype II motors. 76 FR 654. (See also 42 U.S.C. 6313(b)(2)(B))

Regarding the SNOPR, NEMA and ACEEE raised concerns over the definition of ''fire pump motor.'' In their view, EISA 2007 defines only two types of motors: ''general purpose electric motors (subtype I)'' and ''general purpose electric motors (subtype II).'' Furthermore, they believe that EISA 2007 inadvertently omitted the word ''electric'' from the description of ''fire pump motors'' in section 313(b)(2)(B). Although they state that there is no need for a fire pump motor definition, NEMA and ACEEE contend that these motors should only consist of what they deem ''electric motors'' (i.e., subtype I and II motors) that are used with fire pumps. (NEMA and ACEEE, No. 25 at pp. 10–11)

Additionally, NEMA and ACEEE expressed concern over the inclusion of UL 1004–5 in the definition because UL 1004–5 states that the performance and construction standards for fire pump motors are given in other standards, such as NEMA MG1. Also, UL 1004–5 is not considered a performance and construction standard in the motor industry. As such, the definition of ''fire pump motor'' should not include it. Furthermore, they commented that the references to NFPA 20 and UL 1004–5 do not recognize the use of IEC motors with fire pumps and DOE should ensure that, if it chooses to maintain a definition for ''fire pump motor,'' it should cover those motors. They added that, if DOE opts to define ''fire pump motor'' without removing the UL 1004–5 reference from the proposed definition, DOE should add UL 1004–5 to the industry standards incorporated by reference and included at 10 CFR 431.14 and 10 CFR 431.15. (NEMA and ACEEE, No. 25 at p. 11) NEMA and ACEEE asserted that if UL 1004–5 is not dropped from the definition, then UL

674, which relates to explosion-proof motors (a specific characteristic covered under the subtype I motor definition), should also be included. Furthermore, to harmonize with other international protocols related to explosion-proof motors, DOE would need to include CSA C22.2 No. 145 and the appropriate IEC protocols as part of the referenced industry provisions in DOE's regulations.

Finally, NEMA and ACEEE made specific recommendations about DOE's definitions as they relate to ''fire pump motor.'' First, they stated that if DOE believes that fire pump motors should be a separate classification, an ''electric motor'' should be defined as ''a machine that converts electrical power into rotational mechanical power and is configured as a general purpose electric motor (subtype I) or general purpose electric motor (subtype II), including, but not limited to, fire pump electric motors.'' (NEMA and ACEEE, No. 25 at pp. 3 and 4) Second, NEMA and ACEEE recommended that ''fire pump motor'' should be changed to ''fire pump electric motor'' and suggested that a fire pump electric motor be defined as an electric motor that meets the requirements of sections 9.5.1.1 and 9.5.1.7 of the National Fire Protection Association (NFPA) Standard 20–2010, ''Standard for the Installation of Stationary Pumps for Fire Protection.'' NEMA and ACEEE specifically cited sections 9.5.1.1 and 9.5.1.7 of NFPA 20–2010 rather than 9.5 as a whole because these are the only provisions of that section that they believe apply to the fire pump electric motors that should be subject to energy conservation standards (i.e., those that are also subtype I or II motors). (NEMA and ACEEE, No. 25 at pp. 9–11) In other words, according to NEMA and ACEEE, if an electric motor meets the definition of subtype I or subtype II motor, it only has to meet the requirements of provisions 9.5.1.1 and 9.5.1.7 to be deemed a ''fire pump electric motor'' as DOE should define the term. The other sections of 9.5 of NFPA 20–2010 provide performance specifications that must be met by electric motors that fall outside the scope of subtype I and II motors (e.g., direct-current, universal, or single-phase motors) to be deemed fire pump motors.

As discussed in section III.A, DOE disagrees with NEMA and ACEEE that EISA 2007 narrowed the definition of ''electric motors'' to address only subtype I and subtype II motors. However, DOE agrees with NEMA and ACEEE that ''fire pump motors'' should be defined within the context of the broader term ''electric motors.'' DOE also agrees that IEC-equivalent motors should be included within the scope of the definition of ''fire pump electric motor,'' although NFPA 20 and UL 1004–5 do not explicitly recognize the use of IEC motors with fire pumps. DOE believes this change will help prevent any circumvention of energy conservation standards and will be consistent with the definitions for other motor categories.

DOE also agrees with commenters that referencing UL 1004–5 in the ''fire pump electric motor'' definition is unnecessary, particularly given its potential for confusion regarding performance and construction. Accordingly, DOE has dropped this reference from the final definition.

Finally, DOE disagrees with narrowing the cited sections of NFPA from 9.5 to reference only 9.5.1.1 and 9.5.1.7. As stated earlier in the context of NEMA Design B motors, DOE does not wish to limit the scope of motors for which it may establish energy conservation standards and is opting to take a broader approach that will help preserve its flexibility in regulating motors. Therefore, DOE is referencing all of section 9.5 in its definition of fire pump electric motor, including those sections that apply to motors that are not currently required to meet energy conservation standards.[8]

F. Fire Pump Motor Coverage

Section 313(b)(1)(B) of EISA 2007 amended EPCA section 342(b) by requiring that fire pump motors meet the efficiency levels prescribed in NEMA MG 1–2006 Table 12–11. That provision required fire pump motors manufactured (alone or as a component of another piece of equipment) to have a nominal full-load efficiency that is not less than as defined in NEMA MG–1 (2006) Table 12–11. (42 U.S.C. 6313(b)(2)(B)) The provision also provided manufacturers with a three-year grace period starting from EISA 2007's enactment before these motors would need to comply with these efficiency levels. Consequently, manufacturers were required to comply with these levels starting on December 19, 2010.

On March 23, 2009, DOE formally codified the MG1–2006 efficiency levels into 10 CFR part 431. 74 FR 12072. These efficiency values cover motors with a range from 1 through 500 horsepower and address motors built in 2-pole, 4-pole, 6-pole, and 8-pole configurations. Both open and enclosed fire pump motors are also addressed by this table. 74 FR 12061, 12072.

In response to the December 2008 NOPR, in which DOE did not explicitly define a horsepower range, several interested parties sought clarity over whether the covered range of horsepower ratings for fire pump motors was from 1- to 200-horsepower or 1- to 500-horsepower. (GE, Public Meeting Transcript, No. 8 at p. 147; WEG, Public Meeting Transcript, No. 8 at pp. 148–49; NEMA, No. 12 at pp. 8–9; NEEA, No. 10 at p. 2) Furthermore, Baldor noted that an excerpt of the language under EPCA section 342(b), as amended by section 313(b)(1)(B) of EISA 2007, mentions a 1- to 200-horsepower range for subtype I motors. Baldor stated that whether a fire pump motor covered under this EISA 2007 amendment—codified at 42 U.S.C. 6313(b)(2)(B)—was limited to the same 1- to 200-horsepower range as a subtype I motor was a matter of statutory interpretation. (Baldor, Public Meeting Transcript, No. 8 at pp. 112–13, 145, 149–50)

EISA 2007 prescribes energy conservation standards for general purpose electric motors (subtype I) rated from 1 through 200-horsepower. (42 U.S.C. 6313(b)(2)(A)) EISA 2007 also separately prescribes standards for fire pump motors without specifying any particular horsepower range. (See 42 U.S.C. 6313(b)(2)(B)) In DOE's view, with the inclusion of this separate fire pump motor section, Congress excluded fire pump motors from being treated solely as subtype I motors. Instead, fire pump motors, as a separate motor category under the statute, must satisfy the efficiency levels laid out in NEMA Standard MG1–2006, Table 12–11, which covers 1- through 500-horsepower motors. (42 U.S.C. 6313(b)(2)(B)) Consistent with this view, DOE proposed in its SNOPR that fire pump motor energy conservation standards apply to fire pump motors rated from 1- through 500-horsepower. 76 FR 655. DOE continues to hold the view that the energy conservation standards promulgated in the March 23, 2009, technical amendment are consistent with the manner in which EISA 2007 categorized these motors and prescribed their specific efficiency levels. (See 42 U.S.C. 6313(b)(1)(B)) Accordingly, DOE believes that EISA 2007 established fire pump motors as an individual class of electric motors separate from subtype I motors.

NEMA and ACEEE agreed with DOE's interpretation of EISA 2007 that the

[8] Although DOE is adopting a broad definition of ''fire pump electric motor,'' DOE notes that only fire pump electric motors that are general purpose electric motors (subtypes I or II) are currently required to meet energy conservation standards. These motors must satisfy those levels that are equivalent to those prescribed for subtype II motors (i.e., NEMA MG1–2009 Table 12–11 levels). See 42 U.S.C. 6313(b)(2)(B)–(C).

sections establishing standards for ''general purpose electric motors (subtype I)'' and ''fire pump motors'' (sections 313(b)(2)(A) and 313(b)(2)(B), respectively), do not preclude standards for ''fire pump motors'' rated higher than 200 horsepower but less than or equal to 500 horsepower. They noted that if a definition for ''fire pump motors'' is established and includes a reference to 9.5.1.1 of NFPA 20, which stipulates that fire pump motors must be NEMA Design B, the higher horsepower fire pump motors will be covered by the standards established for NEMA Design B motors (section 313(b)(2)(D) of EISA 2007) falling within the range from 200 through 500 horsepower. (NEMA and ACEEE, No. 25 at p. 12)

Finally, NEMA and ACEEE stated that the provisions in 10 CFR 431.25 should be modified and suggested that DOE explicitly state that the standards in 10 CFR 431.25 that apply to both subtypes of general purpose electric motors should exclude ''fire pump motors'' and refer the reader to the ''fire pump motors'' paragraph. Additionally, they stated that the paragraph for ''fire pump motors,'' currently in 10 CFR 431.25(d), should only include ratings up to 200 horsepower. They claim that those higher horsepower ''fire pump motors'' can be captured implicitly by the standards established for NEMA Design B motors currently referenced in 10 CFR 431.25(f). (NEMA and ACEEE, No. 25 at pp. 13–15)

DOE appreciates the comments of interested parties and, in today's final rule, it has incorporated a number of these suggestions. As stated in the previous section, DOE believes that a ''fire pump electric motor'' is a distinct category of ''electric motor'' that includes motors that are not necessarily ''general purpose electric motor (subtype I)'' or ''general purpose electric motor (subtype II).'' However, as described earlier, today's final rule clarifies that DOE views the relevant standards to apply only to those fire pump electric motors that are also subtype I or subtype II motors. DOE is adopting this more limited approach in light of the fact that the vast majority of fire pump motors fall into either the subtype I or II category. Moreover, without this initial limitation, the fire pump motor standards would apply to all motor types that may serve as fire pump motors, including several motor types that do not currently have energy conservation standards—e.g., direct current motors, universal motors, and single-phase motors. This fact is significant because DOE's current test procedures are not designed to measure the energy efficiency of such motor types. As a result, although the standards set by Congress do not appear to contemplate a restriction on which fire pump electric motors need to satisfy the prescribed standards, this limitation is necessary for the short-term until a suitable procedure can be developed to measure the efficiency of these other types of electric motors.

In the future, DOE may consider whether separate standards for these types of motors would be technologically feasible and economically justified. Until it reaches a determination on this issue and promulgates an appropriate test procedure for such motors, DOE is applying the fire pump motors standards only to those motors that fall within subtypes I or II. Therefore, at this time, DOE is codifying under 10 CFR 431.25(b) that only those ''fire pump electric motors'' that also satisfy the subtype I or subtype II definitions are required to meet specific energy conservation standards. These motors would need to satisfy the standards set out in the EISA 2007 amendments—i.e. the efficiency levels found in Table 12–11 of MG1–2006.

Furthermore, DOE is also modifying the language in 10 CFR 431.25 to more precisely state which motors are covered by the standards prescribed in each section. DOE notes that it is not relying on higher horsepower ''fire pump electric motors'' to be implicitly covered under the standards for NEMA Design B motors and is continuing to provide explicit language under a separate ''fire pump electric motors'' subsection (10 CFR 431.25(b)). These motors are required to meet energy conservation standards equivalent to Table 12–11, as prescribed by EISA 2007.

G. Energy Conservation Standards for Electric Motors

Interested parties also requested that DOE clarify several issues related to the scope of coverage and the efficiency levels in the tables of electric motor efficiency standards in 10 CFR 431.25.

First, under 10 CFR 431.25(a), electric motor manufacturers must comply with the energy efficiency levels that were prescribed by EPACT 1992. That provision, however, specifies no sunset date. Section 313(b) of EISA 2007 amended EPCA by prescribing energy conservation standards for subtype I and subtype II motors that manufacturers needed to meet for covered motors manufactured or imported on or after December 19, 2010. (42 U.S.C. 6313(b)(2)) These standards, and the compliance date, were subsequently codified at 10 CFR 431.25(c) and (e), respectively. Because the standards set by section 431.25(a), which applied to subtype I motors, have been superseded by the EISA 2007 levels but have no specified end date, NEMA argued that this situation was potentially confusing for manufacturers in deciding which provisions apply to their subtype I motors—the EPACT 1992 levels or the EISA 2007 levels. Consequently, NEMA requested guidance on the proper energy conservation standards for subtype I motors. (NEMA, No. 12 at p. 9) DOE addressed this issue in the 2011 SNOPR by proposing to delete 10 CFR 431.25(a) to clarify that the standards in this section no longer applied.

In view of the above statutory history and relationship of EPCA to EPACT 1992 and EISA 2007, it is DOE's view that an electric motor covered under 10 CFR 431.25(a) is a general purpose electric motor (subtype I), which is now required to meet the EISA 2007 energy efficiency levels. In other words, a subtype I motor—previously known simply as an ''electric motor''—that was manufactured or imported (alone or as a component of another piece of equipment) before December 19, 2010, is subject to the EPACT 1992 energy efficiency standards; a subtype I motor that was manufactured or imported (alone or as a component of another piece of equipment) on or after December 19, 2010, is subject to the EISA 2007 energy efficiency standards.

In response to these proposed changes, NEMA and ACEEE expressed concern over the removal of the table of efficiency standards that applied to motors manufactured or imported prior to December 19, 2010, from 10 CFR Part 431. They commented that many such motors manufactured prior to December 19, 2010, still remain in commerce and are certified to the efficiency levels in place at that time. They argued that the standards codified on March 23, 2009, should remain in place for a reasonable amount of time, so that these motors may lawfully remain in commerce. (NEMA and ACEEE, No. 25 at p. 13)

Today's rule conforms with the 2011 SNOPR regarding the removal of the EPACT 1992 energy efficiency levels from the CFR. While DOE understands stakeholder desire to verify that motors manufactured or imported prior to December 19, 2010, meet EPACT 1992 levels, DOE notes that the removal of the current table of standards located at 10 CFR 431.25(a) does not mean that electric motors manufactured or imported prior to December 19, 2010, that conform to EPACT 1992 levels and that are still in commerce violate DOE energy conservation standards. Motors manufactured or imported prior to

December 19, 2010, would need to satisfy the EPACT 1992 levels. To the extent that DOE pursues a compliance violation regarding pre-December 19, 2010 motors, those motors would be evaluated against the EPACT 1992 efficiency levels.

In addition, removing the existing tables in 10 CFR 431.25(a) that detail the previous efficiency levels that were required under EPACT 1992 will reduce potential confusion. Specifically, the EISA 2007 standards have displaced the older standards that Congress established in EPACT 1992 and the regulations should be updated to reflect that fact. Removal of the previous standards will help clarify the requirements that manufacturers must now satisfy by reducing the complexity of the regulatory text.

Second, in the December 2008 NOPR, DOE did not explicitly state that a NEMA Design B general purpose electric motor that otherwise meets the definition of a subtype I motor is subject to the EISA 2007 energy conservation standards that are codified at 10 CFR 431.25(c). NEMA noted that, given the proposed definitions and structure of 10 CFR 431.25, NEMA Design B general purpose electric motors rated from 1 horsepower up to and including 200 horsepower, would appear to remain at the same efficiency levels established by EPACT 1992 (codified at 10 CFR 431.25(a)) rather than the higher efficiency levels prescribed by EISA 2007.

To clarify the scope of energy conservation standards for NEMA Design B motors from 1 through 200 horsepower, DOE proposed two modifications of 10 CFR 431.25 in the 2011 SNOPR. Because subtype I motors include certain NEMA Design B motors, DOE proposed to specify that NEMA Design B motors rated 1 through 200 horsepower that are also subtype I motors are subject to the energy conservation standards in 10 CFR 431.25(c) (i.e., those for subtype I motors). In addition, since subtype II motors include certain NEMA Design B motors (e.g., footless motors), DOE proposed to specify that NEMA Design B motors rated 1 through 200 horsepower that are also subtype II motors are subject to energy conservation standards in 10 CFR 431.25(e) (i.e., those for subtype II motors). 76 FR 655.

Regarding NEMA Design B motors from 200 through 500 horsepower, EISA 2007 also established energy conservation standards for ''NEMA Design B, general purpose electric motors'' rated greater than 200 horsepower but less than or equal to 500 horsepower, which were later codified into the current version of 10 CFR 431.25(f). In response to the 2008 NOPR, NEMA asserted that the motor industry recognizes a ''NEMA Design B, general purpose electric motor'' as a specific group of motors that fit the definition of either ''electric motor'' from EPACT 1992 or ''general purpose electric motor (subtype I)'' from EISA 2007.

In the January 2011 SNOPR, DOE noted that EISA 2007 did not define the terms ''NEMA Design B, general purpose electric motor,'' ''NEMA Design B motor,'' or ''general purpose electric motor.'' In the absence of any statutory definition and the statute's apparent reliance on the agency's then-existing definition of ''general purpose motor,'' DOE views the regulatory definition of ''general purpose motor'' that was in place on EISA 2007's enactment date as the proper definition for ''general purpose electric motor'' as used in the term ''NEMA Design B, general purpose electric motor.'' The ''general purpose motor'' definition in place at the time of EISA 2007's enactment is the same as the ''general purpose electric motor'' definition proposed in the SNOPR, with minor differences for standards updates. DOE proposed that this definition, when read in conjunction with the definition of ''NEMA Design B'' proposed in the 2011 SNOPR, would adequately identify the motors regulated under 10 CFR 431.25(f). DOE realized that this interpretation could potentially include NEMA Design B motors that are general purpose electric motors that do not meet the proposed definition of ''general purpose electric motor (subtype I)'' or ''general purpose electric motor (subtype II).'' 76 FR 655. It is DOE's understanding, however, that there are few, if any, NEMA Design B motors that would be neither a subtype I nor a subtype II general purpose electric motor. 76 FR 655. Such motors that do not fall within one of the subtypes are not currently subject to energy conservation standards.

Third, at the time of the December 2008 NOPR, the energy efficiency standards tables contained in 10 CFR 431.25(c)–(f) listed motor ratings in horsepower, but not equivalent kilowatts. NEMA requested, in comments to that notice, that DOE include kilowatt power ratings in the then-newly codified tables that detail the EISA 2007 efficiency standards. (NEMA, No. 12 at p. 9) Without this change, NEMA raised concerns that metric-rated motors would not be covered. To ensure that the tables under 10 CFR 431.25(c)–(f) apply to metric-rated, kilowatt-equivalent motors, DOE subsequently proposed the possibility of amending the tables to provide an equivalent kilowatt rating for each horsepower. 76 FR 656.

Although the EISA 2007 definitions for subtype I and subtype II motors do not specifically mention motors rated in kilowatts, which is how IEC motors are rated, DOE believes that the statute covers IEC motors that are identical or equivalent to motors included in the statutory definitions. DOE understands that IEC motors generally perform identical functions as EISA 2007-covered electric motors. Comparable motors of both types provide virtually identical amounts of rotational mechanical power, and generally operate or provide power for the same pieces of machinery or equipment. A given industrial central air conditioner, for example, could operate with either an IEC or NEMA motor with little or no effect on performance. Providing equivalent kilowatt/horsepower ratings would be consistent with the already-codified EPACT 1992 levels and clarify their applicability. DOE is maintaining this approach for today's final rule and has codified kilowatt equivalents to horsepower ratings for each table of energy conservation standards in 10 CFR 431.25.

Finally, in the SNOPR, DOE proposed to clarify in 10 CFR 431.11, Purpose and scope, that the electric motors covered under subpart B are not small electric motors. DOE believes that this clarification is necessary because electric motors (covered under 10 CFR part 431, subpart B) and small electric motors (covered under 10 CFR part 431, subpart X) are separate and unique covered equipment subject to different regulatory requirements. DOE received no comments regarding this topic and is maintaining this proposed approach in today's final rule.

H. International Electrotechnical Commission Standards Incorporated by Reference

After EISA 2007 removed the definition of electric motor under 42 U.S.C. 6311(13), DOE subsequently proposed in the December 2008 NOPR to remove the corresponding test protocols incorporated by reference under 10 CFR 431.15. These protocols helped clarify critical elements in the previous electric motor definition. 73 FR 78227. These protocols included IEC Standards 60034–1 (1996), 60050–411 (1996), 60072–1 (1991), and 60034–12 (1980). Removal of these references was necessary in order to account for the statutory changes introduced by the removal of the ''electric motor'' definition that had previously been in place as part of EPCA.

In response to the December 2008 NOPR, NEMA commented that when DOE adopted the content of EPACT 1992 into 10 CFR part 431, it recognized the necessity of including for coverage purposes those equivalent motors designed in accordance with IEC standards that could be used in the same applications as motors designed in accordance with the NEMA MG1 standards. NEMA asserted that although the IEC standards do not particularly identify ''general purpose motors,'' those motors built according to IEC specifications can be used interchangeably with NEMA motors in most general purpose applications. Because of this fact, NEMA argued that the applicable IEC standards should be retained in 10 CFR part 431, and that motors constructed in accordance with those standards in metric-equivalent ratings should be considered as covered equipment under 10 CFR part 431. (NEMA, No. 10 at p. 10)

In the January 2011 SNOPR, DOE explained that it previously took such an approach when addressing IEC metric motors in the October 1999 electric motor test procedure final rule because of the interchangeability between IEC motors that are identical or equivalent to motors constructed in accordance with NEMA MG1. See 64 FR 54142–43 (October 5, 1999). The inclusion of parenthetical references to the IEC standards in the codified definition of ''electric motor'' under 10 CFR 431.2 (2000) clarified the applicability and coverage of IEC (i.e., metric-equivalent) electric motors. For example, under the EPACT 1992 definition of ''electric motor,'' a motor had to be ''continuous rated.'' DOE later clarified ''continuous rated'' in 10 CFR 431.2 (2000) to mean ''is rated for continuous duty (MG1) operation, or is rated duty type S1 (IEC).'' Although the statutory definition did not explicitly mention IEC motors, DOE had previously proposed that the term ''continuous rated'' apply to those electric motors that are equivalent to the ''continuous duty operation'' rating denoted by the parenthetical ''MG1'' or the equivalent IEC duty type ''S1.'' See 61 FR 60442. DOE later codified this approach at 10 CFR 431.2. 64 FR 54142 (October 5, 1999).

DOE believes that EISA 2007 provides the same breadth of coverage as EPACT 1992 did over IEC motors that are identical or equivalent to electric motors built in accordance with MG1. In the SNOPR, DOE proposed revised definitions for ''general purpose electric motor (subtype I)'' and ''general purpose electric motor (subtype II)'' that incorporated IEC-equivalent motors. Thus, in the SNOPR, DOE proposed to retain the IEC references in 10 CFR 431.15. In addition, DOE proposed to adopt the updated versions of two of the IEC standards, IEC Standards 60034–1 and 60034–12, to the 2004 and 2007 versions, respectively. 76 FR 656.

NEMA also noted in its comments to the December 2008 NOPR that a source to obtain IEC standards does not appear in 10 CFR 431.15(d). (NEMA, No. 10 at p. 10) In today's rule and in response to NEMA's comment, DOE reorganizes and updates 10 CFR 431.15, as it proposed in the SNOPR, to include each IEC standard incorporated by reference with corresponding updated information about how to obtain copies of these documents.

I. References to Various Industry Standards

DOE noted in the SNOPR that the current version of 10 CFR part 431 references several outdated standards, such as NEMA MG1–1993, IEEE Standard 112–1996 (Test Method B), and CSA C390–93 (Test Method 1). In the SNOPR, DOE proposed to update those references throughout 10 CFR part 431 to be consistent with the current, industry standards and test procedures—i.e., NEMA MG1–2009, IEEE Standard 112–2004 (Test Methods A and B), IEEE Standard 114–2001, CSA C390–10, CSA C747–09, IEC 60034–1 (2010), IEC 60050–411 (1996), IEC 60072–1 (1991), and IEC 60034–12 (2007) . 76 FR 656, 666, and 674. Additionally, after reviewing these updated protocols, DOE indicated that the exceptions to IEEE Standard 112–1996 (Test Method B) contained in paragraph (2) of appendix B to subpart B, ''2. Test Procedures,'' which were intended to clarify steps of the test procedure and various values for constants and equations, and to provide additional context where needed, are incorporated within the updated version of IEEE Standard 112–2004 Test Method B. 76 FR 656. DOE sought comment on whether this assessment of the updated test method was accurate and if the proposed procedure would adversely affect the measured losses and efficiency determined for an electric motor.

In the December 2008 NOPR, DOE stated that it had examined the current protocols from IEEE, CSA, and IEC. The agency concluded after this review that the proposed updates are consistent with the previous methodologies and will have neither an adverse effect on the measurement of losses or the determination of efficiency. DOE proposed adopting the IEEE test methods because: (1) Each represents an approach that is consistent with the existing test methods for electric motors, which have been in effect without issue since November 1999 as part of 10 CFR part 431; (2) they are the most current versions in use by industry and have been periodically updated to reflect the best approaches for measuring and determining the efficiency of electric motors (including small electric motors); and (3) they will, in DOE's view, provide accurate and repeatable measurements because they have tightly defined tolerances, provide necessary test equipment calibration specifications, and contain methods and procedures developed by electric motor manufacturers to fairly assess the performance characteristics of their products. 73 FR 78223.

NEMA and ACEEE had several comments in response to the SNOPR. First, they commented that the IEC standards proposed for inclusion in 10 CFR 431.15(e)(2)(ii)–(vi) that define the metric-designs equivalent to the covered NEMA motors should be updated to the most recent versions. (NEMA and ACEEE, No. 25 at p. 15) In particular, references to International Electrotechnical Commission Standard 60034–1 (1996*), Rotating Electrical Machines, Part 1: Rating and Performance* should be updated to the 2010 version. DOE agrees with this suggestion and, as with its other efforts at updating references to the test procedures, will update these IEC references.

Second, NEMA and ACEEE noted that the newest version of CSA C390, CSA C390–10, is no longer technically equivalent to IEEE Standard 112–2004 (Test Method B) and asserted that the preferred test standard in the U.S. should remain IEEE Standard 112–2004 (Test Method B). However, they also recommended that DOE examine the differences between IEEE Standard 112–2004 (Test Method B) and CSA C390–10 to determine if the CSA standard should be updated to reference CSA C390–10 (previously CSA C390–93 (Test Method 1)) and whether this more recent CSA standard would be permissible to use when determining motor efficiency. (NEMA and ACEEE, No. 25 at p. 15)

Advanced Energy supported DOE's proposal to incorporate the updated versions of the referenced standards in 10 CFR part 431. It also concurred with NEMA and ACEEE that there are differences between IEEE Standard 112 Test Method B and CSA C390–10, the most significant of these differences being how the magnetic core losses are determined under these protocols. Magnetic core losses are losses that

manifest themselves as heat in the steel components of an electric motor. These losses are important factors because they, along with I^2R (i.e., resistive) losses, comprise the most significant inefficiencies in an electric motor.[9] With respect to how magnetic core losses are determined, Advanced Energy explained that CSA C390–10 is more closely aligned with IEC 60034–2–1 '' Rotating Electrical Machines—Part 2–1: Standard Methods for Determining Losses and Efficiency from Tests'' than IEEE Standard 112–2004. However, Advanced Energy did not believe that the differences between IEEE Standard 112–2004 (Test Method B) and CSA C390–10 significantly affect the measured efficiency numbers, based on a number of studies comparing the efficiency differences between IEEE Standard 112–2004 (Test Method B), IEC 60034–2–1, and CSA C390–10.

In support of that view, Advanced Energy cited data from LTEE Hydro-Quebec in Canada, which found during testing a maximum difference of 0.13 percent efficiency points among the three standards. A University of Nottingham test of five motors obtained a maximum difference of 0.1 percent efficiency points between IEEE Standard 112–2004 (Test Method B) efficiency and IEC 60034–2–1. From its own tests, Advanced Energy concluded that differences between all three standards would result in full-load efficiency values that differed by less than 0.2 percentage points. Advanced Energy did this by providing two sets of test results. The first demonstrated that the same motor tested using IEC 60034–2–1 and CSA C390–10 would show no difference in full-load efficiency and the second demonstrated that the difference between IEC 60034–2–1 and IEEE Standard 112–2004 (Test Method B) would result in full-load efficiency values that differed by less than 0.2 percentage points. Therefore, Advanced Energy argued that because these data showed that IEC 60034–2–1 was equivalent to CSA C390–10, the data demonstrated that the difference between CSA C390–10 and IEEE Standard 112–2004 (Test Method B) would also be less than 0.2 percentage points. (Advanced Energy, No. 23 at p. 3) Advanced Energy noted that while it believes these differences are small, DOE will need to determine if these differences are small enough to consider these test methods equivalent. (Advanced Energy, No. 23 at pp. 2–3)

In view of the above comments about the equivalence of IEEE Standard 112–2004 (Test Method B) and CSA C390–10, including the results of the LTEE Hydro-Quebec, University of Nottingham, and Advanced Energy studies, DOE conferred with independent experts about IEEE Standard 112–2004 (Test Method B) and CSA C390–10, the methodologies, measurement of losses, and calculated efficiency. DOE understands that the test methods are not identical, but DOE believes that the differences are minimal and both tests will result in an accurate and similar measurement of efficiency. Given the variable nature of tested efficiency values for electric motors due to manufacturing and material differences, DOE believes that the variation in the calculated efficiency is insignificant and not likely to result in any manipulation of energy efficiency test results.[10] Moreover, DOE believes that removing CSA C390–10 would cause unnecessary disruption in current testing practices and compliance certification. Therefore, DOE is continuing to allow manufacturers to use either test method to certify compliance.

On a related note, GEA requested that IEC 60034–2–1 be included as an acceptable test method in 10 CFR Part 431. (GEA, No. 26 at p. 1) GEA considered the efficiency test methods of IEEE Standard 112 (Test Method B) and IEC 60034–2–1 to be almost identical to each other and asserted that both methods achieve the desired result of measuring the energy efficiency of a motor. While GEA provided no data to support its claim that IEC 60034–2–1 is almost identical to IEEE Standard 112 (Test Method B), Advanced Energy provided data in support of that view. As described previously, Advanced Energy provided test results using IEEE Standard 112–2004 (Test Method B), IEC 60034–2–1, and CSA C390–10 that demonstrated that the test procedures would result in full-load efficiency values that differed by less than 0.2 percentage points. (Advanced Energy, No. 23 at p. 3)

Additionally, NEMA and ACEEE noted that they were not aware of whether DOE had examined IEEE Standard 112 (Test Method E) for testing vertical motors (i.e., motors that are designed to be mounted in a vertical configuration), and they requested that DOE carry out this determination. NEMA and ACEEE requested that, if DOE determines IEEE Standard 112 (Test Method E) is acceptable, DOE should include it in 10 CFR Part 431. Otherwise, if it is not acceptable, they requested that DOE provide a test procedure that is acceptable. (NEMA and ACEEE, No. 25 at p. 15)

DOE appreciates the comments about IEC 60034–2–1 and IEEE Standard 112 (Test Method E). DOE will examine them further and may address them as part of a separate rulemaking.

Finally, GEA believed that DOE had made progress by including IEC standards for frame sizes that are consistent with NEMA frame sizes but noted that there had been no reference to the IEC motor efficiency classifications. GEA requested that DOE add a reference to the efficiency classifications laid out in IEC 60034–30, ''Rotating Electrical Machines—Part 30: Efficiency Classes of Single-Speed, Three-Phase, Cage-Induction Motors (IE-code)'' in the CFR. (GEA, No. 26 at p. 1) It asserted that the IE2 energy efficiency and IE3 premium efficiency ratings of IEC 60034–30 are comparable to NEMA MG1–2009 tables 12–11 and 12–12 respectively. Although DOE appreciates GEA's comment, it believes that incorporating a reference to the IEC tables of efficiency levels is unnecessary because the actual efficiency standards are included as a part of 10 CFR 431.25.

J. National Institute of Standards and Technology/National Voluntary Laboratory Accreditation Program Handbook 150–10 Update and Checklist

In the December 2008 NOPR, DOE proposed updating the references in the regulations from: (1) The 1994 edition of the National Institute of Standards and Technology/National Voluntary Laboratory Accreditation Program (NIST/NVLAP) Handbook 150, ''Procedures and General Requirements'' to the 2006 edition; and (2) the 1995 edition of the NIST/NVLAP Handbook 150–10, ''Efficiency of Electric Motors'' to the 2007 edition. 73 FR 78228, 78236. Although following the NIST/NVLAP handbooks is not a required part of the electric motors test procedure, the handbook provides important guidance for assuring testing laboratory competency and is used by test facilities seeking accreditation under 10 CFR 431.18, 431.19, and 431.36(a)(2).

During the January 30, 2009, public meeting to discuss the December 2008 NOPR, two issues were raised regarding this proposed update. First, Baldor expressed concern that an update to

[9] Magnetic core losses are generated by two electromagnetic phenomena: hysteresis losses and eddy currents. Hysteresis losses are caused by magnetic domains resisting reorientation to the alternating magnetic field. Eddy currents are physical currents that are induced in the steel laminations by the magnetic flux of the windings.

[10] According to a study conducted by the Electrical Apparatus Service Association and the Association of Electrical and Mechanical Trades, ''The Effect of Repair/Rewinding on Motor Efficiency,'' the same motor tested at multiple locations showed a variation of up to 0.9 percent, even though the same test procedure was used.

NIST/NVLAP Handbook 150–10 could be problematic because it refers to test methods that are different from the updated test methods proposed by DOE. For example, the NIST/NVLAP Handbook 150–10 refers to proficiency in IEEE Standard 112–1996 (Test Method B) and CSA C390–93 (Test Method 1) to become an accredited laboratory. (Baldor, Public Meeting Transcript, No. 8 at p. 178) Because these industry test methods have been revised, DOE proposed in the December 2008 NOPR to update 10 CFR 431.16, appendix A to subpart B, and 10 CFR 431.15 to be consistent with current industry practice. 73 FR 78228. DOE indicated that it would consult with NIST and consider appropriate updates regarding the references in NIST/NVLAP Handbook 150–10.

Subsequently, NIST reviewed its Handbook 150–10 and issued a formal Laboratory Bulletin on March 19, 2009 (Lab Bulletin LB–42–2009) about the Efficiency of Electric Motors Program, available at *http://www.nist.gov/nvlap/upload/LB_42_2009–1.pdf.* That bulletin contains a series of updates to the industry standards referenced in Handbook 150–10. Although NIST did not update its references of CSA C390, DOE and NIST evaluated potential differences between the 1993 and 2010 versions of the Canadian standard and determined that there are no substantial differences between them that would result in a significant change in measured efficiency. Therefore, in the January 2011 SNOPR, DOE proposed to adopt the 2007 edition of NIST Handbook 150–10. DOE is maintaining this approach for its final rule. Additionally, in today's rule, DOE is adopting the March 2009 NVLAP Lab Bulletin, which contains the updates to industry references in the NIST handbook.

Second, Baldor commented that the 2007 edition of the handbook does not address the procedure used for accrediting a laboratory, which is contained in a checklist that it was unable to obtain and examine. (Baldor, Public Meeting Transcript, No. 8 at pp. 166–167) NEMA commented that it found a ''significant difference'' between the 1995 and 2007 editions of the NIST/NVLAP Handbook 150–10. NEMA noted that the 1995 edition provides (1) information on the required accuracy of the test equipment, (2) details of the test procedure to be used for testing induction motors, and (3) a checklist for the purpose of evaluating the test facility. NEMA expressed concern that the 2007 edition does not contain that technical information and noted that clause 1.6.2 of the NIST/NVLAP Handbook 150–10 (2007) indicates that all NVLAP programs must use the NIST Handbook 150 Checklist. NEMA commented that DOE should not incorporate by reference the 2007 edition of NIST/NVLAP Handbook 150–10 until the NIST/NVLAP Handbook 150–10 Checklist is available to the public and DOE has examined it to be certain it contains the same information about the accuracy of test equipment and the procedure for testing as the 1995 edition. (NEMA, No. 12 at pp. 11–12)

DOE consulted with NIST about the above matters and learned that the NIST/NVLAP Handbook 150–10 (2007) and the on-site assessment NIST/NVLAP Handbook 150–10 Checklist are available through the web links *http://www.nist.gov/nvlap/nvlap-handbooks.cfm* and *http://www.nist.gov/nvlap/upload/NIST-HB-150-10-Checklist.pdf* respectively.

After considering the comments from Baldor and NEMA, DOE further examined the 1995 and 2007 Checklists. In DOE's view, these two testing-related documents share the same information related to equipment accuracy, test procedures, and procedures for laboratory accreditation. Accordingly, DOE believes that the 2007 Checklist is a proper replacement for the provisions in the 1995 edition and is updating the regulations to include the new edition of the NIST Handbook 150–10 Checklist (Rev. 2007–05–04).

Because the two NIST/NVLAP handbooks, the lab bulletin, and the checklist are not requirements of the test procedure itself, but rather documents used to accredit a testing facility as being capable of conducting the necessary tests for evaluating the energy efficiency of an electric motor, DOE is providing all of the necessary information for these documents in 10 CFR 431.14 ''Sources for information and guidance.''

NEMA and ACEEE also had concerns with 10 CFR 431.18 and the continued use of the phrase ''the initial effective date'' in the statement ''[c]hanges in NIST/NVLAP's criteria, procedures, policies, standards, or other bases for granting accreditation occurring after the initial effective date of 10 CFR Part 431 shall not apply to accreditation under this part unless approved in writing by the Department of Energy.'' NEMA and ACEEE believed the phrase the ''initial effective date,'' which refers to October 5, 1999, may be confusing because neither commenter was aware of any established procedure for informing test facilities when DOE has approved a revision of the accreditation program. Both commenters encouraged DOE to establish and apply such a procedure to certification and accreditation programs. (NEMA and ACEEE, No. 25 at p. 16)

DOE appreciates the concerns that NEMA and ACEEE have raised regarding 10 CFR 431.18, ''Testing Laboratories.'' To eliminate any potential confusion over this issue, DOE is removing the sentence, ''Changes in NIST/NVLAP's criteria, procedures, policies, standards or other bases for granting accreditation, occurring subsequent to the initial effective date occurring subject to the initial effective date of 10 CFR Part 431, shall not apply to accreditation under this Part unless approved in writing by the Department of Energy.'' Reference to the effective date of the regulation is unnecessary as the date has passed, and any change approved in writing will be reflected in the regulatory text at the time of the change. DOE notes that the NIST/NVLAP criteria currently incorporated into the DOE regulations remain effective, and changes to these criteria shall not apply unless the changes are approved in writing by the Department.

K. Appendix A to Subpart B of Title 10 of the Code of Federal Regulations, Part 431

Prior to EISA 2007, the Policy Statement under appendix A to subpart B of 10 CFR part 431 provided interpretive guidance as to which types of motors DOE viewed as covered under EPCA. This policy statement was published in the **Federal Register** on November 5, 1997, in response to concerns expressed from manufacturers regarding uncertainty as to whether motors with certain modifications were ''electric motors'' covered under the statute. DOE based its guidance on the recommendations of motor manufacturers, original equipment manufacturers, energy efficiency advocates, trade associations, testing laboratories, and other government officials. 62 FR 59978.

In the December 2008 NOPR, DOE proposed to delete the contents of appendix A to subpart B since the appendix was no longer an interpretation of current law in light of the EISA 2007 amendments to EPCA. The appendix had been heavily based on the previous definition of ''electric motors'' that Congress removed. With the removal of that definition, much of the interpretive basis surrounding the policy statement required significant reconsideration. 73 FR 78228.

During the January 29, 2009, public meeting, Baldor commented that removing appendix A would result in no guidance and leave open the

possibility to greatly expanded guidance in the future. (Baldor, Public Meeting Transcript No. 8, p. 118) NEMA submitted a comment suggesting that DOE attempt to revise the guidance that appears in appendix A rather than deleting it completely. NEMA argued that this would help clarify some of the new interpretations that DOE would have in view of the EISA 2007 legislation. (NEMA, No. 12, p. 12)

In response, the January SNOPR included an alternative to the removal of appendix A—revision of the contents of appendix A to reflect the EISA 2007 changes to EPCA. Specifically, DOE proposed to: (1) Eliminate references to enactment dates that no longer apply; (2) update the scope of coverage to include subtype I and II motors; and (3) address the bounds of standard shaft dimensions applicable to subtype I and II motors. DOE did not propose language regarding fire pump or NEMA Design B motors because DOE did not believe that such guidance was necessary at that time, although DOE indicated that it may add such guidance at a future date. DOE specifically noted that, as a ''Policy Statement,'' appendix A represented DOE's interpretation of existing statutes and regulations but did not, and was not intended to, have the force and effect of law. 76 FR 657.

In response to the SNOPR, DOE received multiple comments from interested parties regarding appendix A. Multiple interested parties expressed support for DOE's plans to provide additional guidance on the bounds of standard shaft dimensions applicable to subtype I and II motors. These interested parties also expressed support for time phased implementation dates before such guidance takes effect, although suggested phase-in periods varied. Additionally, some interested parties requested clarification on certain categories of electric motors, such as gearmotors. Finally, ACEEE and NEMA suggested specific updates to the table that DOE proposed in its regulatory text for appendix A to Subpart B of Part 431. (NEMA and ACEEE, No. 25 at pp. 16–17)

In light of the comments received and DOE's desire to provide the public and all interested parties with guidance in a more expeditious manner, in today's final rule, DOE is removing appendix A from the Code of Federal Regulations (CFR), reformatting the information contained therein, and will post the contents on DOE's Web site as guidance (''Electric Motors Guidance''). The removal of appendix A from the CFR does not change the legal effect or authority of appendix A as appendix A was a ''Policy Statement'' that merely provided users with guidance as to DOE's interpretation of existing statutes and regulations. Unlike EPCA, as amended, and DOE's electric motor regulations, appendix A was never intended to have, and never had, the force and effect of law.

By placing appendix A on DOE's Web site as guidance, DOE will be able to respond more efficiently to questions regarding general electric motors coverage and share DOE's responses to all interested persons at the same time. Moving appendix A to DOE's Web site will also eliminate any potential confusion as to the legal effect of appendix A. The updated guidance document will be available at *http://www1.eere.energy.gov/guidance/default.aspx?pid=2&spid=1.* The guidance will incorporate changes based on comments received in this rulemaking regarding appendix A.

The updated guidance will address the bounds of standard shaft dimensions applicable to subtype I and subtype II motors. DOE understands that NEMA Standard MG1–2009 and IEC Standard 60072–1 (1991) specify tolerances for the shaft extension diameter and keyset that relate to the fit between the shaft and the device mounted on the shaft. DOE is aware that shafts of special diameter, length, or design are often provided at a customer's request for use in particular applications. However, there are electric motors with non-standard shafts that could be used in most general purpose applications and would then be considered subtype I or subtype II general purpose electric motors. DOE received inquiries regarding whether motors with shaft designs that are not necessarily in conformance with the standard shaft types and dimensions in NEMA MG1 or IEC 60072–1 were covered under EPCA. (Baldor, No. 16; WEG, No. 17) In response to such inquiries, and in view of possible confusion in the marketplace, DOE proposed to add guidance on shaft diameter, length, shoulder location, and special designs under section III of appendix A to subpart B of 10 CFR part 431 in the January 2011 SNOPR. 76 FR 658.

The Electric Motors Guidance will specify for certain design features the range of variation in motor characteristics beyond which a motor would no longer be considered by DOE as general purpose. Manufacturers should not attempt to circumvent the efficiency standards by making minor modifications to a motor in an attempt to characterize an otherwise general purpose electric motor as a non-general purpose electric motor. Whether a user can use a motor in most general purpose applications is a critical factor in assessing whether a given motor is a general purpose electric motor.

DOE proposed language to provide guidance on the amount of variation from standard characteristics that would enable a motor to maintain its general purpose classification, as follows:

TABLE III.1—ALLOWABLE SHAFT DIMENSION VARIATIONS

Design feature	Variation allowed from standard characteristic
Shaft Diameter	Any variation in the shaft diameter between the standard shaft diameter of the next lower and higher frame numbers series maintains the general purpose classification of a motor.
Shaft Length	Any shaft length between and inclusive of 0.5 to 1.25 times the standard shaft length of the motor maintains the general purpose classification of the motor.
Shoulder Location	An increase less than or equal to 25 percent in either the ''BA'' (MG1) or ''C'' (IEC) dimensions of the standard motor frame dimensions maintains the general purpose classification of the motor.
Special Shaft Designs	The special shaft designs of a flat section in shaft (for pulley mounting) and shafts with a threaded hole maintain the general purpose classification of the motor. Alternatively, shafts with threads on the outside of the shaft or a stepped shaft do not currently maintain their general purpose classification. If DOE receives information that manufacturers are switching to motors with outside threads and stepped-shaft design variants to avoid efficiency improvements, then DOE may change the guidance to classify motors with outside threads and stepped shafts as general purpose electric motors. 76 FR 658, 673.

NEEA stated that it ''strongly supports'' DOE actions to clarify regulations and prevent circumvention of standards and in this regard supported DOE's decision to regulate non-standard shaft dimensions. It recommended that up to one year should be allowed for such motors to come into compliance with the applicable standards established by EISA 2007. (NEEA, et al., No. 24 at p. 3) Several interested parties indicated their concern over the enforcement of these shaft and shoulder dimensions. Particularly, these parties were concerned that if DOE took the position that motors with non-standard shaft lengths and sizes would be treated as general purpose electric motors for purposes of compliance with the EISA 2007 standards, manufacturers would require additional time to adjust to this new policy. NEMA noted that its members and their customers have spent a considerable amount of time and effort to adopt the EISA 2007 standards by the effective date of December 19, 2010, and have made significant changes both in manufacturing processes for motors and the equipment that use the motors to comply with the applicable provisions under 10 CFR Part 431. In view of these concerns, NEMA and ACEEE have requested a time-phased implementation of three years for the changes in guidance pertaining to special shafts. They believe that this will allow motor users and manufacturers the necessary time to implement the required changes. (NEMA and ACEEE, No. 25 at p. 17–18).

Regarding DOE's enforcement of its electric motors regulations in light of DOE guidance, DOE reminds stakeholders that the former appendix A was a guidance document and did not constitute a regulatory requirement. Similarly, any future guidance does not change the scope of coverage for electric motors. Therefore, although DOE understands that some electric motors may require some design modifications, DOE declines to establish an implementation date for the enforcement of energy conservation standards for motors with special shaft dimensions. DOE will consider cases on an individual basis when evaluating any potential noncompliance.

In response to the January 2011 SNOPR, the Rossi Gearmotor Division of Habasit America (Rossi) commented that integral gearmotors are effectively general purpose electric motors with relatively simple modifications that would not affect energy efficiency. While these motors often cannot be used independent of the gear reducer, they can be technologically and economically manufactured to the energy efficiency levels of a standard NEMA or IEC motor, which is evidenced by the fact that most integral gearmotor manufacturers selling in the U.S. market offer a high efficiency gearmotor. However, it added that the majority of those manufacturers would want DOE to continue to consider such motors outside the scope of regulation, which would continue to allow standard efficient integral gearmotors to be offered at lower first costs relative to energy efficient integral gearmotors. Rossi stated that manufacturers of integral gearmotors have a statutory responsibility to meet energy efficiency standards where it is technologically feasible and economically justified. (Rossi, No. 22 at pp. 1–2).

NEMA and ACEEE requested that DOE clarify that only motors connected to a stand-alone gear assembly would be treated as covered equipment. NEMA and ACEEE stated that a separately contained gear assembly can be intended for mounting on a C-face or D-flange on a motor of otherwise standard construction. They added that such a gear assembly is not generally a ''stand-alone'' unit and the assembly with the motor would not be an ''integral gearmotor.'' (NEMA and ACEEE, No. 25 at p. 26)

As stated in the former appendix A, DOE only considers a motor to be an ''integral gearmotor'' if it is a combination of a motor and a gear drive (or assembly of gears). In this combined package, the gear drive (or assembly of gears) and the motor are not stand-alone entities. Also as noted in the former appendix A, DOE did not consider such equipment to be covered by EPCA. The motor portion of an integral gearmotor is usually not a complete motor and thus not capable of being used in most general purpose applications. Additionally, integral gearmotors are generally not constructed with a T- or U-frame and they can have unique performance characteristics, physical dimensions, and casing, flange, and shafting dimensions. As a result, DOE considers such motors outside the scope of EPCA as amended by EISA 2007. Finally, DOE recognizes that an electric motor could be connected to a stand-alone gear drive (or assembly of gears) and clarifies that it does not consider such a configuration to be an integral gearmotor. If an electric motor is connected to a stand-alone gear drive (or assembly of gears), DOE considers it covered equipment if it also meets the definition of subtype I or subtype II.

L. Definition of Small Electric Motor

Subsequent to the publication of the July 7, 2009, small electric motor test procedures final rule (74 FR 32059), Baldor expressed concern over the clarity of certain key terms contained within the statutory definition of a small electric motor, asking DOE to clarify the statutory definition of ''small electric motor'' by interpreting key phrases in the definition, specifically: ''general purpose,'' ''induction motor,'' ''two-digit frame number series,'' and ''IEC metric equivalent motors.'' (Baldor, No. 15 at p. 2) Baldor suggested that DOE consider clarifying the definition by adding parenthetical identifiers ''(MG1)'' and ''(IEC)'' to the definition after each of these four key phrases to indicate the industry reference from which DOE interprets the meaning of that phrase. (Baldor, No. 15 at p. 2)

Section 340(G) of EPCA, 42 U.S.C. 6311(13)(G), defines the term ''small electric motor'' to mean a NEMA general purpose alternating current single-speed induction motor, built in a two-digit frame number series in accordance with NEMA Standards Publication MG1–1987. When DOE codified this definition into the CFR, DOE added the phrase ''including IEC metric equivalent motors'' to clearly signal that a motor that otherwise satisfied the technical requirements spelled out in the statutory definition would not be exempt from coverage simply because it was built using metric—rather than English (Imperial)—units. 74 FR 32072. DOE applied the term ''small electric motors'' to refer to those motors that are built in a two-digit frame series and that are general purpose and possess standard ratings and standard operating characteristics, an application that a Federal appellate court has upheld as permissible. See *National Electrical Manufacturers Association* v. *DOE,* 654 F.3d 496 (4th Cir. 2011). However, should it become necessary, DOE may consider providing further clarification as required.

M. Canadian Standards Association Test Procedures for Small Electric Motors

In the December 2008 NOPR, DOE proposed permitting manufacturers to select one of three test methods to measure the energy efficiency of its covered small electric motors: IEEE Standard 114, IEEE Standard 112, or CAN/CSA C747–94. 73 FR 78223, 78238. These choices were consistent with those for electric motors listed in 10 CFR 431.16. Under that provision, a manufacturer may select either an IEEE or CSA test method for determining the

efficiency of covered 1–200 horsepower electric motors. DOE adopted IEEE Standard 114–2001 for single-phase small electric motors and both IEEE Standard 112–2004 Test Method A and Test Method B in its final rule for polyphase small electric motors. 74 FR 32065–66, 32073–74. Since IEEE Standard 112 Test Method A applies to polyphase small electric motors below 1 kilowatt (1.34 horsepower), DOE determined that Test Method A would apply to polyphase small electric motors rated at or below 1 horsepower, which is the first common horsepower rating below 1 kilowatt (1.34 horsepower). Similarly, IEEE Standard 112 Test Method B would apply to polyphase small electric motors rated greater than 1 horsepower. DOE also adopted CAN/CSA–C747–94 as an alternative test method for single-phase motors. In the small electric motors test procedure final rule, DOE stated that it was not adopting alternative test methods for polyphase small electric motors based on CAN/CSA–747–94 or CSA C390–10 because of potential inconsistencies in the measured efficiency associated with units tested under IEEE Standard 112–2004 (Test Method B). 74 FR 32066.

In the January 2011 SNOPR, DOE proposed to add alternatives to provide manufacturers with greater testing flexibility. In particular, DOE proposed to permit testing using: (1) CSA C747–09 as an alternative to IEEE Standard 112 (Test Method A) for polyphase small electric motors rated less than or equal to 1 horsepower (0.746 kilowatt); and (2) CSA C390–10, as an alternative to IEEE Standard 112 (Test Method B) for polyphase small electric motors that have a rating greater than 1 horsepower (0.746 kilowatt). DOE indicated that using the CSA C747–09 and CSA C390–10 in this manner will result in consistent measurements compared to the applicable IEEE Standard 112 and IEEE Standard 114 test methods adopted in the small electric motors final rule, and help promote the harmonization of test methods internationally. 76 FR 658.

NEMA and ACEEE suggested including CSA C747–09 as an equivalent protocol to the appropriate IEEE 114 and 112 Methods. (NEMA and ACEEE, No. 25 at p. 18) They also provided comments on CSA C390–10 as it relates to IEEE Standard 112 (Test Method B), which are addressed in section III.I of today's notice. Advanced Energy pointed out that an updated version of the IEEE Standard 114 was published in December 2010 and advised DOE to reference this standard rather than the superseded IEEE Standard 114–2001. (Advanced Energy, No. 23 at p. 4)

DOE has decided to codify the changes proposed in the SNOPR with the addition of the changes suggested by interested parties—namely, to update IEEE Standard 114 to the 2010 version and allow the use of CSA C390–10 as an equivalent to IEEE Standard 112. DOE believes that it is important to have the most current standards referenced in its regulatory text and it understands that the new version of CSA C390 is essentially equivalent to IEEE Standard 112 (Test Method B). DOE will update the referenced IEEE Standard 114 to the most recent December 2010 version because it reflects the most current industry practices. Because DOE believes the two methods are equivalent, DOE may use either test procedure when testing electric motors for compliance with EPCA, as amended.

N. Small Electric Motor Represented Efficiency Value

In DOE's notice proposing energy conservation standards for small electric motors, the term ''nominal full-load efficiency'' was defined as the arithmetic mean of the full-load efficiency of a population of motors. DOE received numerous comments on this definition, all of which were summarized in its final rule on energy conservation standards for small electric motors. 75 FR 10874 (March 9, 2010). Ultimately, DOE agreed with comments made by NEMA and Baldor and opted not to establish energy conservation standards in terms of nominal efficiency. 75 FR 10914. Instead, DOE established energy conservation standards for small electric motors in terms of ''average full-load efficiency.'' 75 FR 10947.

NEMA had also sought clarity on the term ''nominal full-load efficiency'' in the context of the December 2008 proposal. It noted that DOE had not fully explained the efficiency value for which test results are to be compared for the purpose of determining compliance. NEMA asked how DOE would require the full-load efficiency to be represented on small electric motors, noting that motors are not marked with the average full-load efficiency. (NEMA, No. 12 at p. 3)

In developing the January 2011 SNOPR, DOE considered the relevant comments submitted during the small electric motors rulemaking proceedings. DOE recognized that its standards for electric motors and small electric motors use different metrics—i.e., nominal full-load efficiency (electric motors) and average full-load efficiency (small electric motors). The nominal efficiency values for electric motors are based on a logical sequence of standard values in NEMA Standard MG1–2009 (Table 12–10) and are familiar to motor users. However, there is no comparable set of standardized values adopted by NEMA for small electric motors and there is no statutory requirement that efficiency standards for these motors be set in terms of their nominal full-load efficiency.

As mentioned earlier, DOE established small electric motor energy conservation standards in terms of ''average full-load efficiency'' in the final rule. 75 FR 10914, 10947 (March 9, 2010). The analyses and results supporting the final energy conservation standard levels for small electric motors were calculated using an average efficiency metric. In the 2011 SNOPR, DOE proposed procedures for reporting the average full-load efficiency of these small electric motors that would be consistent with the energy conservation standards set in the March 2010 rule. With respect to the term ''nominal full-load efficiency,'' since this term is not used in the small electric motors standard, DOE proposed leaving the term undefined. If DOE amended the test procedure to measure the nominal full-load efficiency of small electric motors, the change would alter the applicable metric, which, in turn, could require a change in the energy efficiency standard levels for small electric motors because the average full-load efficiency standards in place would need to be recalculated in terms of nominal full-load efficiencies. (42 U.S.C. 6293(e)) NEMA viewed the average full-load efficiency definition in the small electric motors energy conservation standards final rule as ambiguous and noted that the term ''represented efficiency'' had yet to be defined. Therefore, in the 2011 SNOPR, DOE proposed procedures for determining the represented efficiency of small electric motors and how that value relates to the average full-load efficiency of a sample of motors.

In the SNOPR preamble, DOE proposed to treat the represented efficiency as the efficiency that corresponds to a 5 percent increase in losses, compared to the tested efficiency of a random sample of five or more units of a basic model. 76 FR 659. However, this approach was not fully consistent with the language and equations proposed in 10 CFR 431.445 of the proposed regulatory text, which suggested that the average full-load efficiency of a sample of motors must be greater than or equal to a motor's represented efficiency with an increase of 5 percent in motor losses. 76 FR 674–75. In other words, if the motor's represented efficiency is adjusted to a

new efficiency that equates to an increase in motor losses of 5 percent, the average full-load efficiency of the tested sample must be greater than or equal to that new, adjusted, efficiency.

NEMA and ACEEE had several comments regarding DOE's January 2011 proposal to define ''represented efficiency value.'' First, NEMA and ACEEE argued that no definition is needed in addition to the previously defined terms ''average full-load efficiency'' and ''NEMA nominal efficiency,'' which are already in use by the industry. They commented that the representative efficiency used to check the average efficiency of a sample should be the nominal full-load efficiency value for the small electric motors, and did not believe that a separately defined ''representative efficiency'' is necessary. They asserted that the definition of ''nominal full-load efficiency'' in 10 CFR 431.12 should be added to 10 CFR 431.442 to cover small electric motors. Furthermore, NEMA and ACEEE commented that the relationship between average full-load efficiency and represented efficiency, as defined in 10 CFR 431.445(c)(3), conflicts with the statement in the 2011 SNOPR preamble that ''represented efficiency'' is ''that efficiency that corresponds to a 5 percent increase in losses, compared to the tested efficiency of a random sample of five or more units of a basic model.'' (NEMA and ACEEE, No. 25 at p. 19)

NEMA and ACEEE also expressed concern that the ''arbitrary 5% increase in losses'' proposed by DOE that a manufacturer would use when reporting and certifying its equipment would require a manufacturer to understate the actual value efficiency of its motors. In their view, DOE does not require a manufacturer of any other covered product in Part 431 to understate the actual efficiency, and DOE should not require electric motor manufacturers to do so. Furthermore, NEMA and ACEEE disagreed with the selection of the 5 percent factor. They noted that the value of 5 percent chosen for electric motors was supported by NEMA round robin tests and studies by NIST/NVLAP in developing the accreditation program for test facilities to follow when determining electric motor efficiency. It was their opinion that until sufficient studies have been performed to determine how the ''average full-load efficiency'' will be determined for a large population of small electric motors based on a sample of five motors, this margin should be increased to no less than 15 percent. (NEMA and ACEEE, No. 25 at p. 20)

Finally, NEMA and ACEEE expressed concern over the sample size of five motors for the ''tested efficiency.'' In their view, the proposal fails to recognize that this sample of five motors could be taken from a population of thousands of small electric motors of the same design. This situation leaves open the possibility that the selected motors could be outliers to the general population of small electric motors produced by a manufacturer. (NEMA and ACEEE, No. 25 at p. 19)

DOE notes that it did not propose a definition for the term ''represented average full-load efficiency.'' DOE agrees with the commenters that such a definition is unnecessary, given that the term ''average full-load efficiency'' is already defined and will be used with respect to small electric motors in a similar manner as ''nominal-full-load efficiency'' is used with respect to electric motors (as represented on the electric motor nameplate). For electric motors, the term ''represented nominal full load efficiency'' is understood by electric motor manufacturers as denoting the efficiency of a basic model for which a manufacturer is attempting to demonstrate compliance. (See 10 CFR 431.17(b)(2).)

To make these concepts clearer with respect to small electric motors, DOE is replacing the term ''represented average-full load efficiency'' with the term ''required average-full load efficiency.'' In the context of small electric motors, the term ''required average-full load efficiency'' refers to the average full-load efficiency that a small electric motor basic model must satisfy to comply with the applicable standard. DOE believes that ''required'' is a preferable term for small electric motors because it does not connote labeling requirements as ''represented'' does for electric motors.

This change is important for two reasons. First, there are no labeling requirements currently in place for small electric motors. Second, manufacturers prefer to use nominal full-load efficiency values on their labels and to represent the efficiency of a large population of motors with the same design (both electric motors and small electric motors) with a single efficiency value. Because the standards for small electric motors are in terms of average full-load efficiencies (and not standardized nominal values used for labeling electric motors), using the term ''required'' distinguishes the rating for small electric motors from the nominal full-load efficiency values used to rate electric motors.

In addition to these revisions, DOE is clarifying one portion of the text within Section 431.445(c)(2). DOE is making this change to ensure that the limited conditions under which substitute components may be used are more easily understood. These changes are being made to improve the overall readability of this section and are consistent with DOE's proposal.

DOE also clarifies that the regulatory text and equations appearing in the SNOPR correctly lay out the manner in which manufacturers are to determine the certified efficiency of their motors. See 76 FR 674–75. DOE's proposal regarding the represented (now required) efficiency of a small electric motor was intended to be consistent with DOE's current regulations for electric motors. In other words, DOE is clarifying that the average full-load efficiency of a sample should be greater than or equal to the required efficiency (plus a 5 percent increase in losses) for that sample.

DOE notes that in the context of all other regulated consumer products and commercial equipment, manufacturers are required to rate the energy efficiency performance of their products or equipment in a conservative manner not only to ensure that those products and equipment satisfy the required energy conservation standards, but also to ensure that the final product or equipment performs at least as well as the represented efficiency. Against this background, DOE notes that its proposal centers on requiring manufacturers to apply test results when determining the energy efficiency of a particular basic model and to certify compliance using the applicable small electric motor energy efficiency level. The average efficiency of the required sample must be greater than or equal to the required efficiency level plus a 5 percent increase in motor losses. For example, if a manufacturer has a small electric motor with a required energy conservation standard level of 88.5 percent, demonstrating that a small electric motor basic model meets that level would require that the average of a sample of at least 5 tested motors must be greater than or equal to 88.5 percent plus a 5 percent increase in motor losses, or 88.0 percent.[11]

Furthermore, DOE emphasizes that a manufacturer seeking to certify a particular basic model must test at least 5 units (or samples) of a basic model. If

[11] Motor losses (ML) are calculated using the equation ML = (100/μ) − 1, where μ equals efficiency. Consider the example in the text. At 88.5 percent efficient, ML = 0.130, and a 5 percent increase would make ML = 0.136. Then, the previous equation can be rearranged as follows, μ = 100/(ML+1). Plugging in 0.136 for ML and solving for μ yields a new efficiency of 88.0 percent.

a manufacturer believes that this sample size will not be representative of their population of that basic model, it may test more units at its discretion to determine its certified efficiency.

DOE appreciates the comments regarding the use of ''nominal full-load efficiency'' when referring to a small electric motor's ''represented full-load efficiency,'' now ''required full-load efficiency.'' However, because ''nominal full-load efficiency'' is not used in the small electric motors standard, DOE has decided to leave the term undefined. Should DOE amend the test procedure to measure the nominal full-load efficiency of small electric motors, it would likely necessitate changes to the energy conservation standards as well. If such a change were made to the regulated metric, DOE would alter, as appropriate, the applicable methodology and then make a corresponding change in the energy conservation standards consistent with other statutory requirements. (42 U.S.C. 6293(e)). Consequently, DOE is not requiring the ''required full-load efficiency'' to be stated or reported in terms of ''nominal full-load efficiency.'' However, DOE realizes that this is the industry standard for labeling motors and is clarifying that small electric motor manufacturers can still use the standardized values for nominal full-load efficiency that appear in NEMA MG1–2009 Table 12–10 to label their motors. Consistent with 42 U.S.C. 6317(d), DOE will consider the promulgation of detailed requirements related to this equipment.

Finally, in response to the comments by NEMA and ACEEE suggesting that DOE raise the proposed power loss factor from 5 to 15 percent, DOE is not inclined to change its proposal for a number of reasons. First, the proposed value is consistent with the value used for medium electric motors. That value, as NEMA and ACEEE pointed out, was based on round robin testing and testing from NIST/NVLAP that supported its use. DOE also notes that the 5 percent allowance has been an accepted tolerance for electric motors since DOE published its first final rule for electric motors test procedures on October 5, 1999. 64 FR 54153 Second, there is no reason to believe that the variation in performance of small electric motors should be any different from medium electric motors. At the lowest horsepower ratings covered for medium electric motors, the standard frame sizes are very similar to those used for small electric motors. Third, DOE understands that small electric motors and medium electric motors are built with the same materials that have the same variations in properties that affect motor losses. As a result, there are no engineering reasons that would necessitate the use of a power loss factor for small electric motors that exceeds by three-fold the loss factor provided for electric motors. These facts collectively suggest that whether a motor is a small or medium electric motor does not have a significant bearing on the variation in tested efficiency and it would be unnecessary to provide an additional 10 percent of loss variation for small electric motors. Finally, adopting the approach suggested by NEMA and ACEEE would have the effect of lowering the permitted efficiency level for a basic model by one NEMA nominal efficiency band. DOE notes that such a significant increase in the permitted motor loss value would allow manufacturers to produce motors at significantly reduced efficiency levels and potentially undercut the applicable energy conservation standard.

DOE also notes that, contrary to the assertions made by NEMA and ACEEE, consumer products and other commercial equipment are required to meet a prescribed efficiency level without the benefit of an added loss factor. In that sense, motor manufacturers are presented with an additional margin for compliance when compared to other types of commercial equipment or consumer products. DOE's inclusion of this factor is in recognition of the changes in motor performance that are observed because of material variability and engineering limitations inherent in certain aspects of motor manufacturing. Given continuing advances in manufacturing, however, DOE may revisit the continued inclusion of a standard power loss factor as part of future revisions to its standards. DOE notes that in its most recent Certification, Compliance and Enforcement rule, there is no allowance for efficiency losses. See 76 FR 12422 (March 6, 2011).

Furthermore, based on small electric motor test data generated by an independent laboratory, a 5 percent increase in losses has been shown to be a reasonable allowance for an increase in losses relative to a motor's labeled full-load efficiency. This 5 percent value falls within the margin of error for state-of-the-art testing equipment used to measure the efficiency losses in a motor relative to its labeled full-load efficiency value. Based on testing information DOE has reviewed, small electric motors were able to meet the 5 percent variation.

DOE's analysis of small electric motor efficiency included a review of test results from 27 small electric motors as provided by an independent laboratory. Although the tests show a range of rated losses, ranging from 81 percent to 179 percent of rated losses (excluding one outlier), nine of these tests demonstrate that a 5 percent increase in losses is reasonable. This is significant for two reasons. First, these tests show that a 5 percent loss is technologically feasible today. Second, DOE anticipates that the same tests conducted after manufacturers are required to comply with the small electric motor standards would show much less variation in rated losses resulting from the standard. Moreover, NEMA/ACEEE did not provide DOE with any studies or data contradicting the proposed 5 percent motor loss value.

As an added check, DOE also reviewed the test data that examined electric motor efficiency. Those tests indicated that when tolerance levels are prescribed, the measured efficiency remains within the prescribed band—in this case, the prescribed band is delineated by the NEMA-developed efficiency bands found in MG–1. Given that there are no engineering reasons that would limit the ability of manufacturers to meet a prescribed efficiency value under similar conditions, manufacturers should be capable of meeting the required efficiency levels when applying the same motor loss value for small electric motors as well.

O. Validation of the Small Electric Motor Alternative Efficiency Determination Method

Section 343(a)(2) of EPCA requires that test procedures prescribed for electric motors be ''reasonably designed to produce test results which reflect energy efficiency,'' yet not be ''unduly burdensome'' to conduct. (42 U.S.C. 6314(a)(2)) As discussed in section III.D.3 of the December 22, 2008 NOPR, DOE recognizes that manufacturers produce large numbers of basic models of small electric motors, numbering in the thousands. 73 FR 78223. These large numbers are due in part to the frequency with which units are modified because of material price fluctuations which, in turn, often necessitate the development of new basic models.

In view of the substantial number of small electric motors that could be subject to an individual testing requirement for each basic model, the final small electric motors test procedure rule included the use of an alternative efficiency determination method (AEDM). 74 FR 32067, 32073. An AEDM is a predictive mathematical model developed from engineering

analyses of design data and substantiated by actual testing. It represents the energy consumption characteristics of one or more basic models. Before using an AEDM, a manufacturer must determine its accuracy and reliability through actual testing of a statistically valid sample of at least five basic models. (10 CFR 431.445) For each basic model, the manufacturer must test a sample size of at least five units selected at random according to the criteria adopted in section 10 CFR 431.445. After validating an AEDM's accuracy, the manufacturer may use that AEDM to determine the efficiencies of other basic models of small electric motors without further testing. DOE may consider requiring periodic verification subsequent to initial substantiation in a separate rulemaking on compliance, certification, and enforcement.

In the December 2008 NOPR, DOE proposed to adopt procedures for small electric motors that would allow a manufacturer to certify compliance by using an AEDM and a statistically meaningful sampling procedure for selecting test specimens that would be consistent with the existing requirements in 10 CFR 431.17 that currently apply to electric motors. 73 FR 78223–24, 78238–39. In the January 2011 SNOPR, DOE proposed additional requirements that are consistent with the AEDM approach already adopted for 1–200 horsepower electric motors. These proposals helped clarify portions of the AEDM procedure adopted in the final rule for small electric motors. DOE requested comments from interested parties on these requirements for a manufacturer to substantiate the accuracy of its AEDM. 76 FR 660.

In response to the January 2011 SNOPR, NEMA and ACEEE supported the adoption of AEDM usage and verification procedures for small electric motors that would be based on the procedures already in place for electric motors. (NEMA and ACEEE, No. 25 at p. 22) Advanced Energy also agreed with DOE's proposal to use actual testing to validate an AEDM model for small electric motors. However, it requested that DOE place more emphasis on an AEDM's subsequent verification. Advanced Energy noted that it would be helpful for the current language, which calls for subsequent verification of AEDMs to be conducted on a ''periodic'' basis using a specific time period, such as annually, to provide quality control to the process of AEDMs. (Advanced Energy, No. 23 at p. 4)

DOE appreciates these comments. However, as noted previously, DOE is planning on addressing these comments in a separate rulemaking. Between publication of the SNOPR and this final rule, DOE initiated a rulemaking specifically for AEDMs for all products and equipment; these comments will be addressed in that rulemaking.

P. Small Electric Motor Nationally Recognized Certification and Testing Laboratory Accreditation Programs

EPCA provides different requirements for determining the energy efficiency of regulated small electric motors and electric motors. In particular, section 345(c) of EPCA directs the Secretary of Energy to require manufacturers of ''electric motors'' to certify, through an independent testing or certification program nationally recognized in the United States, that any electric motor subject to EPCA efficiency standards meets the applicable standard.[12] (42 U.S.C. 6316(c)) No such requirement for independent testing or certification applies to small electric motors.

In the December 2008 NOPR, DOE proposed to allow a manufacturer to self-certify its small electric motors (i.e., not require ''independent testing''). This approach would be consistent with the compliance certification requirements for other commercial equipment such as high-intensity discharge lamps and distribution transformers, which are covered equipment under section 346 of EPCA. 73 FR 78224.

In its comments to the NOPR, at 74 FR 32068 (July 7, 2009), NEMA observed that many small electric motors sold in the U.S. are also sold in Canada, and that Canadian regulatory entities are considering following DOE's lead in developing energy efficiency standards for small electric motors. (NEMA, No. 12 at p. 4) NEMA noted that because the only means to certify compliance for electric motors in Canada is through the CSA Energy Efficiency Verification Program, it is likely that the Canadian government will require small electric motors to be certified through the same CSA Energy Efficiency Verification Program. NEMA requested that DOE recognize independent third party efficiency certification programs for small electric motors, but not mandate the use of independent third party certification programs or accreditation programs for testing facilities. Rather, it stressed that DOE recognition of such programs would encourage motor manufacturers to use third party accreditation programs, such as NVLAP, to accredit their own test facility, which could then be used to self-certify under 10 CFR 431.17(a)(5)(ii). In addition, NEMA recommended that DOE allow sufficient time for the approval of such programs and manufacturer participation in such programs because no accreditation programs for testing in accordance with IEEE Standard 112 (Test Method A), IEEE Standard 114, or CSA C747 currently exist. (NEMA, No. 12 at pp. 4–5)

NEEA supported the creation of a nationally recognized certification program or accredited laboratory, according to the requirements that currently apply to electric motors. (See 10 CFR 431.17(a)(5)) It recommended that DOE apply the same requirements to small electric motors. (NEEA, No. 10 at p. 2)

Responding to these comments, DOE proposed in the January 2011 SNOPR to add the same provisions regarding nationally recognized certification programs to the small electric motors regulations as are currently found in the electric motors regulations at 10 CFR 431.17(a)(5), 431.20, and 431.21. DOE proposed to allow the use of such approved programs but it added that it may also, in the future, require manufacturers to test small electric motors through a nationally recognized certification program or a testing laboratory that has been accredited through a process similar to that of NIST/NVLAP. 76 FR 660. DOE notes that 10 CFR sections 431.19 and 431.20, respectively, provide for DOE recognition of accreditation bodies and nationally recognized certification programs.

In written comments, NEMA and ACEEE agreed that independent third party compliance certification programs for small electric motors should be approved as DOE had proposed through the additions of sections 431.447 and 431.448. However, they stressed that any approved certification program for small electric motors should not be mandatory—these programs should continue to be one of the procedures available to manufacturers when certifying their small electric motors to the applicable standards. Furthermore, they commented that, similar to electric motors, participation in a laboratory accreditation program for the testing of small electric motor efficiency should not be mandatory if it is possible to obtain equivalent recognition of the test facility through participation in a certification program. (NEMA and

[12] Further, 10 CFR 431.17(a)(5) provides for a manufacturer to establish compliance either through: (1) A certification program that DOE has classified as nationally recognized, such as CSA or Underwriters Laboratories, Inc., or (2) testing in any laboratory that is accredited by the National Institute of Standards and Technology/National Voluntary Laboratory Accreditation Program (NIST/NVLAP).

ACEEE, No. 25 at p. 22) NEMA and ACEEE also noted that in DOE's SNOPR, DOE did not include sections for small electric motors corresponding to the provisions currently in place for electric motors—10 CFR 431.18 (''Testing Laboratories'') and 10 CFR 431.19 (''Department of Energy recognition of accreditation bodies''). These commenters urged DOE to begin the process of establishing proper certification and accreditation programs in the immediate future. (NEMA and ACEEE, No. 25 at pp. 22–23)

Advanced Energy recommended that third party accreditation programs and laboratory accreditation programs be established and made available for motor manufacturers seeking compliance for small electric motors. Furthermore, it commented that these programs should be made mandatory to match the testing and certification policies of electric motors. Advanced Energy suggested that DOE and NIST work together to develop laboratory accredited programs for all new test standards referenced in the SNOPR, and that all third party certification programs currently recognized by DOE should have NVLAP accreditation for motor efficiency testing because it improves testing consistency and expertise of the programs for determining motor efficiency.

In view of the above comments, DOE will codify the proposed requirements for sections 431.447 and 431.448 in today's final rule, with one minor change. DOE believes that an independent third party certification should not be mandatory at this time because such a requirement would conflict with DOE's goal of reducing testing burdens for small electric motor manufacturers. Furthermore, mandatory use of third-party certification would also nullify the advantage that manufacturers would gain through the use of an AEDM, which DOE currently believes offers a reasonably accurate method of demonstrating the efficiency of a given basic model of a small electric motor. In sum, until there is a DOE-approved nationally recognized certification program for small electric motors, manufacturers must self-certify their small electric motors as required in today's rule at section 431.445(b)(5)(ii). Section 431.445(b)(5)(i) of today's rule differs from the proposed rule in that it allows a manufacturer to ''use'' a certification program rather than ''have'' a certification program. This minor change clarifies that manufacturers can use their own approved certification program or an approved third-party certification program. In terms of participation in laboratory accreditation, DOE will continue to work with NIST/NVLAP to develop such accreditation procedures in the near future.

IV. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

The Office of Management and Budget has determined that test procedure rulemakings do not constitute ''significant regulatory actions'' under section 3(f) of Executive Order 12866, Regulatory Planning and Review, 58 FR 51735 (Oct. 4, 1993). Accordingly, this action was not subject to review under the Executive Order by the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB).

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of a regulatory flexibility analysis for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by Executive Order 13272, ''Proper Consideration of Small Entities in Agency Rulemaking,'' 67 FR 53461 (August 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the DOE rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel's Web site: *http://www.gc.doe.gov*.

As described in the preamble, today's final rule presents additional test procedure options consistent with current industry practice that manufacturers may use when certifying their equipment as compliant, clarifies definitions for certain key terms, clarifies the scope of energy conservation standards for electric motors, and updates references to standards publications and test procedures otherwise incorporated by reference. DOE certified to the Office of Advocacy of the Small Business Administration (SBA) that the proposed test procedures for electric motors and small electric motors would not have a significant economic impact on a substantial number of small entities. After consideration of comments received on the economic impact of the rule, discussed in more detail below and elsewhere in the preamble, DOE continues to certify that the test procedures would not have a significant economic impact on a substantial number of small entities. The factual basis for this certification is as follows:

To estimate the number of small businesses impacted by the rule, DOE considered the size standards for a small business listed by the North American Industry Classification System (NAICS) code and description under 13 CFR 121.201. To be considered a small business, a manufacturer of electric motors or small electric motors and its affiliates may employ a maximum of 1,000 employees. DOE estimates that there are approximately 20 domestic motor manufacturers that manufacture electric motors or small electric motors covered by EPCA, and no more than six of these manufacturers are small businesses employing a maximum of 1,000 employees. These estimates are based on analyses DOE conducted in the final rule establishing energy conservation standards for small electric motors at 75 FR 10874 (March 9, 2010) and the final rule that set forth test procedures for electric motors at 64 FR 54114 (October 5, 1999). In these previous rules, DOE calculated the number of motor manufacturers, including the number of manufacturers qualifying as small businesses, based on interviews with motor manufacturers and publicly available data. Since the promulgation of those rules, and after further examining the motor industry, which included surveying the motor industry and determining the number of manufacturers remaining, DOE has not discovered the presence of any new manufacturers of electric or small electric motors that would necessitate a change to these previous estimates.

To determine the anticipated economic impact of the testing requirements on small manufacturers, DOE examined current industry practices and steps taken in the design of the rule to minimize the testing burden on manufacturers. Today's final rule will continue to allow a manufacturer to certify compliance through its election of either an independent testing program or a certification program. Today's rule will also continue to follow the NEMA sampling plan for determining compliance, which DOE adopted on October 5, 1999, (64 FR 54114). Use of the sampling plan is consistent with industry practice. In addition, today's final rule is consistent with current test procedures and methodologies that the industry already uses (i.e., IEEE Standard 114, IEEE Standard 112, CSA C390, and CSA C747.) DOE examined these methodologies in the December 22, 2008, test procedure notice of proposed rulemaking, which today's

final rule supplements. The 2008 proposal stated that because DOE proposed adopting those requirements that the industry already follows, DOE did not find that the revisions in that proposal would result in any significant increase in testing or compliance costs, or otherwise be unduly burdensome. 73 FR 78220. Today's rule does not increase the reporting, recordkeeping, or other compliance requirements beyond those requirements already established for the testing and compliance certification of electric motors and small electric motors. Moreover, today's final rule does not adopt additional testing requirements, tighter tolerances, or greater accuracy than what is technologically feasible and economically justified. In addition, DOE continues to believe that allowing a manufacturer to choose between two equally valid test procedures will reduce undue burden on that manufacturer or private labeler.

DOE did not receive any comments from SBA or the public in response to its certification. DOE did receive comments from stakeholders on the potential economic impacts of the rule. These comments, which are addressed in the preamble, all urged DOE to give manufacturers one to three years to comply with energy conservation standards for motors types not previously covered—i.e., special shaft and 100 mm frame motors. In response to these comments, the Department has agreed to give manufacturers of IEC 100 mm frame size motors three years after the effective date of today's rule to comply with energy conservation standards and relevant test procedures. (As described in today's rule, DOE declines to establish an implementation date for the enforcement of energy conservation standards for motors with special shaft dimensions because shaft dimensions were addressed in guidance and guidance does not change the scope of coverage for electric motors.)

In view of the foregoing, DOE certifies that today's final rule would not impose significant economic impacts on a substantial number of small entities. Accordingly, DOE has not prepared a regulatory flexibility analysis for this rulemaking. DOE has provided its certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act of 1995

Manufacturers of covered electric motors must certify to DOE that their electric motors comply with any applicable energy conservation standard. In certifying compliance, manufacturers must test their electric motors according to the relevant DOE test procedure, including any amendments adopted for that test procedure. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment. 76 FR 12422 (March 7, 2011); 10 CFR Part 431, Subpart B.

The collection-of-information requirement for the certification and recordkeeping provisions related to electric motors is subject to review and approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act (PRA). This requirement was approved by OMB and is current under OMB Control Number 1910–1400. DOE estimated the reporting burden for the certification to average 20 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

D. Review Under the National Environmental Policy Act of 1969

This final rule amends certain aspects related to the test procedures for electric and small electric motors. DOE has determined that this rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) and DOE's implementing regulations at 10 CFR part 1021. Specifically, this rule amends an existing rule without affecting the amount, quality or distribution of energy usage, and, therefore, will not result in any environmental impacts. Thus, this rulemaking is covered by Categorical Exclusion A5 under 10 CFR part 1021, subpart D, which applies to any rulemaking that interprets or amends an existing rule without changing the environmental effect of that rule. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 13132

Executive Order 13132, ''Federalism,'' 64 FR 43255 (August 4, 1999) imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE examined this final rule and determined that it will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the equipment covered by today's final rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (42 U.S.C. 6297(d)) No further action is required by Executive Order 13132.

F. Review Under Executive Order 12988

Regarding the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, ''Civil Justice Reform,'' 61 FR 4729 (Feb. 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide a clear legal standard for affected conduct rather than a general standard; and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order

12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this final rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Public Law 104–4, sec. 201 (codified at 2 U.S.C. 1531). For a regulatory action resulting in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed ''significant intergovernmental mandate,'' and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820; also available at *http://www.gc.doe.gov.* DOE examined today's final rule according to UMRA and its statement of policy and determined that the rule contains neither an intergovernmental mandate, nor a mandate that may result in the expenditure of $100 million or more in any year, so these requirements do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. Today's final rule will not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

DOE has determined, under Executive Order 12630, ''Governmental Actions and Interference with Constitutionally Protected Property Rights'' 53 FR 8859 (March 18, 1988), that this regulation will not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (February 22, 2002), and DOE's guidelines were published at 67 FR 62446 (October 7, 2002). DOE has reviewed today's final rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,'' 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OMB, a Statement of Energy Effects for any significant energy action. A ''significant energy action'' is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that: (1) Is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (3) is designated by the Administrator of OIRA as a significant energy action. For any significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use if the regulation is implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

Today's regulatory action is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as a significant energy action by the Administrator of OIRA. Therefore, it is not a significant energy action, and, accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under Section 32 of the Federal Energy Administration Act of 1974

Under section 301 of the Department of Energy Organization Act (Pub. L. 95–91; 42 U.S.C. 7101), DOE must comply with section 32 of the Federal Energy Administration Act of 1974, as amended by the Federal Energy Administration Authorization Act of 1977. (15 U.S.C. 788; FEAA) Section 32 essentially provides in relevant part that, where a proposed rule authorizes or requires use of commercial standards, the notice of proposed rulemaking must inform the public of the use and background of such standards. In addition, section 32(c) requires DOE to consult with the Attorney General and the Chairman of the Federal Trade Commission (FTC) concerning the impact of the commercial or industry standards on competition.

The final rule in this notice incorporates testing methods contained in the following commercial standards: (1) CSA C390–10, *Test methods, marking requirements, and energy efficiency levels for three-phase induction motors,* March 22, 2010; (2) CSA C747–09, *Energy efficiency test methods for small motors,* October 1, 2009; (3) IEC Standard 60034–1 (2010), *Rotating Electrical Machines, Part 1: Rating and Performance,* Section 4: Duty, clause 4.2.1 and Figure 1; (4) IEC Standard 60034–12 (2007), *Rotating Electrical Machines, Part 12: Starting Performance of Single-Speed Three-Phase Cage Induction Motors,* clauses 5.2, 5.4, 6, and 8, and Tables 1, 2, 3, 4, 5, 6, and 7; (5) NEMA Standards Publication MG1–2009 Section I (Part 1), Section I (Part 4), Section II (Part 12), and Section II (Part 14); (6) NEMA Standards Publication Mg1–1967 Section C and Section D; and (7) IEEE Standard 114, *Standard Test Procedure for Single-Phase Induction Motors,* December 23, 2010.

DOE has evaluated these revised standards and is unable to conclude whether they fully comply with the requirements of section 32(b) of the Federal Energy Administration Act (i.e., that they were developed in a manner that fully provides for public participation, comment, and review). DOE has consulted with the Attorney General and the Chairman of the FTC about the impact of these test procedures on competition and received no objections to their use.

M. Congressional Notification

As required by 5 U.S.C. 801, DOE will report to Congress on the promulgation of today's rule before its effective date. The report will state that it has been determined that the rule is not a ''major rule'' as defined by 5 U.S.C. 804(2).

V. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this final rule.

List of Subjects in 10 CFR Part 431

Administrative practices and procedure, Energy conservation, Incorporation by reference, Reporting and recordkeeping requirements.

Issued in Washington, DC, on April 25, 2012.

Kathleen B. Hogan,

Deputy Assistant Secretary for Energy Efficiency, Energy Efficiency and Renewable Energy.

For the reasons stated in the preamble, DOE amends part 431 of chapter II of title 10, Code of Federal Regulations, as set forth below.

PART 431—ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT

■ 1. The authority citation for part 431 continues to read as follows:

Authority: 42 U.S.C. 6291–6317.

■ 2. Section 431.11 is revised to read as follows:

§ 431.11 Purpose and scope.

This subpart contains energy conservation requirements for electric motors. It contains test procedures that EPCA requires DOE to prescribe, related requirements, energy conservation standards prescribed by EPCA, labeling rules, and compliance procedures. It also identifies materials incorporated by reference in this part. This subpart does not cover ''small electric motors,'' which are addressed in subpart X of this part.

■ 3. Section 431.12 is amended by:

■ a. Removing from the introductory text, ''K through M'' and adding ''U and V'' in its place;

■ b. Revising the definitions of ''accreditation,'' ''CSA,'' ''definite purpose motor,'' ''general purpose electric motor (subtype I),'' ''general purpose electric motor (subtype II),'' and ''nominal full-load efficiency;''

■ c. Removing the definition of ''general purpose motor;'' and

■ d. Adding in alphabetical order, new definitions for ''electric motor,'' ''fire pump electric motor,'' ''general purpose electric motor,'' and ''NEMA Design B motor.''

The revisions and additions read as follows:

§ 431.12 Definitions.

* * * * *

Accreditation means recognition by an accreditation body that a laboratory is competent to test the efficiency of electric motors according to the scope and procedures given in Test Method B of IEEE Std 112–2004 and CSA C390–10 (incorporated by reference, see § 431.15).

* * * * *

CSA means Canadian Standards Association.

Definite purpose motor means any motor that cannot be used in most general purpose applications and is designed either:

(1) To standard ratings with standard operating characteristics or standard mechanical construction for use under service conditions other than usual, such as those specified in NEMA MG1–2009, paragraph 14.3, ''Unusual Service Conditions,'' (incorporated by reference, see § 431.15); or

(2) For use on a particular type of application.

Electric motor means a machine that converts electrical power into rotational mechanical power.

* * * * *

Fire pump electric motor means an electric motor, including any IEC-equivalent, that meets the requirements of section 9.5 of NFPA 20 (incorporated by reference, see § 431.15).

General purpose electric motor means any electric motor that is designed in standard ratings with either:

(1) Standard operating characteristics and mechanical construction for use under usual service conditions, such as those specified in NEMA MG1–2009, paragraph 14.2, ''Usual Service Conditions,'' (incorporated by reference, see § 431.15) and without restriction to a particular application or type of application; or

(2) Standard operating characteristics or standard mechanical construction for use under unusual service conditions, such as those specified in NEMA MG1–2009, paragraph 14.3, ''Unusual Service Conditions,'' (incorporated by reference, see § 431.15) or for a particular type of application, and which can be used in most general purpose applications.

General purpose electric motor (subtype I) means a general purpose electric motor that:

(1) Is a single-speed, induction motor;

(2) Is rated for continuous duty (MG1) operation or for duty type S1 (IEC);

(3) Contains a squirrel-cage (MG1) or cage (IEC) rotor;

(4) Has foot-mounting that may include foot-mounting with flanges or detachable feet;

(5) Is built in accordance with NEMA T-frame dimensions or their IEC metric equivalents, including a frame size that is between two consecutive NEMA frame sizes or their IEC metric equivalents;

(6) Has performance in accordance with NEMA Design A (MG1) or B (MG1) characteristics or equivalent designs such as IEC Design N (IEC);

(7) Operates on polyphase alternating current 60-hertz sinusoidal power, and:

(i) Is rated at 230 or 460 volts (or both) including motors rated at multiple voltages that include 230 or 460 volts (or both), or

(ii) Can be operated on 230 or 460 volts (or both); and

(8) Includes, but is not limited to, explosion-proof construction.

Note to Definition of General purpose electric motor (subtype I): References to ''MG1'' above refer to NEMA Standards Publication MG1–2009 (incorporated by reference in § 431.15). References to ''IEC'' above refer to IEC 60034–1, 60034–12, 60050–411, and 60072–1 (incorporated by reference in § 431.15), as applicable.

General purpose electric motor (subtype II) means any general purpose electric motor that incorporates design elements of a general purpose electric motor (subtype I) but, unlike a general purpose electric motor (subtype I), is configured in one or more of the following ways:

(1) Is built in accordance with NEMA U-frame dimensions as described in NEMA MG1–1967 (incorporated by reference, see § 431.15) or in accordance with the IEC metric equivalents, including a frame size that is between two consecutive NEMA frame sizes or their IEC metric equivalents;

(2) Has performance in accordance with NEMA Design C characteristics as described in MG1 or an equivalent IEC design(s) such as IEC Design H;

(3) Is a close-coupled pump motor;

(4) Is a footless motor;

(5) Is a vertical solid shaft normal thrust motor (as tested in a horizontal configuration) built and designed in a manner consistent with MG1;

(6) Is an eight-pole motor (900 rpm); or

(7) Is a polyphase motor with a voltage rating of not more than 600 volts, is not rated at 230 or 460 volts (or both), and cannot be operated on 230 or 460 volts (or both).

Note to Definition of General purpose electric motor (subtype II): With the

exception of the NEMA Motor Standards MG1–1967 (incorporated by reference in § 431.15), references to ''MG1'' above refer to the 2009 NEMA MG1–2009 (incorporated by reference in § 431.15). References to ''IEC'' above refer to IEC 60034–1, 60034–12, 60050–411, and 60072–1 (incorporated by reference in § 431.15), as applicable.

* * * * *

NEMA Design B motor means a squirrel-cage motor that is:

(1) Designed to withstand full-voltage starting;

(2) Develops locked-rotor, breakdown, and pull-up torques adequate for general application as specified in sections 12.38, 12.39 and 12.40 of NEMA MG1–2009 (incorporated by reference, see § 431.15);

(3) Draws locked-rotor current not to exceed the values shown in section 12.35.1 for 60 hertz and 12.35.2 for 50 hertz of NEMA MG1–2009; and

(4) Has a slip at rated load of less than 5 percent for motors with fewer than 10 poles.

Nominal full-load efficiency means, with respect to an electric motor, a representative value of efficiency selected from the ''nominal efficiency'' column of Table 12–10, NEMA MG1–2009, (incorporated by reference, see § 431.15), that is not greater than the average full-load efficiency of a population of motors of the same design.

* * * * *

■ 4. A new § 431.14 is added to read as follows:

§ 431.14 Sources for information and guidance.

(a) *General.* The standards listed in this paragraph are referred to in the DOE procedures for testing laboratories, and recognition of accreditation bodies and certification programs but are not incorporated by reference. These sources are given here for information and guidance.

(b) *NVLAP.* National Voluntary Laboratory Accreditation Program, National Institute of Standards and Technology, 100 Bureau Drive, M/S 2140, Gaithersburg, MD 20899–2140, 301–975–4016, or go to *http://www.nist.gov/nvlap/.* Also see *http://www.nist.gov/nvlap/nvlap-handbooks.cfm.*

(1) NVLAP Handbook 150, Procedures and General Requirements, February 2006.

(2) NVLAP Handbook 150–10, Efficiency of Electric Motors, February 2007.

(3) NIST Handbook 150–10 Checklist, Efficiency of Electric Motors Program, (2007–05–04).

(4) NVLAP Lab Bulletin Number: LB–42–2009, Changes to NVLAP Efficiency of Electric Motors Program, March 19, 2009.

(c) *ISO/IEC.* International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, CP 56, CH–1211 Geneva 20, Switzerland/ International Electrotechnical Commission, 3, rue de Varembé, P.O. Box 131, CH–1211 Geneva 20, Switzerland.

(1) ISO/IEC Guide 25, General requirements for the competence of calibration and testing laboratories, 1990.

(2) ISO Guide 27, Guidelines for corrective action to be taken by a certification body in the event of either misapplication of its mark of conformity to a product, or products which bear the mark of the certification body being found to subject persons or property to risk, 1983.

(3) ISO/IEC Guide 28, General rules for a model third-party certification system for products, 2004.

(4) ISO/IEC Guide 58, Calibration and testing laboratory accreditation systems—General requirements for operation and recognition, 1993.

(5) ISO/IEC Guide 65, General requirements for bodies operating product certification systems, 1996.

■ 5. Section 431.15 is revised to read as follows:

§ 431.15 Materials incorporated by reference.

(a) *General.* The Department of Energy incorporates by reference the following standards and test procedures into subpart B of part 431. The Director of the Federal Register has approved the material listed for incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Any subsequent amendment to a standard by the standard-setting organization will not affect DOE regulations unless and until DOE amends its test procedures. Material is incorporated as it exists on the date of the approval, and a notice of any change in the material will be published in the **Federal Register.** All approved material is available for inspection at the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, Sixth Floor, 950 L'Enfant Plaza SW., Washington, DC 20024, (202) 586–2945, or go to *http://www1.eere.energy.gov/buildings/appliance_standards/.* Also, this material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) *CSA.* Canadian Standards Association, Sales Department, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, L4W 5N6, Canada, 1–800–463–6727, or go to *http://www.shopcsa.ca/onlinestore/welcome.asp.*

(1) CSA C390–10, Test methods, marking requirements, and energy efficiency levels for three-phase induction motors, March 2010, IBR approved for §§ 431.12; 431.19; 431.20; appendix B to subpart B of part 431.

(2) [Reserved]

(c) *IEC.* International Electrotechnical Commission Central Office, 3, rue de Varembé, P.O. Box 131, CH–1211 GENEVA 20, Switzerland, +41 22 919 02 11, or go to *http://webstore.iec.ch.*

(1) IEC 60034–1 Edition 12.0 2010–02, (''IEC 60034–1''), Rotating Electrical Machines, Part 1: Rating and Performance, February 2010, IBR approved as follows: section 4: Duty, clause 4.2.1 and Figure 1, IBR approved for § 431.12.

(2) IEC 60034–12 Edition 2.1 2007–09, (''IEC 60034–12''), Rotating Electrical Machines, Part 12: Starting Performance of Single-Speed Three-Phase Cage Induction Motors, September 2007, IBR approved as follows: clauses 5.2, 5.4, 6, and 8, and Tables 1, 2, 3, 4, 5, 6, and 7, IBR approved for § 431.12.

(3) IEC 60050–411, International Electrotechnical Vocabulary Chapter 411: Rotating machines, 1996, IBR approved as follows: sections 411–33–07 and 411–37–26, IBR approved for § 431.12.

(4) IEC 60072–1, Dimensions and Output Series for Rotating Electrical Machines—Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080, 1991, IBR approved as follows: clauses 2, 3, 4.1, 6.1, 7, and 10, and Tables 1, 2 and 4, IBR approved for § 431.12.

(d) *IEEE.* Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855–1331, 1–800–678–IEEE (4333), or *http://www.ieee.org/web/publications/home/index.html.*

(1) IEEE Std 112–2004, Test Procedure for Polyphase Induction Motors and Generators, approved February 9, 2004, IBR approved as follows: section 6.4, Efficiency Test Method B, Input-Output with Loss Segregation, IBR approved for §§ 431.12; 431.19; 431.20; appendix B to subpart B of part 431.

(2) [Reserved]

(e) *NEMA.* National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1752, Rosslyn,

Virginia 22209, 703–841–3200, or go to *http://www.nema.org/.*

(1) NEMA Standards Publication MG1–2009 (''NEMA MG1–2009''), Motors and Generators, copyright 2009, IBR approved as follows:

(i) Section I, General Standards Applying to All Machines, Part 1, Referenced Standards and Definitions, paragraphs 1.18.1, 1.18.1.1, 1.19.1.1, 1.19.1.2, 1.19.1.3, and 1.40.1, IBR approved for § 431.12;

(ii) Section I, General Standards Applying to All Machines, Part 4, Dimensions, Tolerances, and Mounting, paragraphs 4.1, 4.2.1, 4.2.2, 4.4.1, 4.4.2, 4.4.4, 4.4.5, and 4.4.6, Figures 4–1, 4–2, 4–3, 4–4, and 4–5, and Table 4–2, IBR approved for § 431.12;

(iii) Section II, Small (Fractional) and Medium (Integral) Machines, Part 12, Tests and Performance—AC and DC Motors:

(A) Paragraphs 12.35.1, 12.35.2, 12.38.1, 12.38.2, 12.39.1, 12.39.2, and 12.40.1, 12.40.2, and Tables 12–2, 12–3, and 12–10, IBR approved for § 431.12;

(B) Paragraph 12.58.1, IBR approved for § 431.12 and appendix B to subpart B of part 431;

(C) Paragraph 12.58.2, IBR approved for § 431.31.

(iv) Section II, Small (Fractional) and Medium (Integral) Machines, Part 14, Application Data—AC and DC Small and Medium Machines, paragraphs 14.2 and 14.3, IBR approved for § 431.12.

(2) NEMA Standards Publication MG1–1967, (''NEMA MG1–1967''), Motors and Generators, January 1968, IBR approved as follows:

(i) Part 11, Dimensions, IBR approved for § 431.12;

(ii) Part 13, Frame Assignments—A–C Integral-Horsepower Motors, IBR approved for § 431.12.

(f) *NFPA.* National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169–7471, 617–770–3000, or go to *http://nfpa.org/.*

(1) NFPA 20, 2010 Edition, Standard for the Installation of Stationary Pumps for Fire Protection, section 9.5, IBR approved for § 431.12.

(2) (Reserved)

■ 6. Section 431.18, paragraph (b) is revised to read as follows:

§ 431.18 Testing laboratories.

* * * * *

(b) NIST/NVLAP is under the auspices of the National Institute of Standards and Technology (NIST)/ National Voluntary Laboratory Accreditation Program (NVLAP), which is part of the U.S. Department of Commerce. NIST/NVLAP accreditation is granted on the basis of conformance with criteria published in 15 CFR Part 285. The National Voluntary Laboratory Accreditation Program, ''Procedures and General Requirements,'' NIST Handbook 150–10, February 2007, and Lab Bulletin LB–42–2009, Efficiency of Electric Motors Program, (referenced for guidance only, see § 431.14) present the technical requirements of NVLAP for the Efficiency of Electric Motors field of accreditation. This handbook supplements NIST Handbook 150, National Voluntary Laboratory Accreditation Program ''Procedures and General Requirements,'' which contains 15 CFR part 285 plus all general NIST/ NVLAP procedures, criteria, and policies. Information regarding NIST/ NVLAP and its Efficiency of Electric Motors Program (EEM) can be obtained from NIST/NVLAP, 100 Bureau Drive, Mail Stop 2140, Gaithersburg, MD 20899–2140, (301) 975–4016 (telephone), or (301) 926–2884 (fax).

■ 7. Section 431.19 is amended by:

■ a. Adding at the end of the last sentence in paragraph (c)(3) ''(referenced for guidance only, see § 431.14)''; and

■ b. Revising paragraphs (b)(4) and (c)(4), to read as follows:

§ 431.19 Department of Energy recognition of accreditation bodies.

* * * * *

(b) * * *

(4) It must be expert in the content and application of the test procedures and methodologies in IEEE Std 112–2004 Test Method B or CSA C390–10, (incorporated by reference, see § 431.15).

(c) * * *

(4) Expertise in electric motor test procedures. The petition should set forth the organization's experience with the test procedures and methodologies in IEEE Std 112–2004 Test Method B and CSA C390–10, (incorporated by reference, see § 431.15). This part of the petition should include items such as, but not limited to, a description of prior projects and qualifications of staff members. Of particular relevance would be documentary evidence that establishes experience in applying the guidelines contained in the ISO/IEC Guide 25, General Requirements for the Competence of Calibration and Testing Laboratories, (referenced for guidance only, see § 431.14) to energy efficiency testing for electric motors.

* * * * *

■ 8. Section 431.20 is amended by:

■ a. Adding at the end of the last sentence of paragraph (c)(3) ''(referenced for guidance only, see § 431.14)''; and

■ b. Revising paragraphs (b)(4) and (c)(4) to read as follows:

§ 431.20 Department of Energy recognition of nationally recognized certification programs.

* * * * *

(b) * * *

(4) It must be expert in the content and application of the test procedures and methodologies in IEEE Std 112–2004 Test Method B or CSA C390–10, (incorporated by reference, see § 431.15). It must have satisfactory criteria and procedures for the selection and sampling of electric motors tested for energy efficiency.

* * * * *

(c) * * *

(4) *Expertise in electric motor test procedures.* The petition should set forth the program's experience with the test procedures and methodologies in IEEE Std 112–2004 Test Method B or CSA C390–10, (incorporated by reference, see § 431.15). This part of the petition should include items such as, but not limited to, a description of prior projects and qualifications of staff members. Of particular relevance would be documentary evidence that establishes experience in applying guidelines contained in the ISO/IEC Guide 25, General Requirements for the Competence of Calibration and Testing Laboratories (referenced for guidance only, see 431.14) to energy efficiency testing for electric motors.

* * * * *

■ 9. Section 431.25 is revised to read as follows:

§ 431.25 Energy conservation standards and effective dates.

(a) Except as provided for fire pump electric motors in paragraph (b) of this section, each general purpose electric motor (subtype I) with a power rating of 1 horsepower or greater, but not greater than 200 horsepower, including a NEMA Design B or an equivalent IEC Design N motor that is a general purpose electric motor (subtype I), manufactured (alone or as a component of another piece of equipment) on or after December 19, 2010, shall have a nominal full-load efficiency that is not less than the following:

TABLE 1—NOMINAL FULL-LOAD EFFICIENCIES OF GENERAL PURPOSE ELECTRIC MOTORS (SUBTYPE I), EXCEPT FIRE PUMP ELECTRIC MOTORS

Motor horsepower/standard kilowatt equivalent	Nominal full-load efficiency					
	Open motors (number of poles)			Enclosed motors (number of poles)		
	6	4	2	6	4	2
1/.75	82.5	85.5	77.0	82.5	85.5	77.0
1.5/1.1	86.5	86.5	84.0	87.5	86.5	84.0
2/1.5	87.5	86.5	85.5	88.5	86.5	85.5
3/2.2	88.5	89.5	85.5	89.5	89.5	86.5
5/3.7	89.5	89.5	86.5	89.5	89.5	88.5
7.5/5.5	90.2	91.0	88.5	91.0	91.7	89.5
10/7.5	91.7	91.7	89.5	91.0	91.7	90.2
15/11	91.7	93.0	90.2	91.7	92.4	91.0
20/15	92.4	93.0	91.0	91.7	93.0	91.0
25/18.5	93.0	93.6	91.7	93.0	93.6	91.7
30/22	93.6	94.1	91.7	93.0	93.6	91.7
40/30	94.1	94.1	92.4	94.1	94.1	92.4
50/37	94.1	94.5	93.0	94.1	94.5	93.0
60/45	94.5	95.0	93.6	94.5	95.0	93.6
75/55	94.5	95.0	93.6	94.5	95.4	93.6
100/75	95.0	95.4	93.6	95.0	95.4	94.1
125/90	95.0	95.4	94.1	95.0	95.4	95.0
150/110	95.4	95.8	94.1	95.8	95.8	95.0
200/150	95.4	95.8	95.0	95.8	96.2	95.4

(b) Each fire pump electric motor that is a general purpose electric motor (subtype I) or general purpose electric motor (subtype II) manufactured (alone or as a component of another piece of equipment) on or after December 19, 2010, shall have a nominal full-load efficiency that is not less than the following:

TABLE 2—NOMINAL FULL-LOAD EFFICIENCIES OF FIRE PUMP ELECTRIC MOTORS

Motor horsepower/standard kilowatt equivalent	Nominal full-load efficiency							
	Open motors (number of poles)				Enclosed motors (number of poles)			
	8	6	4	2	8	6	4	2
1/.75	74.0	80.0	82.5	.....	74.0	80.0	82.5	75.5
1.5/1.1	75.5	84.0	84.0	82.5	77.0	85.5	84.0	82.5
2/1.5	85.5	85.5	84.0	84.0	82.5	86.5	84.0	84.0
3/2.2	86.5	86.5	86.5	84.0	84.0	87.5	87.5	85.5
5/3.7	87.5	87.5	87.5	85.5	85.5	87.5	87.5	87.5
7.5/5.5	88.5	88.5	88.5	87.5	85.5	89.5	89.5	88.5
10/7.5	89.5	90.2	89.5	88.5	88.5	89.5	89.5	89.5
15/11	89.5	90.2	91.0	89.5	88.5	90.2	91.0	90.2
20/15	90.2	91.0	91.0	90.2	89.5	90.2	91.0	90.2
25/18.5	90.2	91.7	91.7	91.0	89.5	91.7	92.4	91.0
30/22	91.0	92.4	92.4	91.0	91.0	91.7	92.4	91.0
40/30	91.0	93.0	93.0	91.7	91.0	93.0	93.0	91.7
50/37	91.7	93.0	93.0	92.4	91.7	93.0	93.0	92.4
60/45	92.4	93.6	93.6	93.0	91.7	93.6	93.6	93.0
75/55	93.6	93.6	94.1	93.0	93.0	93.6	94.1	93.0
100/75	93.6	94.1	94.1	93.0	93.0	94.1	94.5	93.6
125/90	93.6	94.1	94.5	93.6	93.6	94.1	94.5	94.5
150/110	93.6	94.5	95.0	93.6	93.6	95.0	95.0	94.5
200/150	93.6	94.5	95.0	94.5	94.1	95.0	95.0	95.0
250/186	94.5	95.4	95.4	94.5	94.5	95.0	95.0	95.4
300/224	.....	95.4	95.4	95.0	.....	95.0	95.4	95.4
350/261	.....	95.4	95.4	95.0	.....	95.0	95.4	95.4
400/298	.....	.....	95.4	95.4	.....	.....	95.4	95.4
450/336	.....	.....	95.8	95.8	.....	.....	95.4	95.4
500/373	.....	.....	95.8	95.8	.....	.....	95.8	95.4

(c) Except as provided for fire pump electric motors in paragraph (b) of this section, each general purpose electric motor (subtype II) with a power rating of 1 horsepower or greater, but not greater than 200 horsepower, including a NEMA Design B or an equivalent IEC Design N motor that is a general purpose electric motor (subtype II),

manufactured (alone or as a component of another piece of equipment) on or after December 19, 2010, shall have a nominal full-load efficiency that is not less than the following:

TABLE 3—NOMINAL FULL-LOAD EFFICIENCIES OF GENERAL PURPOSE ELECTRIC MOTORS (SUBTYPE II), EXCEPT FIRE PUMP ELECTRIC MOTORS

Motor horsepower/ standard kilowatt equivalent	Nominal full-load efficiency							
	Open motors (number of poles)				Enclosed motors (number of poles)			
	8	6	4	2	8	6	4	2
1/.75	74.0	80.0	82.5	.....	74.0	80.0	82.5	75.5
1.5/1.1	75.5	84.0	84.0	82.5	77.0	85.5	84.0	82.5
2/1.5	85.5	85.5	84.0	84.0	82.5	86.5	84.0	84.0
3/2.2	86.5	86.5	86.5	84.0	84.0	87.5	87.5	85.5
5/3.7	87.5	87.5	87.5	85.5	85.5	87.5	87.5	87.5
7.5/5.5	88.5	88.5	88.5	87.5	85.5	89.5	89.5	88.5
10/7.5	89.5	90.2	89.5	88.5	88.5	89.5	89.5	89.5
15/11	89.5	90.2	91.0	89.5	88.5	90.2	91.0	90.2
20/15	90.2	91.0	91.0	90.2	89.5	90.2	91.0	90.2
25/18.5	90.2	91.7	91.7	91.0	89.5	91.7	92.4	91.0
30/22	91.0	92.4	92.4	91.0	91.0	91.7	92.4	91.0
40/30	91.0	93.0	93.0	91.7	91.0	93.0	93.0	91.7
50/37	91.7	93.0	93.0	92.4	91.7	93.0	93.0	92.4
60/45	92.4	93.6	93.6	93.0	91.7	93.6	93.6	93.0
75/55	93.6	93.6	94.1	93.0	93.0	93.6	94.1	93.0
100/75	93.6	94.1	94.1	93.0	93.0	94.1	94.5	93.6
125/90	93.6	94.1	94.5	93.6	93.6	94.1	94.5	94.5
150/110	93.6	94.5	95.0	93.6	93.6	95.0	95.0	94.5
200/150	93.6	94.5	95.0	94.5	94.1	95.0	95.0	95.0

(d) Each NEMA Design B or an equivalent IEC Design N motor that is a general purpose electric motor (subtype I) or general purpose electric motor (subtype II), excluding fire pump electric motors, with a power rating of more than 200 horsepower, but not greater than 500 horsepower, manufactured (alone or as a component of another piece of equipment) on or after December 19, 2010, shall have a nominal full-load efficiency that is not less than the following:

TABLE 4—NOMINAL FULL-LOAD EFFICIENCIES OF NEMA DESIGN B GENERAL PURPOSE ELECTRIC MOTORS (SUBTYPE I AND II), EXCEPT FIRE PUMP ELECTRIC MOTORS

Motor horsepower/ standard kilowatt equivalent	Nominal full-load efficiency							
	Open motors (number of poles)				Enclosed motors (number of poles)			
	8	6	4	2	8	6	4	2
250/186	94.5	95.4	95.4	94.5	94.5	95.0	95.0	95.4
300/224	.....	95.4	95.4	95.0	.....	95.0	95.4	95.4
350/261	.....	95.4	95.4	95.0	.....	95.0	95.4	95.4
400/298	.....	.....	95.4	95.4	.....	.....	95.4	95.4
450/336	.....	.....	95.8	95.8	.....	.....	95.4	95.4
500/373	.....	.....	95.8	95.8	.....	.....	95.8	95.4

(e) For purposes of determining the required minimum nominal full-load efficiency of an electric motor that has a horsepower or kilowatt rating between two horsepower or two kilowatt ratings listed in any table of energy conservation standards in paragraphs (a) through (d) of this section, each such motor shall be deemed to have a listed horsepower or kilowatt rating, determined as follows:

(1) A horsepower at or above the midpoint between the two consecutive horsepowers shall be rounded up to the higher of the two horsepowers;

(2) A horsepower below the midpoint between the two consecutive horsepowers shall be rounded down to the lower of the two horsepowers; or

(3) A kilowatt rating shall be directly converted from kilowatts to horsepower using the formula 1 kilowatt = (1⁄0.746) horsepower. The conversion should be calculated to three significant decimal places, and the resulting horsepower shall be rounded in accordance with paragraph (e)(1) or (e)(2) of this section, whichever applies.

(f) This section does not apply to definite purpose motors, special purpose motors, or those motors exempted by the Secretary.

■ 10. Remove § 431.30.

■ 11. Section 431.31, paragraph (a)(2) is revised to read as follows:

§ 431.31 Labeling requirements.

(a) * * *

(2) *Display of required information.* All orientation, spacing, type sizes, type

faces, and line widths to display this required information shall be the same as or similar to the display of the other performance data on the motor's permanent nameplate. The nominal full-load efficiency shall be identified either by the term ''Nominal Efficiency'' or ''Nom. Eff.'' or by the terms specified in paragraph 12.58.2 of NEMA MG1–2009, (incorporated by reference, see § 431.15) as for example ''NEMA Nom. Eff. ____.'' The Compliance Certification number issued pursuant to § 431.36 shall be in the form ''CC ____.''

* * * * *

§ 431.36 [Amended]

■ 12. Amend § 431.36 by removing ''Beginning April 26, 2003, a'' from the first sentence in paragraph (a) and adding ''A'' in its place.

Appendix A to Subpart B of Part 431 [Removed and Reserved]

■ 13. Remove and reserve appendix A to subpart B of part 431.

■ 14. Appendix B to subpart B of part 431 is revised to read as follows:

Appendix B to Subpart B of Part 431—Uniform Test Method for Measuring Nominal Full-Load Efficiency of Electric Motors

1. *Definitions.*

Definitions contained in §§ 431.2 and 431.12 are applicable to this appendix.

2. *Test Procedures.*

Efficiency and losses shall be determined in accordance with NEMA MG1–2009, paragraph 12.58.1, ''Determination of Motor Efficiency and Losses,'' (incorporated by reference, see § 431.15) and either:

(1) CSA C390–10, (incorporated by reference, see § 431.15), or

(2) IEEE Std 112–2004 Test Method B, Input-Output With Loss Segregation, (incorporated by reference, see § 431.15).

3. *Amendments to test procedures.*

Any revision to IEEE Std 112–2004 Test Method B, NEMA MG1–2009, or CSA C390–10, (incorporated by reference, see § 431.15) shall not be effective for purposes of certification and compliance testing unless and until this appendix and 10 CFR Part 431 are amended to incorporate that revision.

■ 15. Section 431.441 is revised to read as follows:

§ 431.441 Purpose and scope.

This subpart contains definitions, test procedures, and energy conservation requirements for small electric motors, pursuant to Part A–1 of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6317. This subpart does not cover ''electric motors,'' which are addressed in subpart B of this part.

§ 431.442 [Amended]

■ 16. Amend § 431.442, by removing ''*CAN/CSA''* and adding ''*CSA''* in its place.

■ 17. Amend § 431.443 by:

■ a. Revising paragraphs (b)(1), (c)(1) and (c)(2); and

■ b. Adding a new paragraph (b)(2).

The revisions and additions read as follows:

§ 431.443 Materials incorporated by reference.

* * * * *

(b) * * *

(1) CSA C747–09 (''CSA C747''), Energy efficiency test methods for small motors, October 2009, IBR approved for §§ 431.444; 431.447.

(2) CSA C390–10, Test methods, marking requirements, and energy efficiency levels for three-phase induction motors, March 2010, IBR approved for §§ 431.444; 431.447.

(c) * * *

(1) IEEE Std 112–2004, Test Procedure for Polyphase Induction Motors and Generators, approved February 9, 2004, IBR approved as follows:

(i) Section 6.3, Efficiency Test Method A, Input-Output, IBR approved for §§ 431.444; 431.447;

(ii) Section 6.4, Efficiency Test Method B, Input-Output with Loss Segregation, IBR approved for §§ 431.444; 431.447.

(2) IEEE Std 114–2010, Test Procedure for Single-Phase Induction Motors, approved September 30, 2010, IBR approved for §§ 431.444; 431.447.

■ 18. Section 431.444, paragraph (b) is revised to read as follows:

§ 431.444 Test procedures for the measurement of energy efficiency.

* * * * *

(b) *Testing and Calculations.* Determine the energy efficiency and losses by using one of the following test methods:

(1) Single-phase small electric motors: Either IEEE Std 114–2010 or CSA C747 (incorporated by reference, see § 431.443);

(2) Polyphase small electric motors less than or equal to 1 horsepower (0.75 kW): Either IEEE Std 112–2004 Test Method A or CSA C747 (incorporated by reference, see § 431.443); or

(3) Polyphase small electric motors greater than 1 horsepower (0.75 kW): Either IEEE Std 112–2004 Test Method B or CSA C390–10 (incorporated by reference, see § 431.443).

■ 19. Section 431.445, paragraph (b)(5) is added and paragraph (c) is revised to read as follows:

§ 431.445 Determination of small electric motor efficiency.

* * * * *

(b) * * *

(5) *Use of a certification program.* (i) A manufacturer may use a certification program, that DOE has classified as nationally recognized under § 431.447, to certify the average full-load efficiency of a basic model of small electric motor, and issue a certificate of conformity for the small electric motor.

(ii) For each basic model for which a certification program is not used as described in paragraph (b)(5)(i) of this section, any testing of a motor to determine its energy efficiency must be carried out in accordance with paragraph (c) of this section.

(c) *Additional testing requirements applicable when a certification program is not used*—(1) *Selection of basic models for testing.* (i) Basic models must be selected for testing in accordance with the following criteria:

(A) Two of the basic models must be among the five basic models that have the highest unit volumes of production by the manufacturer in the prior year, or during the prior 12 calendar month period beginning in 2015, whichever is later, and comply with the standards set forth in § 431.446;

(B) The basic models should be of different horsepowers without duplication;

(C) At least one basic model should be selected from each of the frame number series for which the manufacturer is seeking compliance; and

(D) Each basic model should have the lowest average full-load efficiency among the basic models with the same rating (''rating'' as used here has the same meaning as it has in the definition of ''basic model'').

(ii) In any instance where it is impossible for a manufacturer to select basic models for testing in accordance with all of these criteria, the criteria shall be given priority in the order in which they are listed. Within the limits imposed by the criteria, basic models shall be selected randomly.

(2) *Selection of units for testing within a basic model.* For each basic model selected for testing,[1] a sample of units shall be selected at random and tested. The sample shall be comprised of production units of the basic model, or units that are representative of such production units. The sample size shall be no fewer than five units, except when fewer than five units of a basic model

[1] Components of similar design may be substituted without requiring additional testing if the represented measures of energy consumption continue to satisfy the applicable sampling provision.

would be produced over a reasonable period of time (approximately 180 days). In such cases, each unit produced shall be tested.

(3) *Applying results of testing.* When applying the test results to determine whether a motor complies with the required average efficiency level:

The average full-load efficiency of the sample, $\bar{X}$ which is defined by

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{n} X_i$$

where X_i is the measured full-load efficiency of unit i and n is the number of units tested, shall satisfy the condition:

$$\overline{X} \geq \frac{100}{1 + 1.05\left(\frac{100}{RE} - 1\right)}$$

where RE is the required average full-load efficiency.

■ 20. A new § 431.447 is added to read as follows:

§ 431.447 Department of Energy recognition of nationally recognized certification programs.

(a) *Petition.* For a certification program to be classified by the Department of Energy as being nationally recognized in the United States (''nationally recognized''), the organization operating the program must submit a petition to the Department requesting such classification, in accordance with paragraph (c) of this section and § 431.448. The petition must demonstrate that the program meets the criteria in paragraph (b) of this section.

(b) *Evaluation criteria.* For a certification program to be classified by the Department as nationally recognized, it must meet the following criteria:

(1) It must have satisfactory standards and procedures for conducting and administering a certification system, including periodic follow up activities to assure that basic models of small electric motors continue to conform to the efficiency levels for which they were certified, and for granting a certificate of conformity.

(2) It must be independent of small electric motor manufacturers, importers, distributors, private labelers or vendors. It cannot be affiliated with, have financial ties with, be controlled by, or be under common control with any such entity.

(3) It must be qualified to operate a certification system in a highly competent manner.

(4) It must be expert in the content and application of the test procedures and methodologies in IEEE Std 112–2004 Test Methods A and B, IEEE Std 114–2010, CSA C390–10, and CSA C747 (incorporated by reference, see § 431.443) or similar procedures and methodologies for determining the energy efficiency of small electric motors. It must have satisfactory criteria and procedures for the selection and sampling of electric motors tested for energy efficiency.

(c) *Petition format.* Each petition requesting classification as a nationally recognized certification program must contain a narrative statement as to why the program meets the criteria listed in paragraph (b) of this section, must be signed on behalf of the organization operating the program by an authorized representative, and must be accompanied by documentation that supports the narrative statement. The following provides additional guidance as to the specific criteria:

(1) *Standards and procedures.* A copy of the standards and procedures for operating a certification system and for granting a certificate of conformity should accompany the petition.

(2) *Independent status.* The petitioning organization should identify and describe any relationship, direct or indirect, that it or the certification program has with an electric motor manufacturer, importer, distributor, private labeler, vendor, trade association or other such entity, as well as any other relationship it believes might appear to create a conflict of interest for the certification program in operating a certification system for determining the compliance of small electric motors with the applicable energy efficiency standards. It should explain why it believes such relationship would not compromise its independence in operating a certification program.

(3) *Qualifications to operate a certification system.* Experience in operating a certification system should be discussed and substantiated by supporting documents. Of particular relevance would be documentary evidence that establishes experience in the application of guidelines contained in the ISO/IEC Guide 65, General requirements for bodies operating product certification systems, ISO/IEC Guide 27, Guidelines for corrective action to be taken by a certification body in the event of either misapplication of its mark of conformity to a product, or products which bear the mark of the certification body being found to subject persons or property to risk, and ISO/IEC Guide 28, General rules for a model third-party certification system for products, as well as experience in overseeing compliance with the guidelines contained in the ISO/IEC Guide 25, General requirements for the competence of calibration and testing laboratories.

(4) *Expertise in small electric motor test procedures.* The petition should set forth the program's experience with the test procedures and methodologies in IEEE Std 112–2004 Test Methods A and B, IEEE Std 114–2010, CSA C390–10, and CSA C747– (incorporated by reference, see § 431.443) and with similar procedures and methodologies. This part of the petition should include items such as, but not limited to, a description of prior projects and qualifications of staff members. Of particular relevance would be documentary evidence that establishes experience in applying guidelines contained in the ISO/IEC Guide 25, General Requirements for the Competence of Calibration and Testing Laboratories to energy efficiency testing for electric motors.

(5) The ISO/IEC Guides referenced in paragraphs (c)(3) and (c)(4) of this section are not incorporated by reference, but are for information and guidance only. International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, CP 56, CH–1211 Geneva 20, Switzerland/ International Electrotechnical Commission, 3, rue de Varembé, P.O. Box 131, CH–1211 Geneva 20, Switzerland.

(d) *Disposition.* The Department will evaluate the petition in accordance with § 431.448, and will determine whether the applicant meets the criteria in paragraph (b) of this section for classification as a nationally recognized certification program.

■ 21. Add a new § 431.448 to read as follows:

§ 431.448 Procedures for recognition and withdrawal of recognition of certification programs.

(a) *Filing of petition.* Any petition submitted to the Department pursuant to § 431.447(a), shall be entitled ''Petition for Recognition'' (''Petition'') and must be submitted, in triplicate to the Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy, Forrestal Building, 1000 Independence Avenue SW., Washington, DC 20585–0121. In accordance with the provisions set forth in 10 CFR 1004.11, any request for confidential treatment of any information contained in such a Petition or in supporting documentation must be accompanied by a copy of the Petition

or supporting documentation from which the information claimed to be confidential has been deleted.

(b) *Public notice and solicitation of comments.* DOE shall publish in the **Federal Register** the Petition from which confidential information, as determined by DOE, has been deleted in accordance with 10 CFR 1004.11 and shall solicit comments, data and information on whether the Petition should be granted. The Department shall also make available for inspection and copying the Petition's supporting documentation from which confidential information, as determined by DOE, has been deleted in accordance with 10 CFR 1004.11. Any person submitting written comments to DOE with respect to a Petition shall also send a copy of such comments to the petitioner.

(c) *Responsive statement by the petitioner.* A petitioner may, within 10 working days of receipt of a copy of any comments submitted in accordance with paragraph (b) of this section, respond to such comments in a written statement submitted to the Assistant Secretary for Energy Efficiency and Renewable Energy. A petitioner may address more than one set of comments in a single responsive statement.

(d) *Public announcement of interim determination and solicitation of comments.* The Assistant Secretary for Energy Efficiency and Renewable Energy shall issue an interim determination on the Petition as soon as is practicable following receipt and review of the Petition and other applicable documents, including, but not limited to, comments and responses to comments. The petitioner shall be notified in writing of the interim determination. DOE shall also publish in the **Federal Register** the interim determination and shall solicit comments, data and information with respect to that interim determination. Written comments and responsive statements may be submitted as provided in paragraphs (b) and (c) of this section.

(e) *Public announcement of final determination.* The Assistant Secretary for Energy Efficiency and Renewable Energy shall, as soon as practicable, following receipt and review of comments and responsive statements on the interim determination publish in the **Federal Register** a notice of final determination on the Petition.

(f) *Additional information.* The Department may, at any time during the recognition process, request additional relevant information or conduct an investigation concerning the Petition. The Department's determination on a Petition may be based solely on the Petition and supporting documents, or may also be based on such additional information as the Department deems appropriate.

(g) *Withdrawal of recognition*—(1) *Withdrawal by the Department.* If the Department believes that a certification program that has been recognized under § 431.447 is failing to meet the criteria of paragraph (b) of the section under which it is recognized, the Department will so advise such entity and request that it take appropriate corrective action. The Department will give the entity an opportunity to respond. If after receiving such response, or no response, the Department believes satisfactory corrective action has not been made, the Department will withdraw its recognition from that entity.

(2) *Voluntary withdrawal.* A certification program may withdraw itself from recognition by the Department by advising the Department in writing of such withdrawal. It must also advise those that use it (for a certification organization, the manufacturers) of such withdrawal.

(3) *Notice of withdrawal of recognition.* The Department will publish in the **Federal Register** a notice of any withdrawal of recognition that occurs pursuant to this paragraph (g).

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