

# Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

## DEPARTMENT OF ENERGY

### 10 CFR Parts 429 and 430

[Docket No. EERE-2011-BT-TP-0012]

RIN 1904-AC45

#### Energy Conservation Program: Test Procedures for General Service Fluorescent Lamps, General Service Incandescent Lamps, and Incandescent Reflector Lamps

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

**ACTION:** Notice of proposed rulemaking and announcement of public meeting.

**SUMMARY:** The U.S. Department of Energy (DOE) is proposing to revise its test procedures for general service fluorescent lamps (GSFLs) and general service incandescent lamps (GSILs) established under the Energy Policy and Conservation Act (EPCA). DOE is not proposing changes to the existing test procedure for incandescent reflector lamps (IRLs) established under EPCA. For GSFLs and GSILs, DOE is proposing to update several citations and references to the industry standards currently referenced in DOE's test procedures. DOE is also proposing to establish a lamp lifetime test procedure for GSILs. Additionally, in this NOPR, DOE is requesting comments on all aspects of the GSFL, GSIL, and IRL test procedures and whether any further amendments are necessary. DOE's review of the GSFL, GSIL, and IRL test procedures fulfills the EPCA requirement that DOE review test procedures for all covered products at least once every seven years. Finally, DOE is proposing to extend the compliance certification date for GSILs so as to be consistent with the compliance date of the amended test procedure. DOE is also announcing a public meeting to discuss and receive comments on the issues presented in this rulemaking.

**DATES:** *Meeting:* DOE will hold a public meeting on October 4, 2011, from 9 a.m.

to 5 p.m., in Washington, DC, for both this rulemaking on test procedures for GSFLs, GSILs, and IRLs, as well as the rulemaking on GSFL and IRL energy conservation standards. The meeting will also be broadcast as a Webinar. See section V, "Public Participation," for Webinar registration information, participant instructions, and information about the capabilities available to Webinar participants.

*Comments:* DOE will accept comments, data, and information regarding this notice of proposed rulemaking (NOPR) before and after the public meeting, but no later than November 28, 2011. See section V, "Public Participation," for details.

**ADDRESSES:** The public meeting will be held at the U.S. Department of Energy, Forrestal Building, Room 1E-245, 1000 Independence Avenue, SW., Washington, DC 20585. To attend, please notify Ms. Brenda Edwards at (202) 586-2945. Please note that foreign nationals visiting DOE Headquarters are subject to advance security screening procedures. Any foreign national wishing to participate in the meeting should advise DOE as soon as possible by contacting Ms. Brenda Edwards at the phone number above to initiate the necessary procedures.

Any comments submitted must identify the NOPR for Test Procedures for General Service Fluorescent Lamps, General Service Incandescent Lamps, and Incandescent Reflector Lamps and provide docket number EERE-2011-BT-TP-0012 and/or regulatory information number (RIN) 1904-AC45. Comments may be submitted using any of the following methods:

1. *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

2. *E-mail:* [Lamps-2011-TP-0012@ee.doe.gov](mailto:Lamps-2011-TP-0012@ee.doe.gov). Include the docket number and/or RIN 1904-AC45 in the subject line of the message.

3. *Postal Mail:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, 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.

4. *Hand Delivery/Courier:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, 950 L'Enfant Plaza, SW., Suite 600,

Washington, DC 20024. Telephone: (202) 586-2945. 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 the rulemaking process, see section V of this document (Public Participation).

*Docket:* The docket is available for review at <http://www.regulations.gov>, including **Federal Register** notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials. 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 on the regulations.gov site can be found at: [http://www1.eere.energy.gov/buildings/appliance\\_standards/residential/incandescent\\_lamps.html](http://www1.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html). The <http://www.regulations.gov> Web page contains simple instructions on how to access all documents, including public comments, in the docket. See section V, "Public Participation," for information on how to submit comments through <http://www.regulations.gov>.

For further information on how to submit a comment, review other public comments and the docket, or participate in the public meeting, please contact Ms. Brenda Edwards at (202) 586-2945 or e-mail: [Brenda.Edwards@ee.doe.gov](mailto:Brenda.Edwards@ee.doe.gov).

#### FOR FURTHER INFORMATION CONTACT:

Dr. Tina Kaarsberg, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE-2J, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 287-1393. E-mail: [Tina.Kaarsberg@ee.doe.gov](mailto:Tina.Kaarsberg@ee.doe.gov).

Mr. Eric Stas, U.S. Department of Energy, Office of the General Counsel, GC-71, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-9507. E-mail: [Eric.Stas@hq.doe.gov](mailto:Eric.Stas@hq.doe.gov).

For information on how to submit or review public comments, contact Ms. Brenda Edwards, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE-2J, 1000

Independence Avenue, SW.,  
Washington, DC 20585-0121.  
Telephone: (202) 586-2945. E-mail:  
[Brenda.Edwards@ee.doe.gov](mailto:Brenda.Edwards@ee.doe.gov).

#### SUPPLEMENTARY INFORMATION:

#### Table of Contents

- I. Authority and Background
- II. Summary of the Notice of Proposed Rulemaking
- III. Discussion
  - A. Seven-Year Test Procedure Review
  - B. Updates to Industry Standards Incorporated by Reference
    - 1. ANSI C78.81-2010 for General Service Fluorescent Lamps
    - 2. IES LM-9-2009 for General Service Fluorescent Lamps
    - 3. IES LM-45-2009 for General Service Incandescent Lamps
  - C. Test Procedures for Incandescent Reflector Lamps
  - D. General Service Incandescent Lamp Lifetime Testing
    - 1. Selection of Industry Standard
    - 2. Summary of IESNA LM-49-2001
    - 3. Accelerated Lifetime Testing
    - 4. Sample Size
    - 5. "Rated Lifetime" Definition
    - 6. Certification Requirements and Laboratory Accreditation
    - 7. Effective Date and Compliance Date for the Amended Test Procedures and Compliance Date for Submitting GSIL Certification Reports
- IV. Procedural Issues and Regulatory Review
  - A. Review Under Executive Order 12866
  - B. Review Under the Regulatory Flexibility Act
  - C. Review Under the Paperwork Reduction Act of 1995
  - D. Review Under the National Environmental Policy Act of 1969
  - E. Review Under Executive Order 13132
  - F. Review Under Executive Order 12988
  - G. Review Under the Unfunded Mandates Reform Act of 1995
  - H. Review Under the Treasury and General Government Appropriations Act, 1999
  - I. Review Under Executive Order 12630
  - J. Review Under Treasury and General Government Appropriations Act, 2001
  - K. Review Under Executive Order 13211
  - L. Review Under Section 32 of the Federal Energy Administration Act of 1974
- V. Public Participation
  - A. Attendance at the Public Meeting
  - B. Procedure for Submitting Requests To Speak and Prepared General Statements for Distribution
  - C. Conduct of Public Meeting
  - D. Submission of Comments
  - E. Issues on Which DOE Seeks Comment
- VI. Approval of the Office of the Secretary

#### I. Authority and Background

Title III, Part B<sup>1</sup> of the Energy Policy and Conservation Act of 1975 (EPCA or the Act), Public Law 94-163 (42 U.S.C. 6291-6309, as codified) sets forth a variety of provisions designed to improve energy efficiency and

established the Energy Conservation Program for Consumer Products Other Than Automobiles, a program covering most major household appliances. These include general service fluorescent lamps (GSFLs), general service incandescent lamps (GSILs), and incandescent reflector lamps (IRLs), the subject of today's notice (referred to below as one of the "covered products").<sup>2</sup> (42 U.S.C. 6292(a)(14) and 6295(i))

Under the Act, this program generally consists of four parts: (1) Testing; (2) labeling; and (3) establishing Federal energy conservation standards and (4) certification and enforcement procedures. The testing requirements consist of test procedures that manufacturers of covered products must use: (1) As the basis for certifying to DOE that their products comply with the applicable energy conservation standards adopted pursuant to EPCA, and (2) for making representations about the efficiency of those products. (42 U.S.C. 6293(c); 42 U.S.C. 6295(s)) Similarly, DOE must use these test requirements in determining whether covered products comply with any relevant energy conservation standards promulgated under EPCA. (42 U.S.C. 6295(s))

Under 42 U.S.C. 6293, EPCA sets forth the criteria and procedures that DOE must follow when prescribing or amending test procedures for covered products. EPCA provides in relevant part that any test procedures prescribed or amended under this section must be reasonably designed to produce test results which measure energy efficiency, energy use, or estimated annual operating cost of a covered product during a representative average use cycle or period of use and not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

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. 6293(b)(2)) Finally, in any rulemaking to amend a test procedure, DOE must determine the extent to which the proposed test procedure would alter the measured energy efficiency. (42 U.S.C. 6293(e)(1)) If DOE determines that the amended test procedure would alter significantly the measured efficiency of a covered product, DOE must amend the

applicable energy conservation standard accordingly. (42 U.S.C. 6293(e)(2))

Relevant to this rulemaking, EPCA, as codified, directs DOE to prescribe test procedures for GSFLs and IRLs to which energy conservation standards are applicable, taking into consideration the applicable standards of the Illuminating Engineering Society of North America<sup>3</sup> (IESNA) or the American National Standards Institute<sup>4</sup> (ANSI). (42 U.S.C. 6293(b)(6))

In addition, on December 19, 2007, the Energy Independence and Security Act of 2007 (EISA 2007), Public Law 110-140, was enacted. Section 321 of EISA 2007 amended EPCA, in relevant part, to prescribe energy conservation standards for GSILs that included maximum rated wattage and minimum rated lifetime requirements for several different lumen ranges; these standards will be phased in between 2012 and 2014. (42 U.S.C. 6295(i)) Section 302 of EISA 2007 also amended EPCA to require DOE to review test procedures for all covered products at least once every seven years. DOE must either amend the test procedures or publish notice in the **Federal Register** of any determination not to amend a test procedure. (42 U.S.C. 6293(b)(1)(A))

Accordingly, to fulfill these statutory requirements for periodic review, in this NOPR, DOE invites comment on all aspects of the existing test procedures for GSFLs, GSILs, and IRLs that appear at Title 10 of the Code of Federal Regulations (CFR): 10 CFR 429.27 ("General service fluorescent lamps, general service incandescent lamps, and incandescent reflector lamps"), 10 CFR 430.2 ("Definitions"), 10 CFR 430.3 ("Materials incorporated by reference"), 10 CFR 430.23 ("Test procedures for the measurement of energy and water consumption"), 10 CFR 430.25 ("Laboratory Accreditation Program"), and 10 CFR part 430 subpart B, Appendix R ("Uniform Test Method for Measuring Average Lamp Efficacy (LE), Color Rendering Index (CRI), and Correlated Color Temperature (CCT) of Electric Lamps").

To address prior EPCA requirements for GSFLs, GSILs, and IRLs, DOE has undertaken a number of rulemaking actions pertaining to the test procedures for these products. On September 28, 1994, DOE published in the **Federal Register** an Interim Final Rule on Test Procedures for Fluorescent and Incandescent Lamps that established

<sup>3</sup> Illuminating Engineering Society of North America (IESNA) standards can be purchased on the IESNA Web site at: <http://www.ies.org/store/>.

<sup>4</sup> American National Standards Institute (ANSI) standards can be purchased on the ANSI Web site at: <http://www.webstore.ansi.org/>.

<sup>1</sup> For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

<sup>2</sup> All references to EPCA in this rulemaking refer to the statute as amended through the Energy Independence and Security Act of 2007, Public Law 110-140.

test procedures for GSFLs, medium-base compact fluorescent lamps (CFLs), IRLs, and GSILs. 59 FR 49468 (establishing 10 CFR part 430, subpart B, Appendix R). On May 29, 1997, DOE published a final rule in the **Federal Register** on Test Procedures for Fluorescent and Incandescent Lamps that revised some definitions and calculation methods and updated several references to industry standards adopted in the September 1994 Interim Final Rule. 62 FR 29222.

Subsequently, DOE amended its GSFL, GSIL, and IRL test procedures in a final rule published in the **Federal Register** on July 6, 2009 (hereinafter referred to as the 2009 Lamps Test Procedure). 74 FR 31829. This final rule made the following technical modifications to the test procedures: (1) Required testing of GSFLs to be based on low-frequency reference ballasts, except for those lamps that can only be tested on high-frequency ballasts; (2) required lamp efficacy for GSFLs to be rounded to the nearest tenth of a lumen per watt, rather than the nearest whole number; (3) adopted a test method for measuring and calculating correlated color temperature (CCT) for fluorescent lamps and incandescent lamps; and (4) updated citations and references to industry standards referenced in DOE's test procedures. Additionally, because EISA 2007 promulgated energy conservation standards for certain GSILs, DOE also amended its test procedures for GSILs by: (1) Specifying the units to be tested; (2) defining the "basic model" for GSILs; and (3) providing a method for calculating annual energy consumption and efficacy of GSILs.

In a separate rulemaking that amended GSFL and IRL energy conservation standards, DOE adopted standards for additional general service fluorescent lamp types and also established test procedures for those lamps. These test procedure amendments included specific reference ballast settings for testing those additional GSFLs. 74 FR 34080, 34095–96 (July 14, 2009).

The current test procedures for GSFLs, GSILs, and IRLs are specified in various sections of the CFR and are based on the 1997 and 2009 final rules addressing test procedures for fluorescent and incandescent lamps. 62 FR 29222 (May 29, 1997); 74 FR 31829 (July 6, 2009); 74 FR 34080 (July 14, 2009). Calculations for lamp efficacy of GSFLs, GSILs, and IRLs and for color rendering index of GSFLs are discussed in 10 CFR 430.23, which references 10 CFR part 430, subpart B, Appendix R. Appendix R also specifies several IESNA and ANSI standards to use for

test conditions and procedures. For GSFLs, it references measurement procedures set forth in IESNA LM–9–1999.<sup>5</sup> Additionally, GSFL are to be operated according to general procedures for taking electrical measurements described in ANSI C78.375–1997,<sup>6</sup> and at the voltage and current conditions described in ANSI C78.81–2005 (double-based lamps)<sup>7</sup> or ANSI C78.901–2005 (single-based lamps),<sup>8</sup> and using the reference ballast at input voltage specified by the reference circuit in ANSI C82.3–2002.<sup>9</sup> Appendix R also notes that the measurement procedures for GSILs and IRLs are set forth in IESNA LM–45–2000<sup>10</sup> and IESNA LM–20–1994,<sup>11</sup> respectively.

## II. Summary of the Notice of Proposed Rulemaking

In overview, in addition to requesting comment on all aspects of the current GSFL, GSIL, and IRL test procedures, this NOPR proposes to amend DOE's current test procedures for GSFLs and GSILs based on DOE's review of the existing test procedures. These amendments would achieve two objectives: (1) To update test procedures by incorporating certain lighting industry standards by reference in order to adopt current best practices and technological developments and (2) to adopt a new test procedure for determining GSIL rated lifetime. If the revisions and additions proposed by this test procedure NOPR were adopted, their use would be required for standards compliance purposes upon the effective date of the test procedure final rule (*i.e.*, 30 days after its publication).

Regarding the first objective (*i.e.*, updating references in DOE's existing test procedures to incorporate current best practices and technological

developments), today's notice proposes updating references for the industry standards incorporated by reference to the latest versions of those documents. For GSFLs, DOE is proposing to update references ANSI C78.81–2005 to ANSI C78.81–2010<sup>12</sup> and from IESNA LM–9–1999 to IES LM–9–2009<sup>13</sup> for measuring the electrical and photometric attributes. For GSILs, DOE proposes updating references from IESNA LM–45–2000 to IES LM–45–2009<sup>14</sup> for measuring their electrical and photometric attributes. This NOPR is not proposing changes to the current IRL test procedures, because no updated version of the relevant industry standard, IESNA LM–20–1994, has been published, nor do current best practices and technological developments appear to warrant such an update.

DOE has identified and outlined in section III.B the modifications and clarifications found in the most recent versions of the industry standards for GSFLs and GSILs, as compared to the versions of those same standards currently incorporated by reference in DOE's test procedures. These changes will not, in DOE's view, significantly alter reported lamp efficacy values.

Regarding the second objective (*i.e.*, adoption of a GSIL rated lifetime test procedure), today's notice proposes incorporating by reference industry standard, IESNA LM–49–2001.<sup>15</sup> As noted above, EISA 2007 amended EPCA, in part, by establishing energy conservation standards for GSILs which include for the first time minimum rated lifetime requirements that are to be phased in between January 2012 and January 2014. DOE must now address GSIL lifetimes in an amended test procedure for GSILs. EPCA's definition of lamp "life" and "lifetime" requires that DOE make this amendment in accordance with test procedures described in the IES Lighting Handbook—Reference Volume. (42 U.S.C. 6291(30)(P))

To initiate the development of a test procedure for determining GSIL rated lifetime, DOE conducted literature research and interviews with several GSIL lifetime testing facilities and

<sup>5</sup> "IESNA Approved Method for the Electrical and Photometric Measurements of Fluorescent Lamps" (approved Dec. 4, 1999).

<sup>6</sup> "American National Standard for electric lamps: Fluorescent Lamps—Guide for Electrical Measurements" (approved Sept. 25, 1997).

<sup>7</sup> "American National Standard for Electric Lamps Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics" (approved August 11, 2005).

<sup>8</sup> "American National Standard for Electric Lamps Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics" (approved March 23, 2005).

<sup>9</sup> "American National Standard For Lamp Ballasts-Reference Ballasts for Fluorescent Lamps" (approved Sept. 4, 2002).

<sup>10</sup> "IESNA Approved Method for Electrical and Photometric Measurements of General Service Incandescent Filament Lamps" (approved May 8, 2000).

<sup>11</sup> "IESNA Approved Method for Photometric Testing Of Reflector-Type Lamps" (approved Dec. 3, 1994).

<sup>12</sup> "American National Standard for Electric Lamps-Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics" (approved Jan. 14, 2010).

<sup>13</sup> "IES Approved Method for the Electrical and Photometric Measurement of Fluorescent Lamps" (approved Jan. 31, 2009).

<sup>14</sup> "IES Approved Method for the Electrical and Photometric Measurement of General Service Incandescent Filament Lamps" (approved Dec. 14, 2009).

<sup>15</sup> "IESNA Approved Method for Life Testing of Incandescent Filament Lamps" (approved Dec. 1, 2001).

determined that IESNA LM-49-2001 aligns with guidance in the IESNA Lighting Handbook, and is also the industry standard for GSIL lifetime testing. Additionally, DOE has tentatively concluded this industry standard adequately covers the test setup, conditions, and procedures for GSIL lifetime testing. Therefore, in order to meet the EISA 2007 requirements for GSIL lifetimes that will begin going into effect in January 2012, this notice proposes to incorporate by reference IESNA LM-49-2001 to establish the test procedure for determining rated lifetime of GSILs.

The following sections detail changes associated with the revised versions of the applicable industry standards incorporated by reference (IES LM-9-2009 and IES LM-45-2009) and summarize DOE's proposed test procedure for the GSIL rated lifetime.

Lastly, DOE discusses the compliance date for use of the amended test procedure and certifying compliance with DOE's energy conservation standards.

### III. Discussion

#### A. Seven-Year Test Procedure Review

In undertaking this rulemaking, DOE is fulfilling its statutory obligation under section 302 of EISA 2007 to review its test procedures for all covered products, including GSFL, GSIL, and IRL, at least once every seven years. (42 U.S.C. 6293(b)(1)(A)) DOE must either: (1) Amend the test procedure to improve its measurement representativeness or accuracy or reduce its burden, or (2) determine that such amendments are unnecessary. *Id.* Although DOE is proposing revisions to only certain parts of the existing test procedures (see sections III.A.1, III.A.2, and III.A.3), DOE invites comments on all aspects of DOE's test procedures for GSFL, GSIL, and IRL, including those provisions appearing at 10 CFR 429.27, 10 CFR 430.2, 10 CFR 430.23, 10 CFR 430.25, and 10 CFR 430, subpart B, Appendix R. (See Issue 1 in section V.E), as well as comments on current best practices and technological developments that may warrant amendments.

#### B. Updates to Industry Standards Incorporated by Reference

Because the current GSFL, GSIL, and IRL test procedures are based mainly on references to industry standards, this review, in part, consists of determining whether or not to adopt the updated version of these standards. Industry periodically updates its test procedure standards to account for changes in

product lines and/or developments in test methodology and equipment. In its review of these industry standards, DOE compared updated and current versions to determine, as directed by EPCA, whether adopting the latest industry standards would alter measured energy efficiency. (42 U.S.C. 6293(e)(1)) In addition, in considering whether to adopt an updated standard, DOE must ensure that a revision to DOE's regulations would not result in a test procedure that is unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

After reviewing the industry standards incorporated by reference for the existing GSFL, GSIL, and IRL test procedures as well as current best practices and technological developments, DOE tentatively identified appropriate updates for the GSFL and GSIL test procedures, but no updates for the IRL test procedure. For GSFLs, DOE is proposing to update references to the 1999 version of IES LM-9 to the 2009 version and references to the 2005 version of ANSI C78.81 to the 2010 version. For GSILs, DOE proposes to update references to the 2000 version of IES LM-45 to the 2009 version. DOE is proposing to adopt the latest versions of IES LM-9 and IES LM-45, as they include requirements that will increase the precision of measurements and clarifications of existing test setup and methodology. The updated version of ANSI C78.81 provides lamp specifications for additional lamp types that may become useful in the future. Adoption of these latest versions will also better align DOE test procedures with industry practice, thereby potentially reducing testing burden.

Generally, DOE has determined that the changes associated with adoption of the updated versions of industry standards referenced in the existing test procedures for the products that are the subject of this NOPR would not be unduly burdensome for manufacturers, nor would they result in a change in measured lamp efficacy values, as they are not making substantive changes to test setup and methodology. In its review of the updated versions of industry standards, DOE identified some provisions in the revised industry test procedures that could potentially result in small changes in lamp efficacy values (*e.g.*, modifications to impedance thresholds, voltage and current regulations). However, DOE tentatively determined that these potential changes in lamp efficacy values from the modified provisions would not be

significant.<sup>16</sup> Nevertheless, DOE requests comments on its assessment (see Issues 2 and 3 in section V.E). The following sections discuss in more detail each of the updated industry standards and their provisions that could potentially result in small changes in lamp efficacy values.

#### 1. ANSI C78.81-2010 for General Service Fluorescent Lamps

The existing GSFL test procedure at 10 CFR part 430, subpart B, Appendix R incorporates by reference ANSI C78.81-2005, addressing dimensional and electrical characteristics for double-capped fluorescent lamps. This 2005 standard, a revision to ANSI C78.81-2003, is also referenced in DOE's definitions of "cold-temperature fluorescent lamp" and "rated wattage." (See 10 CFR 430.2) In addition, ANSI C78.81-2003 is currently referenced in parts of DOE's test procedure for fluorescent lamp ballasts. (See 10 CFR part 430, subpart B, Appendix Q) In this NOPR, DOE proposes to update all reference to ANSI C78.81 (both 2003 and 2005) to now reference ANSI C78.81-2010 in DOE's test procedures and definitions relating to GSFLs and fluorescent lamp ballasts. The 2010 version adds high-frequency and low-frequency lamp specifications for reduced-wattage 4-foot T8 medium bipin lamps. While DOE's current test procedures do not require the use of these specifications, they may become relevant in DOE's ongoing assessment of whether industry has provided high-frequency lamps specifications for all GSFL covered by standards and subsequently, if DOE should consider requiring GSFLs be tested using high-frequency ballasts. Furthermore, if upcoming GSFL energy conservation standards rulemakings adopt additional lamp types, incorporating the latest version of ANSI C78.81 may necessitate little or no changes to DOE test procedures in terms of specifications for the new lamp types.

Section 1 ("Definitions") of Appendix Q ("Uniform Test Method for Measuring Energy Consumption of Fluorescent Lamp Ballasts") to the DOE test procedure refers to specific datasheets in ANSI C78.81-2003 to identify dimensional and electrical characteristics for the following lamps: F40T12, F96T12, F96T12HO, F34T12, F96T12ES, F96T12HO/ES. DOE has

<sup>16</sup> In this document, changes in efficacy that are described as "not significant" are considered to be within measurement error or variation. DOE tentatively concludes that these amendments do not affect reported efficacy values to the extent that would warrant modifications to energy conservation standards.

determined that 2003 datasheets referenced in Appendix Q are identical to the corresponding datasheets in the 2010 version of ANSI C78.81. As updating references to ANSI C78.81–2003 to ANSI C78.81–2010 in Appendix Q does not constitute a substantive change to the fluorescent lamp ballast test procedure, DOE concludes that such amendments would not result in any changes in testing burden or a change in measured energy consumption as compared to the current DOE test procedure.

In comparing ANSI C78.81–2010 to the 2005 version of the standard, DOE notes that the only change is to include high-frequency and low-frequency lamp specifications for 25W, 28W, and 30W, reduced-wattage 4-foot T8 medium bipin lamps. These lamps, commonly used as replacements for a 32W 4-foot T8 medium lamp, are newer products and only recently have been added to the ANSI standard. The low-frequency reference ballast specifications in ANSI C78.81–2010 for these lamps are identical to the specifications DOE currently directs manufacturers to use for those fluorescent lamps in section 4.1.2.1 of Appendix R.<sup>17</sup> Therefore, neither measured efficacy nor testing burden would be affected by updating the current references in the DOE test procedure to ANSI C78.81–2010. Thus, DOE proposes to update all references to ANSI C78.81 (both the 2003 and 2005 version) in 10 CFR part 430 to the 2010 version of the standard.

## 2. IES LM–9–2009 for General Service Fluorescent Lamps

IESNA LM–9–1999 specifies procedures for measuring the efficacy of GSFLs. As discussed above, this industry standard has been updated with a 2009 edition. DOE is proposing to update references to IESNA LM–9–1999 to the more recent 2009 version of the standard.<sup>18</sup> A review indicates that incorporating the 2009 edition of IES LM–9 could provide further clarification of the test procedure and improve the test methodology and test instrumentation setup and specifications. DOE has identified the following four key updates in the 2009 edition of IES LM–9 and discusses them in greater detail below. Specifically, IES LM–9–2009:

- Adds information on conducting tests under high-frequency conditions;
- Modifies the lamp stabilization method;

- Specifies temperature and orientation for stabilization of T5 lamps; and

- Specifies impedance<sup>19</sup> thresholds for the multipurpose volt, amperes, and watts (VAW) meter and power source, where previously only general guidance was provided.

One of the key updates in IES LM–9–2009 is the addition of guidance on taking measurements under high-frequency conditions when using high-frequency ballasts. Because high-frequency test specifications are not available for all lamp types and in order to maintain consistency and comparability across testing, DOE required testing of GSFLs using low-frequency ballasts where possible in the 2009 Lamps Test Procedure final rule.<sup>20</sup> 74 FR 31829, 31835 (July 6, 2009). This NOPR does not propose to change this requirement. Because 8-foot T8 recessed double-contact high-output and 4-foot T5 miniature bipin standard and high-output lamps only have high-frequency reference ballasts specifications available, the DOE test procedure directs manufacturers to use high-frequency test conditions for these lamps.

IES LM–9–2009 now provides some guidance for testing in high-frequency situations, specifically regarding instrument thresholds and circuit setup. As noted above, DOE requires GSFLs testing using low-frequency ballasts where possible. However, the high-frequency guidance in IES LM–9–2009 would be applicable for lamps that only have high-frequency ballast specifications available and, therefore, cannot be tested using low-frequency ballasts. IES LM–9–2009 specifies for high-frequency measurements that root mean square (RMS) voltage applied to the test lamp be regulated to within  $\pm 1.0$  percent of the reference ballast voltage setting and that instruments have a frequency response<sup>21</sup> of at least 100 kilohertz (kHz). For measurements under high-frequency operation, the industry standard specifies that lamps be operated in series with a non-

inductive reference resistor ballast,<sup>22</sup> as specified in ANSI C78.81–2010. IES LM–9–2009 also states that when the impedance is not specified in a standard, the value is to be set to one half of the lamp impedance under high-frequency conditions. High-frequency-specific impedance, along with current and input voltage for reference ballasts, are necessary parameters for testing under high-frequency conditions. The industry standard also clarifies that for high-frequency circuits, cathode heating should not be used when the lamp is in operation. DOE has tentatively concluded that for lamps that can only be tested at high frequency, the impact of the new guidance provided in IES LM–9–2009 regarding high-frequency testing would be useful, and it would not significantly impact lamp efficacy measurements (which would likely be within the margin of measurement error). Furthermore, DOE's analyses indicate that most modern equipment would accommodate the thresholds specified in IES LM–9–2009 for high-frequency testing, and, thus, they would not impose an additional testing burden on manufacturers since new testing instruments would not be required to run the test. DOE requests comment on whether the clarification on high-frequency testing provided would affect lamp efficacy values and/or significantly increase the testing burden (see Issue 2 in section V.E).

In addition, IES LM–9–2009 includes modifications to the lamp stabilization methodology. IES LM–9–2009 now prescribes six (instead of four) measurements at one-minute intervals for a total of five (instead of three) minutes. It also removes the requirement that the stability percentage be two percent for lamps with cold spots/chambers, leaving only the general one-percent stability threshold. Additionally, IES LM–9–2009 requires that stabilization measurements continue until six consecutive measurements meet the stabilization criteria. These modifications to the lamp stabilization method allow for more accurate and consistent measurements of lamp efficacy. After review, DOE has tentatively concluded that the 2009 version provides a stricter stabilization method, but one that is consistent with industry standards. DOE requests comments on the impact of these proposed changes in stabilization methodology on lamp efficacy values (see Issue 2 in section V.E).

<sup>17</sup> DOE's current test procedure for 4-foot medium bipin lamps specifies that testing be done using low-frequency reference ballast specifications.

<sup>18</sup> The 2009 version of the standard is labeled as IES instead of IESNA.

<sup>19</sup> A measure of the total opposition to current flow in an alternating current (AC) circuit made up of resistance and reactance, "reactance" is the opposition of a circuit element to a change of electric current or voltage, due to the element's capacitance or inductance. For a direct current (DC) circuit, the impedance is just the resistance.

<sup>20</sup> One exception to this rule would be 8-foot T8 recessed double-contact high-output and 4-foot T5 miniature bipin standard and high-output lamps, which only have high-frequency reference ballasts specifications listed in ANSI C78.81–2005.

<sup>21</sup> "Frequency response" is the measure of a system's output frequency spectrum in response to an input signal.

<sup>22</sup> A high-frequency reference ballast has only resistive elements, while a low-frequency reference ballast includes inductors.

IES LM-9-2009 also prescribes lamp stabilization characteristics unique to T5 linear fluorescent lamps. To obtain stable photometric results in 25 °C (77 °F) air, it recommends keeping the mercury dose in the test lamp close to the equilibrium temperature and vapor pressure. IES LM-9-2009 also specifies that T5 lamps are to be seasoned<sup>23</sup> in the vertical orientation, even though they are measured horizontally. Stable light output is reached when all the liquid mercury is in the cold spot, which by industry convention is at the monogrammed end of the lamp. Therefore, T5 lamps are operated in a vertical position to keep the mercury dose at one end of the lamp. IES LM-9-2009 references IESNA LM-54-1999<sup>24</sup> for further guidance on this procedure. Upon review, DOE has tentatively concluded that the addition of the T5 lamp stabilization method, as proposed, would address stability characteristics specific to these lamp types, but it would not be expected to alter measured lamp efficacy.

IES LM-9-2009 also specifies impedance thresholds for the multipurpose volt, amperes, and watts (VAW) meter and power source. The VAW meter voltage input must have input impedance greater than one megaohm; and the electrical current input impedances may not exceed 10 milliohms.<sup>25</sup> IES LM-9-2009 also prohibits power source impedance greater than two percent of the ballast impedance. For high-frequency power supplies, the 2009 version adds the note that it is impossible to meet this power source impedance limit internally, so external control circuits are used to keep the output voltage at the desired level. This modification addresses the need for low impedance in order to ensure accurate measurements, but DOE does not expect that it would significantly affect lamp efficacy measurements. DOE has tentatively concluded that because the updates to impedance limitations mainly affect error correction and ensure accurate

<sup>23</sup> "Seasoned" or "seasoning" refers to the initial burning or operation of a lamp with the goal of minimizing time-related changes in lamp operating characteristics.

<sup>24</sup> "IESNA Guide to Lamp Seasoning" (approved May 10, 1999).

<sup>25</sup> The 2009 version also removes Annex A, *Corrections to Compensate for Presence of Test Instruments in the Lamp Circuit*. This annex addresses how to account for the change in the circuit caused by the test instruments. IES LM-9-2009 notes, however, that the error introduced to the circuit is negligible when using high-input-impedance (one megaohm or greater) instruments. Because IES LM-9-2009 has been modified to require that voltage input of a multifunction meter have input impedance greater than one megaohm, this annex is no longer relevant.

measurements, these changes would not be expected to affect lamp efficacy values. In addition, DOE's research indicates that manufacturers' existing instrument setups should meet the impedance thresholds prescribed and, therefore, would not pose an additional testing burden.

In addition to the above mentioned updates, IES LM-9-2009 provides recommendations and further guidance that remove a number of ambiguities in the previous version (e.g., updates to sources of measurement errors, definitions, and references). Because these proposed updates do not involve substantive changes to the test setup and methodology, but rather just clarification, DOE has tentatively concluded they would not affect lamp efficacy measurements or pose an additional testing burden.

For the reasons discussed above, DOE has tentatively concluded that substituting the 2009 version of IES LM-9 for the version (1999) currently incorporated in the DOE test procedure for GSFLs would generally result in more precise measurements and provide further clarification to the DOE test procedures. It would also align DOE's requirements with current industry standards, thereby potentially reducing testing burden. The proposed amendments would not be expected to significantly affect measured lamp efficacy. DOE requests comments on its proposed incorporation of IES LM-9-2009 and its tentative conclusion that the update would have an insignificant impact on lamp efficacy values (see Issue 2 in section V.E).

### 3. IES LM-45-2009 for General Service Incandescent Lamps

The existing GSIL test procedure at 10 CFR part 430, subpart B, Appendix R incorporates by reference IESNA LM-45-2000 and specifies its use for measuring efficacy of GSILs. As discussed above, this industry standard has been updated with a 2009 edition which is labeled as IES instead of IESNA. DOE is considering updating references from IESNA LM-45-2000 to the 2009 version of the standard. A review indicates that incorporating the 2009 edition of IES LM-45 could provide further clarification of the test procedure and improvements in test methodology. DOE has identified the following five key updates in the 2009 edition of LM-45 and discusses them in greater detail below:

- Modifies the lamp stabilization method;
- Modifies voltage and current regulation tolerances of the alternating current (AC) power source;

- Modifies instrument tolerance for AC voltage, current, and wattage;
- Specifies impedance tolerances for instruments;

• Specifies the tolerance of the spectral response of the photo detector;

The first key update in IES LM-45-2009 is clarification of the lamp stabilization methodology. IES LM-45-2009 specifies that the stability percentage should be calculated by dividing the difference between the maximum and minimum of the five consecutive measurements by the average value of the measurements. IES LM-45-2009 also states that measurements must continue at 15-second intervals until five consecutive measurements meet the stability criteria. These additional specifications in IES LM-45-2009 provide a more precise definition of stabilization, which may improve consistency of test results.

IES LM-45-2009 also contains modified requirements for voltage and current regulation of the AC power source. It specifies that RMS voltage or current is to be regulated to within  $\pm 0.1$  percent instead of  $\pm 0.02$  percent. The revised standard also changed the instrument tolerances for voltage, current, and wattage measurements for AC, specifying  $\pm 0.5$  percent or less for voltage and current and  $\pm 0.75$  percent or less for wattage as allowable accuracies. IES LM-45-2000 had stated that uncertainty of voltage and current shall not exceed  $\pm 0.05$  for both DC and AC circuits. All else held equal, uncertainty for AC measurements tends to be higher than DC measurements, due to the time-varying properties of AC signals.

While the above mentioned changes in power source regulation and in instrument tolerances could introduce slightly more variation in lamp efficacy measurements, DOE does not expect that these proposed changes would have a significant impact on reported lamp efficacy values, which are based on testing of 21 samples. Additionally, the revised tolerances are closer to those achievable by today's commercially-available equipment being used industry-wide, and, therefore, they would not pose an additional testing burden.

IES LM-45-2009 also adds upper and lower input impedance thresholds for the voltage and the current inputs of the multimeter used for measurements. Under the revised version of the industry standard, the input impedance for the voltage input to the multifunction meter must exceed one megaohm, and the input impedance for the current inputs must be less than 10 milliohms. DOE has tentatively

concluded that these changes would have an insignificant impact on lamp efficacy values. The updates to impedance thresholds mainly affect error correction and ensure accurate measurements. In addition, this change would not pose an additional testing burden, as DOE's research indicates that manufacturers' existing instrument setups should meet the impedance thresholds prescribed.

Both versions of IES LM-45 include a requirement that the photo-detector have a relative spectral responsivity which approximates  $V(\lambda)$ , the photopic luminous efficiency function.<sup>26</sup> The  $V(\lambda)$  function represents the response curve of a standard observer, which quantifies the visual sensitivity of the human eye to light at different wavelengths. IES LM-45-2009 adds the specification that the  $V(\lambda)$  parameter,  $f1'$ , be less than five percent. The parameter  $f1'$  describes the degree of spectral match of the photo-detector measurements to the  $V(\lambda)$  function. DOE's research indicates that industry commonly considers a value for  $f1'$  of less than five percent good commercial quality and a value of less than three percent good laboratory/research quality. DOE has tentatively concluded that the additional specification of the spectral response tolerance of the photo-detector would not affect lamp efficacy measurements. In addition, DOE research shows that manufacturers already employ at least commercial-grade instruments, and, therefore, this specification would not pose an additional test burden. However, it is useful to explicitly specify the allowable error in spectral response to ensure a certain accuracy of photometric measurements.

For the reasons discussed above, DOE has tentatively concluded that substituting the 2009 version of IES LM-45 for the 2000 version currently incorporated in the DOE test procedure for GSILs would result in more precise measurements and provide further clarification to the DOE test procedures. Updating to the latest version would also better align DOE's requirements with current industry standards and best practices. The proposed amendments would not be expected to significantly affect measured lamp efficacy. DOE requests comments on its proposed incorporation of LM-45-2009 and its tentative conclusion that the update would have an insignificant impact on lamp efficacy values and

<sup>26</sup> The Commission International de l'Eclairage (CIE) established the photopic luminous efficiency function as the response curve of a standard observer. IESNA Lighting Handbook, Ninth Edition (2000) p. 1-6.

testing burden (see Issue 3 in section V.E).

### C. Test Procedures for Incandescent Reflector Lamps

The existing IRL test procedure at 10 CFR part 430, subpart B, Appendix R incorporates by reference IESNA LM-20-1994<sup>27</sup> for measuring efficacy of IRLs. At the time of publication of this NOPR, a revised edition of this standard had not been published. Upon review DOE has determined that existing test procedures for IRLs are appropriate for measuring efficacy and continue to not impose an undue testing burden. Further, DOE is not aware of any current best practice or technical development that necessitates modifications to the existing test procedure. Therefore, no amendments to IRL test procedures are proposed. DOE requests comment on its assessment that no updates to the IRL test procedure are needed and welcomes any suggestions for amendments (see Issue 4 in section V.E).

### D. General Service Incandescent Lamp Lifetime Testing

Section 321 of EISA 2007 amended EPCA by prescribing for the first time for GSILs, minimum rated lifetime<sup>28</sup> requirements to be phased in between January 2012 and January 2014 (codified at 42 U.S.C. 6295(i)(1)). EPCA defines "life" and "lifetime" as the length of operating time of a statistically large group of lamps between first use and failure of 50 percent of the group, in accordance with test procedures described in the IESNA Lighting Handbook Reference Volume. (42 U.S.C. 6291(30)(P))

The rated lifetime of a general service incandescent lamp depends mainly on the rate of vaporization of the surface of the tungsten filament due to the high filament temperatures required during lamp operation. The tungsten filament generates the light in incandescent lamps when a current is passed through it, which heats the filament by electrical resistance. As the filament evaporates and shrinks, its resistance increases, thereby reducing current, power, and light in multiple circuits.<sup>29</sup> Light output is also reduced by the deposit of light-absorbing tungsten particles on the bulb surface. When the filament breaks, it

<sup>27</sup> "IESNA Approved Method for Photometric Testing of Reflector-Type Lamp," (approved Dec. 3, 1994).

<sup>28</sup> DOE is proposing to use the term "rated lifetime" rather than "rate lifetime," which is the term used in the statutory standards for GSILs prescribed by EISA 2007. (42 U.S.C. 6295(i)) DOE believes "rated" is more commonly used in industry.

<sup>29</sup> IESNA Lighting Handbook, Ninth Edition (2000) p. 6-13.

interrupts the electrical circuit, thereby resulting in an inoperable lamp.

### 1. Selection of Industry Standard

As stated above, EPCA defines the term "lifetime" in part by referencing test procedures in the IESNA Lighting Handbook.<sup>30</sup> The IESNA Lighting Handbook provides guidance on two methods of testing GSIL lifetime: (1) At rated voltage; and (2) at overvoltage (also known as accelerated lifetime testing). DOE notes that the rated voltage testing guidance in the IESNA Lighting Handbook generally coincides with IESNA LM-49-2001. (See discussion in section III.D.3 below for further details on accelerated lifetime testing.) In light of its common usage in the industry and its similarity to the test procedure in the IESNA Lighting Handbook, DOE is proposing to incorporate by reference IESNA LM-49-2001, "IESNA Approved Method for Life Testing of Incandescent Filament Lamps" (approved Dec. 1, 2001), into the DOE test procedure for measuring GSIL lifetime, in order for there to be an appropriate test method in place by the compliance date for the GSIL minimum lifetime standard levels established by EISA 2007.

DOE notes, however, that the IESNA Lighting Handbook test procedures depart from those described in IESNA LM-49-2001 in one way: the IESNA Lighting Handbook requires test voltage or current be held within  $\pm 0.25$  percent of rated voltage/current, whereas IESNA LM-49-2001 requires test voltage or current be held within  $\pm 0.5$  percent of rated RMS values. As IESNA LM-49-2001 is the more commonly used reference for GSIL lifetime testing, DOE is proposing to stay with the voltage/current regulation prescribed in IESNA LM-49-2001. DOE also has tentatively concluded that this difference in voltage regulation specification would have an insignificant impact on lifetime testing and would reduce testing burden by providing a somewhat wider tolerance.

DOE also considered IEC 60064-2005<sup>31</sup> which contains similar test conditions and procedures as IESNA LM-49-2001. After speaking to representatives from major lighting testing facilities, however, DOE found that IESNA LM-49-2001 is the more common reference for GSIL lifetime testing, which suggests it is the more workable approach. Further evidence of the IESNA standard's usage is the

<sup>30</sup> IESNA Lighting Handbook, Ninth Edition (2000) p. 2-24.

<sup>31</sup> "International Standard: Tungsten filament lamps for domestic and similar general lighting purposes—Performance requirements" (approved 2005).

Federal Trade Commission (FTC) reference to IESNA LM-49 in its regulations for product labeling of GSILs. 16 CFR 305.5(b). By adopting the same industry standard for purposes of compliance with energy conservation standards and FTC labeling, DOE would minimize the need for additional testing. IESNA LM-49-2001 adequately covers ambient conditions, test setup (lamp orientation, power supply specifications, instrumentation), and operating cycle methodology, thereby providing a comprehensive test procedure for testing GSIL lifetime. DOE requests comments on its proposal to adopt IESNA LM-49-2001 as the standard for GSIL lifetime testing (see Issue 5 in section V.E). The following section describes the test procedures laid out in IESNA LM-49-2001.

## 2. Summary of IESNA LM-49-2001

Similar to EPCA, section 1.2 of IESNA LM-49-2001 defines "rated lifetime" as the statistically-determined estimate of median operational lifetime, where median is the total operating time under which, at normal operating conditions, 50 percent of a large group of initially installed lamps is expected to be still operating. IESNA LM-49-2001 prescribes testing lifetime of an incandescent lamp at its rated voltage, and it requires the lamp to be checked for failure at certain intervals and to be cooled on a daily basis.

Section 3.2 of IESNA LM-49-2001 provides instrument specifications that require lamps to be operated at their rated voltage for voltage-rated lamps or at their rated current for current-rated lamps, and at 60 Hertz (Hz). When using an AC power supply, the voltage wave shape is to be such that total harmonic distortion does not exceed three percent of the fundamental. As mentioned previously, the referenced industry standard also specifies that regardless of whether AC or DC power supply is used, voltage or current must be regulated to within  $\pm 0.5$  percent of its rated RMS value for the duration of the lifetime test as a design consideration for the lifetime test system. IESNA LM-49-2001 specifies test conditions for vibration, temperature, and airflow. It addresses orientation, spacing, handling, and marking of the lamps, as well as specifications for the lamp holders.

The method for lamp lifetime testing detailed in IESNA LM-49-2001 allows for an elapsed time meter to monitor operating time. The referenced industry standard further states that it is permissible to use video monitoring, current monitoring, or other means that are designed to provide sufficient

temporal accuracy. The procedure specifies that lamp failure is determined by either visual observation or automatic monitoring at intervals of no more than 0.5 percent of the rated lifetime. It requires that for normal lifetime testing, lamps be cooled to ambient temperature once per day and specifies cooling time as usually 15 to 30 minutes per day.

## 3. Accelerated Lifetime Testing

IESNA LM-49-2001 permits accelerated lifetime testing for non-halogen GSILs. In principle, an accelerated lifetime test measures a shortened lamp lifetime and scales it to determine the full lifetime of the lamp, thereby reducing total testing time required and overall test burden. DOE has tentatively determined, however, that industry lacks a consistent methodology for developing GSIL scaling factors for halogen lamps (which are expected to comprise the vast majority of compliant GSILs). Thus, as detailed in the next section, DOE has tentatively decided not to allow the use of accelerated lifetime testing for GSILs as part of this test procedure.

Accelerated lifetime testing involves operating lamps at higher than rated voltage, thereby forcing the lamp to fail faster. A scaling factor is used to correlate the measured accelerated lifetime to the lifetime at the rated voltage. The appropriate scaling factor, critical in obtaining accurate accelerated lifetime results, is determined by conducting a certain number of comparison parallel lifetime tests at rated voltage and overvoltage. The IESNA Lighting Handbook notes that scaling factors are empirical and that their determination requires many comparison tests at rated voltages.<sup>32</sup>

Additionally, IESNA LM-49-2001 limits accelerated lifetime testing methodology to non-halogen lamps. Accurate accelerated lifetime testing can be difficult to conduct for halogen lamps due to the tungsten-halogen regenerative cycle. This cycle, intended to increase lamp lifetime by redepositing evaporated tungsten back onto the filament, is designed around certain operating temperatures; deviations from the rated voltage would change the operating temperature and potentially alter or introduce new modes of lamp failure. Even if accurate scaling factors (to relate overvoltage lifetime testing to rated voltage lifetime testing) could be empirically derived for halogen lamps, unique scaling factors would likely need to be developed for

each lamp design. Alterations in filament or halogen capsule designs could affect the tungsten-halogen regenerative cycle and, therefore, the scaling factor. Due to the extensive testing necessary to develop these scaling factors for each basic model, DOE tentatively concludes that accelerated lifetime testing for halogen lamps would not significantly reduce testing burden.

Since few non-halogen GSILs will meet the 2012 energy conservation standards, and given the minimal impact on testing burden and potential inaccuracies introduced, DOE has tentatively decided to disallow the use of accelerated lifetime testing for GSILs as part of this test procedure. DOE requests comments on its assessment that accelerated lifetime test should not be incorporated as part of the DOE test procedure (see Issue 6 in section V.E).

## 4. Sample Size

For GSIL lifetime measurements, DOE is proposing a minimum sampling size of 20 lamps: a minimum of two lamps per month for seven months of production out of a 12-month period. If lamp production occurs in fewer than seven months out of the year, two or more lamps will be selected for each month that production exists as evenly as possible to meet the minimum 20 sample requirement. These seven months do not need to be consecutive and can be any combination of seven months out of the twelve available. DOE has tentatively concluded that 20 samples is consistent with the statutory definition of "lifetime," that requires that such sample be based on "statistically large group of lamps." This selection of 20 lamps as the sample size is also consistent with DOE's regulations for measuring lamp efficacy, which currently specify a sampling size of a minimum of three lamps for each month of production for a minimum of seven months (not necessarily consecutive) out of the 12-month period, totaling a minimum of 21 lamps. 10 CFR 429.27 This 21-lamp sample size was selected to promote statistically valid results without imposing an undue testing burden on manufacturers. 62 FR 29222, 29229 (May 29, 1997) DOE has chosen 20 samples (an even number) instead of 21 samples in order to facilitate the calculation of the 50 percent failure rate. This sample size also allows manufacturers the opportunity to test the same sample set for measurements of lumen output, wattage, and lifetime, thereby potentially reducing testing burden. DOE requests comments on this assessment and whether alternative

<sup>32</sup> IESNA Lighting Handbook, Ninth Edition (2000) pp. 2-24.

sample sizes should be used instead (see Issue 7 in section V.E).

#### 5. "Rated Lifetime" Definition

In addition to incorporating by reference IESNA LM-49-2001 as the test procedure for GSIL lifetime testing, DOE is also proposing to define "rated lifetime" as the parameter that should be used to determine whether the lamp meets minimum rated lifetime standards. The rated lifetime for general service incandescent lamps will be defined as the length of operating time between first use and failure of 50 percent of the sample size in accordance with test procedures described in IESNA LM-49-2001. This proposed definition of "rated lifetime" is consistent with the existing statutory definition of "life" or "lifetime," which describes this parameter as the length of operating time of a statistically large group of lamps between first use and failure of 50 percent of the group in accordance with test procedures described in the IES Lighting Handbook. (42 U.S.C. 6291(30)(P)) Since DOE is proposing to adopt IESNA LM-49-2001 as the standard industry reference for GSIL lifetime testing, the GSIL "rated lifetime" definition will reference IESNA LM-49-2001 rather than the IES Lighting Handbook.

#### 6. Certification Requirements and Laboratory Accreditation

10 CFR 429.12(e) specifies that for most covered products, including GSILs, certification reports of new models must be submitted before products are distributed into commerce. However, for GSFLs and IRLs, because reported values are based on testing of samples over a 12-month period of production, DOE requires manufacturers to submit an initial certification report prior to or concurrent with distribution of the new model. This initial certification report filing, describing how the manufacturer has determined that the new model meets or exceeds energy conservation standards, allows manufacturers to distribute new models while completing the 12-month sampling requirement for certification of GSFLs and IRLs. This initial report is then followed by a final certification report, based on the full sampling provisions, to be submitted a year after the first date of manufacture of the new model.

Since DOE also requires a 12-month sampling period for certification of GSILs, today's notice is proposing to implement new model filing requirements, similar to those for GSFLs and IRLs, for GSILs. Just as with GSFLs and IRLs, DOE is proposing to require

that the final certification report be submitted one year following the start of manufacturing of the new model. DOE proposes this time period for final certification for GSIL testing to account for the time it takes to measure lamp lifetime as part of GSIL testing. Lifetime testing of a 1000-hour rated lamp (the minimum rated lifetime standard) would require lamp operation for a minimum of 42 days. Since the sample is taken over a 12-month span and only requires sampling from 7 months of the year, DOE believes that several months after the last month of the sampling period are necessary to complete testing, given that some GSILs have rated lifetimes longer than 1000 hours. Consequently, DOE is proposing a total of 12 months after the date of manufacture of the new model, allowing manufacturers sufficient time to conduct lifetime testing for all GSILs manufactured in a 12-month production period. DOE requests comment on its proposal regarding GSIL certification filing requirements. (See Issue 8 in section V.E).

Additionally, when conducting compliance testing for GSIL lifetime, DOE proposes to require that such testing be conducted by a facility accredited by the National Volunteer Laboratory Accreditation Program (NVLAP)<sup>33</sup> or by an organization recognized by NVLAP. NVLAP accreditation is a finding of laboratory competence, certifying that a laboratory operates in accordance with NVLAP management and technical requirements. The NVLAP program is described in 15 CFR part 285, and it encompasses the requirements of ISO/IEC 17025.<sup>34</sup> DOE has determined that NVLAP imposes fees of \$9,000 and \$8,000 on years one and two of accreditation. For the years following, the fees alternate between \$5,000 and \$8,000, with the \$8,000 fee corresponding to the on-site evaluation required every other year. Fees for other accreditation organizations are expected to be similar. DOE does not expect this requirement for GSIL lifetime testing to impose a significant burden for most manufacturers, because efficacy testing of GSILs is already required to take place at a laboratory that is accredited by either NVLAP or an NVLAP-

<sup>33</sup> NVLAP is a program administered by the National Institute of Standards and Technology (NIST).

<sup>34</sup> International Organization for Standardization/International Electrotechnical Commission, General requirements for the competence of testing and calibration laboratories. ISO/IEC 17025 (available at: [http://www.iso.org/iso/iso\\_catalogue/catalogue\\_tc/catalogue\\_detail.htm?csnumber=39883](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=39883)).

recognized organization. Accordingly, manufacturers should be able to meet this requirement with minimal change or incremental burden.

#### 7. Effective Date and Compliance Date for the Amended Test Procedures and Compliance Date for Submitting GSIL Certification Reports

The effective date for these test procedure amendments would be 30 days after publication of the test procedure final rule in the **Federal Register**. At that time, manufacturers and importers of covered GSFLs, IRLs, and GSILs may use the amended test procedure for making representations of the energy efficiency of each basic model. Additionally for GSFLs and IRLs, manufacturers may use the amended test procedure or the existing test procedures to certify compliance with DOE's test procedure. Should manufacturers or importers elect to use the new test procedure and applicable sampling plans prior to the compliance date of the amended test procedure, this would need to be noted on the certification report.

The compliance date for certifying compliance with the Department's regulations and for making any representations of the energy efficiency derived from the revised version of the test procedure for GSFLs, IRLs, and GSILs is 180 days from the date of publication of the test procedure final rule in the **Federal Register**. On or after that date, any such representations, including those made on marketing materials and product labels, must be based upon results generated under these amended test procedures and the applicable sampling plans. At that time, manufacturers and importers of covered GSFLs, IRLs, and GSILs must use the amended test procedures when certifying compliance to the Department. For example, for GSFLs and IRLs after the compliance date, if the test procedure amendments in conjunction with the applicable sampling plans proposed today alter the energy use in a manner which results in the basic model being less efficient, then the manufacturer or importer would be required to revise the existing certification. Otherwise, any changes to the certified ratings for GSFLs and IRLs may be submitted in the next annual certification filing due on the 1st of March.

To reduce confusion, DOE is proposing to amend the initial compliance date for submitting GSIL certification reports for those products subject to standards on January 1, 2012, by approximately 5 months so as to be concurrent with the compliance date of

the amended test procedure. Thus, under this proposal, for GSILs that have energy conservation standards effective January 1, 2012, certification would not be required until 180 days after publication of the test procedure final rule in the **Federal Register**. At that time, these test procedure amendments and sampling plans, including the new lifetime requirements, would need to be used to develop the certified ratings in order to certify compliance 180 days after publication of the test procedure final rule in the **Federal Register**.

#### 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 regulatory 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 an initial regulatory flexibility analysis (IFRA) 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>.

Today’s proposed rule would adopt test procedure provisions for GSFLs and GSILs, primarily through updates to current active industry testing standards, as well as specification of a procedure for testing GSIL lifetime. In referencing the updated versions of the industry test method, DOE anticipates that there would be no incremental increase in testing cost or burden for covered products, because the updated versions are not making substantial changes to test setup or methodology. In

this NOPR, DOE is also proposing to establish a test procedure for GSIL lifetime testing and recommending the incorporation by reference of IESNA LM-49-2001 as the basis for this test procedure. The proposed GSIL lifetime test procedure will provide an appropriate test method for the purposes of compliance with the GSIL minimum lifetime standard levels established by EISA 2007. DOE has tentatively determined that the proposed GSIL lifetime test procedure would not pose undue testing costs or burdens on manufacturers of covered products. DOE has reviewed the proposed rule under the provisions of the Regulatory Flexibility Act and the policies and procedures published on February 19, 2003. For the reasons explained below, DOE concludes and certifies that this test procedure rulemaking would not have a significant economic impact on a substantial number of small entities.

The Small Business Administration (SBA) has set a size threshold for manufacturers of GSFLs, GSILs, and IRLs that defines those entities classified as “small businesses” for the purposes of the Regulatory Flexibility Analysis. DOE used the SBA’s small business size standards to determine whether any small manufacturers of GSFLs, GSILs, and IRLs would be subject to the requirements of the rule. 65 FR 30836, 30849 (May 15, 2000), as amended at 65 FR 53533, 53545 (Sept. 5, 2000) and codified at 13 CFR part 121. The size standards are listed by North American Industry Classification System (NAICS) code and industry description and are available at [http://www.sba.gov/sites/default/files/Size\\_Standards\\_Table.pdf](http://www.sba.gov/sites/default/files/Size_Standards_Table.pdf). GSFL, GSIL, and IRL manufacturing is classified under NAICS 335110, “Electric Lamp Bulb and Part Manufacturing.” The SBA sets a threshold of 1,000 employees or less for an entity to be considered as a small business for this category.

In the 2009 rulemaking that set standards for GSFLs and IRLs, DOE identified 12 companies as potential small business manufacturers of GSFLs and IRLs covered by standards. After further research including interviews with companies, DOE identified only one company as a small business manufacturer of covered GSFLs and no company as a small business manufacturer of covered IRLs. 74 FR 34080, 34174 (July 14, 2009) Through an analysis conducted in this rulemaking, DOE identified six small business manufacturers of covered GSILs (see below for further details). Since DOE does not anticipate the proposed incorporation of updated versions of the

industry test methods for GSFLs, GSILs, and IRLs would result in significant changes in test setup and methodology, DOE does not expect a significant economic impact on small business manufacturers of GSFLs, GSILs and IRLs.

DOE conducted further analysis to determine that the proposed new test procedure provisions for testing GSIL lifetime would not have a significant impact on small business manufacturers of GSILs. DOE compiled a preliminary list of potential small business manufacturers of GSILs by searching Hoover’s and the SBA databases and referencing a list of small business manufacturers for GSILs identified in the 2009 rulemaking for GSFLs and IRLs.<sup>35</sup> DOE then determined if the companies actually manufactured GSILs by reviewing the company Web site and/or calling the company. Through this process, DOE was able to identify six small business U.S. manufacturers of GSILs.

DOE then estimated the cost of testing GSIL lifetime for a certain number of lamps. The initial setup for lamp lifetime testing can take from one day (if using sockets attached to an Edison plug and power strips) to two weeks (for a custom-built rack). The cost for a custom-built rack that can accommodate up to 100 lamps could be about \$3,000. DOE understands that manufacturers of GSILs would already have the other necessary testing instrumentation, because this same equipment is used for determination of GSIL efficacy.

In addition to materials, labor also contributes to the overall testing burden of GSIL lifetime testing. The GSIL lifetime test procedure requires accurate monitoring of operating time and checking for lamp failure at intervals of 0.5 percent of the rated lifetime (*e.g.*, five-hour intervals for a lamp with a rated lifetime of 1000 hours). Rather than have a technician inspect the lamp at the end of each interval, a still camera with a programmable snapshot system to record lamp operation can reduce the labor cost. Alternatively, a test lab could monitor operating time using a baffled photodiode pointing at each lamp location with a software program reading photodiode signals at regular intervals. This method would increase initial costs by requiring equipment costing about \$18,000 to \$20,000 per

<sup>35</sup> The list had been compiled in the advanced notice of proposed rulemaking (ANOPR) stage of the rulemaking for GSFLs and IRLs, at which point proposing standards for GSILs was within the scope of the rulemaking. (See Chapter 3 of the ANOPR TSD; available at: [http://www1.eere.energy.gov/buildings/appliance\\_standards/residential/pdfs/lamps\\_anopr\\_tsd/lamps\\_tsd\\_chap3.pdf](http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/lamps_anopr_tsd/lamps_tsd_chap3.pdf).)

100 lamps and a one-time setup that could take at least a month with three full-time staff, but which would reduce overall labor costs.

DOE based its estimates of labor costs on the still camera method, as it expects more laboratories to have this capability. About three hours per week would be required to review images of 100 lamps, and assuming the typical average rated lifetime of 1,000 hours, it would require six weeks to conduct a lifetime test of a lamp. Therefore, a total of 18 hours would be required to conduct lifetime testing for 100 lamps. DOE used the labor rate of \$100 per hour and a sampling size of 20 lamps (see section III.D). DOE surveyed small manufacturers of GSILs to determine a number of models produced per year by a typical small business. Based on the six responses received, DOE determined that small manufacturers are producing anywhere from four to 50 models of GSILs, with an average of 30 models.<sup>36</sup> Based on these parameters, the labor costs of GSIL lifetime testing for one reporting period is estimated to be \$1,800 for four models, \$10,800 for 30 models, and \$18,000 for 50 models. In addition, if manufacturers need to build 100-lamp custom test racks, the initial cost setup is estimated to be \$3,000 for four models (one test rack), \$18,000 for 30 models (six test racks), and \$30,000 for 50 models (10 test racks). However, DOE believes that most GSIL manufacturers would already have sufficient testing racks for their own internal uses and for FTC labeling requirement testing.

For the maximum number of 50 models, assuming testing apparatus is already available, the labor costs to carry out testing to demonstrate all products comply with standards would be approximately \$18,000. In subsequent years, testing costs would be much smaller, likely less than 10 percent of the initial cost, because only new products or redesigned products would need to be tested. Assuming a conservative estimate of \$1 million in revenue for a small business, initial testing costs would represent about two percent of revenue, but when amortized over subsequent years with little or no testing, testing costs would represent less than one percent of revenue. In addition, some businesses may already

have lifetime data that could be used for compliance purposes from previously completed FTC labeling testing. Based upon its comparison of estimated revenue to estimated testing costs, DOE has tentatively concluded that labor costs would not be significant enough to pose a substantial burden on small manufacturers. DOE requests comments on its analysis of initial setup and labor costs for conducting lifetime testing of GSILs (see Issue 9 in section V.E).

In this NOPR, DOE is also proposing to require test facilities conducting GSIL lifetime and efficacy compliance testing to be NVLAP accredited or accredited by an organization recognized by NVLAP. If accreditation were sought for the first time, DOE has determined that NVLAP imposes fees of \$9,000 and \$8,000 on years one and two of accreditation. For the years following, the fees alternate between \$5,000 and \$8,000, with the \$8,000 fee corresponding to the on-site evaluation required every other year. However, DOE does not expect this requirement to impose a significant burden for most manufacturers, because efficacy testing of GSILs is already required to take place at a laboratory accredited either by NVLAP or a NVLAP-recognized organization (see section III.D.6).

Accordingly, DOE has not prepared a regulatory flexibility analysis for this rulemaking. DOE's certification and supporting statement of factual basis will be provided to the Chief Counsel for Advocacy of the SBA for review under 5 U.S.C. 605(b). DOE certifies that this rule would have no significant impact on a substantial number of small entities. DOE seeks comment regarding whether the proposed amendments in today's rule would have a significant economic impact on any small entities (see Issue 9 in section V.E).

#### C. Review Under the Paperwork Reduction Act of 1995

Manufacturers of GSFLs, GSILs, and IRLs must certify to DOE that their products comply with any applicable energy conservation standard. In certifying compliance, manufacturers must test their products according to the DOE test procedure for GSFLs, GSILs, or IRLs, 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, including GSFLs, GSILs, and IRLs. 76 FR 12422 (March 7, 2011). The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction

Act (PRA). This requirement has been approved by OMB. Public reporting burden for the certification is estimated 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

In this proposed rule, DOE proposes test procedure amendments that it expects would be used to develop and implement future energy conservation standards for GSFLs, GSILs, and IRLs. 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 (Pub. L. 91-190, codified at 42 U.S.C. 4321 *et seq.*) and DOE's implementing regulations at 10 CFR part 1021. Specifically, this proposed rule would amend the existing test procedures without affecting the amount, quality, or distribution of energy usage, and, therefore, would not result in any environmental impacts. Thus, this rulemaking is covered by Categorical Exclusion A5 under 10 CFR part 1021, subpart D, Appendix A, 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 10, 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

<sup>36</sup> As noted, these findings were based on a survey of six small manufacturers of GSIL. Only a few manufacturers had models that would meet these standards at this time. However, the survey accounted for all covered GSIL models regardless of whether or not they would meet the EISA 2007 standards for GSIL, under the assumption that manufacturers will eventually be producing a comparable number of compliant models.

statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed rule and has determined that it would 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 products that are the subject of today's proposed 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 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) (Pub. L. 104-4, codified at 2 U.S.C. 1501, *et seq.*)

requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. For a proposed regulatory action likely to result 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)) Section 204 of 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 them. 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 proposed 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. Accordingly, no further assessment or analysis is required under the Unfunded Mandates Reform Act of 1995.

#### 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. This proposed rule to amend DOE test procedures would 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 proposed regulation would 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 (Pub. L. 106-554, codified at 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 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). DOE has reviewed today's proposed 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 proposed 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 proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

Today's regulatory action to amend the test procedure for measuring the energy efficiency of GSFLs, GSILs, and IRLs is not a significant regulatory action under Executive Order 12866 or any successor order. 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, DOE has tentatively determined that this rule 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 *et seq.*), DOE must comply with all laws applicable to the former Federal Energy Administration, including 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 proposed rule would incorporate testing methods contained in the following commercial standards: IES LM-9-2009, "IES Approved Method for Electrical and Photometric Measurements of Fluorescent Lamps;" IES LM-45-2009, "IES Approved Method for Electrical and Photometric Measurement of General Service Incandescent Filament Lamps;" IESNA LM-49-2001, "IESNA Approved Method for Life Testing of Incandescent Filament Lamps;" and ANSI C78.81-2010, "American National Standard for Electric Lamps—Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics." The Department has evaluated these standards and is unable to conclude whether they fully comply with the requirements of section 32(b) of the FEAA, (*i.e.*, that they were developed in a manner that fully provides for public participation, comment, and review). DOE will consult with the Attorney General and the Chairman of the FTC concerning the impact of these test procedures on competition, prior to prescribing a final rule.

## V. Public Participation

### A. Attendance at the Public Meeting

The time, date, and location of the public meeting are listed in the **DATES** and **ADDRESSES** sections at the beginning of this document. If you plan to attend the public meeting, please notify Ms. Brenda Edwards at (202) 586-2945 or [Brenda.Edwards@ee.doe.gov](mailto:Brenda.Edwards@ee.doe.gov). Please also note that those wishing to bring laptops into the Forrestal Building will be required to obtain a property pass. Visitors should avoid bringing laptops,

or allow an extra 45 minutes. As explained in the **ADDRESSES** section, foreign nationals visiting DOE Headquarters are subject to advance security screening procedures.

In addition, you can attend the public meeting via webinar. Webinar registration information, participant instructions, and information about the capabilities available to webinar participants will be published on DOE's Web site at: [http://www1.eere.energy.gov/buildings/appliance\\_standards/residential/incandescent\\_lamps.html](http://www1.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html). Participants are responsible for ensuring their systems are compatible with the webinar software.

### B. Procedure for Submitting Requests To Speak and Prepared General Statements for Distribution

Any person who has an interest in the topics addressed in this notice, or who is a representative of a group or class of persons that has an interest in these issues, may request an opportunity to make an oral presentation at the public meeting. Such persons may hand-deliver requests to speak to the address shown in the **ADDRESSES** section at the beginning of this notice between 9 a.m. and 4 p.m., Monday through Friday, except Federal holidays. Requests may also be sent by mail or email to Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121, or [Brenda.Edwards@ee.doe.gov](mailto:Brenda.Edwards@ee.doe.gov). Persons who wish to speak should include with their request a computer diskette or CD-ROM in WordPerfect, Microsoft Word, PDF, or text (ASCII) file format that briefly describes the nature of their interest in this rulemaking and the topics they wish to discuss. Such persons should also provide a daytime telephone number where they can be reached.

DOE requests persons selected to make an oral presentation to submit an advance copy of their statements at least one week before the public meeting. DOE may permit persons who cannot supply an advance copy of their statement to participate, if those persons have made advance alternative arrangements with the Building Technologies Program. As necessary, requests to give an oral presentation should ask for such alternative arrangements.

Any person who has plans to present a prepared general statement may request that copies of his or her statement be made available at the public meeting. Such persons may submit requests, along with an advance

electronic copy of their statement in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format, to the appropriate address shown in the **ADDRESSES** section at the beginning of this notice. The request and advance copy of statements must be received at least one week before the public meeting and may be emailed, hand-delivered, or sent by mail. DOE prefers to receive requests and advance copies via email. Please include a telephone number to enable DOE staff to make a follow-up contact, if needed.

### C. Conduct of Public Meeting

DOE will designate a DOE official to preside at the public meeting and may also use a professional facilitator to aid discussion. The meeting will not be a judicial or evidentiary-type public hearing, but DOE will conduct it in accordance with section 336 of EPCA (42 U.S.C. 6306). A court reporter will be present to record the proceedings and prepare a transcript. DOE reserves the right to schedule the order of presentations and to establish the procedures governing the conduct of the public meeting. There shall not be discussion of proprietary information, costs or prices, market share, or other commercial matters regulated by U.S. anti-trust laws. After the public meeting, interested parties may submit further comments on the proceedings as well as on any aspect of the rulemaking until the end of the comment period.

The public meeting will be conducted in an informal, conference style. DOE will present summaries of comments received before the public meeting, allow time for prepared general statements by participants, and encourage all interested parties to share their views on issues affecting this rulemaking. Each participant will be allowed to make a general statement (within time limits determined by DOE), before the discussion of specific topics. DOE will permit, as time permits, other participants to comment briefly on any general statements.

At the end of all prepared statements on a topic, DOE will permit participants to clarify their statements briefly and comment on statements made by others. Participants should be prepared to answer questions by DOE and by other participants concerning these issues. DOE representatives may also ask questions of participants concerning other matters relevant to this rulemaking. The official conducting the public meeting will accept additional comments or questions from those attending, as time permits. The presiding official will announce any further procedural rules or modification

of the above procedures that may be needed for the proper conduct of the public meeting.

A transcript of the public meeting will be posted on the DOE Web site and will be included in the docket, which can be viewed as described in the *Docket* section at the beginning of this notice. In addition, any person may buy a copy of the transcript from the transcribing reporter.

#### D. Submission of Comments

DOE will accept comments, data, and information regarding this proposed rule before or after the public meeting, but no later than the date provided in the **DATES** section at the beginning of this proposed rule. Interested parties may submit comments using any of the methods described in the **ADDRESSES** section at the beginning of this notice.

*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 Web site 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. Email submissions are preferred. If you submit via mail or hand delivery, please provide all items on a compact disc (CD), if feasible, in which case it is not necessary to submit printed copies. No telefacsimiles (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 are 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.* Pursuant 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).

#### E. Issues on Which DOE Seeks Comment

Although DOE welcomes comments on any aspect of this proposal, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

1. DOE requests comments on all aspects of DOE's test procedures for GSFL, GSIL, and IRL See section III.A for further detail.
2. For GSFL test procedures, DOE requests comments on its proposed incorporation of IES LM-9-2009, and its tentative conclusion that the update would neither significantly affect measured lamp efficacy nor increase testing burden. In particular, DOE requests comments on the impact on lamp efficacy of high-frequency testing amendments and modifications to the lamp stabilization procedure in LM-9-2009. See section III.B.2 for further detail.
3. For GSIL test procedures, DOE requests comments on its proposed incorporation of IES LM-45-2009, and its tentative conclusion that the update would neither significantly affect lamp efficacy values nor impose undue testing burden. See section III.B.3 for further detail.
4. DOE requests comment on whether any amendments to the IRL test

procedure are necessary. See section III.C for further detail.

5. For GSIL lifetime test procedures, DOE requests comments on its proposal to incorporate by reference IESNA LM-49-2001 as the basis for GSIL lifetime testing. See section III.D.1 for further detail.

6. For GSIL lifetime test procedures, DOE requests comments on its proposal to disallow accelerated lifetime testing as part of the GSIL test procedure. See section III.D.2 for further detail.

7. DOE requests comments on its proposal to require a minimum sample size of 20 lamps for GSIL lifetime measurements. See section III.D.4 for further detail.

8. For GSIL lifetime test procedures, DOE requests comment on its proposal regarding GSIL certification filing requirements. See section III.D.6 for further detail.

9. DOE seeks comment regarding whether the proposed amendments in today's rule would have a significant economic impact on any small entities. In particular, DOE requests comments on its preliminary analysis of initial setup and labor costs for conducting lifetime testing of GSILs. See section IV.B for further detail.

**VI. Approval of the Office of the Secretary**

The Secretary of Energy has approved publication of this notice of proposed rulemaking.

**List of Subjects**

*10 CFR Part 429*

Administrative practice and procedure, Buildings and facilities, Business and industry, Energy conservation, Grants programs—energy, Housing, Reporting and recordkeeping requirements, Technical assistance.

*10 CFR Part 430*

Administrative practice and procedure, Confidential business information, Energy conservation, Household appliances, Imports, Incorporation by reference, Intergovernmental relations, Small businesses.

Issued in Washington, DC, September 6, 2011.

**Kathleen B. Hogan,**

*Deputy Assistant Secretary for Energy Efficiency, Office of Technology Development, Energy Efficiency and Renewable Energy.*

For the reasons stated in the preamble, DOE is proposing to amend parts 429 and 430 of Chapter II of Title 10, Subchapter D of the Code of Federal Regulations to read as set forth below:

**PART 429—CERTIFICATION, COMPLIANCE, AND ENFORCEMENT FOR CONSUMER PRODUCTS AND COMMERCIAL AND INDUSTRIAL EQUIPMENT**

1. The authority citation for part 429 continues to read as follows:

**Authority:** 42 U.S.C. 6291-6317.

- 2. Section 429.12 is amended by:
  - a. Revising paragraph (e)(2); and
  - b. Adding new paragraph (i)(7).

The revisions and additions read as follows:

**§ 429.12 General requirements applicable to certification reports.**

\* \* \* \* \*

(e) \* \* \*

(2) For general service fluorescent lamps, incandescent reflector lamps, or general service incandescent lamps: Prior to or concurrent with the distribution of a new basic model, each manufacturer shall submit an initial certification report listing the basic model number, lamp wattage, and date of first manufacture (*i.e.*, production date) for that basic model. The certification report must also state how the manufacturer determined that the lamp meets or exceeds the energy conservation standards, including a description of any testing or analysis the manufacturer performed. Manufacturers of general service fluorescent lamps, incandescent reflector lamps, and general service incandescent lamps must submit the certification report required by paragraph (b) of this section within one year after the first date of new model manufacture.

\* \* \* \* \*

(i) \* \* \*

(7) General service incandescent lamps, [*date to be inserted 180 days from publication of test procedure final rule*].

- 3. Section 429.27 is amended by:
  - a. Removing in paragraph (a)(2)(i), first sentence, “, general service incandescent lamp,”;
  - b. Adding in paragraph (a)(2)(ii) “and general service incandescent lamp” after “general service fluorescent lamp”; and removing the words, “paragraph (a)(2)(i)” and adding in their place, the words, “paragraphs (a)(2)(i) and (a)(2)(iii)”;
  - c. Adding new paragraphs (a)(2)(iii) and (a)(2)(iv); and
  - d. Revising paragraph (b)(2)(iii).

The revisions and additions read as follows:

**§ 429.27 General service fluorescent lamps, general service incandescent lamps, and incandescent reflector lamps.**

(a) \* \* \*

(2) \* \* \*

(iii) For each basic model of general service incandescent lamp, for measurements of rated wattage and rated lumen output, samples of production lamps shall be obtained from a 12-month period, tested, and the results averaged. A minimum sample of 21 lamps shall be tested. The manufacturer shall randomly select a minimum of three lamps from each month of production for a minimum of 7 out of the 12-month period. In the instance where production occurs during fewer than 7 of such 12 months, the manufacturer shall randomly select 3 or more lamps from each month of production, where the number of lamps selected for each month shall be distributed as evenly as practicable among the months of production to attain a minimum sample of 21 lamps. Any represented value of rated wattage of a basic model shall be based on the sample and shall be greater than or equal to the higher of:

(A) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and,  $\bar{x}$  is the sample mean;  $n$  is the number of samples; and  $x_i$  is the  $i^{\text{th}}$  sample; Or,

(B) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.03, where:

$$UCL = \bar{x} + t_{.95} \left( \frac{s}{\sqrt{n}} \right)$$

and

$\bar{x}$

is the sample mean;  $s$  is the sample standard deviation;  $n$  is the number of samples; and  $t_{.95}$  is the  $t$  statistic for a 95% two-tailed confidence interval with  $n - 1$  degrees of freedom (from Appendix A to this subpart).

(iv) For each basic model of general service incandescent lamp, for measurements of rated lifetime, a minimum sample of 20 lamps shall be tested. The manufacturer shall randomly select a minimum of two lamps from each month of production for a minimum of 7 out of the 12-month period. In the instance where production occurs during fewer than 7 of such 12 months, the manufacturer shall randomly select two or more lamps from each month of production, where the number of lamps selected for each month shall be distributed as evenly as practicable among the months of production to attain a minimum sample of 20 lamps. The lifetime shall be represented as the length of operating

time between first use and failure of 50 percent of the sample size, in accordance with test procedures described in section 4.2 of Appendix R to subpart B of part 430 of this chapter.

- (b) \* \* \*
(2) \* \* \*

(iii) General service incandescent lamps: The testing laboratory's National Voluntary Laboratory Accreditation Program (NVLAP) identification number or other NVLAP-approved accreditation identification, production dates of the units tested, the rated wattage in watts (W), the rated lifetime (hours), and the Color Rendering Index (CRI).

\* \* \* \* \*

PART 430—ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

4. The authority citation for part 430 continues to read as follows:

Authority: 42 U.S.C. 6291–6309; 28 U.S.C. 2461 note.

- 5. Section 430.2 is amended by:
a. Removing in paragraph (2) of the definition of "colored fluorescent lamp" the words "IESNA LM–9" and adding in their place "IES LM–9"; and
b. Adding in alphabetical order the definition of "Rated lifetime for general service incandescent lamps".

The addition reads as follows:

§ 430.2 Definitions.

\* \* \* \* \*

Rated lifetime for general service incandescent lamps means the length of operating time of a sample of lamps (as defined in § 429.27(a)(2)(iv) of this chapter) between first use and failure of 50 percent of the sample size in accordance with test procedures described in IESNA LM–49, (incorporated by reference; see § 430.3), as determined in section 4.2 of Appendix R to subpart B of this part.

\* \* \* \* \*

- 6. Section 430.3 is amended by:
a. Removing paragraph (c)(5) and redesignating paragraphs (c)(6) through (c)(17) as paragraphs (c)(5) through (c)(16);
b. Revising the newly redesignated paragraph (c)(5);
c. Revising paragraphs (k)(2) and (k)(5); and
d. Redesignating paragraph (k)(6) as paragraph (k)(7) and adding new paragraph (k)(6).

The revisions and additions read as follows:

§ 430.3 Materials incorporated by reference.

\* \* \* \* \*

- (c) ANSI. \* \* \*

(5) ANSI ANSLG C78.81–2010, Revision of ANSI IEC C78.81–2005 ("ANSI C78.81"), American National Standard for Electric Lamps—Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics, approved January 14, 2010, IBR approved for § 430.2, § 430.32, Appendix Q, Appendix Q1, and Appendix R to Subpart B.

\* \* \* \* \*

- (k) IESNA. \* \* \*

(2) IES LM–9–09, Revision of IESNA LM–9–99 ("LM–9"), IES Approved Method for the Electrical and Photometric Measurement of Fluorescent Lamps, approved January 31, 2009; IBR approved for § 430.2 and Appendix R to Subpart B.

\* \* \* \* \*

(5) IES LM–45–09, Revision of IESNA LM–45–00 ("LM–45"), IES Approved Method for the Electrical and Photometric Measurement of General Service Incandescent Filament Lamps, approved December 14, 2009; IBR approved for Appendix R to Subpart B.

(6) IESNA LM–49–01 ("LM–49"), IESNA Approved Method for Life Testing of Incandescent Filament Lamps, approved December 1, 2001, IBR approved for Appendix R to Subpart B.

\* \* \* \* \*

7. Section 430.23 is amended by adding paragraph (r)(6) to read as follows:

§ 430.23 Test procedures for the measurement of energy and water consumption.

\* \* \* \* \*

- (r) \* \* \*

(6) The rated lifetime for general service incandescent lamps shall be equal to the length of operating time of a sample of lamps (as defined in § 429.27(a)(2)(iv) of this chapter) between first use and failure of 50 percent of the sample size in accordance with test procedures described in section 4.2 of Appendix R of this subpart.

\* \* \* \* \*

8. Section 430.25 is revised to read as follows:

§ 430.25 Laboratory Accreditation Program.

Testing for fluorescent lamp ballasts performed in accordance with appendix Q1 to this subpart shall comply with this § 430.25. The testing for general service fluorescent lamps, general service incandescent lamps, and incandescent reflector lamps shall be performed in accordance with Appendix R to this subpart. The testing for medium base compact fluorescent lamps shall be performed in accordance

with Appendix W of this subpart. This testing shall be conducted by test laboratories accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) or by an accrediting organization recognized by NVLAP. NVLAP is a program of the National Institute of Standards and Technology, U.S. Department of Commerce. NVLAP standards for accreditation of laboratories that test for compliance with standards for fluorescent lamp ballast luminous efficiency (BLE), lamp efficacy, lamp lifetime, and fluorescent lamp CRI are set forth in 15 CFR part 285. A manufacturer's or importer's own laboratory, if accredited, may conduct the applicable testing. Testing for BLE may also be conducted by laboratories accredited by Underwriters Laboratories or Council of Canada. Testing for fluorescent lamp ballasts performed in accordance with Appendix Q to this subpart is not required to be conducted by test laboratories accredited by NVLAP or an accrediting organization recognized by NVLAP.

9. Appendix Q to subpart B of part 430 is amended by revising sections 1.5 through 1.10 and 2.1 to read as follows:

Appendix Q to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of Fluorescent Lamp Ballasts

1. Definitions

\* \* \* \* \*

1.5 F40T12 lamp means a nominal 40 watt tubular fluorescent lamp which is 48 inches in length and one and a half inches in diameter, and conforms to ANSI C78.81 (Data Sheet 7881–ANSI–1010–1) (incorporated by reference; see § 430.3).

1.6 F96T12 lamp means a nominal 75 watt tubular fluorescent lamp which is 96 inches in length and one and one-half inches in diameter, and conforms to ANSI C78.81 (Data Sheet 7881–ANSI–3007–1) (incorporated by reference; see § 430.3).

1.7 F96T12HO lamp means a nominal 110 watt tubular fluorescent lamp that is 96 inches in length and 1½ inches in diameter, and conforms to ANSI C78.81 (Data Sheet 7881–ANSI–1019–1) (incorporated by reference; see § 430.3).

1.8 F34T12 lamp (also known as a "F40T12/ES lamp") means a nominal 34 watt tubular fluorescent lamp that is 48 inches in length and 1½ inches in diameter, and conforms to ANSI C78.81 (Data Sheet 7881–ANSI–1006–1) (incorporated by reference; see § 430.3).

1.9 F96T12/ES lamp means a nominal 60 watt tubular fluorescent lamp that is 96 inches in length and 1½ inches in diameter, and conforms to ANSI C78.81 (Data Sheet 7881–ANSI–3006–1) (incorporated by reference; see § 430.3).

1.10 F96T12HO/ES lamp means a nominal 95 watt tubular fluorescent lamp that is 96 inches in length and 1½ inches in diameter, and conforms to ANSI C78.81 (Data

Sheet 7881-ANSI-1017-1) (incorporated by reference; see § 430.3).

\* \* \* \* \*

## 2. Test Conditions

2.1 *Measurement of Active Mode Energy Consumption, BEF.* The test conditions for testing fluorescent lamp ballasts shall be done in accordance with ANSI C82.2 (incorporated by reference; see § 430.3). Any subsequent amendment to this standard by the standard setting organization will not affect the DOE test procedures unless and until amended by DOE. The test conditions for measuring active mode energy consumption are described in sections 4, 5, and 6 of ANSI C82.2. The test conditions described in this section (2.1) are applicable to section 3.1 of section 3, Test Method and Measurements. For section 2.1 and 3, ANSI C78.81 (incorporated by reference; see § 430.3), ANSI C82.1 (incorporated by reference; see § 430.3), ANSI C82.11 (incorporated by reference; see § 430.3), and ANSI C82.13 (incorporated by reference; see § 430.3) shall be used when applying ANSI C82.2 instead of the versions listed as normative references in ANSI C82.2.

\* \* \* \* \*

10. Appendix Q1 to subpart B of part 430 is amended by revising sections 2.1, 2.3.1, and 2.4.1 to read as follows:

### Appendix Q1 to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of Fluorescent Lamp Ballasts

\* \* \* \* \*

#### 2. Active Mode Procedure

2.1 Where ANSI C82.2 (incorporated by reference; see § 430.3) references ANSI C82.1-1997, the operator shall use ANSI C82.1 (incorporated by reference; see § 430.3) for testing low-frequency ballasts and shall use ANSI C82.11 (incorporated by reference; see § 430.3) for testing high-frequency ballasts. In addition, ANSI C78.81 (incorporated by reference; see § 430.3), ANSI C82.1 (incorporated by reference; see § 430.3), ANSI C82.11 (incorporated by reference; see § 430.3), and ANSI C82.13 (incorporated by reference; see § 430.3) shall be used when applying ANSI C82.2 instead of the versions listed as normative references in ANSI C82.2.

\* \* \* \* \*

#### 2.3 Test Setup

2.3.1 The ballast shall be connected to a main power source and to the fluorescent lamp load according to the manufacturer's wiring instructions and ANSI C82.1 (incorporated by reference; see § 430.3) and ANSI C78.81 (incorporated by reference; see § 430.3).

\* \* \* \* \*

#### 2.4 Test Conditions

2.4.1 The test conditions for testing fluorescent lamp ballasts shall be done in accordance with ANSI C82.2 (incorporated by reference; see § 430.3). DOE further specifies that the following revisions of the normative references indicated in ANSI C82.2) should be used in place of the references directly specified in ANSI C82.2: ANSI C78.81 (incorporated by reference; see

§ 430.3), ANSI C82.1 (incorporated by reference; see § 430.3), ANSI C82.3 (incorporated by reference; see § 430.3), ANSI C82.11 (incorporated by reference; see § 430.3), and ANSI C82.13 (incorporated by reference; see § 430.3). All other normative references shall be as specified in ANSI C82.2.

\* \* \* \* \*

11. Appendix R to subpart B of part 430 is amended by:

- a. Revising the appendix heading;
- b. Revising sections 2.1, 2.9, 3.1, 3.2, 4.1.1, 4.2.1, 4.2.2, and, 4.4.1;
- c. Adding new section 4.2.3 and 4.2.3.1; and
- d. Removing section 4.5.

The revisions and additions read as follows:

### Appendix R to Subpart B of Part 430—Uniform Test Method for Measuring Average Lamp Efficacy (LE), Color Rendering Index (CRI), Correlated Color Temperature (CCT), and Lamp Lifetime of Electric Lamps

\* \* \* \* \*

#### 2. Definitions

2.1 To the extent that definitions in the referenced IESNA and CIE standards do not conflict with the DOE definitions, the definitions specified in section 3.0 of IES LM-9 (incorporated by reference; see § 430.3), section 3.0 of IESNA LM-20 (incorporated by reference; see § 430.3), section 3.0 and the Glossary of IES LM-45 (incorporated by reference; see § 430.3), section 2 of IESNA LM-58 (incorporated by reference; see § 430.3), and Appendix 1 of CIE 13.3 (incorporated by reference; see § 430.3) shall be included.

\* \* \* \* \*

2.9 *Reference condition* means the test condition specified in IES LM-9 (incorporated by reference; see § 430.3) for general service fluorescent lamps, in IESNA LM-20 (incorporated by reference; see § 430.3) for incandescent reflector lamps, and in IES LM-45 for general service incandescent lamps (incorporated by reference; see § 430.3).

#### 3. Test Conditions

3.1 *General Service Fluorescent Lamps:* For general service fluorescent lamps, the ambient conditions of the test and the electrical circuits, reference ballasts, stabilization requirements, instruments, detectors, and photometric test procedure and test report shall be as described in the relevant sections of IES LM-9 (incorporated by reference; see § 430.3).

3.2 *General Service Incandescent Lamps:* For general service incandescent lamps, the selection and seasoning (initial burn-in) of the test lamps, the equipment and instrumentation, and the test conditions shall be as described in IES LM-45 (incorporated by reference; see § 430.3).

\* \* \* \* \*

#### 4. Test Methods and Measurements \* \* \*

4.1.1 The measurement procedure shall be as described in IES LM-9 (incorporated by reference; see § 430.3), except that lamps shall be operated at the appropriate voltage

and current conditions as described in ANSI C78.375 (incorporated by reference; see § 430.3) and in ANSI C78.81 (incorporated by reference; see § 430.3) or ANSI C78.901 (incorporated by reference; see § 430.3), and lamps shall be operated using the appropriate reference ballast at input voltage specified by the reference circuit as described in ANSI C82.3 (incorporated by reference; see § 430.3). If, for a lamp, both low-frequency and high-frequency reference ballast settings are included in ANSI C78.81 or ANSI C78.901, the lamp shall be operated using the low-frequency reference ballast.

\* \* \* \* \*

#### 4.2 General Service Incandescent Lamps

4.2.1 The measurement procedure shall be as described in IES LM-45 (incorporated by reference; see § 430.3). Lamps shall be operated at the rated voltage as defined in § 430.2.

4.2.2 The test procedure shall conform to sections 6 and 7 of IES LM-45 (incorporated by reference; see § 430.3), and the lumen output of the lamp shall be determined in accordance with section 7 of IES LM-45. Lamp electrical power input in watts shall be measured and recorded. Lamp efficacy shall be determined by computing the ratio of the measured lamp lumen output and lamp electrical power input at equilibrium for the reference condition. The test report shall conform to section 8 of IES LM-45.

4.2.3 The measurement procedure for testing the lifetime of general service incandescent lamps shall be as described in IESNA LM-49 (incorporated by reference; see § 430.3). The lifetime measurement shall be taken by measuring the operating time of a lamp until failure, expressed in hours, not including any off time. The measured operating time shall be used to determine the rated lifetime, which is equal to the length of operating time between first use and failure of 50 percent of the sample size specified in § 429.27 of this chapter. The rated lifetime shall be used to determine whether the lamp meets minimum rated lifetime standards (see § 430.32(x)(1)(i)(A) and (B)).

4.2.3.1 Accelerated lifetime testing is not allowed. The second paragraph of section 6.1 of IESNA LM-49 (incorporated by reference; see § 430.3) is to be disregarded.

\* \* \* \* \*

#### 4.4 Determination of Color Rendering Index and Correlated Color Temperature

4.4.1 The CRI shall be determined in accordance with the method specified in CIE 13.3 (incorporated by reference; see § 430.3) for general service fluorescent lamps. The CCT shall be determined in accordance with the method specified in IES LM-9 (incorporated by reference; see § 430.3) and rounded to the nearest 10 kelvin for general service fluorescent lamps. The CCT shall be determined in accordance with the CIE 15 (incorporated by reference; see § 430.3) for incandescent lamps. The required spectroradiometric measurement and characterization shall be conducted in accordance with the methods set forth in

IESNA LM-58 (incorporated by reference; see § 430.3)

\* \* \* \* \*

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## DEPARTMENT OF ENERGY

### 10 CFR Part 430

[Docket No. EERE-2011-BT-STD-0006]

RIN 1904-AC43

#### Energy Efficiency Program for Consumer Products: Public Meeting and Availability of the Framework Document for General Service Fluorescent Lamps and Incandescent Reflector Lamps

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

**ACTION:** Notice of public meeting and availability of the Framework Document.

**SUMMARY:** The U.S. Department of Energy (DOE or the Department) is initiating the rulemaking and data collection process to consider establishing amended energy conservation standards for certain general service fluorescent lamps (GSFLs) and incandescent reflector lamps (IRLs). Accordingly, DOE will hold a public meeting to discuss and receive comments on its planned analytical approach and the issues it will address in this rulemaking proceeding. DOE welcomes written comments from the public on this rulemaking. To inform stakeholders and to facilitate this process, DOE has prepared a framework document which details the analytical approach and identifies several issues on which DOE is particularly interested in receiving comment. The framework document is posted at: [http://www.eere.energy.gov/buildings/appliance\\_standards/residential/incandescent\\_lamps.html](http://www.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html).

**DATES:** The Department will hold a public meeting on October 4, 2011, from 9 a.m. to 5 p.m. in Washington, DC for both this rulemaking on GSFL and IRL standards and the rulemaking on test procedures for GSFLs, general service incandescent lamps (GSILs), and IRLs. Any person requesting to speak at the public meeting should submit such request along with a signed original and an electronic copy of the statement to be given at the public meeting before 4 p.m., October 4, 2011. Written comments on the framework document are welcome, especially following the public meeting, and should be submitted by October 31, 2011.

**ADDRESSES:** The public meeting will be held at the U.S. Department of Energy, Forrestal Building, Room 1E-245, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Please note that foreign nationals participating in the public meeting are subject to advance security screening procedures. If a foreign national wishes to participate in the public meeting, please inform DOE of this fact as soon as possible by contacting Ms. Brenda Edwards at (202) 586-2945 so that the necessary procedures can be completed. Please also note that those wishing to bring laptops to the meeting will be required to obtain a property pass. Visitors should avoid bringing laptops, or allow an extra 45 minutes.

Stakeholders may submit comments, identified by docket number EERE-2011-BT-STD-0006 and/or Regulation Identifier Number (RIN) 1904-AC43, by any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

- *E-mail:* [GSFL-IRL\\_2011-STD-0006@ee.doe.gov](mailto:GSFL-IRL_2011-STD-0006@ee.doe.gov). Include EERE-2011-BT-STD-0006 and/or RIN 1904-AC43 in the subject line of the message.

- *Mail:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, Framework Document for General Service Fluorescent Lamps and Incandescent Reflector Lamps, EERE-2011-BT-STD-0006 and/or RIN 1904-AC43, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Please submit one signed paper original.

- *Hand Delivery/Courier:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Sixth Floor, 950 L'Enfant Plaza, SW., Washington, DC 20024. Please submit one signed paper original.

**Instructions:** All submissions received must include the agency name and docket number or RIN number for this rulemaking.

**Docket:** The docket for this rulemaking is available for review at <http://www.regulations.gov>, and will include **Federal Register** notices, framework documents, public meeting attendee lists and transcripts, comments, and other supporting documents/materials. All documents in the docket are listed in the <http://www.regulations.gov> index. Not all documents listed in the index may be publicly available, however, such as information that is exempt from public disclosure.

A link to the docket web page can be found at: [http://www.eere.energy.gov/buildings/appliance\\_standards/residential/incandescent\\_lamps.html](http://www.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html).

This web page contains a link to the docket for this notice on [regulations.gov](http://www.regulations.gov). The [regulations.gov](http://www.regulations.gov) web page contains instructions on how to access all documents, including public comments, in the docket.

**FOR FURTHER INFORMATION CONTACT:**

Dr. Tina Kaarsberg, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies, EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 287-1393. E-mail: [Tina.Kaarsberg@ee.doe.gov](mailto:Tina.Kaarsberg@ee.doe.gov).

Ms. Elizabeth Kohl, U.S. Department of Energy, Office of the General Counsel, GC-71, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-7796. E-mail: [Elizabeth.Kohl@hq.doe.gov](mailto:Elizabeth.Kohl@hq.doe.gov).

For information on how to submit or review public comments and on how to participate in the public meeting, contact Ms. Brenda Edwards, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE-2J, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone (202) 586-2945. E-mail: [Brenda.Edwards@ee.doe.gov](mailto:Brenda.Edwards@ee.doe.gov).

**SUPPLEMENTARY INFORMATION:** Title III of Energy Policy and Conservation Act (EPCA) (42 U.S.C. 6291 *et seq.*) sets forth a variety of provisions designed to improve energy efficiency. Part B of Title III (42 U.S.C. 6291-6309) established the "Energy Conservation Program for Consumer Products Other Than Automobiles," which includes major household appliances.<sup>1</sup> Subsequent amendments expanded Title III of EPCA to include additional consumer products and certain commercial and industrial equipment, including certain fluorescent and incandescent lamps—the products that are the focus of this document. In particular, amendments to EPCA in the Energy Policy Act of 1992 (EPAct 1992), Public Law 102-486, established energy conservation standards for certain classes of GSFLs and IRLs, and required DOE to conduct two rulemaking cycles to determine whether these standards should be amended. (42 U.S.C. 6291(1), 6295(i)(1) and (3)-(4)) EPCA also authorized DOE to adopt standards for additional GSFLs if such standards were warranted. (42 U.S.C. 6295(i)(5))

DOE completed the first cycle of amendments by publishing a final rule in the **Federal Register** in July 2009 (hereafter referred to as the 2009 Lamps

<sup>1</sup> Part B was re-designated part A on codification in the U.S. Code for editorial reasons.