[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 431

[EERE-2017-BT-TP-0047]

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

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

ACTION: Request for information (RFI).

SUMMARY: The U.S. Department of Energy (DOE) is initiating a data collection process through this request for information to consider whether to amend DOE's test procedure for small electric motors, and whether new test procedures are needed for motors beyond those subject to the existing Federal test procedures. To inform interested parties and to facilitate this process, DOE has gathered data, identifying several issues associated with the currently applicable test procedure on which DOE is interested in receiving comment. The issues outlined in this document mainly concern applicability of the test procedure to additional motor categories (by topology, horsepower, non-standard construction, etc.), definitions, industry test methods, additional test procedure clarifications, and any additional topics that may inform DOE's decisions in a future test procedure rulemaking, including methods to reduce regulatory burden while ensuring the procedure's accuracy. DOE welcomes written comments from the public on any subject within the scope of this document (including topics not raised in this RFI).

DATES: Written comments and information are requested and will be accepted on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *http://www.regulations.gov*. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE-2017-BT-TP-0047, by any of the following methods:

- *Federal eRulemaking Portal*: *http://www.regulations.gov*. Follow the instructions for submitting comments.
- *E-mail*: *SmallElectricMotors2017TP0047@ee.doe.gov*. Include docket number EERE-2017-BT-STD-0047 in the subject line of the message.
- *Postal Mail*: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. If possible, please submit all items on a compact disc (CD), in which case it is not necessary to include printed copies.
- *Hand Delivery/Courier*: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza, SW., 6th Floor, Washington, DC, 20024. Telephone: (202) 586-6636. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimilies (faxes) will be accepted. For detailed instructions on submitting comments and additional information on this process, see section III of this document.

Docket: The docket for this activity, which includes *Federal Register* notices, comments, and other supporting documents/materials, is available for review at *http://www.regulations.gov*. All documents in the docket are listed in the *http://www.regulations.gov* index. However, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

The docket web page can be found at *http://www.regulations.gov/#!docketDetail;D=EERE-2017-BT-TP-0047*. The docket web page will contain simple instructions on how to access all documents, including public comments, in the docket. See section III for information on how to submit comments through *http://www.regulations.gov*.

FOR FURTHER INFORMATION CONTACT: Mr. Jeremy Dommu, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE–5B 1000 Independence Avenue SW., Washington, DC 20585–0121. Telephone: (202) 586-9870. Email: *ApplianceStandardsQuestions@ee.doe.gov*.

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For further information on how to submit a comment, review other public comments and the docket, contact the Appliance and Equipment Standards Program staff at (202) 586-6636 or by e-mail: *ApplianceStandardsQuestions@ee.doe.gov*.

SUPPLEMENTARY INFORMATION:

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I. Introduction

Electric motors are included in the list of "covered equipment" for which DOE is authorized to establish and amend energy conservation standards and test procedures. (42 U.S.C. 6311(1)(A)). Additionally, EPCA directed DOE, subject to a determination of feasibility and justification, to establish energy conservation standards and test procedure for small electric motors. (42 U.S.C. 6317(b)) DOE's test procedures for small electric motors are prescribed at subpart X of 10 CFR part 431. DOE's test procedures for electric motors are prescribed at

appendix B to subpart B of part 431. The following sections discuss DOE's authority to establish and amend test procedures for small electric motors, as well as provide relevant background information regarding DOE's consideration of test procedures for this equipment.

A. Authority and Background

The Energy Policy and Conservation Act of 1975 ("EPCA" or "the Act"),[1] Public Law 94-163 (42 U.S.C. 6291–6317, as codified), among other things, authorizes DOE to regulate the energy efficiency of a number of consumer products and industrial equipment. Title III, Part C of EPCA, which for editorial purposes was re-designated as Part A-1 upon incorporation into the U.S. Code (42 U.S.C. 6311–6317), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a variety of provisions designed to improve energy efficiency. This equipment includes small electric motors and electric motors, the subject of this RFI. (42 U.S.C. 6317(b) and 42 U.S.C. 6311(1)(A))

Under EPCA, the energy conservation program consists essentially of four parts: (1) testing, (2) labeling, (3) establishing Federal energy conservation standards, and (4) certification and enforcement procedures. Provisions of the Act include definitions (42 U.S.C. 6311), energy conservation standards (42 U.S.C. 6313), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), and the authority to require information and reports from manufacturers (42 U.S.C. 6316). EPCA includes specific authority to establish test procedures and standards for

[1] All references to EPCA in this document refer to the statute as amended through the Energy Efficiency Improvement Act of 2015 (EEIA 2015), Public Law 114–11 (April 30, 2015).

electric motors and small electric motors. (42 U.S.C. 6313(b), 42 U.S.C. 6314(a)(5) and 42 U.S.C. 6317(b))

Federal energy efficiency requirements for covered products established under EPCA generally supersede State laws and regulations concerning energy conservation testing, labeling, and standards. (See 42 U.S.C. 6316(a) and (b); 42 U.S.C. 6297) DOE may, however, grant waivers of Federal preemption for particular State laws or regulations, in accordance with the procedures and other provisions of EPCA. (See 42 U.S.C. 6316(b)(2)(D))

The Federal testing requirements consist of test procedures that manufacturers of covered equipment must use as the basis for: (1) certifying to DOE that their equipment complies with the applicable energy conservation standards adopted pursuant to EPCA (See 42 U.S.C. 6316(a); 42 U.S.C. 6295(s)), and (2) making representations about the efficiency of that equipment. (42 U.S.C. 6314(d)) Similarly, DOE must use these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA. (See 42 U.S.C. 6316(a); (42 U.S.C. 6295(s))

Under 42 U.S.C. 6314, EPCA sets forth the criteria and procedures DOE must follow when prescribing or amending test procedures for covered equipment. EPCA generally requires that any test procedures prescribed or amended under this section must be reasonably designed to produce test results which reflect energy efficiency, energy use, and estimated operating costs of a covered equipment during a representative average use cycle or period of use and requires that test procedures not be unduly burdensome to conduct. (See 42 U.S.C. 6314(a)(2))

In addition, if DOE determines that a test procedure amendment is warranted, it must publish proposed test procedures and offer the public an opportunity to present oral and written comments on them. (42 U.S.C. 6314(b))

EPCA also requires that, at least once every 7 years, DOE evaluate test procedures to determine whether amended test procedures would more accurately or fully comply with the requirements for the test procedures to not be unduly burdensome to conduct and be reasonably designed to produce test results that reflect energy efficiency, energy use, and estimated operating costs during a representative average use cycle. (See 42 U.S.C. 6314(a)(1)(A)) If amended test procedures are appropriate, DOE must publish a final rule to incorporate the amendments. If DOE determines that test procedure revisions are not appropriate, DOE must publish its determination not to amend the test procedures. DOE is publishing this RFI to collect data and information to inform a potential test procedure rulemaking to satisfy the 7-year review requirement specified in EPCA, which required that DOE publish, by July 07, 2016, either a final rule amending the test procedures for small electric motors, or a determination that amended test procedures are not required. (See 42 U.S.C. 6314(a)(1))

B. Rulemaking History

DOE's current test procedure for small electric motors is located at 10 CFR 431.444. DOE prescribed test procedures for small electric motors on July 7, 2009. 74 FR 32059.[2] The

[2] On May 4, 2012, DOE made clarifying edits and updates to the test procedures and provided procedures for DOE designation of nationally recognized certification programs. 77 FR 26608.

current test procedures incorporate the Institute of Electrical and Electronics Engineers (IEEE) Standard 114 and IEEE Standard 112 Test Methods A and B, and CSA C747–09 and CSA C390–10 as alternative test procedures. (See 10 CFR 431.444(b))

On June 24, 2016, DOE published a separate notice of proposed rulemaking regarding the certification, compliance, labeling, and enforcement of energy conservation standards for electric motors and small electric motors. 81 FR 41378 (June 2016 CCE NOPR). In the June 2016 CCE NOPR, DOE proposed to bring certification, compliance, and enforcement (CCE) regulations for electric motors and small electric motors under the general regulatory scheme of DOE's existing certification, compliance, and enforcement regulations for other covered products and equipment. See id. Additionally, the June 2016 CCE NOPR proposed specific sampling plans, certification of efficiency requirements, independent testing laboratory and certification program requirements, and labeling requirements for electric motors and small electric motors. See id.

II. Request for Information and Comments

In the following sections, DOE has identified a variety of issues on which it seeks input to aid in considering whether or not new or amended test procedures for small electric motors. Specifically, DOE is requesting comment on any opportunities to streamline and simplify testing requirements for small electric motors.

Additionally, DOE welcomes comments on other issues relevant to the conduct of this process that may not specifically be identified in this document. In particular, DOE notes that

under Executive Order 13771, "Reducing Regulation and Controlling Regulatory Costs," Executive Branch agencies such as DOE are directed to manage the costs associated with the imposition of expenditures required to comply with Federal regulations. See 82 FR 9339 (Feb. 3, 2017). Pursuant to that Executive Order, DOE encourages the public to provide input on measures DOE could take to lower the cost of its regulations applicable to small electric motors consistent with the requirements of EPCA. DOE also requests comment on the benefits and burdens of adopting any industry/voluntary consensus-based or other appropriate test procedure, without modification.

A. Equipment Categories Considered in this Request for Information

1. DOE is considering revising the test procedures for small electric motors and establishing new test procedures for electric motors beyond those currently subject to existing test procedures. Sections II.A.1 and II.A.2 describe both of these categories. Small Electric Motors

DOE regulations define "electric motor" as a machine that converts electrical power into rotational mechanical power. 10 CFR 431.12. EPCA defines the term "small electric motor" as a NEMA general-purpose alternating current single-speed induction motor, built in a two-digit frame number series in accordance with National Electrical Manufacturers Association (NEMA) Standards Publication MG 1–1987 (MG 1 1987). (42 U.S.C. 6311(13)(G))

Subpart X of 10 CFR part 431 includes test procedures for the three topologies of small electric motors: capacitor-start induction-run (CSIR), capacitor-start capacitor-run (CSCR), and certain polyphase motors. In any potential rulemaking, DOE will consider amendments to the test procedures for a "small electric motor" as defined at 10 CFR 431.442. Were DOE to

determine that a motor did not meet the EPCA definition of "small electric motor" and, therefore, is not subject to test procedures in subpart X of 10 CFR part 431, DOE may determine that such a motor would still be considered for test procedures as an "electric motor."[3]

2. Motors Categories Not Currently Subject to Test Procedures

DOE may consider setting test procedures for motors that are considered "small" by customers and the electric motor industry, but are not currently subject to the small electric motor test procedures. These motors may have similarities to motors that are currently regulated as small electric motors (such as horsepower) and may be used in similar applications. However despite these similarities, DOE is still determining whether these motors would be regulated as small electric motor or as electric motors under DOE regulations.

Regardless of the category under which they are regulated, if test procedures are adopted for these motors, DOE would define those categories (and exemptions) using technical and physical characteristics of those motors. DOE expects that this approach would describe the applicability of test procedures to particular motors without reference to statements of marketing or design intent.

In order to identify whether test procedures should be considered for additional motors, DOE is first reviewing which motors are and are not already subject to regulations. Motors of

[3] While the motors discussed in this RFI are likely covered as "electric motors," DOE is authorized to determine whether "other motors" are to be included as covered equipment and subject to standards. (See 42 U.S.C. 6311(2)(B)(xiii); 42 U.S.C. 6312(b))

enclosed construction, non-continuous duty, and not meeting certain torque requirements are not addressed by the regulations in subpart B or subpart X of 10 CFR part 431. DOE may consider setting test procedures for some of these motors. Table II-2 lists the motor topologies that may be considered for test procedures.

Section 431.25 to subpart B of 10 CFR part 431 subjects certain 2-digit NEMA frame (56-frame) polyphase motors of enclosed construction and certain 3-digit polyphase motors to energy conservation standards. The electric motors regulated at 10 CFR 431.25 currently exclude two groups of motors: (1) those with less than one horsepower and (2) polyphase motors of a 2-digit frame size (other than certain NEMA 56-frame size enclosed motors) with a horsepower greater than or equal to one. DOE may consider establishing test procedures for some of these motors with the intent is to primarily focus on motors considered small by customers and industry.

Only motors with a power rating of greater than or equal to 0.25 horsepower and less than or equal to 3 horsepower are subject to the regulations in subpart X to 10 CFR part 431. Should DOE consider a potential test procedure rulemaking, DOE does not expect at this time that it would propose revisions to the test procedures for polyphase enclosed motors greater than or equal to one horsepower in the NEMA 56-frame size because some of these motors are currently regulated in §431.25 of subpart B to 10 CFR part 431.

If DOE determines to propose test procedures for categories of motors not currently subject to test procedures, DOE will reconsider a lower horsepower limit. Upon reviewing

manufacturer catalogs, DOE found that the lowest horsepower with multiple manufacturers offering a wide range of motors was 0.125 hp. DOE will consider a minimum horsepower limit in any potential rulemaking.

Similarly, DOE would consider an upper horsepower limit in any rulemaking. The 3 hp upper limit for single-phase motors is based on a 2006 determination that DOE intends to review. 71 FR 38799 (July 10, 2006). DOE has since found that single-phase, 2-digit NEMA frame size motors that exceed 3 hp are available, along with single-phase motors inclusive of all frame sizes with up to 15 hp. DOE also found that polyphase 2-digit NEMA frame size motors, excluding those currently regulated at 10 CFR 431.25, exist up to 5 hp.

Based on the existing definitions discussed above, Table II-1 lists the motor categories, by horsepower and frame size, that may be considered for test procedures in any rulemaking. Frame size is not used as a limiting factor except in the case of polyphase motors for purposes of preventing overlap with the electric motors regulations listed at 10 CFR 431.25. The final list of motors subject to test procedures may be more limited than Table II-1 based on properties other than horsepower and frame size, as discussed later in this section.

Table II-1 Motors Under Consideration for a Potential Test Procedure Rulemaking

Phase Count	**Horsepower**	**Frame Size**
Single	≥ 0.125 hp and ≤ 15 hp	All
Polyphase	≥ 0.125 hp and ≤ 5 hp	2-digit *
Polyphase	< 1 hp	All

* Polyphase enclosed motors ≥ 1 hp, of the 56-frame size are not under consideration for revised test procedures, as certain ones of these motors were included in a separate rulemaking, and are regulated at 10 CFR 431.25.

A variety of motor topologies exist within the range described in Table II-1, including topologies (e.g., polyphase) that meet the regulatory definition of small electric motor and others (e.g., shaded pole) that are not currently regulated as small electric motors or electric motors. DOE may use a subset of these motor topologies to describe the motors subject to test procedures in a potential final rule. Table II-2 lists various categories of motors that could potentially be considered for test procedures within the motor horsepower and frame sizes outlined in Table II-1. Certain subcategories of the motors listed in Table II-2 meet the definition of "small electric motor" and are subject to regulations at subpart X of 10 CFR part 431. Table II-3 presents a shorter list of categories of motors that DOE has preliminarily identified as representing potential interest because of their volume of shipments, ability to be tested using existing test procedures, and energy consumption.

Table II-2 Motor Categories Based on Motor Topology

AC	Single-Phase	Induction	Squirrel Cage	Capacitor	Permanent-Split Capacitor
					Capacitor-Start (CSCR, CSIR)*
					Two-value Capacitor
				Other	Split-phase
					Resistance-Start
					Shaded-Pole
					Line-Start Permanent Magnet
			Wound		Repulsion
					Repulsion-Start Induction
					Repulsion-Induction
		Synchronous			DC-Excited Synchronous
					Permanent Magnet Synchronous
					Reluctance Synchronous
					Hysteresis
	Polyphase	Induction	Squirrel Cage		Polyphase induction, squirrel cage**
					Line-Start Permanent Magnet
			Wound		Polyphase induction, wound
		Synchronous			DC-Excited Synchronous
					Permanent Magnet Synchronous
					Reluctance Synchronous
					Hysteresis
	Universal				Series-Wound
					Compensated Series-Wound
DC	Brushed				Permanent Magnet
					Wound-Stator
	Brushless				Permanent Magnet
					Switched Reluctance
					Electronically Commutated Motor

* This category includes motors already subject to small electric motors regulations. 10 CFR 431.446
** This category includes motors already subject to small electric motors regulations (10 CFR 431.446) and electric motors regulations (10 CFR 431.25).

Table II-3 Primary Motor Categories Based on Motor Topology

Permanent-Split Capacitor	Polyphase induction, squirrel cage
Capacitor-Start	Reluctance Synchronous
Shaded-Pole	Permanent Magnet
Line-Start Permanent Magnet	Switched Reluctance
Split-phase	Electronically Commutated Motor
Permanent Magnet Synchronous	-

Table II-4 lists various mechanical, electrical, and other design characteristics of motors such as the ability to operate submerged in a liquid (i.e., submersible motors). DOE may rely on some of these design characteristics to describe the categories of motors that would be considered in a potential test procedure rulemaking.

Table II-4 Motor Categories Based on Motor Characteristics

Horsepower
Number of Speeds
Duty Rating (e.g., continuous)
Enclosure Construction (e.g., Air Over, TEFC, TENV)
AC input frequency (60 Hz/50Hz)
Input waveform (AC or DC)
Frame Size
Voltage
Service Factor
Flange and Endshields
Shaft (e.g., vertical shaft, special shaft)
Base (e.g., non-standard base, mounting configuration)
Presence of moisture-resistant, sealed, or encapsulated windings
Bearing construction
Motor Component Assembly (Partial Motor)
Presence of a Brake (Brake Motor)
Presence of Gear Box (Gearmotors)
Presence of Controls (e.g., variable-speed drives)
Close-coupled pump motors
Submersible Motors

The existing regulations for electric motors apply to a subset of electric motors characterized by nine design elements listed at 10 CFR 431.25(g), with the exceptions listed at 10 CFR 431.25(l). DOE could consider establishing a similar list of characteristics to delimit the categories of motors included in any potential small electric motor rulemakings, such as:

(1) Horsepower;

(2) Number of speeds (single, multiple, continuously variable);

(3) Motor topology;

(4) Duty rating;

(5) Enclosure construction;

(6) 60 hertz (Hz) sinusoidal power for alternating current (AC) motors;

(7) Input waveform (either AC or direct current (DC));

(8) Phase count (single-phase, polyphase);

(9) Frame size; and

(10) Other criteria presented in Table II-4.

Motors can have different speed capabilities, including single, multi, or (continuously) variable speeds. Variable and multi-speed motors can be tested with existing industry standards (see Table II-6) at a variety of operating points, but no single metric currently exists to quantify the performance of the variable or multi-speed motor. Variable or multi-speed capability provides the ability to save energy by more closely matching motor output to a varying load. DOE is considering whether to consider all speed capabilities in setting any potential new test procedures.

Motors can also have different topologies as listed in Table II-2. DOE has found test procedures that apply to all of these topologies for both induction and non-induction motors (see section II.C.1). Non-induction motors (such as permanent magnet motors) are often marketed as more efficient substitutes for induction motors, but currently have a lower market share. DOE is considering whether all motor topologies would be analyzed for potential new test procedures.

Motors can be described by their duty type, using either NEMA or IEC nomenclature. Duty type describes the operating profile the motor is designed to handle. For example, a continuous duty motor can operate for long periods of time at a steady load between required shut-down periods while intermittent-duty motors accumulate fewer annual operating hours Similar to the electric motors regulations described in subpart B of 10 CFR part 431, DOE is considering analyzing only continuous duty type motors for potential test procedures. DOE will consider whether any IEC duty types other than IEC duty type S1 correspond to a continuous duty type. For example, IEC duty types S9 and S10 can include an S1 reference rating, and may also be operated continuously.

Motors can be described by their enclosure construction – i.e. open and enclosed -- and by many subcategories (e.g., open drip proof, totally enclosed non-ventilated, and totally enclosed air-over). Enclosure construction tends to describe both the level of ingress protection (i.e., protection from dust or splashing) and the cooling method (such as active air cooling via an integral fan or passive cooling via natural convection). Similar to the electric motors regulations described in subpart B of 10 CFR part 431, DOE is considering analyzing all enclosure constructions for potential new or revised test procedures.

An “air-over” motor is a unique variety of enclosure construction relating to a cooling method in which the motor is cooled by an airstream provided by a device or system separate from the motor. At the time of the December 2013 electric motors test procedure final rule, DOE lacked the necessary data to develop a test procedure for air-over motors. 78 FR 75973-75975

(December 13, 2013). As discussed in section II.C.1, DOE is investigating the potential to establish a test procedure for air-over motors.

A revised definition of air-over motor based on the physical features of a given motor may be needed to support potential test procedure. As part of the December 2013 electric motors test procedure final rule, DOE defined the term "air-over electric motor" as an electric motor rated to operate in and be cooled by the airstream of a fan or blower that is not supplied with the motor and whose primary purpose is providing airflow to an application other than the motor driving it. 78 FR 75973-75975. In other words, air-over electric motors do not have a factory-attached fan and require a separate means of forcing air over the frame of the motor. However, DOE notes that the absence of a fan is not a differentiating feature as some motors categories, such as totally-enclosed non-ventilated (TENV) motors, do not have internal fans or blowers. In terms of physical construction, DOE did not find any differences between air-over motors and non-air-over motors. For example, there is little difference between a totally-enclosed fan-cooled motor (TEFC) and a totally-enclosed air-over motor (TEAO). Based on these observations, DOE understands that what differentiates air-over motors from non-air-over motors is that they require the application of external cooling by a free flow of air to prevent overheating during continuous operation. In a TEAO, without the application of free flowing air, the internal motor winding temperatures would exceed the maximum permissible temperature. The risk of overheating can be verified by observing whether the motor's temperature rises during a rated load temperature test instead of stabilizing. During a rated load temperature test the motor is loaded at the rated full load using a dynamometer until it is thermally stable. The current industry standards incorporated by reference in the existing DOE small electric motors test procedure each contain a

portion describing a rated load temperature test. Thermal stability is defined as the condition where the motor temperature does not change by more than 1 ºCover 30 minutes or 15 minutes depending on the motor category (See section 5.8.4.4 of IEEE[4] Std 112-2004, (IEEE 112-2004), "IEEE Standard Test Procedure for Polyphase Induction Motors and Generators," and section 10.3.1.3 of IEEE Std 114-2010, (IEEE 114-2010), "IEEE Standard Test Procedure for Single-Phase Induction Motors"). DOE further notes that specifying that the external cooling is obtained by a free-flow of air differentiates air-over motors from other totally-enclosed pipe-ventilated motors. Based on these findings, DOE is considering defining an air-over motor as a motor that does not thermally stabilize without the application of external cooling by a free flow of air during a rated temperature test according to IEEE 112-2004; CSA[5] C747-09 (Reaffirmed 2014), (CSA C747-09), "Energy Efficiency Test Methods Small Motors"; or CSA C390-09 (Reaffirmed 2015), (CSA C390-10), "Test Methods, Marking Requirements, and Energy Efficiency Levels for Three-phase Induction Motors" for polyphase motors; or IEEE 114-2010 or CSA C747-09, for single-phase motors.

AC motors are designed to operate at a particular frequency. In the United States, AC power is delivered at 60 Hz. For this reason, DOE is considering whether to continue to limit the scope of a potential test procedure to only AC motors that are designed to operate at 60 Hz. DOE notes that this approach includes motors designed to operate at 60 Hz that are also capable of operating at other frequencies (e.g., 50 Hz).

[4] Institute for Electrical and Electronics Engineers
[5] CSA Group

Motors can be designed to operate at an input waveform of AC or DC. DOE has found test procedures that apply to both AC and DC motors. DC motors must be fed a DC waveform, but some DC motors are advertised as substitutes for AC motors because a rectifier can be placed between the AC power source and the DC motor to convert the AC power to DC. In many cases, the rectifier may be integrated with the motor, creating a drop-in replacement for AC motors (i.e., it can be used with the existing AC power supply). DOE is considering whether DC motors should be analyzed in a potential test procedure rulemaking.

Motors also are constructed with a particular frame size. Frame size most commonly refers to a height measurement between the centerline of the shaft and the bottom of the feet, but can also describe a motor's axial length. NEMA frame sizes are described in 2-, 3-, and 4-digit naming conventions. DOE has established regulations for small electric motors built in two-digit frame number series according to NEMA MG 1-1987 (i.e., 42-, 48-, and 56-frame motors), and IEC equivalents. DOE is aware of motor topologies in Table II-3 within the horsepower ranges in Table II-1 that are available in additional frame sizes (e.g., 3-digit). Due to the availability of additional frame sizes for topologies and horsepower ratings that may be considered for test procedures in a potential rulemaking, DOE is considering not using frame size or the frame size naming convention (NEMA digit count) as a means of limiting the categories of motors analyzed for a potential rulemaking, to the extent that this would not overlap with existing regulations for electric motors at 10 CFR 431.25.

Issue 1: DOE seeks comment, data, information and justification regarding a minimum and maximum horsepower limit for motors for which DOE may consider test procedures.

Issue 2: DOE seeks comment, data, and information about any additional motor category and associated horsepower range, frame sizes, and/or any additional features (such as voltage and service factor) that should be considered in a possible test procedures rulemaking and why (e.g., motor categories and features presented in Table II-1, Table II-2, Table II-3, and Table II-4). DOE is also interested in detailed information on whether there would be a significant test burden resulting from requiring testing of such motors – and if so, the nature and extent of that burden.

Issue 3: DOE requests comment on the primary motor topologies included in Table II-3, including whether they should be considered, or not, in a possible test procedures rulemaking and why. DOE seeks comment on any motor topologies not listed that DOE should consider including in a possible test procedures rulemaking. DOE is interested in information on the potential test burden associated with testing such motors.

Issue 4: DOE seeks input on how an air-over motor could be identified based on physical and technical features. DOE requests comment on whether air-over motors could be defined based on their inability to thermally stabilize without the application of external cooling by a free flow of air during a rated temperature test according to either IEEE 112-2004, CSA C747-09, or CSA C390-10 for polyphase motors; or IEEE 114-2010 or CSA C747-09 for single-phase

motors. In addition, DOE requests comment and information on whether all motors currently sold as "air-over motors" and which percentage of the market would meet this definition.

3. Exemptions

In a potential future rulemaking, any exemption from test procedures would likely be based on specific physical or design criteria that can be identified at the point of manufacture (e.g., frame size, enclosure, service factor), and not on the advertised application of the motor. DOE would consider whether the exemptions from the existing regulations for electric motors at 10 CFR 431.25(h)-(j) would also apply to the motors under consideration for regulation in a potential test procedure rulemaking. These exemptions, outlined at 10 CFR 431.25(l), are as follows:

- Air-over electric motors;
- Component sets of an electric motor;
- Liquid-cooled electric motors;
- Submersible electric motors; and
- Inverter-only electric motors.

DOE adopted definitions for "air-over electric motors," "component sets," "liquid-cooled electric motors," "submersible electric motors," and "inverter-only electric motors" at 10 CFR 431.12. If DOE undertakes a test procedure rulemaking, it will evaluate the merits of adopting similar definitions and exemptions for motors with similar features. DOE will further investigate whether these categories of motors exist within the range of motors considered in any such rulemakings. For liquid-cooled, inverter-only, and submersible motors, DOE reviewed online

manufacturer catalogs and one distributor's website and found at least one model corresponding to each of these three categories of motors that was within the horsepower ranges and frame sizes described in Table II-1.

Issue 5: DOE seeks comment, data, and information about any motor category that should be considered for exemption from a possible test procedure rulemaking and information providing justification for such exemptions. All exemptions, including exemptions targeted for motors that serve specific applications (e.g., submersible motors), must be identified based on unique physical features of the motor. DOE seeks comment, data, and information on these physical features.

4. Motor Boundary

An electric motor is a device that converts electrical power into rotational mechanical power. Some motors may modify the electrical input via rectification, inversion, or other processes prior to generating a magnetic field within the motor. This electrical conversion process can take place via a device integrally connected to the motor, or via a device wired in-line between the power source and the motor. In a potential rulemaking, DOE plans to specify which components (e.g., rectifiers, inverters) would be subject to consideration for the test procedure.

One example of a motor that includes electrical conversion is a DC brushless permanent magnet motor (commonly referred to as an electronically commutated motor [ECM]). Typically, the DC brushless permanent magnet motor is connected to AC power. The AC power is rectified

into DC and inverted to a new waveform (e.g., a rectangular waveform) that is then fed to the motor via electronic commutation. While typically integral to the motor, this design could be implemented with the rectification and inversion either integral to or separate from the motor. DOE is considering defining such categories of motors as including all components essential to operating the motor. For motors that can be operated with and without non-integrally connected controls or electrical conversion devices, DOE may consider testing in each arrangement depending on which motor categories are included in any potential new and/or revised test procedure.

Issue 6: DOE requests comment on how to account for components included in a motor for motors that are sold in multiple pieces, specifically regarding how to categorize controls or electrical conversion components that may be non-integrally connected to the motor and how to treat them during testing. DOE requests comment on ways to identify control and conversion components that are essential to motor operation.

Issue 7: DOE seeks comments and feedback about whether the presence of a gear box should constitute a new motor model when added to a motor. More specifically, if DOE were to establish a test procedure for motors with gear boxes, should these motors have to be certified to DOE separately from the same motors without a gear box? DOE is interested in information regarding the potential test burden should separate certification be required. Does the gear box change the tested motor efficiency?

5. Motors used in Dedicated Purpose Pool Pumps

Although motor regulations currently apply to certain small electric motors (subpart X of 10 CFR part 431) and electric motors (subpart B of 10 CFR part 431), regulations do not cover certain varieties of motors that are used in pool pump applications. For example, enclosed motors of less than one output horsepower are not subject to the current test procedure or energy conservation standards, nor are multispeed motors.

The issue of the efficiency of electric motors used in dedicated purpose pool pumps (DPPP) was brought up by several stakeholders in comments submitted in response DOE's direct final rule for DPPPs. 82 FR 5650 (January 18, 2017). Several manufacturers suggested that an energy conservation standard for the motors used in DPPPs was needed in addition to the standards for DPPPs themselves. This included a manufacturer of the motors used in pool pump applications, Regal Beloit Corporation, manufacturers of pumps, Hayward Industries, Inc. and Pentair Water Pool and Spa, Inc., and a manufacturer of pool equipment, Zodiac Pool Systems, Inc. (EERE-2015-BT-STD-0008, Regal, No. 122 at pg. 1; Hayward, No. 125 at p. 1; Pentair, No. 132 at pp. 1-2; Zodiac No. 134 at pp. 1-2). Other commenters also argued for a specific pool pump motor standard, including the California Investor Owned Utilities (CA IOUs), the industry trade association (Association of Pool and Spa Professionals (APSP)), and two policy advocacy organizations (the Appliance Standards Awareness Project (ASAP) and the Natural Resources Defense Council (NRDC)). (EERE-2015-BT-STD-0008; CA IOUs, No. 130 at p. 2; APSP, No. 127 at p. 2; ASAP No. 133 at pp. 4-5; NRDC No. 121 at p. 4). In response to these comments, DOE published a notice announcing a public meeting pertaining to potential energy conservation standards for DPPP motors. 82 FR 30845 (July 3, 2017). In order to consider the need for a specific pool pump motor regulations, DOE is requesting information on the physical

characteristics of motors used in pool pump applications and any applicable test procedures that DOE should consider.

Issue 8: DOE is interested in any physical feature(s) or observable physical properties that would differentiate these motors from the currently regulated small electric motors at 10 CFR 431.446 and electric motors at 10 CFR 431.42525 that would help define the scope of applicability of the test procedure should DOE decide to proceed in consideration of one.

Issue 9: DOE also requests comment on any particular markings or labels applied to these products or if there are published industry standards that may be used to uniquely identify motors used in pool pump applications, for example sections of NEMA MG 1-2014, "Motors and Generators," or of UL 1801, "Standard for Swimming Pool Pumps, Filters, and Chlorinators" and would help define how they should be tested.

B. Metric

The existing small electric motor test procedure uses motor average efficiency at full-load as the metric. 10 CFR 431.444. A manufacturer of small electric motors must determine the average efficiency, at full-load, of a basic model through testing and applying a sampling plan; or through the use of alternative methods for determining energy efficiency or energy use (also known as alternative efficiency determination methods, or "AEDMs"). 10 CFR 431.445. For electric motors, the existing test procedure uses the metric nominal full-load efficiency. Provisions for determining a basic model's efficiency through testing or with an AEDM are currently described in 10 CFR 431.17.

In a potential test procedure rulemaking, DOE could evaluate whether to use the same metric and establish the performance of small electric motors and newly regulated motors based on their tested average full-load efficiency or whether to use a different metric, such as a metric based on motor full-load losses. The sampling plan small electric motor manufacturers must use to make representations of average full-load efficiency is discussed in section II.C.3 in this RFI.

Issue 10: DOE requests comment on the existing small electric motor and electric motor metrics and on any recommended new metrics for the motors under consideration in a test procedure rulemaking.

C. Test Procedures

Pursuant to EPCA's requirement that DOE review a given test procedure at least once every 7 years, DOE will undertake a test procedure review.

1. Method

DOE plans to (1) determine if the existing DOE test procedure requires revisions, and (2) determine whether new test procedures for any new motors identified in section II.A are needed (3) determine whether any new motors identified in section 11.A should be categorized as small electric motors or as electric motors are needed. If DOE develops test procedures for any new motors, it would consider either (1) adding testing instructions that modify the test methods currently incorporated by reference at 10 CFR 431.443, or (2) establishing new methods based on industry standards not currently incorporated by reference in 10 CFR 431.443.

The existing test procedure for small electric motors is codified at 10 CFR 431.443, 10 CFR 431.444, and 10 CFR 431.445. The referenced industry standards for each motor category are shown in Table II-5 in this RFI.

Table II-5 Referenced Industry Standards for Small Electric Motor Categories

Motor Category	Referenced Industry Standards
Single-phase small electric motors	IEEE 114-2010 or CSA C747-09
Polyphase small electric motors less than or equal to 1 horsepower (0.75 kW)	IEEE 112-2004 Test Method A or CSA C747-09
Polyphase small electric motors greater than 1 horsepower (0.75 kW)	IEEE 112-2004 Test Method B or CSA C390-10

DOE reviewed existing industry standards from the IEEE, the CSA Group, and the International Electrotechnical Commission (IEC) and found existing test methods for all other motor topologies that DOE may consider in future regulations (see Table II-6). However, the existing test procedure may not apply to all existing mechanical designs or electrical features within a given motor category (e.g., motors with air-over enclosures, which otherwise meet the definition of small electric motors or electric motors but fall outside the scope of IEEE 112–2004). DOE plans to consider amending the existing test procedure to address potential new motor categories.

For air-over motors specifically, DOE plans to investigate testing instructions that would allow testing based on the same industry standards incorporated by reference at 10 CFR 431.443. In the past, as part of the December 2013 electric motors test procedure final rule, DOE investigated possible methods to test air-over electric motors and determined that it did not have

sufficient information to overcome the practical challenges associated with testing air-over motors, such as providing a standard flow of cooling air from an external source that provides a constant velocity over the tested motor under defined ambient temperature and barometric conditions. Therefore, at the time, DOE did not establish any test methods for air-over motors. 78 FR 75926, 78 FR 75962, 75973-75975 (December 13, 2013).

DOE reviewed section 8.2.1 of IEEE 114-2010 and section 5 of CSA C747-09, which include provisions for testing air-over single-phase motors. Typically, the measurements according to these test standards are performed when the tested motor's winding is thermally stable.[6] Because the windings of air-over motors would overheat without an external airflow and degrade the motor, both test methods include specific provisions for air-over motors. Both test methods require test measurements to be performed with sufficient ventilation to maintain a temperature within 70 °C–80 °C, therefore removing the need to accurately measure airflow by specifying a temperature range for the motor's winding instead. Because the motor winding temperature is inversely correlated to efficiency, a target winding temperature range is specified to enable relative comparability of efficiency for air-over motors. This temperature range (70 –

[6] A rated load temperature test is a test during which the motor is loaded at the rated full-load by means of a dynamometer until it is thermally stable. Thermal stability is defined as the condition where the motor temperature does not change by more than 1 ºCover 30 min or 15 min depending on the motor category (See section 5.8.4.4 of IEEE 112-2004 and section 10.3.1.3 of IEEE 114-2010)

80 °C) was originally selected by CSA as it would reflect a winding temperature range that mimics the field operating conditions for air-over motors.[7]

NEMA published an air-over efficiency test standard which provides three testing methods for measuring the efficiency of single phase and polyphase air-over motors (NEMA Air-over Motor Efficiency Test Method).[8] Each test method requires a temperature test before performing the efficiency test according to the applicable test standard[9] and replaces the original temperature test portion of the applicable efficiency test. Although each of the three methods require the temperature test to be conducted differently,[10] the document describes the three testing methods as equivalent.

DOE intends to review these test methods, and evaluate whether a similar approach for testing single-phase and polyphase air-over motors should be considered. DOE will also review

[7] Additionally, DOE reviewed 366 single-phase, air-over motor models from five major motor manufacturers and observed the following distribution across insulation classes: A (1.5 percent); B (85 percent), F (13 percent); and H (0.5 percent). An insulation class B corresponds to a winding temperature of 75°C according to Table 2 of IEEE 114-2010.

[8] NEMA MG1-2016, Supplement-2017. Motors and Generators Section IV Part 34: Air-Over Motor Efficiency Test Method. March 2017. Available at http://www.nema.org/Standards/Pages/Motors-and-Generators.aspx

[9] IEEE 114-2010, IEEE 112-2014, CSA C390-10, or CSA C747-09, depending on the motor phase and rated motor horsepower

[10] The NEMA Air-over Motor Efficiency Test Methods describes three temperature tests conducted by (1) thermally stabilizing while applying an air-flow based on customer specification; (2) bringing the air-over motor at full-load within 10° C of a target temperature using external cooling air (the target temperature for single phase motors is 75 °C, while the target temperature for polyphase motors varies depending on the motor's insulation class); or (3) bringing the air-over motor at a reduced load condition to within 10 °C of the target temperature without using external cooling air.

the possibility of testing polyphase air-over motors using different target temperatures depending on the air-over motor's insulation class for polyphase motors.

DOE also is evaluating possible test procedures for motors with non-standard construction. These motors, which otherwise meet the definition of small electric motors, include motor variants such as motors with special shaft dimensions, motors with brakes, or motors with vertical mounting. For these motors, DOE plans on reviewing the applicability of the testing instructions in section 4 of appendix B to subpart B of part 431.

Finally, DOE is also evaluating potential test procedures for synchronous motors. Specifically, DOE will evaluate the industry standards applicable to synchronous motors in Table II-6. DOE will consider each test procedure with respect to any proposed scope of applicability (e.g., motor horsepower limits). For example, CSA C747-09 has a scope of 0.186 kW to 0.746 kW (0.25 hp to 1 hp), and IEEE Std 115-2009, (IEEE 115-2009), "IEEE Guide for Test Procedures for Synchronous Machines," applies to larger than fractional horsepower motors (i.e., greater than or equal to 1 hp); therefore, if the proposed scope of applicability of a test procedure spanned both industry standards, DOE would consider whether each industry standard was appropriate and would determine how to specify which industry standard applied to various synchronous motors. DOE, however, is uncertain as to the applicability of IEEE 115-2009 to AC permanent magnet synchronous and reluctance synchronous motors, one of the synchronous motor topologies in Table II-6 in this RFI.

Table II-6 Primary Motor Topologies and Existing Industry Standards

Motor Topology	Existing Industry Standard
Permanent-Split Capacitor	IEEE 114–2010; IEC 60034-2-1: 2014† ; CSA C747-09
Capacitor-Start (CSCR, CSIR)	IEEE 114–2010*; IEC 60034-2-1: 2014; CSA C747-09
Split-phase	IEEE 114–2010; IEC 60034-2-1: 2014; CSA C747-09
Shaded-Pole	IEEE 114–2010; IEC 60034-2-1: 2014; CSA C747-09
Line-Start Permanent Magnet	IEC 60034-2-1: 2014; CSA C747-09
AC Permanent Magnet Synchronous	IEEE 115-2009; IEEE 1812-2014‡; IEC 60034-2-1: 2014; CSA C747-09. (The IEC and CSA standards may not apply to auxiliary starting motor designs)
Polyphase induction, squirrel cage	IEEE 112-2004 (Method A and B)**; IEC 60034-2-1: 2014; CSA C390-10; CSA C747-09
Reluctance Synchronous	CSA C747-09
DC Brushed Permanent Magnet	IEC 60034-2-1: 2014
Switched Reluctance ***	CSA C747-09
DC Brushless Permanent Magnet ***	CSA C747-09

* Includes testing provisions for air-over motors
** Does not include all polyphase induction squirrel cage motors (e.g., air over motors, inverter-only motors)
*** These motors are often referred to as electronically commutated motors (ECM)
† IEC 60034-2-1: 2014, "Rotating electrical machines – Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)."
‡ IEEE 1812-2014 "IEEE Trial-Use Guide for Testing Permanent Magnet Machines"

Issue 11: DOE seeks comment and information on whether and why the existing test procedure for determining the average full-load efficiency of small electric motors requires revision, and, if so, what these revisions should be. DOE also requests comment on the impact to test burden from any suggested revisions.

Issue 12: DOE requests comment and input on the availability of methods for testing other topologies (motors other than CSCR, CSIR, and polyphase) listed in Table II-6 in this RFI.

If a new test procedure is needed, DOE requests information on any additional instructions that would be required to test these motor topologies.

Issue 13: DOE requests comment on any other design features of a motor that could require modifications to an industry standard for testing, what these modifications should be, and why. In particular, DOE requests comment on whether testing instructions similar to the ones found in section 4 of appendix B to subpart B of part 431 would apply to any new motors that may be included in a possible test procedure rulemaking.

Issue 14: DOE requests comment and input regarding the existing testing provisions for air-over motors in section 8.2.1 of IEEE 114-2010, section 5 of CSA C747-09, and in the NEMA Air-over Motor Efficiency Test Method. Specifically, DOE requests feedback and supporting data on the repeatability and level of accuracy of these methods, and on whether these or other methods would lead to equivalent results when applied to the same motor.

Issue 15: DOE understands that customers may provide air-velocity specifications for air-over motors. DOE requests comment on whether testing air-over motors according to customer air-velocity specifications is currently used by the industry and why. Additionally DOE requests comment on whether testing air-over motors according to customer air-velocity specifications would allow comparability of efficiency across motors.

Issue 16: DOE is aware that, because efficiency is inversely correlated to temperature, conducting the temperature test using a different target temperature for polyphase air-over

motors depending on the motor's insulation class may lead to measured efficiency values that are not comparable across insulation classes. When measuring polyphase air-over motor efficiency, DOE requests comment on whether the temperature test should be conducted using a single target temperature in order to allow relative comparability of polyphase air-over motor efficiency across insulation classes. If not, DOE requests comment on a justification for why testing polyphase air-over motors using a temperature test at different target temperatures depending on the motor's insulation class would still provide comparable efficiency results across insulation classes.

Issue 17: DOE also requests comment regarding any additional instructions for testing electronically commutated motors or other categories of motors with controls (e.g., variable-speed drives), and how controls affect average full load efficiency of the motor.

Issue 18: DOE requests comment on industry standards applicable to synchronous motors and their applicability to the horsepower range (i.e., $\geq$ 0.125 hp and $\leq$ 15 hp) that DOE is considering in a potential test procedure rulemaking (e.g., IEEE 115-2009, IEEE 1812-2014, IEC 60034-2-1: 2014, and CSA C747-09). DOE also requests comment on the applicability of IEEE 115-2009 to AC permanent magnet synchronous and synchronous reluctance motors.

Issue 19: DOE requests comment on the feasibility of testing motors that are components of other equipment. Specifically, DOE requests comments on whether some motors that only

enter commerce as components of another product require modifications to an industry standard for testing and on what these modifications should be and why.

Issue 20: DOE requests comment and supporting data on testing times and associated costs of efficiency testing. Specifically, how many hours it takes to test a motor per each industry standard listed in Table II-6, if manufacturers test their own models or hire a third-party for testing, if manufacturers need to purchase additional test equipment according to the industry standards in Table II-6, and if there are any other costs associated with testing.

Issue 21: DOE requests comment on the benefits and burdens of adopting any already existing voluntary consensus-based or other appropriate test procedure, without modification.

2. Motor Horsepower

As part of the potential test procedure rulemaking, DOE is considering establishing a method to determine the load point for testing a motor under full-load (i.e., rated motor horsepower). Rated motor horsepower is generally not an intrinsic, observable motor property, but rather it is declared by the manufacturer, and motors are usually capable of operating both above and below the rated motor horsepower. As a result, the existing test procedure in subpart X of 10 CFR part 431 relies on the definition of small electric motor (e.g., a general purpose motor according to NEMA MG 1-1987), but the DOE regulations do not explicitly address how to determine the full-load or rated motor horsepower of a motor.

To better specify the test procedures, DOE is considering approaches to determine rated motor horsepower based on motor properties like breakdown torque and temperature rise. NEMA Standards Publication MG 1–2014, (MG 1-2014), "Motors and Generators," section 10.34 specifies that the rated motor horsepower of a small or medium single-phase induction motor is based on breakdown torque. NEMA MG 1-2014 then provides ranges of breakdown torque associated with rated motor horsepower and pole configurations. However, DOE identified multiple motor models that had a manufacturer-listed breakdown torque outside of the associated NEMA range (i.e., for a given topology, pole configuration, and rated motor horsepower), indicating not all motors follow the conventions listed in NEMA MG 1-2014.

Another option would be to determine the rated motor horsepower based on a load which results in a temperature rise associated with the insulation class of the motor (i.e., service factor load). Insulation class is a letter designation (i.e., A, B, F, and H), which has an associated temperature rise indicating the temperature at which the motor can operate, and is commonly displayed in manufacturer literature and on motor nameplates. DOE is aware of insulation class temperature rises in NEMA MG 1-2014 section 12.42 and 12.43, and also in IEEE 112-2004 Table 1 which may be applicable to this method. The load which results in the insulation class temperature rise would be a repeatable loading point, but DOE will consider if it is appropriate for determining efficiency, or if it could be indirectly used as a reference point for calculating the rated motor horsepower.

Issue 22: DOE requests comment on how industry currently determines the full-load, or rated, horsepower of a motor, and how DOE should specify this quantity.

Issue 23: DOE requests comment and input on a method to determine full-load, or rated, horsepower of a motor based on the breakdown torque of a motor as specified in NEMA MG 1-2014.

Issue 24: DOE requests comment and input on a method to determine full-load, or rated, horsepower of a motor based on the load which results in a temperature rise associated with the insulation class of the motor (i.e., service factor load). DOE also requests comment on whether all motors have an associated NEMA insulation class (i.e., A, B, F, and H) that is known by the manufacturer, and if it is not known if there are methods a manufacturer can use to determine the insulation class. DOE also requests comment on the temperature rise that should be associated with each insulation class for this method (e.g., values from NEMA MG 1-2014 or IEEE 112-2004).

3. Represented Value

The procedure for determining the represented value of average full-load efficiency of a small electric motor can be found at 10 CFR 431.445. Specifically, DOE provides sampling provisions that must be used when determining the average full-load efficiency of a basic model through testing. On June 24, 2016, DOE published a separate notice of proposed rulemaking on certification, compliance, labeling, and enforcement for electric motors and small electric motors, which included a proposal to revise the sampling provisions for small electric motors to conform with the sampling provisions for other types of covered product and equipment at 10 CFR part 429, subpart B. 81 FR 41378.

DOE plans to investigate whether the proposed sampling provision for determining the represented value[11] of a small electric motor could apply to the new motors DOE may consider regulating or whether the current sampling provisions need to be revised. DOE's preference is that all motors discussed in section II.A be subject to the same sampling provisions and represented value calculation.

Issue 25: DOE requests comment on applying (1) the sampling plan in DOE's separate notice of proposed rulemaking (81 FR 41378, [June 24, 2016]) and (2) the represented value calculation for small electric motors to new motors DOE may consider regulating.

D. Other Test Procedure Topics

In addition to the issues identified earlier in this document, DOE welcomes comment on any other aspect of the existing test procedures for small electric motors not already addressed by the specific areas identified in this document. DOE particularly seeks information that would improve the repeatability, reproducibility, and consumer representativeness of the test procedures. DOE also requests information that would help DOE create a procedure that would limit manufacturer test burden through streamlining or simplifying testing requirements. Comments regarding repeatability and reproducibility are also welcome.

[11] A represented value is a figure characterizing motor energy efficiency for the purposes of marketing or certifying performance to DOE.

DOE also requests feedback on any potential amendments to the existing test procedure that could be considered to address impacts on manufacturers, including small businesses. Regarding the Federal test method, DOE seeks comment on the degree to which the DOE test procedure should consider and be harmonized with the most recent relevant industry standards for small electric motors and whether there are any changes to the Federal test method that would provide additional benefits to the public.

Additionally, DOE requests comment on whether the existing test procedures limit a manufacturer's ability to provide additional features to consumers of small electric motors. DOE particularly seeks information on how the test procedures could be amended to reduce the cost of these new or additional features and make it more likely that such features are included on small electric motors.

III. Public Participation

DOE invites all interested parties to submit in writing by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, comments and information on matters addressed in this RFI and on other matters relevant to DOE's consideration of new and/or amended test procedure for small electric motors and electric motors. These comments and information will aid in the development of a test procedure NOPR for small electric motors and electric motors if DOE determines that amended test procedures may be appropriate for these products.

Submitting comments via *http://www.regulations.gov*. The *http://www.regulations.gov* web page will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to *http://www.regulations.gov* information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (CBI)). Comments submitted through *http://www.regulations.gov* cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through *http://www.regulations.gov* before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that *http://www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to *http://www.regulations.gov*. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information on a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via mail or hand delivery, please provide all items on a CD, if feasible. It is not necessary to submit printed copies. No facsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English and free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked confidential including all the information believed to be confidential, and one copy of the document marked "non-confidential" with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include (1) a description of the items, (2) whether and why such items are customarily treated as confidential within the industry, (3) whether the information is generally known by or available from other sources, (4) whether the information has previously been made available to others without obligation concerning its confidentiality, (5) an explanation of the competitive injury to the submitting person which would result from public disclosure, (6) when such information might lose its confidential character due to the passage of time, and (7) why disclosure of the information would be contrary to the public interest.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

DOE considers public participation to be a very important part of the process for developing test procedures. DOE actively encourages the participation and interaction of the public during the comment period in each stage of the rulemaking process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in the rulemaking process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this rulemaking should contact Appliance and Equipment Standards Program staff at (202) 586-6636 or via e-mail at ApplianceStandardsQuestions@ee.doe.gov.

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Energy Efficiency and Renewable Energy

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