they should carry the electronic signature of the author.

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

Confidential Business Information. According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email to *PortableAC2020TP0029@ee.doe.gov* with 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. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

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

DOE considers public participation to be a very important part of the process for developing test procedures and energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in each stage of this process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in the process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this process should contact Appliance and Equipment Standards Program staff at (202) 287–1445 or via email at *ApplianceStandardsQuestions@ee.doe.gov*.

Signing Authority

This document of the Department of Energy was signed on April 9, 2021, by Kelly Speakes-Backman, Principal Deputy Assistant Secretary and Acting Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on April 13, 2021.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

[FR Doc. 2021–07818 Filed 4–15–21; 8:45 am]

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DEPARTMENT OF ENERGY

10 CFR Part 430

[EERE–2019–BT–TP–0003]

RIN 1904–AE30

Energy Conservation Program: Test Procedure for Direct Heating Equipment

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

ACTION: Notice of proposed rulemaking and request for comment.

SUMMARY: The U.S. Department of Energy (DOE) proposes to amend the test procedure for direct heating equipment (DHE) to incorporate by reference the most recent versions of the industry consensus test standards currently referenced in the Federal test procedure. DOE also proposes to update definitions regarding unvented heaters, account for multiple operational modes, specify the allowable measurement error for oil pressure, specify the use of manufacturer values for gas supply pressure in certain circumstances, reduce the number of thermocouples required in the thermocouple grid for models with small flues, and clarify instructions for calculations regarding condensate mass measurements. DOE welcomes written comment from the public on any subject within the scope of this document (including topics not raised in this proposal), as well as submission of data and other relevant information.

DATES: *Comments:* DOE will accept comments, data, and information regarding this notice of proposed rulemaking (NOPR) on or before June 30, 2021. See section V, ''Public Participation,'' for details.

Meeting: DOE will hold a webinar on Friday, June 4th, 2021 from 9:00 a.m. to 4:00 p.m. See section V, ''Public Participation,'' for webinar registration information, participant instructions, and information about the capabilities available to webinar participants.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *http://www.regulations.gov.* Follow the instructions for submitting comments. Alternatively, interested persons may submit comments by email to the following address: *DHE2019TP0003@ee.doe.gov.* Include and docket number EERE–2019–BT–TP–0003 and/or RIN number 1904–AE30 in the subject line of the message. Submit electronic comments in WordPerfect, Microsoft Word, PDF, or ASCII file format, and avoid the use of special characters or any form of encryption.

Although DOE has routinely accepted public comment submissions through a variety of mechanisms, including postal mail and hand delivery/courier, the Department has found it necessary to make temporary modifications to the comment submission process in light of the ongoing Covid–19 pandemic. DOE is currently suspending receipt of public comments via postal mail and hand delivery/courier. If a commenter finds that this change poses an undue hardship, please contact Appliance Standards Program staff at (202) 586–1445 to discuss the need for alternative arrangements. Once the Covid–19 pandemic health emergency is resolved, DOE anticipates resuming all of its regular options for public comment submission, including postal mail and hand delivery/courier.

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

The docket web page can be found at: *https://www.regulations.gov/docket?D=EERE-2019-BT-TP-0003.* The docket web page contains 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 CONTACT: Dr. Stephanie Johnson, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–1943. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

Mr. Eric Stas, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 586–5827. Email: *Eric.Stas@hq.doe.gov.*

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

SUPPLEMENTARY INFORMATION: DOE proposes to maintain a previously approved incorporation by reference and incorporate by reference the following industry standards into the Code of Federal Regulations (CFR) at 10 CFR part 430:

American National Standards Institute (ANSI)/American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 103–2017, (ANSI/ASHRAE 103–2017), ''Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers,'' approved July 3, 2017.

Copies of ANSI/ASHRAE 103–2017 can be obtained from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 1791 Tullie Circle, NE, Atlanta, GA 30329, (800) 527–4723 or (404) 636–8400, or online at: *http://www.ashrae.org.*

ANSI Standard Z21.86–2016 (ANSI Z21.86–2016), ''Vented Gas-Fired Space Heating Appliances,'' Sixth Edition, approved December 21, 2016.

Copies of ANSI Z21.86–2016 can be obtained from the American National Standards Institute, 25 W 43rd Street, 4th Floor, New York, NY 10036, (212) 642–4900, or online at: *http://www.ansi.org.*

American Society for Testing and Materials International (ASTM) Standard D2156–09 (Reapproved 2018) (ASTM D2156–09 (2018)), ''Standard Test Method for Smoke Density in Flue Gases from Burning Distillate Fuels,'' reapproved October 1, 2018.

Copies of ASTM D2156–09 (2018) can be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428–2959 or online at: *www.astm.org.*

International Electrotechnical Commission (IEC) 62301 (Second Edition), ''Household electrical appliances-Measurement of standby power,'' (Edition 2.0 2011–01).

Copies of IEC 62301 (Second Edition) can be obtained from the American National Standards Institute, 25 W 43rd Street, 4th Floor, New York, NY 10036, (212) 642–4900, or online at: *http://webstore.ansi.org.*

Underwriters Laboratories, Inc. (UL) Standard 729–2016, ''Standard for Safety for Oil-Fired Floor Furnaces,'' approved November 22, 2016.

UL Standard 730–2016, ''Standard for Safety for Oil-Fired Wall Furnaces,'' approved November 22, 2016.

UL Standard 896–2016, ''Standard for Safety for Oil-Burning Stoves,'' approved November 22, 2016.

Copies of UL 729–2016, UL 730–2016, and UL 896–2016 can be obtained from Underwriters Laboratories, Inc., 2600 NW Lake Rd., Camas, WA 98607–8542 or online at: *www.ul.com.*

See section IV.M of this document for a further discussion of these standards.

Table of Contents

I. Authority and Background

Direct heating equipment is included in the list of ''covered products'' for which DOE is authorized to establish and amend energy conservation standards and test procedures. (42 U.S.C. 6292(a)(9)) DOE defines ''direct heating equipment'' as vented home heating equipment and unvented home heating equipment. 10 CFR 430.2. (Hereafter in this notice of proposed rulemaking, the terms ''vented heater'' and ''unvented heater'' are used to describe the two types of DHE). DOE's energy conservation standards and test procedures for vented heaters are currently prescribed at 10 CFR 430.32(i) and 10 CFR part 430, subpart B, Appendix O, ''Uniform Test Method for Measuring the Energy Consumption of Vented Home Heating Equipment'' (Appendix O), respectively. DOE's test procedures for unvented heaters are prescribed at 10 CFR part 430, subpart B, Appendix G, ''Uniform Test Method for Measuring the Energy Consumption of Unvented Home Heating Equipment'' (Appendix G). DOE currently does not prescribe energy conservation standards for unvented heaters because, as the Department explained in an April 2010 final rule for DHE, DOE has previously determined that a standard would produce little energy savings (largely due to the fact that any heat losses are dissipated directly into the conditioned space) and because of limitations in the applicable DOE test procedure. 75 FR

20112, 20130 (April 16, 2010). The unvented heaters test procedure, Appendix G, includes neither a method for measuring energy efficiency nor a descriptor for representing the efficiency of unvented heaters. Instead, Appendix G provides a method to measure and calculate the rated output for all unvented heaters and annual energy consumption of primary electric unvented heaters. The following sections discuss DOE's authority to establish and amend test procedures for vented and unvented heaters, as well as relevant background information regarding DOE's consideration of and amendments to test procedures for these products.

A. Authority

The Energy Policy and Conservation Act, as amended (EPCA),[1] Public Law 94–163 (42 U.S.C. 6291–6317, as codified), among other things, authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. Title III, Part B [2] of EPCA established the Energy Conservation Program for Consumer Products Other Than Automobiles, which sets forth a variety of provisions designed to improve energy efficiency. These products include DHE, the subject of this document. (42 U.S.C. 6292(a)(9))

The energy conservation program under EPCA consists essentially of four parts: (1) Testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA specifically include definitions (42 U.S.C. 6291), test procedures (42 U.S.C. 6293), labeling provisions (42 U.S.C. 6294), energy conservation standards (42 U.S.C. 6295), and the authority to require information and reports from manufacturers. (42 U.S.C. 6296)

The Federal testing requirements consist of test procedures that manufacturers of covered products must use as the basis for: (1) Certifying to DOE that their products comply with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6295(s)), and (2) making representations about the efficiency of those consumer products (42 U.S.C. 6293(c)). Similarly, DOE must use these test procedures to determine whether the products comply with relevant energy conservation standards promulgated under EPCA. (42 U.S.C. 6295(s)) EPCA defines the efficiency descriptor for DHE to be annual fuel utilization efficiency (AFUE). (42 U.S.C. 6291(22)(A))

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

Under 42 U.S.C. 6293, EPCA sets forth the criteria and procedures DOE must follow when prescribing or amending test procedures for covered products. EPCA requires that any test procedures prescribed or amended shall 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, EPCA requires that DOE amend its test procedures for all covered consumer products to integrate measures of standby mode and off mode energy consumption into the overall energy efficiency, energy consumption, or other energy descriptor, taking into consideration the most current versions of Standards 62301 [3] and 62087 [4] of the International Electrotechnical Commission (IEC), unless the current test procedure already incorporates the standby mode and off mode energy consumption, or if such integration is technically infeasible. (42 U.S.C. 6295(gg)(2)(A)) If an integrated test procedure is technically infeasible, DOE must prescribe separate standby mode and off mode energy use test procedures for the covered product, if a separate test is technically feasible. (*Id.*)

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)) EPCA also requires that, at least once every 7 years, DOE evaluate test procedures for each type of covered product, including the DHE that are the subject of this NOPR, to determine whether amended test procedures would more accurately or fully comply with the requirements for the test procedures to not be unduly burdensome to conduct and be reasonably designed to produce test results that reflect energy efficiency, energy use, and estimated operating costs during a representative average use cycle or period of use. (42 U.S.C. 6293(b)(1)(A)) If the Secretary determines, on his own behalf or in response to a petition by any interested person, that a test procedure should be prescribed or amended, the Secretary shall promptly publish in the **Federal Register** proposed test procedures and afford interested persons an opportunity to present oral and written data, views, and arguments with respect to such procedures. The comment period on a proposed rule to amend a test procedure shall be at least 60 days and may not exceed 270 days. In prescribing or amending a test procedure, the Secretary shall take into account such information as the Secretary determines relevant to such procedure, including technological developments relating to energy use or energy efficiency of the type (or class) of covered products involved. (42 U.S.C. 6293(b)(2)) If DOE determines that test procedure revisions are not appropriate, DOE must publish in the **Federal Register** its determination not to amend the test procedures. (42 U.S.C. 6293(b)(1)(A)) DOE is publishing this NOPR in satisfaction of the 7-year-lookback review requirement specified in EPCA.

B. Background

As mentioned previously, DOE's existing test procedures for unvented heaters and vented heaters appear at Appendix G and Appendix O, respectively. DOE originally established Appendix G in a final rule published in the **Federal Register** on May 10, 1978, which prescribed test procedures for primary electric heaters and a calculation of national and regional average annual energy consumption. 43 FR 20128, 20132–20146. DOE amended the test procedure for unvented heaters on March 28, 1984 (March 1984 final rule) to prescribe test procedures for fossil-fuel-fired unvented heaters and to add calculations of the rated output in British thermal units per hour (Btu/h) for electric heaters and unvented gas and oil heaters and an estimated operational cost per million Btu of output. 49 FR 12148, 12157–12158. DOE most recently updated Appendix G in a final rule published December 17, 2012 (December 2012 final rule) to establish procedures for measuring energy consumption in standby mode and off mode, pursuant to EPCA. 77 FR 74559, 74571–74572. However, in the

[1] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Public Law 116–260 (Dec. 27, 2020).

[2] For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

[3] IEC 62301, *Household electrical appliances—Measurement of standby power* (Edition 2.0, 2011–01).

[4] IEC 62087, *Methods of measurement for the power consumption of audio, video, and related equipment* (Edition 3.0, 2011–04).

December 2012 final rule, DOE did not establish calculations for annual energy consumption for supplementary heaters or unvented gas and oil heaters, or incorporate standby mode and off mode energy into the annual energy consumption calculations for primary electric heaters because it determined that a detailed annual energy consumption accounting was not appropriate for unvented heaters. *Id.* at 77 FR 74563.

DOE originally established Appendix O in a final rule published in the **Federal Register** on May 10, 1978. 43 FR 20147, 20182–20205. DOE amended the test procedure for vented heaters in the March 1984 final rule to include a simplified procedure for heaters with modulating controls, and to address manually controlled vented heaters, vented heaters equipped with thermal stack dampers, and floor furnaces. 49 FR 12148, 12169–12178 (March 28, 1984). DOE amended the test procedure for vented heaters again on May 12, 1997, to add calculations for electrical energy consumption, to clarify the pilot light energy measurement for manually-controlled vented heaters, and to update the provisions for determining the efficiency of manually-controlled heaters with variable input rates. 62 FR 26140, 26156, 26162–26164. In the December 2012 final rule, DOE established procedures for measuring power consumption in standby mode and off mode and for calculating the energy consumption associated with operation in standby mode and off mode. 77 FR 74559, 74561 (Dec. 17, 2012). In the most recent test procedure rulemaking for DHE, DOE added provisions for testing vented heaters that utilize condensing technology and incorporated by reference six industry test standards to replace the outdated test standards referred to in the then existing DOE test procedure. 80 FR 792 (Jan. 6, 2015) (January 2015 final rule). DOE determined at that time not to amend the test procedure for unvented heaters. *Id.* at 80 FR 793.

For unvented electric heaters that are the primary heating source for the home, Appendix G includes provisions for measuring electric power and calculating annual energy consumption in sections 2.1 and 3.1, respectively. For all unvented heaters, Appendix G includes provisions for determining the rated output, in section 3.3 for electric heaters and section 3.4 for natural gas, propane, or oil heaters. Appendix G does not contain provisions for determining energy efficiency, as unvented heaters generally are considered to be 100-percent efficient because any heat losses are lost to the conditioned living space in which the unit is installed. Accordingly, DOE has not established energy conservation standards for unvented heaters.

For vented heaters, Appendix O includes provisions for determining AFUE, which is the efficiency metric used for determining compliance with the energy conservation standards for vented home heating equipment found in 10 CFR 430.32(i)(2). Section 4.6 of Appendix O also specifies provisions for calculating the annual energy consumption of vented heaters. Manufacturers must use the test procedure at Appendix O to demonstrate compliance with the current energy conservation standards for vented heaters. Further, there are currently no industry consensus test methods to measure DHE energy efficiency under the AFUE metric for vented home heating equipment, so, therefore, the test procedure in Appendix O is used.

To better understand potential issues with the current test procedures since the last amendments, DOE published a request for information (RFI) on February 26, 2019 (February 2019 RFI). 84 FR 6088. The February 2019 RFI requested comment from interested parties on several aspects of the test procedure, which are discussed further in section III of this document. DOE received 7 comments [5] in response to the February 2019 RFI from the interested parties listed in Table I.1.

TABLE I.1—FEBRUARY 2019 RFI WRITTEN COMMENTS

Organization(s)	Reference in this document	Organization type
Appliance Standards Awareness Project, American Council for an Energy-Efficient Economy, Natural Resources Defense Council.	Joint Advocates	Efficiency Organizations.
Association of Home Appliance Manufacturers	AHAM	Trade Association.
Air-Conditioning, Heating, and Refrigeration Institute	AHRI	Trade Association.
Northwest Energy Efficiency Alliance	NEEA	Efficiency Organization.
Pacific Gas and Electric Company, Southern California Edison, San Diego Gas and Electric.	CA IOUs	Utility.
National Propane Gas Association	NPGA	Trade Association.
Kevin Woodall	Woodall	Individual.

II. Synopsis of the Notice of Proposed Rulemaking

In this NOPR, DOE proposes the following changes to the test procedures for unvented and vented heaters (10 CFR part 430, subpart B, Appendices G and O, respectively) and several associated definitions in 10 CFR 430.2, as follows:

1. Update the definitions of ''floor electric heater,'' ''primary heater,'' ''unvented gas heater,'' ''unvented home heating equipment,'' ''unvented oil heater,'' ''vented home heating equipment,'' and ''vented room heater'', and update the terms ''primary heater'' and ''supplementary heater'' to ''primary electric heater'' and ''supplementary electric heater,'' respectively;

2. Update references to several industry consensus standards to the most recent versions, except that the test procedure would maintain the current oil pressure measurement error value (which was omitted in the most recent update to ANSI/ASHRAE 103–2017), and maintain the current maximum post-purge period;

3. Provide explicit direction on the operational mode for testing vented heaters with multiple automatic operation modes;

4. Clarify the required input rate for the cyclic condensate collection tests;

5. Allow for use of manufacturer-specified gas inlet pressure range when the required input rating cannot be reached;

[5] Comments in Docket No. EERE–2019–BT–TP–0003 available at: *https://www.regulations.gov/docket?D=EERE-2019-BT-TP-0003.*

6. Explicitly state the regulator outlet pressure and specific gravity tolerances for the gas supply;

7. Reduce the number of thermocouples required for the thermocouple grid in models with small (2-inch diameter or less) flues from nine to five;

8. Clarify the wording of the cyclic condensate collection test in the calculation of the allowable variance in condensate mass measurements; and

9. Provide explicit direction on the methods to appropriately shield thermocouples from radiation.

Table II.1 summarizes DOE's proposed actions compared to the current test procedures, as well as the reason for each proposed change.

TABLE II.1—SUMMARY OF CHANGES IN PROPOSED TEST PROCEDURES RELATIVE TO CURRENT TEST PROCEDURES

Current DOE test procedure	Proposed test procedure	Attribution
Definitions for electric heater, primary heater, supplementary heater, floor electric heater, unvented gas heater, unvented home heating equipment, unvented oil heater, vented home heating equipment, and vented room heater have various inconsistencies in terminology.	Updates the definitions to use consistent terminology ...	Clarification to ensure consistent use and application. Response to comments.
References ANSI/ASHRAE 103–2007, ANSI Z21.86–2008, ASTM D–2156–09, UL729–2003, UL 730–2003, and UL 896–1993.	References ANSI/ASHRAE 103–2017 (but maintains current oil pressure measurement error value and maximum post-purge time), ANSI Z21.86–2016, ASTM D–2156–09 (2018), UL 729–2016, UL 730–2016, and UL 896–2016.	Update to most recent versions of industry standards. Response to comments.
Does not provide specific direction for units with multiple automatic operational modes.	Explicitly provides that for units with multiple automatic operational modes, the default or other similarly named mode is used for testing.	Ensure representativeness. Response to comments.
Does not provide specific direction regarding the input rate at which the cyclic condensate collection test is to be conducted.	Explicitly state at which input rate to conduct the cyclic condensate collection test.	Clarification.
Specifies an inlet gas pressure level is to be between 7–10 inches water column.	Permits use of manufacturer's specified gas inlet pressure range, if the nameplate input rating ±2 percent cannot be achieved at 7–10 inches water column.	Ensure representativeness.
Does not provide specific values that the regulator outlet pressure and specific gravity of the test gas must meet.	Explicitly state that the regulator outlet pressure be within the greater of ±10 percent of the manufacturer-specified manifold pressure or ±0.2 inches water column, and that the specific gravity for natural gas and propane gas be 0.57–0.70 and 1.522–1.574, respectively.	Clarification to ensure consistent use and application.
Requires use of a nine-thermocouple grid for measuring flue gas temperature, regardless of flue size.	For smaller size flues (2-inch diameter or less), require a five-thermocouple grid.	Ensure representativeness.
For the variance of the condensate mass measurements, requires that ''the sample standard deviation is within 20 percent of the mean value for three cycles'' in order to stop at three cycles. Otherwise, six cycles are required.	Clarifies that the standard deviation must be less than or equal to 20 percent of the mean value.	Clarification.
Does not provide specific direction for determining when a radiation shield is needed or what an appropriate radiation shield would be.	Explicitly states that any thermocouple with a direct line of sight to the burner must be shielded from radiation and that a radiation shield with an explicitly stated material and minimum thickness must be used.	Clarification.

DOE has tentatively determined that the proposed amendments described in section III of this NOPR would not alter the measured efficiency of DHE, or require retesting or recertification solely as a result of DOE's adoption of the proposed amendments to the test procedures, if made final. Additionally, DOE has tentatively determined that the proposed amendments, if made final, would not increase the cost of testing. Discussion of DOE's proposed actions are addressed in detail in section III of this NOPR.

III. Discussion

A. Definitions

1. Unvented Heaters

DOE defines ''unvented home heating equipment'' as a class of home heating equipment, not including furnaces, used for the purpose of furnishing heat to a space proximate to such heater directly from the heater and without duct connections and includes electric heaters and unvented gas and oil heaters. 10 CFR 430.2. In the February 2019 RFI, DOE requested comment on whether any definitions related to unvented heaters should be revised and if so, how. 84 FR 6088, 6090–6091 (Feb. 26, 2019). In particular, DOE noted that floor electric heaters are not currently included in the examples listed in the definition of ''primary heater,'' which is defined as a heating device that is the principal source of heat for a structure and includes baseboard electric heaters, ceiling electric heaters, and wall electric heaters. 10 CFR 430.2. DOE noted that floor electric heaters have similar output capacities as other types of heaters that are explicitly listed as primary heaters, and requested comment on whether the list of examples should include floor electric heaters. 84 FR 6088, 6091 (Feb. 26, 2019).

Regarding the definition of ''unvented home heating equipment,'' the CA IOUs suggested that unvented home heating equipment should be defined using similar language as ''vented home heating equipment,'' and the definition should say that unvented systems are designed to furnish ''warm air'' rather than ''heat'' so as to distinguish DHE from hydronic or steam distribution systems. Additionally, the CA IOUs stated that floor heaters should be included in the non-exhaustive list of examples under the ''primary heater''

definition. (CA IOUs, No. 8 at p. 1) [6] The Joint Advocates also stated that floor electric heaters should be included in the ''primary heater'' definition. (Joint Advocates, No. 6 at p. 1) NEEA provided conditional support for expanding the primary heater definition as long as the inclusion of electric heat in the definition of primary heater would not eliminate electric heat from other classes of equipment including heat pump technology, and would not have the effect of including gas heating technology in the same class of equipment as electric. (NEEA, No. 7 at p. 1)

After considering the comments, DOE agrees that the definition of ''unvented home heating equipment'' would benefit from using language consistent with the definition of ''vented home heating equipment.'' Consistent with the definition of ''vented home heating equipment'' that is proposed in this document (see section III.A.2), DOE is proposing to change ''furnishing heat'' to ''furnishing heated air'' in the definition of ''unvented home heating equipment'' at 10 CFR 430.2. Similarly, DOE also proposes to amend the definitions of ''unvented gas heater'' and ''unvented oil heater'' from using the phrase ''furnishes warm air'' to ''furnishes heated air.'' The term ''warm'' is subjective and does not indicate that any process was used to add heat to the air being furnished by the heater, whereas ''heated'' does indicate that thermal energy was added to the air.

Additionally, DOE is proposing to explicitly include floor electric heaters as one of the examples provided in the definition of a ''primary heater.'' To the extent that a floor electric heater is the principal source of heat for a structure, it is a primary heater. The proposed change would make such inclusion explicit in the definition of ''primary heater'' and would have no effect on the scope of coverage for floor electric heaters.

In response to NEEA's comment, DOE notes that including ''floor electric heaters'' as an example of an unvented electric heater type within the primary heater definition would not eliminate space heating fueled by electricity from other classes of equipment including heat pump technology, and would not have the effect of including gas heating technology in the same product class as electric. Space heating products that use heat pump technology are defined separately from DHE by EPCA. (42 U.S.C. 6292(a)(3) and (9)) Therefore, DOE cannot consider heat pump technology within the unvented electric heater product class. For these reasons, DOE proposes to include floor electric heaters in the definition for ''primary heaters.'' Further, to avoid confusion in regard to applicability of the ''primary heater'' and ''supplementary heater'' definitions, DOE proposes to amend the terms to ''primary electric heater'' and ''supplementary electric heater'' consistent with Appendix G.

DOE has also tentatively determined to add the phrase ''a class of unvented home heating equipment'' to the definitions of ''electric heater,'' ''unvented gas heater,'' and ''unvented oil heater'' to more clearly associate these definitions as being unvented home heating equipment.

DOE also proposes to clarify that unvented home heating equipment should be without exhaust venting, as the current definition does not state this explicitly.

No other comments were received regarding the definitions relevant to unvented heaters in response to the February 2019 RFI.

DOE requests comment on its proposed changes to the definitions for ''electric heater,'' ''primary heater,'' ''unvented gas heater,'' ''unvented home heating equipment,'' and ''unvented oil heater'' in 10 CFR 430.2, as well as on its proposed change in terminology from ''primary heater'' and ''supplementary heater'' to ''primary electric heater'' and ''supplementary electric heater,'' respectively.

2. Vented Heaters

In the February 2019 RFI, DOE also requested comment regarding whether changes to any definitions applicable to vented heaters in 10 CFR 430.2 are necessary. 84 FR 6088, 6091 (Feb. 26, 2019). In response, AHRI responded that no definitional changes are needed in 10 CFR 430.2 regarding vented heaters. (AHRI, No. 5 at p. 1) To align the definitions of unvented and vented heaters throughout 10 CFR 430.2, DOE proposes to change the phrasing of ''warm'' or ''warmed'' air to ''heated'' air in the definitions of ''vented home heating equipment'' and ''vented room heaters.'' As discussed in the preceding section, the term ''warm'' does not indicate that heat is added to the air being furnished by the heater, whereas the term ''heated'' does indicate that heat is added to the air by the heater. DOE also proposes to further align the definitions of ''unvented home heating equipment'' and ''vented home heating equipment,'' as follows. The definition for ''unvented home heating equipment'' uses the phrase, ''to a space proximate to such heater directly from the heater,'' while the definition for ''vented home heating equipment'' uses the phrase, ''to the living space of a residence, directly from the device.'' DOE has tentatively determined that the language from the unvented home heating equipment definition is more representative of DHE, so DOE proposes to modify the vented home heating equipment definition accordingly to be consistent. Finally, DOE proposes to clarify that vented home heating equipment should include exhaust venting, as the current definition does not state this explicitly.

DOE also sought comment in the February 2019 RFI regarding the definitions relevant to vented heaters in section 1.0 of Appendix O. 84 FR 6088, 6093 (Feb. 26, 2019). DOE particularly sought comment on whether the definition for ''manually controlled vented heaters'' should be changed to exclude heaters ''without automatic means of control or operation,'' rather than ''without thermostats'' (as in the current definition) to accommodate any means of automatic control rather than just thermostats. *Id.* In response, AHRI recommended against this change without added explanation. (AHRI, No. 5 at p. 3)

Subsequent to the February 2019 RFI, DOE further examined models on the market with automatic controls, and found that all products identified with automatic controls other than thermostats (*e.g.,* a timer control) also include thermostatic control mechanisms. Therefore, DOE has tentatively determined that changing the definition as discussed in the February 2019 RFI would not provide any additional clarification to the application of the definition and is not proposing to amend this definition.

DOE also requested comment generally on whether all other definitions provided in section 1.0 of Appendix O are all still appropriate, or if other updates are needed. 84 FR 6088, 6093 (Feb. 26, 2019). AHRI responded that the definitions in section 1.0 of Appendix O are appropriate and do not require changes. (AHRI, No. 5 at p. 3) The CA IOUs recommended the following definitional changes: Update the ''barometric draft regulator or barometric damper'' definition to distinguish between traditional and automatic; update the ''flue gases'' definition to ''the combination of reaction products resulting from the combustion of a fuel with the oxygen in

[6] A notation in the form ''CA IOUs, No. 8 at p. 1'' identifies a written comment: (1) Made by the CA IOUs; (2) recorded in document number 8 that is filed in the docket of this rulemaking (Docket No. EERE–2019–BT–TP–0003) and available for review at *http://www.regulations.gov;* and (3) which appears on page 1 of document number 8.

the air and inert gases, and any excess air passing through the flue;'' update the definition for ''induced draft'' to clarify ''mechanical means'' and possibly distinguish between induced draft and forced draft, if appropriate; clarify the ''infiltration parameter'' definition, and specifically whether it is conceptual or a quantifiable parameter with units (*e.g.,* volume, mass); update the ''reduced heat input rate'' definition to include fully modulating units; and update the ''vaporizing-type oil burner'' definition to use ''pot'' instead of ''bowl.'' (CA IOUs, No. 8 at pp. 5–6)

After considering the comments from AHRI and the CA IOUs, DOE is not proposing changes to the definitions in section 1 of Appendix O. Regarding the changes to the definitions of ''barometric draft regulator or barometric damper,'' ''flue gases,'' ''induced draft,'' and ''vaporizing-type oil burners'' as suggested by the CA IOUs, DOE has tentatively concluded that these terms do not require further direction or clarification, and that there is no indication that they are being inappropriately applied or misunderstood. Regarding the suggested update to the definition of ''infiltration parameter,'' DOE notes that this value is used to adjust the multiplication factor to account for infiltration loss during burner on-cycle when conducting the ANSI/ASHRAE 103 test procedure and is a dimensionless parameter (*i.e.,* it has no associated unit of measurement). Lastly, DOE notes that a ''step-modulating control'' is defined in section 1.33 of Appendix O as a control that either cycles off and on at the low input if the heating load is light, or gradually increases the heat input to meet any higher heating load that cannot be met with the low firing rate. DOE has tentatively determined that units that would be described as ''fully modulating'' meet the definition of a step-modulating control. Thus, the suggested change to the definition of ''reduced heat input rate'' to include fully modulating units is not necessary, as fully modulating units are included under the ''step-modulating control'' definition, and the definition of ''reduced heat input rate'' already includes such units.

DOE requests comment on its proposed changes to the definitions for ''vented home heating equipment'' and ''vented room heater'' in 10 CFR 430.2. DOE also requests additional comment on the definitions for vented home heating equipment in section 1.0 of Appendix O, and on its tentative determination that no changes are necessary.

B. Updates to Industry Consensus Test Methods

The unvented heater test procedure in Appendix G includes a reference to the International Electrotechnical Commission (IEC) 62301, ''Household electrical appliances—Measurement of standby power,'' (Second Edition). The vented heater test procedure in Appendix O references the following industry standards:

- ANSI/ASHRAE Standard 103–2007, ''Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers'' (ANSI/ASHRAE 103–2007);
- ANSI Z21.86–2008, ''Vented Gas-Fired Space Heating Appliances'' (ANSI Z21.86–2008);
- ASTM D2156–09, ''Standard Test Method for Smoke Density in Flue Gases from Burning Distillate Fuels'' (ASTM D2156–09);
- IEC 62301 (Second Edition), ''Household electrical appliances—Measurement of standby power'' (IEC 62301);
- UL 729–2003, ''Standard for Safety for Oil-Fired Floor Furnaces'' (UL 729–2003);
- UL 730–2003, ''Standard for Safety for Oil-Fired Wall Furnaces'' (UL 730–2003); and
- UL 896–1993, ''Standard for Safety for Oil-Burning Stoves'' (UL 896–1993).

As described in the February 2019 RFI, all of the referenced industry standards, except for ASTM D2156–09 [7] and IEC 62301 (Second Edition), have been superseded with a more recent version. 84 FR 6088, 6091 (Feb. 26, 2019). The changes in the most recent version of UL 729, UL 730, and UL 896 were to sections not referenced by the DOE test procedure, and the changes to the most recent version of ANSI Z21.86, while affecting sections referenced by the DOE test procedure, were non-substantive and unlikely to have any impact on the test burden or measured energy consumption under the DOE test procedure. *Id.* Therefore, DOE has tentatively determined to update references to the industry standards to their most recent versions for ASTM D2156–09, UL 729, UL 730, UL 896, and ANSI Z21.86.

In the February 2019 RFI, DOE described the substantive updates to ANSI/ASHRAE 103 (see section III.B.1 of this document for additional discussion of these changes) and requested comment on whether the changes are appropriate for adoption in the vented heater test procedure. DOE also requested comment on whether any of the updates to the referenced standards impact the test burden or measured consumption under the DOE test procedure. 84 FR 6088, 6091–6092 (Feb. 26, 2019).

NPGA responded generally in support of the updates to the referenced industry standards. (NPGA, No. 3 at p. 1) No other comments were received regarding the updated versions of the referenced industry test procedures. As discussed in section III.B.1 of this document, DOE is adopting ANSI/ASHRAE 103–2017 with certain modifications.

1. ANSI/ASHRAE 103

ANSI/ASHRAE 103–2007, currently referenced in Appendix O, has been superseded by ANSI/ASHRAE 103–2017. As described in the February 2019 RFI, there are several changes to sections incorporated by reference within the vented heater test procedure. 84 FR 6088, 6091 (Feb. 26, 2019). Many of the changes are minor clarifications, such as adding metric units or changing the order of a sentence without affecting its intent. However, other changes could have a substantive effect on the vented heater test procedure, if adopted by DOE. *Id.*

DOE noted that ANSI/ASHRAE 103–2017 removed the allowable error in the oil pressure measurement from section 6.3, and requested comment as to whether this change is appropriate for vented home heating equipment. 84 FR 6088, 6091–6092 (Feb. 26, 2019). In response, the CA IOUs recommended that the error value be retained for the vented heater test procedure, stating that their market research showed that manufacturers still produce oil-fired furnaces, and the error values are beneficial in maintaining consistency amongst these manufacturers. (CA IOUs, No. 8 at p. 2) DOE has tentatively determined that inclusion of the pressure measurement error values from ANSI/ASHRAE 103–2007 remains appropriate and proposes to retain their application by directly including them in Appendix O.

In section 8.6 of ANSI/ASHRAE 103–2017, titled ''Jacket Loss Measurement,'' figures 12 and 13 were replaced by a set of equations. Figure 12 shows graphically how to use the difference between surface temperature and the surrounding air temperature to determine a value for h_c, the coefficient of convection for vertical and horizontal surfaces; and Figure 13 shows graphically how to use the surface temperature to determine a value of H_{ri}, the coefficient of heat transfer by radiation. In the February 2019 RFI, DOE requested comment on whether this change is appropriate for the vented

[7] ASTM D2156–09 was reapproved in 2018 (ASTM D2156–09 (2018)) without modification.

heater test procedure. 84 FR 6088, 6092 (Feb. 26, 2019). In response, the CA IOUs supported using the equations from ANSI/ASHRAE 103–2017 rather than the figures from ANSI/ASHRAE 103–2007, stating that the equations in ANSI/ASHRAE 103–2017 produce similar and more accurate results than the figures in ANSI/ASHRAE 103–2007. (CA IOUs, No. 8 at p. 2) The CA IOUs also suggested that DOE should encourage ANSI/ASHRAE to publish the data points used to create the 2007 graphs in order to compare those values to the values obtained through the equations. (CA IOUs, No. 8 at p. 3)

DOE has preliminarily determined that the calculations included in ASHRAE 103–2017 to determine jacket loss provide more accurate values as compared to the figures provided in the 2007 version, and the equations mitigate the possibility of human error in interpreting the figures. As a result, DOE is proposing to incorporate by reference the calculations provided in section 8.6 of ANSI/ASHRAE 103–2017.

In the February 2019 RFI, DOE also noted updates made to section 9.10, titled ''Optional Test Procedures for Condensing Furnaces and Boilers That Have No Off-Period Flue Losses'' in ANSI/ASHRAE 103–2017. 84 FR 6088, 6091–6092 (Feb. 26, 2019). Specifically, section 9.10 of ANSI/ASHRAE 103–2007 specifies that for condensing units designed with no measurable airflow through the combustion chamber and heat exchanger, the off-cycle flue gas draft factor (D_F) and the ratio of flue gas mass flow during the off-period to the flue gas mass flow during the on-period (D_P) may be set to 0.05 for units having a post-purge period of less than 5 seconds. In contrast, section 9.10 of ANSI/ASHRAE 103–2017 provides this specification for units having a post-purge period of less than or equal to 30 seconds. DOE sought comment on whether this change is appropriate for the vented heater test procedure. *Id.* In response, AHRI recommended that the post-purge time should not increase from less than or equal to 5 seconds to less than or equal to 30 seconds. (AHRI, No. 5 at p. 2)

After a thorough review of Appendix O, ANSI/ASHRAE 103–2007, ANSI/ASHRAE 103–2017, and stakeholder comments, DOE proposes to remove the mentions of sections 8.8.3 and 9.10 of ANSI/ASHRAE 103 within section 3.6.2.4.1 of Appendix O. Section 3.6.1 of Appendix O provides explicit instruction that the default draft factors can be used if the test method described in section 3.6.2 of Appendix O is met. The test method in section 3.6.2 of Appendix O does not address post-purge time and states that if the conditions of the test method are met that the default draft factors may be used. Section 8.8.3 of ANSI/ASHRAE 103 states that the default draft factors may be used for all units having no measurable airflow through the combustion chamber and heat exchanger when the burners are off. Therefore, all the information stated in section 8.8.3 of ANSI/ASHRAE 103 is already stated in sections 3.6.1 and 3.6.2 of Appendix O. Section 9.10 of ANSI/ASHRAE 103 applies to condensing units and includes the same requirements as section 8.8.3 of ANSI/ASHRAE 103 with the addition of the maximum post-purge time which was previously discussed. If the post-purge time is below the maximum allowed and there is no measurable airflow through the combustion chamber and heat exchanger when the burners are off, then section 9.10 of ANSI/ASHRAE 103 allows the testing agency to use the default draft factors and, at their discretion, omit the heat-up and cool-down tests. Appendix O does not include a heat-up test, and section 3.6 of Appendix O does not discuss a maximum post-purge time when establishing the cool-down test procedures for determining the draft factors or the test method to determine if the default draft factor may be used. Therefore, DOE has tentatively determined that the inclusion of a reference to section 9.10 of ANSI/ASHRAE 103 could cause confusion due to the maximum post-purge requirement which is not discussed within Appendix O.

DOE seeks comment on its proposal to incorporate by reference ANSI/ASHRAE 103–2017 with modifications. In particular, DOE is interested in receiving comment on its proposal to add the oil pressure measurement error value, which was omitted from ANSI/ASHRAE 103–2017, to Appendix O, and on its proposal to remove the mention of sections 8.8.3 and 9.10 within section 3.6.2.4.2 of Appendix O.

C. Unvented Heaters

1. Calculation of Annual Energy Consumption

For electric heaters, section 2.1 of Appendix G specifies a requirement for measuring and recording the maximum electrical power consumed when heating, in terms of kilowatts, and section 3.3 specifies a requirement for calculating a rated output. For primary electric heaters only, section 3.1 of Appendix G specifies a calculation for the national average annual energy consumption based on the maximum electrical power, and section 3.2 specifies a calculation for the annual energy consumption by geographic region. The calculation of national average annual energy consumption in section 3.1 of Appendix G is based on several assumptions, including the national average annual heating load hours of 2080, an adjustment factor of 0.77,[8] and a typical oversizing factor for primary electric heaters of 1.2.[9] The calculation of regional annual energy consumption in section 3.2 of Appendix G is based on the same assumptions as the national value, except that regional heating load hours are provided by a Figure 1, depicting geographic regions the United States and the associated heating load hours for each region.

In the February 2019 RFI, DOE noted that Appendix G does not specify a method for calculating annual fuel energy consumption for unvented gas and oil heaters. 84 FR 6088, 6092 (Feb. 26, 2019). DOE sought comment on whether the calculations and assumptions for calculating national and regional annual energy consumption of primary electric heaters are still appropriate and whether calculations for the annual fuel energy consumption of gas, propane, and oil heaters should be added to the test procedure. Id.

AHRI stated that the assumptions for calculating the national and regional annual energy consumption are still appropriate, and the organization recommended against calculating annual fuel energy consumption for unvented gas and oil heaters because all heat is contained within the conditioned space, so they should be considered 100-percent efficient. (AHRI, No. 5 at p. 2) AHAM stated that it is not aware of any data necessitating changing the assumptions made for national and regional values and urged DOE not to change those values. (AHAM, No. 4 at p. 2) NPGA stated that if DOE pursues calculation of annual fuel energy consumption for gas and oil unvented heaters, it should do so using full-fuel-cycle (FFC) analysis. NPGA also asserted that DOE should apply FFC to electric heating equipment as well. (NPGA, No. 3 at p. 1–2) NEEA recommended against requiring annual fuel energy consumption to be displayed on marketing material due to concerns about reducing purchases of high-efficiency vented heaters and consumers purchasing products that do

[8] The adjustment factor is a multiplier to adjust the heating load hours to the approximate burner operating hours experienced by the system.

[9] The oversizing factor accounts for space heating products generally being oversized when compared to the actual required heating load.

not fit their actual needs. NEEA stated that unvented heaters have higher efficiencies than vented heaters, because all the heated air and combustion gases are delivered to the consumer's heated space, and, as a result, such units will typically have lower energy consumption than vented heaters. NEEA also stated that a lower energy consumption value could lead to some consumers choosing an unvented heater over a vented heater, if the consumer does not recognize the difference in utility between the two types of heaters. According to NEEA, unvented heaters, in addition to providing heated air, also increase the moisture content and deliver combustion products to the occupied space, and while appropriate for some applications, the difference in utility may not be clear to the consumer. (NEEA, No. 7 at pp. 1–2) The Joint Advocates recommended that DOE require the annual fuel energy consumption calculations for gas and oil unvented heaters to ensure that any representations of annual energy use for these products would be based on a consistent calculation methodology. (Joint Advocates, No. 6 at p. 1)

After considering these comments, DOE is not proposing changes to the national and regional values used in the calculations of annual energy consumption in Appendix G for primary electric heaters, as DOE has tentatively determined that the existing calculations and assumptions are still appropriate. DOE also is not proposing to add calculations for annual fuel energy consumption of gas and oil unvented heaters. DOE has tentatively concluded that such calculations would be unlikely to provide consumers with valuable information, and as suggested by NEEA, an annual fuel energy use value for unvented gas and oil heaters could potentially confuse consumers if comparisons are made to the values for vented heaters without full understanding of the different applications and utilities of each product.

With regard to NPGA's recommendation to determine the annual energy consumption based on FFC, as DOE has noted for other products such as residential furnaces and boilers and cooking products (81 FR 2628, 2638–2639 (Jan. 15, 2016); 81 FR 91418, 91439 (Dec. 16, 2016)), DOE does not believe the test procedure is the appropriate vehicle for deriving an FFC energy use metric for DHE. As discussed in the Notice of Policy Amendment Regarding Full-Fuel Cycle Analyses, DOE uses the National Energy Modeling System (NEMS) as the basis for deriving the energy and emission multipliers used to conduct FFC analyses in support of energy conservation standards rulemakings. 77 FR 49701 (August 17, 2012). DOE also uses NEMS to derive factors to convert site electricity use or savings to primary energy consumption by the electric power sector. NEMS is updated annually in association with the preparation of the Energy Information Administration's (EIA's) *Annual Energy Outlook.* Based on its experience to date, DOE expects that the energy and emission multipliers used to conduct FFC analyses would change each year. Consequently, if DOE were to include an FFC energy descriptor as part of the DHE test procedures, DOE would need to update the test procedures annually, as opposed to every 7 years as is currently required by EPCA (see 42 U.S.C. 6293(b)(1)(A)), which would result in unnecessary regulatory burden. Additionally, a change in the NEMS-derived values would also result in all products on the market being required to recertify regardless of any other test procedure change that could affect efficiency.

2. Standby Mode and Off Mode Energy Consumption

In the December 2012 final rule that included DHE test procedures, DOE determined not to include standby mode and off mode energy use in the annual energy consumption calculations for unvented heaters because a detailed annual energy consumption accounting was not deemed appropriate for this product type (*i.e.,* because there is no annual accounting at all for supplemental heaters, and only a simplified assigned value for primary heaters). 77 FR 74559, 74561 (Dec. 17, 2012). In the August 30, 2010 NOPR that preceded the December 2012 final rule, DOE explained that the integration of standby mode and off mode energy was not necessary or appropriate for the following reasons:

(1) The test procedure does not include energy efficiency or energy use metrics that would allow for the integration of standby mode and off mode energy use.

(2) Standby mode energy use (defined as energy use during the heating season when the heater is not on) is as effective in heating the space as active mode energy use.

(3) Off mode energy consumption (defined as energy use during the non-heating season when the heater is not on) could be considered ineffective energy use and, accordingly, could be minimized by prescribing a separate energy conservation standard. However, DOE lacked data on consumer use that would be needed to define a representative off mode for unvented heaters.

75 FR 52892, 52898–52899 (August 30, 2010).

In the February 2019 RFI, DOE requested comment on whether standby mode and off mode energy use should be included in the annual energy consumption for unvented heaters. 84 FR 6088, 6092 (Feb. 26, 2019). DOE also requested information on annual and/or regional heating season data, and operational mode hours that could potentially be used to incorporate standby mode and off mode energy consumption. *Id.*

AHRI recommended against incorporating standby mode and off mode energy use into annual energy consumption for unvented heaters, stating that standby mode energy use is just as effective in heating the space as active mode energy use and that off mode consumption is generally reduced by the user turning off the pilot during the non-heating seasons. (AHRI, No. 5 at p. 2) In contrast, the Joint Advocates stated that the annual energy consumption should include standby mode and off mode energy use. The Joint Advocates commented that this is a particular issue when determining the fuel energy consumption, because for units with a pilot light, the energy consumption of the pilot during the non-heating season could represent a significant energy use. The Joint Advocates also stated that including standby mode and off mode energy consumption for unvented heaters should be consistent with the calculation methodology for vented heaters. (Joint Advocates, No. 6 at p. 1)

In response to DOE's request for information on annual and/or regional heating season data and operational hours for each mode, AHRI stated that the requested data do not exist, as usage patterns, structural characteristics, etc., vary for every heating region. (AHRI, No. 5 at p. 2) NPGA supported use of EIA data for information on national and regional heating seasonal data. (NPGA, No. 3 at p. 2) The CA IOUs stated that current industry practice for primary heating equipment is to use heating degree days (HDD) as a proxy for annual heating hours. However, the CA IOUs commented that for supplemental heating equipment, HDD is not always directly linked to operating hours and recommended that DOE survey supplemental heating operating conditions and hours to better understand their operation. (CA IOUs, No. 8 at pp. 4–5)

DOE is not proposing to include standby mode and off mode energy consumption in the annual energy consumption calculation for unvented heaters. DOE tentatively continues to

determine, as confirmed by AHRI, that the standby mode energy consumption of unvented heaters is as effective at heating the space as active mode energy, and, therefore, it is unnecessary to integrate. Regarding off mode energy consumption, DOE has tentatively concluded that some consumers could potentially leave the pilot light on during the non-heating season, thereby resulting in consumption of additional energy. However, in its review of the market, DOE found that all identified models with a pilot light included instructions from the manufacturer for turning the pilot light off during the non-heating seasons. DOE lacks data for the operational hours in off mode and the percentage of consumers that do not turn their pilot lights off during the non-heating seasons, thereby making it impossible to determine whether a problem actually exists or its magnitude. Based on the presence of manufacturer instructions and lack of data on representative use, DOE is not proposing to incorporate off mode energy use in the test procedure.

DOE requests comment on its tentative determination to not include standby mode and off mode energy consumption into the annual energy consumption for unvented heaters.

D. Vented Heaters

For vented heaters, Appendix O specifies provisions for determining the product's AFUE, which is the efficiency descriptor established by EPCA for these products. (42 U.S.C. 6291(22)(A))

1. Models With Multiple Automatic Operation Modes

Section 2.11 of the current test procedure specifies that for equipment that has both manual and automatic thermostat control modes, the unit must be tested according to the procedure for its automatic control mode (*i.e.,* single-stage, two-stage, or step-modulating). However, when a unit has multiple automatic operational modes, the test procedure does not explicitly specify what automatic operating mode must be used for testing.

In the February 2019 RFI, DOE requested comment on whether vented heaters having multiple automatic operation modes exist, and if so, whether further direction regarding the tested operating mode is necessary. 84 FR 6088, 6093 (Feb. 26, 2019). AHRI responded that DHE with multiple operating modes exist and recommended that DOE clarify that the least-efficient mode be used during AFUE tests for such models. (AHRI, No. 5 at p. 3)

As previously stated, EPCA requires test procedures prescribed or amended by DOE to be reasonably designed to produce test results which measure the energy efficiency of a covered product during a representative average use cycle or period of use and must not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) DOE does not have data on the frequency of use by a consumer of the least-efficient mode, and commenters did not provide any such data. It is not clear that the least-efficient mode, as recommended by AHRI, would necessarily be the most representative mode for testing models with multiple automatic operating modes. Through a review of manufacturer's product literature, DOE was unable to find vented heaters with multiple automatic operation modes and seeks further comment on which models are available with multiple automatic operating modes.

DOE is proposing to explicitly specify that models with multiple automatic operation modes be tested in the mode suggested by the manufacturer for normal operation or the default mode as defined in the manufacturer's installation and operations manual. If a default mode is not defined in the product literature, DOE proposes that tests be conducted in the mode that the product operates in as shipped from the manufacturer.

DOE requests comment on its proposal with regard to the automatic operational mode for testing models with multiple automatic operation modes. DOE requests data and information on the consumer use of different automatic operational modes when offered on a vented heater. DOE is interested in receiving comment on the characteristics of the mode recommended by manufacturers for normal operation, on how such mode is described in the manufacturer's installation and operations manual when provided, and on which models currently available on the market include multiple automatic operation modes.

2. Fuel Supply and Burner Adjustments

Sections 2.3.1 and 2.3.3 of Appendix O require that for natural gas-fueled and propane gas-fueled vented heaters, the gas supply be maintained at a normal inlet test pressure immediately ahead of all controls at 7 to 10 inches water column and 11 to 13 inches water column, respectively. In addition, section 2.4.1 of Appendix O requires that the fuel flow rate be set to obtain a heat rate of within ±2 percent of the hourly Btu rating specified by the manufacturer, as measured after 15 minutes of operation. During exploratory testing performed for the development of this NOPR, one unit that was tested was unable to achieve the nameplate input rate within 2 percent while maintaining a natural gas supply pressure of 7 to 10 inches water column. The manufacturer's recommended gas inlet pressure for this model was 5 to 10.5 inches water column, and the nameplate input rating was achieved at a natural gas supply pressure of 5 inches water column.

To ensure models are tested at conditions representative of field conditions while still maintaining consistency and repeatability, DOE proposes additional direction to address situations in which the required fuel rate cannot be achieved under the conditions specified in the test procedure (*e.g.,* at 7–10 inches water column for natural gas). DOE is proposing that in such instances, it is allowable to use any gas supply pressure within the range specified by the manufacturer.

Sections 2.3.1 and 2.3.2 of Appendix O also require the regulator outlet pressure be maintained at ''a normal test pressure approximately at that recommended by the manufacturer.'' DOE proposes to clarify these statements to require that the regulator outlet pressure be maintained at the greater of ±10 percent of the manufacturer-specified manifold pressure or ±0.2 inches water column. This change would ensure consistency in setting the regulator outlet pressure and aligns the language within Appendix O with the DOE test procedures for other gas-fired heating products (*e.g.,* consumer water heaters and commercial water heaters).

Sections 2.3.1 and 2.3.2 of Appendix O also require that the specific gravity be approximately 0.65 or 1.53 for natural gas or propane gas, respectively. DOE proposes to require that the specific gravity be between 0.57 and 0.70 for natural gas and 1.522 and 1.574 for propane gas. These specific gravity ranges correspond to the values presented in Annex G of ANSI Z21.86–2016.

Finally, DOE proposes to remove the phrase ''normal'' from ''normal inlet test pressure'' in sections 2.3.1 and 2.3.2 of Appendix O and replace ''normal hourly Btu input rating'' in section 2.4.2 of Appendix O with ''maximum hourly Btu input rating.'' Section 2.4.1 of Appendix O requires that the burners for gas fueled vented heaters be adjusted to provide an input rate within ±2 percent of the maximum Btu rating specified by the manufacturer at the test pressures specified in section 2.3 of

Appendix O. As the test pressures within section 2.3 of Appendix O are proposed to be explicitly stated, the use of the phrase ''normal'' is no longer necessary. The proposed change to replace ''normal hourly Btu input rating'' with ''maximum hourly Btu input rating'' in section 2.4.2 of Appendix O, which describes the burner adjustments for oil-fueled vented heaters, aligns the input rate language throughout section 2.4 of Appendix O.

DOE requests comment on its proposals to allow a manufacturer-specified value for gas supply pressure if test conditions are not achievable at a gas supply pressure of 7 to 10 inches water column for natural gas or 11–13 inches water column for propane gas, to require the regulator outlet pressure be within the greater of ±10 percent of the manufacturer-specified manifold pressure or ±0.2 inches water column, to require the specific gravity of natural gas be between 0.57 and 0.70 and for propane gas be between 1.522 and 1.574, to remove the phrase ''normal'' from sections 2.3.1 and 2.3.2 of Appendix O, and to replace ''normal hourly Btu input rating'' with ''maximum hourly Btu input rating'' within section 2.4.2 of Appendix O.

3. Flue Thermocouples

Section 2.6 of Appendix O requires installation of nine thermocouples in the vent for measuring flue gas temperature for both gas-fueled and oil-fueled vented heaters. As noted previously, DOE conducted testing to inform the development of this NOPR. For one of the units tested, the exhaust piping was 2 inches in diameter, and the nine thermocouples significantly restricted airflow in the vent, resulting in flue gas temperature readings and carbon monoxide levels above normal operating conditions. To ensure that measurements taken during testing of models with smaller flues (*i.e.,* 2 inches diameter or less) are representative of typical use, DOE proposes to allow fewer thermocouples to be used for such models when the use of nine thermocouples prevents the unit from operating within the allowable test conditions. Specifically, DOE is proposing to adopt a requirement to allow the test lab to use five thermocouples (which DOE notes is the same as the requirement in ASHRAE 103–2017, section 7.6 and figure 10) when the flue size is less than or equal to 2 inches diameter. Given that the cross-sectional flue area is smaller for models with small vent diameter, fewer thermocouples are needed to obtain accurate flue gas temperature measurements. Further, using fewer thermocouples would result in less flue restriction, and could more closely resemble operation in the field, thereby providing more representative flue gas readings.

DOE seeks comment on its proposal to allow the use of five thermocouples, rather than nine thermocouples, in vented heaters with a vent diameter of 2 inches or less.

4. Cyclic Condensate Collection Test

Section 3.8.2 of Appendix O specifies the test procedure for collecting condensate under cyclic conditions for condensing vented heaters. During this test, three to six cycles of a 4 minute on-cycle followed by a 13 minute off-cycle are completed. The total mass of condensate and fuel energy input are then used in section 4.0, ''Calculations.'' The cyclic condensate collection test does not specify the input rate at which the burner should fire during the on-cycle times for units with modulating controls.

a. Input Rate

The cyclic condensate collection test was based on section 9.8 of ANSI/ASHRAE 103–2007, which specifies that regarding the input rate for units with modulating controls, the following applies: (a) For step-modulating units, the test is conducted at the reduced [10] input rate only, which is defined in section 3 of ANSI/ASHRAE 103–2007; or (b) for two-stage units, the test is conducted at both the maximum and reduced input rates unless the balance-point temperature (T_C) determined is equal to or less than the typical outdoor design temperature of 5 °F (− 5°C), in which case test at the reduced input rate only. The required input rate is specified in all other tests within the vented heater test procedure. Therefore, DOE proposes to add input rate instructions similar to ANSI/ASHRAE 103–2007 to section 3.8.2 of Appendix O. This change would align the vented heater test procedure with ANSI/ASHRAE 103, on which Appendix O was heavily dependent for development.

DOE requests comment on its proposal to specify input rate instructions for the cyclic condensate collection test.

b. Mass Measurement Requirements

Section 3.8.2 of Appendix O states that if after three cycles ''the sample standard deviation is within 20 percent of the mean value for three cycles,'' the test can be ended, and the total mass collected in the three cycles can be used. Otherwise, three additional cycles of condensate collection are required, for a total of six cycles. DOE notes that the existing language for checking whether the variance of the condensate collected during the first three cycles is sufficiently small could be read to require that the standard deviation be ''within 20 percent'' of the mean value of the mass of condensate collected. Such a reading would not be logical because a small standard deviation is desirable for consistent results, and, therefore, the standard deviation value should not be compared directly to the mean and be required to be within 20 percent of the mean value. Rather, the phrase requires that the standard deviation be at or below ''20 percent of the mean value'' (*i.e.,* the sample standard deviation should be less than or equal to 20 percent of the mean). DOE proposes to revise this statement to state that the standard deviation must be less than or equal to 20 percent of the mean rather than ''within 20 percent'' of the mean. This proposed change would clarify the wording to avoid confusion that could result from the existing text.

DOE requests comment on its proposed rewording of the variance condition between cycles to clarify that the standard deviation must be less than or equal to 20 percent of the mean, for determining whether the cyclic condensate mass collection must be performed for three cycles or six cycles.

5. Other Vented Heater Topics

a. Test Method for Condensing Vented Home Heating Equipment

Section 3.8 of Appendix O contains provisions for testing vented heaters that utilize condensing technology. Condensing technology is a design strategy to increase the efficiency of a heating appliance by extracting additional thermal energy from the flue gases. The provisions for condensing vented heaters in Appendix O are based on those contained in ANSI/ASHRAE 103–2007, which are applicable to condensing furnaces and boilers. However, because the application of the condensing technology test provisions to vented heaters requires modifications not needed for furnaces and boilers, DOE includes the condensing provisions in Appendix O, rather than incorporating by reference the relevant provisions of ANSI/ASHRAE 103–2007.

In the February 2019 RFI, DOE requested comment on the test method for condensing vented heaters, specifically including information on

[10] ''Reduced heat input rate'' is defined in section 1 of Appendix O as the factory-adjusted lowest reduced heat input rate for vented home heating equipment equipped with either two-stage thermostats or step-modulating thermostats.

the test burden and on ways to potentially reduce burden. 84 FR 6088, 6093 (Feb. 26, 2019). AHRI stated that the provisions for testing condensing equipment are appropriate and do not need to be updated. (AHRI, No. 5 at p. 3) DOE received no other comment on this issue.

Consequently, DOE is not proposing to change the existing provisions for testing condensing vented heaters in the Federal test procedure for DHE.

b. Determination of Balance Point Temperature, Heating Load Fractions, and Average Outdoor Temperature

In section 4.1.10 of Appendix O, titled ''Steady-state efficiency,'' the balance point temperature [11] (T_C) can be determined either with an equation or using the values provided in Table 3 of Appendix O. The two options may not yield the exact same result because Table 3 provides a single balance point temperature value for a range of heat output ratios (R), while the equation provides a specific value for each heat output ratio. In other words, to use Table 3, first the heat output ratio is determined, then the corresponding range in Table 3 is selected to identify the balance point temperature for units with heat output ratios in the given range. To use the equation method, however, the heat output ratio is plugged into the equation, and balance point temperature is calculated. Similarly, values for the fraction of the heating load and average outdoor temperature at the reduced and maximum operating modes (variables X_1, X_2, T_{OA}, and T_{OA}*) are determined using either Table 3 or, for T_{OA} and T_{OA}*, Figure 1 of Appendix O (which provides a graph showing T_{OA}, and T_{OA}* variables for any balance point temperature between 16 °F and 62 °F) and, for X_1 and X_2, Figure 2 of Appendix O (which provides a graph showing variables X_1 and X_2 for any balance point temperature between 0 °F and 62 °F). Table 3, Figure 1, and Figure 2 may yield different results because Table 3 provides discreet values for X_1, X_2, T_{OA}, and T_{OA}*, whereas Figure 1 and Figure 2 provide continuous graphical curves for determining the relevant variables.

For the February 2019 RFI, DOE reviewed test data to estimate the impact of the different methods for determining the aforementioned variables on the measured AFUE value. The different methods resulted in a difference on the order of hundredths of a percentage point of AFUE, which DOE tentatively concluded would not be likely to affect the measured AFUE in most cases when rounded to a whole number. 84 FR 6088, 6093 (Feb. 26, 2019). DOE requested comment on whether the differences in the balance point temperature (T_C) produced by the equation and as obtained from Table 3 can result in different values for the fraction of the heating load (X_1 and X_2) and average outdoor temperature at the reduced and maximum operating modes (T_{OA} and T_{OA}*), and if so, the extent of any such difference. DOE also requested comment on whether any differences in the values of X_1, X_2, T_{OA}, and T_{OA*} within Table 3 and Figures 1 and 2 could produce different results, especially in AFUE, and if so, the extent of such differences. *Id.*

DOE did not receive any comments in response to these issues. As discussed, based on DOE's analysis, any changes in AFUE resulting from the differences in the equation, table, and figures are minimal. Therefore, DOE is not proposing any changes to the test method related to these issues.

c. Default Jacket Loss Value for Vented Floor Furnaces

The test procedure for vented floor furnaces requires the measurement of jacket losses when determining the AFUE. Section 3.2, Appendix O. In the NOPR published in the **Federal Register** as part of the rulemaking for the January 2015 final rule, DOE proposed an optional use of a default jacket loss value of 1 percent for vented floor furnaces, as an alternative to performing a jacket loss test. 78 FR 63410, 63415 (Oct. 24, 2013). In the January 2015 final rule, DOE decided not to adopt the 1-percent default jacket loss value for vented floor furnaces after reviewing test data that revealed an average jacket loss of 3.05 percent. 80 FR 792, 794 (Jan. 6, 2015).

In the February 2019 RFI, DOE requested comment and test data on whether a higher default jacket loss value should be considered for vented floor furnaces. 84 FR 6088, 6093 (Feb. 26, 2019). The Joint Advocates urged DOE not to include a default jacket loss value for vented floor furnaces, stating that a default value would allow products to have a jacket loss higher than the default without incurring a penalty, and could lead to efficiency ratings that are not representative of actual energy use. (Joint Advocates, No. 6 at p. 2) NEEA expressed support for a default jacket loss value that is representative of the jacket loss performance of the worst 25 models on the market. NEEA also stated that it prefers that testing for jacket loss still be allowed or for a calculation method to be developed, in lieu of a default value, to encourage innovation in decreasing jacket losses. (NEEA, No. 7 at p. 2)

After carefully considering these comments and the available information, DOE is not proposing a default jacket loss value. DOE has tentatively concluded that a default jacket loss value for vented floor furnaces would provide less representative ratings than the current test method, which requires measurement of the jacket loss in floor furnaces.

D. Draft Factors for Models With No Measurable Airflow

Section 3.6.1 of Appendix O specifies that on units with no measurable airflow through the unit when not in heating mode (as determined by a smoke stick test defined in section 3.6.2 of Appendix O), both D_F and D_P may be set equal to 0.05. In the February 2019 RFI, DOE requested comment on whether models using condensing or induced draft technology are always capable of meeting the criteria required to use the default draft factors of 0.05. 84 FR 6088, 6093 (Feb. 26, 2019). DOE also sought comment on whether such models should automatically be considered to have no measurable airflow, and, thus, allowed to use the defined value of 0.05 for D_F and D_P without performing the smoke stick test. *Id.*

AHRI recommended against allowing condensing or induced draft DHE to be considered to have no measurable airflow and use constant values for D_F and D_P without confirmation testing. (AHRI, No. 5 at p. 3)

After carefully considering comment on this issue in response to the February 2019 RFI, DOE is not proposing use of the default D_F and D_P values for condensing and induced draft vented heaters without first performing the test in section 3.6.2 of Appendix O to confirm that there is no measurable airflow. DOE has tentatively concluded that the provisions in the current test procedure for ensuring there is no airflow through the unit when not in heating mode before allowing the default draft factors, are appropriate, particularly since the smoke stick test was not identified as overly burdensome by stakeholders or during DOE's testing. Further verification of no airflow ensures that representative draft factors are applied during testing.

[11] The ''balance point temperature'' is defined in section 4 of Appendix O and represents a temperature used to apportion the annual heating load between the reduced input cycling mode and either the modulating mode or maximum input cycling mode.

e. Radiation Shielding

Sections 2.6.1, 2.6.2, and 2.9 of Appendix O require that radiation shields be used to protect thermocouples that could receive direct radiation from the fire. However, no instruction is given on how to determine if a thermocouple could receive direct radiation from the fire, and if so, what type of radiation shielding would be required. DOE has tentatively proposed to require that all thermocouples be shielded from the fire if there is a direct line of sight between the fire and the thermocouple. Further, if radiation shielding is required, then a radiation shield meeting the material and minimum thickness requirements stated in section 8.14.1 of ANSI Z21.86–2016 shall be used.

DOE requests comment its proposed changes to the radiation shielding requirements within sections 2.6.1, 2.6.2, and 2.9 of Appendix O. In particular, DOE seeks information as to what methods are currently being used to determine whether a thermocouple would require a radiation shield and also what types of materials are currently used as radiation shields.

E. Performance and Utility

DHE provides space heating (heated air) directly to the consumer's living space without the use of duct connections. Also relevant to DHE may be the ability to provide ''quiet'' operation, non-heating air circulation, and space humidification, as well as the aesthetic appearance of the unit. In the February 2019 RFI, DOE requested comment on whether the test procedures impact the availability of such features on DHE. 84 FR 6088, 6094 (Feb. 26, 2019).

The CA IOUs stated that the current procedures do not have an effect on manufacturers' ability to produce quiet or aesthetically pleasing products. (CA IOUs, No. 8 at p. 6) However, the CA IOUs stated that the current test procedures potentially could impact non-heating air circulation and space humidification, and recommended testing under different ambient conditions and monitoring the resulting energy use or operational efficiency to determine the impact on non-heating air circulation. Regarding space humidification, the CA IOUs also stated that the test procedure would likely impact space humidification since it involves heating the space, which in turn will change the dry/latent heat composition. The CA IOUs noted that section 3.8 of Appendix O, which addresses the measurement of condensate for condensing vented heaters, requires that the space humidity not exceed 80 percent relative humidity, stated that the heating requirements of a humidified space are different from a dehumidified space, and recommended further testing to ascertain the effects of the test procedure on the availability of space humidification features. (CA IOUs, No. 8 at p. 6–7)

DOE is not proposing any changes to the test procedure related to the issues raised by the CA IOUs and has tentatively determined that the other proposed changes to Appendix O would not have an effect on the issues raised by the CA IOUs. DOE does not have any data or test results to indicate that the current test procedure negatively impacts non-heating air circulation and space humidification. Non-heating air circulation energy use is not captured by the test procedure; therefore, there is no impact on this potential feature. Relative humidity requirements are specified only for condensing vented heaters because the effect of the ambient relative humidity on the energy efficiency is most significant for condensing vented heaters. DOE is not aware of condensing vented heaters on the market that provide space humidification that would cause the ambient relative humidity to exceed 80 percent. DOE has tentatively determined that the relative humidity requirement for condensing vented heaters of 80 percent is not burdensome to maintain and is likely higher than the highest humidity that would be observed in a home, so, therefore, the test procedure should not affect the potential space humidification feature.

DOE seeks additional comment and data on whether the DHE test method affects DHE utility or performance, specifically including whether there are impacts on features such as air circulation and space humidification.

F. Additional Comment

In response to the February 2019 RFI, Woodall suggested mandating electronically-commutated motors as replacements for permanent split-capacitor motors that are common in the DHE market as a means to reduce power consumption in both vented and unvented systems. (Woodall, No. 2 at p. 1)

A requirement as suggested by the commenter is outside the scope of DOE's authority for DHE as provided under EPCA. At 42 U.S.C. 6291(6), EPCA defines the term ''energy conservation standard'' to mean a performance standard that prescribes a minimum level of energy efficiency or a maximum quantity of energy use (or water use for certain specified covered products), as determined under the applicable DOE test procedure. That same definition does allow for adoption of a design requirement for certain enumerated covered products; however, DHE is not on that list. Thus, the statute does not permit DOE to adopt a standard requiring an electronically-commutated motor, as suggested by Woodall.

G. Test Procedure Costs, Harmonization, and Other Topics

1. Test Procedure Costs and Impact

EPCA requires that test procedures proposed by DOE not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) In this NOPR, DOE proposes to amend the existing test procedures for DHE (including both unvented and vented heaters) by updating definitions regarding unvented heaters, incorporating by reference the most recent versions of several industry standards, explicitly specifying the operational mode for testing units with multiple automatic operational modes, allowing the use of manufacturer-specified values for gas supply pressure in certain circumstances, reducing the number of thermocouples required for measuring the flue gas temperature in models with small flues, clarifying instructions for cyclic condensate mass measurements, and clarifying when radiation shielding is necessary. DOE has tentatively determined that these proposed amendments would not be unduly burdensome for manufacturers to conduct and would not change test burden for manufacturers.

DOE anticipates that the amendments proposed in this NOPR would not increase test costs.

Specifically, DOE is proposing to change certain definitions to unvented heaters. These definitional changes are for consistency, and such changes do not affect the applicability of the test procedures or classification of any unvented heaters. As a result, the definitional changes would not require additional testing or impact testing costs.

DOE is also proposing to update the industry consensus standards incorporated by reference to the most recent versions of those test methods. All of the updated industry consensus standards, except ANSI/ASHRAE 103–2017, do not contain any significant changes in the sections referenced in the DOE test procedures for DHE. For ASNI/ASHRAE 103, the 2017 version differs from the 2007 version currently referenced in the DOE test procedure in relation to the oil pressure measurement

error allowance and the post-purge time for applying default draft factor values. DOE is proposing to adopt the updated standard with modification to retain the oil pressure measurement error allowance and maximum post-purge time for applying default draft factor values from the currently-referenced 2007 version of the standard. These two revisions were the only significant differences between the 2007 and 2017 versions that would potentially impact testing of vented heaters. Retention of these requirements should not result in any additional burden or costs, as manufacturers are already complying with those provisions under the current test procedure.

DOE is proposing to specify that models with multiple automatic operational modes should be tested in the default mode (or similarly-named mode identified for normal operation). If a default mode is not defined in the product literature, the model would be tested in the mode that the equipment operates in as shipped from the manufacturer. As discussed, DOE did not identify any models currently on the market that are capable of multiple automatic operation modes. Thus, DOE tentatively concludes that, if adopted, this change would not require additional testing nor would it impact testing costs.

DOE is proposing to explicitly state the required input rate for the cyclic condensate collection test in section 3.8.2. The proposed input rate instruction is identical to the instruction in section 9.8 of ANSI/ASHRAE 103–2007, which is the industry test procedure on which the cyclic condensate collection test in section 3.8.2 is based. DOE notes this instruction is also included in the most recent version of ANSI/ASHRAE 103–2017. DOE tentatively concludes that because the input rate is not specified in DOE's current test procedure, but is explicitly stated in the industry test method, manufacturers are already testing as instructed by the industry test method. Therefore, this change would not require additional testing, nor would it impact testing costs.

DOE is proposing to allow for use of manufacturer-specified gas inlet pressure ranges when the required input rating (*i.e.,* the nameplate input rating ±2 percent) cannot be achieved at 7–10 inches water column, as currently required in Appendix O. Aside from the tested unit that presented this issue, DOE is unaware of this issue more broadly occurring in manufacturer testing. Were this issue to occur, a valid test as prescribed by the test procedure could not be performed, and a manufacturer would need to seek a waiver from the test procedure under 10 CFR 430.27. DOE has not received any such waivers. As such, this proposal would not require retesting of units on the market and would not be expected to impact test burden.

DOE is proposing a tolerance on the regulator outlet temperature to be within the greater of ±10 percent of the manufacturer-specified manifold pressure or ±0.2 inches water column. This tolerance is consistent with other DOE test procedures and would not be expected to require retesting of units on the market or to impact test burden.

DOE is proposing that the specific gravity of natural gas be between 0.57 and 0.70 and of propane gas be between 1.522 and 1.574. These ranges include the previously required values and align with the industry's required specific value ranges stated in Annex G of ANSI Z21.86–2016. As such, these proposed changes would not require retesting of units on the market and would not be expected to impact test burden.

DOE also proposes to allow the testing agency to determine whether to use nine or five thermocouples when testing models with small (2-inch or less diameter) flues. DOE has tentatively determined that the results of testing with five thermocouples instead of nine would be comparable. In models where the currently required nine thermocouples restrict the flow to the point of causing the unit to operate outside of the allowable test and/or operational conditions (such as the maximum outlet air temperature), a test meeting all the required test conditions cannot be completed. Therefore, for impacted models, this change would allow testing to the required test conditions to be conducted, which are designed to produce results representative of a typical average use cycle. DOE has tentatively determined that performing a test with five thermocouples instead of nine will impose no additional testing costs.

DOE also proposes to clarify the calculation for the allowable variance of the condensate mass measurements during the cyclic condensate test when determining whether to conduct three cycles or six. The proposed wording would not change the intent of the test or the test requirements, nor would it have an impact on test cost.

Finally, DOE proposes to clarify when radiation shielding is necessary to install and, when shielding is necessary, that appropriate shielding materials are used. Radiation shielding requirements are already included in the current test procedure, and the proposed changes would not change the intent of the test or the test requirements, nor would it have an impact on test cost.

DOE has tentatively determined that, should any of these proposed amendments be finalized, manufacturers would be able to rely on data generated under the current test procedure and that retesting should not be necessary.

2. Harmonization With Industry Consensus Standards

As discussed, Appendices G and O incorporate by reference certain provisions of numerous industry standards. Both appendices incorporate by reference IEC 62301 (Edition 2.0, 2011–01), which provides methods for measuring electrical standby mode and off mode power consumption. Appendix O also incorporates by reference ANSI/ASHRAE 103, which is a test method for determining the annual fuel utilization efficiency of residential central furnaces and boilers; ANSI Z21.86, which is a standard for construction and safety performance of vented gas space heating appliance; ASTM D–2156, which is a standard for determining smoke density; and UL 729, UL 730, and UL 896, which are standards pertaining to the installation of oil-fired vented heaters. DOE notes that the only industry standard referenced in Appendix G is IEC 62301.

DOE requests comment on the benefits and burdens of the proposed updates and additions to industry standards referenced in the test procedures for DHE.

H. Compliance Date

EPCA prescribes that, if DOE amends a test procedure, all representations of energy efficiency and energy use, including those made on marketing materials and product labels, must be made in accordance with that amended test procedure, beginning 180 days after publication of such a test procedure final rule in the **Federal Register**. (42 U.S.C. 6293(c)(2)) If DOE were to publish an amended test procedure, EPCA provides an allowance for individual manufacturers to petition DOE for an extension of the 180-day period if the manufacturer may experience undue hardship in meeting the deadline. (42 U.S.C. 6293(c)(3)) To receive such an extension, petitions must be filed with DOE no later than 60 days before the end of the 180-day period and must detail how the manufacturer will experience undue hardship. (*Id.*)

IV. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

The Office of Management and Budget (OMB) has determined that this test procedure proposed rulemaking does not constitute a ''significant regulatory action'' under section 3(f) of Executive Order 12866, ''Regulatory Planning and Review,'' 58 FR 51735 (Oct. 4, 1993). Accordingly, this action was not subject to review under the Executive Order by the Office of Information and Regulatory Affairs (OIRA) in 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 (IRFA) 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 website: *http://energy.gov/gc/office-general-counsel.*

The Small Business Administration (SBA) considers a business entity to be a small business, if, together with its affiliates, it employs less than a threshold number of workers specified in 13 CFR part 121. The size standards and codes are established by the 2017 North American Industry Classification System (NAICS). DHE manufacturers are classified under NAICS code 333414, ''Heating Equipment (except Warm Air Furnaces) Manufacturing.'' The SBA sets a threshold of 500 employees or fewer for an entity to be considered as a small business. DOE used available public information to identify potential small manufacturers of the covered product. DOE accessed the Compliance System Management System's (CCMS) Compliance Certification Database and the AHRI's certified product directory to create a list of companies that import or otherwise manufacture DHE covered by this proposal. Using these sources, DOE identified a total of five manufacturers of DHE. Of these manufacturers, four are potential small businesses. However, due to the nature of DOE's proposed rule, which generally updates the incorporations by reference to the latest version of applicable industry consensus standards (which saw no substantive changes to the relevant provisions) and makes a number of clarifications and minor modifications designed to reduce burden, the Department has tentatively determined that this proposed rule, if finalized, would not impose a significant burden on small manufacturers who produce this specific type of product.

More specifically, in this document, DOE proposes the following changes to the test procedure for unvented and vented heaters, as well as several associated changes to definitions at 10 CFR 430.2. First, to ensure consistent use and application of the test procedure, DOE proposes updates: To the definitions of ''floor electric heater,'' ''primary heater,'' ''unvented gas heater,'' ''unvented home heating equipment,'' ''unvented oil heater,'' ''vented home heating equipment,'' and ''vented room heater''; to update the terms ''primary heater'' and ''supplementary heater'' to ''primary electric heater'' and ''supplementary electric heater,'' respectively; to add the current oil pressure measurement error value to the test procedure; to explicitly state the regulator outlet pressure and specific gravity tolerances for the gas supply; and, to clarify the wording of the cyclic condensate collection test in the calculation of the allowable variance in condensate mass measurements. Second, to align with the most recent industry consensus standards, DOE proposes: To update the references to the industry consensus standards to the most recent versions; to clarify the required input rate for the cyclic condensate collection tests; and, to explicitly state the methods to appropriately shield thermocouples from radiation. Third, to ensure the representativeness of the test procedure, DOE proposes: To explicitly state the operational mode for testing vented heaters with multiple automatic operation modes; to allow for use of manufacturer-specified gas inlet pressure range when the required input rating cannot be reached; and, to reduce the number of thermocouples required for the thermocouple grid in models with small (2-inch diameter or less) flues from nine to five.

All proposed changes are either clarifications to ensure consistent use and application (which does not affect the results of the test procedure or how the test procedure is run) or amendments which ensure the representativeness of the test procedure as compared to products installed in the field. These amendments are all in line with the most recent industry consensus standards.

As stated, DOE has reviewed this proposed rule to amend the test procedures for DHE under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003, and the Department has initially determined that if finalized as proposed, this rulemaking would not have any cost impact. Therefore, DOE initially concludes that the impacts of the test procedure amendments proposed in this NOPR would not have a ''significant economic impact on a substantial number of small entities,'' and that the preparation of an IRFA is not warranted. Accordingly, DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act of 1995

Manufacturers of DHE must certify to DOE that their products comply with any applicable energy conservation standards. To certify compliance, manufacturers must first obtain test data for their products according to the DOE test procedures, including any amendments adopted for those test procedures. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment, including DHE. (*See generally* 10 CFR part 429.) The collection-of-information requirement for certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act (PRA). This requirement has been approved by OMB under OMB control number 1910–1400. Public reporting burden for the certification is estimated to average 35 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

DOE is analyzing this proposed regulation in accordance with the National Environmental Policy Act of

1969 (NEPA) and DOE's NEPA implementing regulations (10 CFR part 1021). DOE's regulations include a categorical exclusion for rulemakings interpreting or amending an existing rule or regulation that does not change the environmental effect of the rule or regulation being amended. 10 CFR part 1021, subpart D, appendix A5. DOE anticipates that this rulemaking qualifies for categorical exclusion A5 because it is an interpretive rulemaking that does not change the environmental effect of the rule and otherwise meets the requirements for application of a categorical exclusion. *See* 10 CFR 1021.410. DOE will complete its NEPA review before issuing the final rule.

E. Review Under Executive Order 13132

Executive Order 13132, ''Federalism,'' 64 FR 43255 (August 4, 1999), imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE 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 this 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, the proposed rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Public Law 104–4, sec. 201 (codified at 2 U.S.C. 1531). For a 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)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed ''significant intergovernmental mandate,'' and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820; also available at *http://energy.gov/gc/office-general-counsel.* DOE examined this 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, so these requirements do not apply.

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

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This proposed rule 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 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 (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 this 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.

The proposed regulatory action to amend the test procedure for measuring the energy efficiency of DHE is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as a significant energy action by the Administrator of OIRA. Therefore, it is not a significant energy action, and, accordingly, DOE has not prepared a Statement of Energy Effects.

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

Under section 301 of the Department of Energy Organization Act (Pub. L. 95–91; 42 U.S.C. 7101), DOE must comply with section 32 of the Federal Energy Administration Act of 1974, as amended by the Federal Energy Administration Authorization Act of 1977 (FEAA). (15 U.S.C. 788) 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 amendments to the Federal test procedure for DHE are primarily in response to modifications to certain sections of the applicable industry consensus standards (*i.e.,* ASNI/ASHRAE 103–2017, ANSI Z21.86–2016, ASTM D2156–09 (2018), IEC 62301 (edition 2.0, 2011–01), UL 729–2016, UL 730–2016, and UL 897–2016). DOE 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.,* whether they were developed in a manner that fully provides for public participation, comment, and review.) DOE will consult with both the Attorney General and the Chairman of the FTC concerning the impact of these test procedures on competition, prior to prescribing a final rule.

M. Description of Materials Incorporated by Reference

In this NOPR, DOE proposes to incorporate by reference the following test standards:

(1) The test standard published by ANSI/ASHRAE, titled ''Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers,'' ANSI/ASHRAE 103–2017. ANSI/ASHRAE 103–2017 is an industry-accepted test procedure for determining the annual fuel utilization efficiency of consumer furnaces and boilers. Specifically, the test procedure amendments proposed by this NOPR reference sections of that industry consensus standard regarding test set-up for oil-fueled DHE (including instrumentation and measurement descriptions for oil burner adjustments), and instructions on calculating jacket losses in vented floor heaters and calculations for draft factors. Copies of ANSI/ASHRAE 103–2017 can be obtained from ASHRAE, 1791 Tullie Circle NE, Atlanta, GA 30329, (800) 527–4723 or (404) 636–8400, or online at: *http://www.ashrae.org.*

(2) The test standard published by ANSI, titled ''Vented Gas-fired Space Heating Appliances,'' ANSI Z21.86–2016. ANSI Z21.86 is an industry-accepted test procedure for vented gas-fired space heating appliances. Specifically, the test procedure amendments proposed by this NOPR reference sections of that industry consensus standard regarding the set-up specifications for vented wall DHE, instructions for gas usage other than natural gas or propane, instructions for measuring discharge temperatures of forced air, vented, wall DHE, and descriptions of thermocouple installation in gas-fueled, vented DHEs. Copies of ANSI Z21.86–2016 can be obtained from ANSI, 25 W 43rd Street, 4th Floor, New York, NY 10036, (212) 642–4900, or online at: *http://www.ansi.org.*

(3) The test standard published by ASTM, titled ''Standard Test Method for Smoke Density in Flue Gases from Burning Distillate Fuels,'' ASTM D2156–09 (2018). ASTM D2156 is an industry-accepted test procedure for measuring smoke density in flue gases from burning distillate fuels. Specifically, the test procedure amendments proposed by this NOPR reference sections of that industry consensus standard regarding providing smoke density levels which are measured during for the steady-state test. Copies of ASTM D2156–09 (2018) can be obtained from ASTM, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428–2959 or online at: *www.astm.org.*

(4) The test standard published by IEC, titled ''Household electrical appliances-Measurement of standby power,'' IEC 62301 (Edition 2.0, 2011–01). IEC 62301 is an industry-accepted test procedure for the measurement of standby power modes in household electrical appliances. Specifically, the test procedure amendments proposed by this NOPR reference sections of that industry consensus standard regarding measurment of electrical standby mode and off mode power consumption. Copies of IEC 62301 (Second Edition) can be obtained from the American National Standards Institute, 25 W 43rd Street, 4th Floor, New York, NY 10036, (212) 642–4900, or online at: *http://webstore.ansi.org.*

(5)–(7) The test standards published by UL: ''Standard for Safety for Oil-fired Floor Furnaces,'' ''Standard for Safety for Oil-fired Wall Furnaces,'' and ''Standard for Safety for Oil-burning Stoves,'' UL 729–2016, UL 730–2016, and UL 896–2016, respectively. UL 729, UL 730, UL 896 are industry-accepted test procedures for oil-fired floor furnaces, oil-fired wall furnaces, and oil-burning stoves respectively. Specifically, the test procedure amendments proposed by this NOPR reference sections of those industry consensus standards regarding vented floor and wall DHE test installation and instructions for flue and thermocouple installation for oil fueled, vented floor DHEs. Copies of UL 729–2016, UL 730–2016, and UL 896–2016 can be obtained from UL at 2600 NW Lake Rd., Camas, WA 98607–8542 or online at: *www.ul.com.*

V. Public Participation

A. Participation in the Webinar

The time and date of the webinar are listed in the **DATES** section at the beginning of this document. Webinar registration information, participant instructions, and information about the capabilities available to webinar participants will be published on DOE's website: *http://www1.eere.energy.gov/buildings/appliance_standards/product.aspx/productid/41.* Participants are responsible for ensuring their systems are compatible with the webinar software.

B. Procedure for Submitting Prepared General Statements for Distribution

Any person who has an interest in the topics addressed in this proposed rulemaking, or who is 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 webinar. Such persons may submit requests to speak by email to the Appliance and Equipment Standards Program, *ApplianceStandardsQuestions@ee.doe.gov*. Persons who wish to speak should include with their request a computer file 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.

Persons requesting to speak should briefly describe the nature of their interest in this rulemaking and provide a telephone number for contact. DOE requests persons selected to make an oral presentation to submit an advance copy of their statements at least two weeks before the webinar. At its discretion, 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 Office. As necessary, requests to give an oral presentation should ask for such alternative arrangements.

C. Conduct of the Webinar

DOE will designate a DOE official to preside at the webinar 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 webinar. 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 webinar and until the end of the comment period, interested parties may submit further comments on the proceedings and any aspect of the rulemaking.

The webinar will be conducted in an informal, conference style. DOE will present summaries of comments received before the webinar, 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 webinar 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 webinar.

A transcript of the webinar will be included in the docket, which can be viewed as described in the *Docket* section at the beginning of this NOPR. 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 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 document.

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

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

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

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

Submitting comments via email. Comments and documents submitted via email 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 in 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. 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 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 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. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

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 comment on its proposed changes to the definitions for ''electric heater,'' ''primary heater,'' ''unvented gas heater,'' ''unvented home heating equipment,'' and ''unvented oil heater'' in 10 CFR 430.2, as well as on its proposed change in terminology from ''primary heater'' and ''supplementary heater'' to ''primary electric heater'' and ''supplementary electric heater,'' respectively.

(2) DOE requests comment on its proposed changes to the definitions for ''vented home heating equipment'' and ''vented room heater'' in 10 CFR 430.2. DOE also requests additional comment on the definitions for vented home heating equipment in section 1.0 of Appendix O, and on its tentative determination that no changes are necessary.

(3) DOE seeks comment on its proposal to incorporate by reference ANSI/ASHRAE 103–2017 with modifications. In particular, DOE is interested in receiving comment on its proposal to add the oil pressure measurement error value, which was omitted from ANSI/ASHRAE 103–2017, to Appendix O, and on its proposal to remove the mention of sections 8.8.3 and 9.10 within section 3.6.2.4.2 of Appendix O.

(4) DOE requests comment on its tentative determination to not include standby mode and off mode energy consumption into the annual energy consumption for unvented heaters.

(5) DOE requests comment on its proposal with regard to the automatic operational mode for testing models with multiple automatic operation modes. DOE requests data and information on the consumer use of different automatic operational modes when offered on a vented heater. DOE is interested in receiving comment on the characteristics of the mode recommended by manufacturers for normal operation, on how such mode is described in the manufacturer's installation and operations manual when provided, and on which models currently available on the market include multiple automatic operation modes.

(6) DOE requests comment on its proposals to allow a manufacturer-specified value for gas supply pressure if test conditions are not achievable at a gas supply pressure of 7 to 10 inches water column for natural gas or 11–13 inches water column for propane gas, to require the regulator outlet pressure be within the greater of ± 10 percent of the manufacturer-specified manifold pressure or ± 0.2 inches water column, to require the specific gravity of natural gas be between 0.57 and 0.70 and for propane gas be between 1.522 and 1.574, to remove the phrase ''normal'' from sections 2.3.1 and 2.3.2 of Appendix O, and to replace ''normal hourly Btu input rating'' with ''maximum hourly Btu input rating'' within section 2.4.2 of Appendix O.

(7) DOE seeks comment on its proposal to allow the use of five thermocouples, rather than nine thermocouples, in vented heaters with a vent diameter of 2 inches or less.

(8) DOE requests comment on its proposal to specify input rate instructions for the cyclic condensate collection test.

(9) DOE requests comment on its proposed rewording of the variance condition between cycles to clarify that the standard deviation must be less than or equal to 20 percent of the mean, for determining whether the cyclic condensate mass collection must be performed for three cycles or six cycles.

(10) DOE requests comment its proposed changes to the radiation shielding requirements within sections 2.6.1, 2.6.2, and 2.9 of Appendix O. In particular, DOE seeks information as to what methods are currently being used to determine whether a thermocouple would require a radiation shield and also what types of materials are currently used as radiation shields.

(11) DOE seeks additional comment and data on whether the DHE test method affects DHE utility or performance, specifically including whether there are impacts on features such as air circulation and space humidification.

(12) DOE requests comment on the benefits and burdens of the proposed updates and additions to industry standards referenced in the test procedures for DHE.

VI. Approval of the Office of the Secretary

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

List of Subjects in 10 CFR Part 430

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

Signing Authority

This document of the Department of Energy was signed on April 2, 2021, by Kelly Speakes-Backman, Principal Deputy Assistant Secretary and Acting Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on April 2, 2021.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

For the reasons stated in the preamble, DOE is proposing to amend part 430 of Chapter II of Title 10, Code of Federal Regulations as set forth below:

PART 430—ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

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

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

■ 2. Section 430.2 is amended by revising the definitions of ''Electric heater,'' ''Floor electric heater,'' ''Primary heater,'' ''Supplementary heater,'' ''Unvented gas heater,'' ''Unvented home heating equipment or unvented heater,'' ''Unvented oil heater,'' ''Vented home heating equipment or vented heater,'' and ''Vented room heater'' to read as follows:

§ 430.2 Definitions.

* * * * *

Electric heater means an electric appliance which is a class of unvented home heating equipment in which heat is generated from electrical energy and dissipated by convection and radiation and includes baseboard electric heaters, ceiling electric heaters, floor electric heaters, portable electric heaters, and wall electric heaters.

* * * * *

Floor electric heater means an electric heater which is intended to be recessed in a floor, and which transfers heat by radiation and/or convection (either natural or forced).

* * * * *

Primary electric heater means an electric heater that is the principal source of heat for a structure and includes baseboard electric heaters, ceiling electric heaters, floor electric heaters, and wall electric heaters.

* * * * *

Supplementary electric heater means an electric heater that provides heat to a space in addition to that which is supplied by a primary electric heater and includes portable electric heaters.

* * * * *

Unvented gas heater means a class of unvented home heating equipment which is a self-contained, free-standing, nonrecessed gas-burning appliance that furnishes heated air by gravity or fan circulation.

Unvented home heating equipment or unvented heater means a class of home heating equipment, not including furnaces, designed to furnish heated air to a space proximate to such heater, directly from the heater, without inlet duct connections and without exhaust venting, and includes: Electric heater, unvented gas heater, and unvented oil heater.

Unvented oil heater means a class of unvented home heating equipment which is a self-contained, free-standing, nonrecessed oil-burning appliance that furnishes heated air by gravity or fan circulation.

* * * * *

Vented home heating equipment or vented heater means a class of home heating equipment, not including furnaces, designed to furnish heated air to a space proximate to such heater, directly from the heater, without inlet duct connections (except that boots not to exceed 10 inches beyond the casing may be permitted), and with exhaust venting, and includes: Vented wall furnace, vented floor furnace, and vented room heater.

Vented room heater means a self-contained, free standing, nonrecessed, vented heater for furnishing heated air to the space in which it is installed. The vented room heater supplies heated air circulated by gravity or by a fan directly into the space to be heated through openings in the casing.

* * * * *

■ 3. Section 430.3 is amended by:
■ a. Revising paragraphs (e)(25) and (g)(12);
■ b. Redesignating paragraphs (g)(13) and (14) as (g)(14) and (15), respectively;
■ c. Adding new paragraph (g)(13);
■ d. Revising paragraph (j)(1) and adding paragraph (j)(3); and
■ e. Revising paragraphs (v)(1) through (3).

The revisions and additions read as follows:

§ 430.3 Materials incorporated by reference.

* * * * *

(e) * * *

(25) ANSI Z21.86–2016, (''ANSI Z21.86–2016''), Vented Gas-Fired Space Heating Appliances, Sixth Edition, approved December 21, 2016, IBR approved for appendix O to subpart B.

* * * * *

(g) * * *

(12) ANSI/ASHRAE Standard 103–2007, (''ASHRAE 103–2007''), Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers, ANSI approved March 25, 2008, IBR approved for appendix AA to subpart B.

(13) ANSI/ASHRAE Standard 103–2017, (''ASHRAE 103–2017''), Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers, ANSI approved July 3, 2017, IBR approved for appendix O to subpart B.

* * * * *

(j) * * *

(1) ASTM D2156–09, (''ASTM D2156''), Standard Test Method for Smoke Density in Flue Gases from Burning Distillate Fuels, ASTM approved December 1, 2009, IBR approved for appendix E to subpart B.

* * * * *

(3) ASTM D2156–09 (Reapproved 2018) (''ASTM D2156–09 (RA 2018)''), Standard Test Method for Smoke Density in Flue Gases from Burning Distillate Fuels, approved October 1, 2018, IBR approved for appendix O to subpart B.

* * * * *

(v) * * *

(1) UL 729–2003 (''UL 729–2003 (RA 2016)''), Standard for Safety for Oil-Fired Floor Furnaces, Sixth Edition, dated August 29, 2003, including revisions through November 22, 2016, IBR approved for appendix O to subpart B.

(2) UL 730–2003 (''UL 730–2003 (RA 2016)''), Standard for Safety for Oil-Fired Wall Furnaces, Fifth Edition, dated August 29, 2003, including revisions through November 22, 2016, IBR approved for appendix O to subpart B.

(3) UL 896–1993 (''UL 896–1993 (RA 2016)''), Standard for Safety for Oil-Burning Stoves, Fifth Edition, dated July 29, 1993, including revisions through November 22, 2016, IBR approved for appendix O to subpart B.

■ 4. Appendix O to subpart B of part 430 is amended by:
■ a. Revising the introductory note;
■ b. Adding section 0; and
■ c. Revising sections 2.0, 3.1.2, 3.2, 3.6.2.4.2, and 3.8.2;

The additions and revisions read as follows:

Appendix O to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of Vented Home Heating Equipment

Note: Prior to [*DATE 180 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE* ***Federal Register***], representations with respect to the energy use or efficiency of vented home heating equipment, including compliance certifications, must be based on testing conducted in accordance with either this appendix as it now appears or appendix O as it appeared at 10 CFR part 430, subpart B revised as of January 1, 2019.

On and after [*DATE 180 DAYS AFTER DATE OF PUBLICATION OF THE FINAL RULE IN THE* ***Federal Register***], representations with respect to energy use or efficiency of vented home heating equipment, including compliance certifications, must be based on testing conducted in accordance with this appendix.

0. Incorporated by Reference

DOE incorporated by reference in § 430.3: ANSI Z21.86–2016; ASHRAE Standard 103–

2017; ASTM D2156–09 (2018); IEC 62301; UL 729–2003 (RA 2016); UL 730–2003 (RA 2016); and UL 896–1993– (RA 2016) in their entirety. However, only enumerated provisions of ANSI Z21.86–2016; ASHRAE 103–2017, UL 729–2003 (RA 2016), UL 730–2003 (RA 2016); and UL 896–1993 (RA 2016) are applicable to this appendix, as follows:

(1) ANSI Z21.86–2016
  (i) Section 5.2—Test gases
  (ii) Section 9.1.3
  (iii) Section 11.1.3
  (iv) Section 11.7—Temperature at discharge air opening and surface temperatures
(2) ASHRAE 103–2017
  (i) Section 6—INSTRUMENTS
  (ii) Section 8.2.2.3.1—Oil Supply
  (iii) Section 8.6—Jacket Loss Measurement
  (iv) Section 8.8.3—Additional Optional Method of Testing for Determining D_P and D_F for Furnaces and Boilers
  (v) Section 9.10—Optional Test Procedures for Condensing Furnaces and Boilers that Have no OFF-Period Flue Losses
(3) UL 729–2003 (RA 2016)
  (i) Section 38.1—Enclosure
  (ii) Section 38.2—Chimney connector
(4) UL 730–2003 (RA 2016)
  (i) Section 36.1—Enclosure
  (ii) Section 36.2—Chimney connector
  (iii) Sections 37.5.8 through 37.5.18
(5) UL 896–1993 (RA 2016)
  (i) Section 37.1.2
  (ii) Section 37.1.3

* * * * *

2.0 Testing conditions.

2.1 *Installation of test unit.*

2.1.1 *Vented wall furnaces (including direct vent systems).* Install non-direct vent gas fueled vented wall furnaces as specified in section 11.1.3 of ANSI Z21.86–2016 (incorporated by reference, see § 430.3). Install direct vent gas fueled vented wall furnaces as specified in section 9.1.3 of ANSI Z21.86–2016 (incorporated by reference, see § 430.3). Install oil-fueled vented wall furnaces as specified in section 36.1 of UL 730–2016 (incorporated by reference, see § 430.3).

2.1.2 *Vented floor furnaces.* Install vented floor furnaces for test as specified in section 38.1 of UL 729–2003 (RA 2016) (incorporated by reference, see § 430.3).

2.1.3 *Vented room heaters.* Install vented room heaters for test in accordance with the manufacturer's installation and operations (I&O) manual provided with the unit.

2.2 *Flue and stack requirements.*

2.2.1 *Gas fueled vented home heating equipment employing integral draft diverters and draft hoods (excluding direct vent systems).* Attach to, and vertically above the outlet of gas-fueled vented home heating equipment employing draft diverters or draft hoods with vertically discharging outlets, a five (5) foot long test stack having a cross-sectional area the same size as the draft diverter outlet.

Attach to the outlet of vented heaters having a horizontally discharging draft diverter or draft hood outlet a 90 degree elbow, and a five (5) foot long vertical test stack. A horizontal section of pipe may be used on the floor furnace between the diverter and the elbow, if necessary, to clear any framing used in the installation. Use the minimum length of pipe possible for this section. Use stack, elbow, and horizontal section with same cross-sectional area as the diverter outlet.

2.2.2 *Oil-fueled vented home heating equipment (excluding direct vent systems).* Use flue connections for oil-fueled vented floor furnaces as specified in section 38.2 of UL 729–2003 (RA 2016), sections 36.2 of UL 730–2003 (RA 2016) for oil-fueled vented wall furnaces, and sections 37.1.2 and 37.1.3 of UL 896–1993 (RA 2016) (all incorporated by reference, see § 430.3) for oil-fueled vented room heaters.

2.2.3 *Direct vent systems.* Have the exhaust/air intake system supplied by the manufacturer in place during all tests. Test units intended for installation with a variety of vent pipe lengths with the minimum length recommended by the manufacturer in the I&O manual. Do not connect a heater employing a direct vent system to a chimney or induced draft source. Vent the gas solely on the provision for venting incorporated in the heater and the vent/air intake system supplied with it.

2.2.4 *Condensing vented heater, additional flue requirements.* The flue pipe installation must not allow condensate formed in the flue pipe to flow back into the unit. An initial downward slope from the unit's exit, an offset with a drip leg, annular collection rings, or drain holes must be included in the flue pipe installation without disturbing normal flue gas flow. Flue gases should not flow out of the drain with the condensate. For condensing vented heaters that do not include means for collection of condensate, a means to collect condensate must be supplied by the test lab for the purposes of testing.

2.3 *Fuel supply.*

2.3.1 *Natural gas.* For a gas-fueled vented heater, maintain the gas supply to the unit under test at an inlet test pressure immediately ahead of all controls at 7 to 10 inches water column. If the heater is equipped with a gas appliance pressure regulator, maintain the regulator outlet pressure within the greater of ±10 percent of the manufacturer's specified manifold pressure on the nameplate of the unit or in the I&O manual or ±0.2 inches water column. Use natural gas having a specific gravity between 0.57 and 0.70 and a higher heating value within ±5 percent of 1,025 Btus per standard cubic foot. Determine the actual higher heating value in Btu's per standard cubic foot for the natural gas to be used in the test with an error no greater than one percent. If the burner cannot be adjusted to obtain a heat input rate of within ±2 percent of the hourly Btu rating specified by the manufacturer on the nameplate of the unit or in the I&O manual, as required by section 2.4.1, the gas supply to the unit under test at an inlet test pressure immediately ahead of all controls may be set to any value within the range specified on the nameplate of the unit or in the I&O manual.

2.3.2 *Propane gas.* For a propane-gas-fueled vented heater, maintain the gas supply to the unit under test at an inlet pressure of 11 to 13 inches water column. If the heater is equipped with a gas appliance pressure regulator, maintain the regulator outlet pressure within the greater of ± 10 percent of the manufacturer's specified manifold pressure on the nameplate of the unit or in the I&O manual or ± 0.2 inches water column . Use propane having a specific gravity between 1.522 and 1.574 and a higher heating value within ±5 percent of 2,500 Btus per standard cubic foot. Determine the actual higher heating value in Btu's per standard cubic foot for the propane to be used in the test. If the burner cannot be adjusted to obtain a heat input rate of within ± 2 percent of the hourly Btu rating specified by the manufacturer on the nameplate of the unit or in the I&O manual, as required by section 2.4.1, the gas supply to the unit under test at an inlet test pressure immediately ahead of all controls may be set to any value within the range specified on the nameplate of the unit or in the I&O manual.

2.3.3 *Other test gas.* For vented heaters fueled by other test gases, use test gases with characteristics as described in Table 3 of section 5.2 of ANSI Z21.86–2016 (incorporated by reference, see § 430.3). Use gases with a measured higher heating value within ±5 percent of the values specified in Table 3 of section 5.2 of ANSI Z21.86–2016. Determine the actual higher heating value of the gas used in the test with an error no greater than one percent.

2.3.4 *Oil supply.* For an oil-fueled vented heater, use No. 1 fuel oil (kerosene) for vaporizing-type burners and either No. 1 or No. 2 fuel oil, as specified by the manufacturer in the I&O manual provided with the unit, for mechanical atomizing type burners. Use test fuel conforming to the specifications given in Tables 2 and 3 of section 8.2.2.3.1 of ASHRAE 103–2017 (incorporated by reference, see § 430.3). Measure the higher heating value of the test fuel within ±1 percent.

2.3.5 *Electrical supply.* For auxiliary electric components of a vented heater, maintain the electrical supply to the test unit within ±1 percent of the nameplate voltage for the entire test cycle. If a voltage range is used for nameplate voltage, maintain the electrical supply within ±1 percent of the mid-point of the nameplate voltage range.

2.4 *Burner adjustments.*

2.4.1 *Gas burner adjustments.* Adjust the burners of gas-fueled vented heaters to their maximum Btu ratings at the test pressure specified in section 2.3 of this appendix. Correct the burner volumetric flow rate to 60 °F (15.6C) and 30 inches of mercury barometric pressure, set the fuel flow rate to obtain a heat rate of within ±2 percent of the hourly Btu rating specified by the manufacturer on the nameplate of the unit or the I&O manual as measured after 15 minutes of operation, starting with all parts of the vented heater at room temperature. Set the primary air shutters in accordance with the manufacturer's recommendations on the nameplate of the unit or the I&O manual to give a good flame at this adjustment. Do not allow the deposit of carbon during any test specified herein.

If a vent limiting means is provided on a gas pressure regulator, have it in place during all tests.

For gas-fueled heaters with modulating controls, adjust the controls to operate the

heater at the maximum fuel input rate. Set the thermostat control to the maximum setting. Start the heater by turning the safety control valve to the ''on'' position. In order to prevent modulation of the burner at maximum input, place the thermostat sensing element in a temperature control bath which is held at a temperature below the maximum set point temperature of the control.

For gas-fueled heaters with modulating controls, adjust the controls to operate the heater at the reduced fuel input rate. Set the thermostat control to the minimum setting. Start the heater by turning the safety control valve to the ''on'' position. If ambient test room temperature is above the lowest control set point temperature, initiate burner operation by placing the thermostat sensing element in a temperature control bath that is held at a temperature below the minimum set point temperature of the control.

2.4.2 *Oil burner adjustments.* Adjust the burners of oil-fueled vented heaters to give the CO_2 reading recommended by the manufacturer and an hourly Btu input, during the steady-state performance test described below, which is within ±2 percent of the heater manufacturer's specified hourly Btu input rating on the nameplate of the unit or in the I&O manual . On units employing a power burner, do not allow smoke in the flue to exceed a No. 1 smoke during the steady-state performance test as measured by the procedure in ASTM D2156–09 (RA 2018) (incorporated by reference, see § 430.3). If, on units employing a power burner, the smoke in the flue exceeds a No. 1 smoke during the steady-state test, readjust the burner to give a lower smoke reading, and, if necessary, a lower CO_2 reading, and start all tests over. Maintain the average draft over the fire and in the flue during the steady-state performance test at that recommended by the manufacturer within ±0.005 inches of water gauge. Do not make additional adjustments to the burner during the required series of performance tests. The instruments and measuring apparatus for this test are described in section 6 and shown in Figure 8 of ASHRAE 103–2017. Calibrate instruments for measuring oil pressure so that the error is no greater than ±0.5 psi.

2.5 *Circulating air adjustments.*

2.5.1 *Forced-air vented wall furnaces (including direct vent systems).* During testing, maintain the air flow through the heater as specified by the manufacturer in the I&O manual provided with the unit and operate the vented heater with the outlet air temperature between 80 °F and 130 °F above room temperature. If adjustable air discharge registers are provided, adjust them so as to provide the maximum possible air restriction. Measure air discharge temperature as specified in section 11.7.2 of ANSI Z21.86–2016.

2.5.2 *Fan-type vented room heaters and floor furnaces.* During tests on fan-type furnaces and heaters, adjust the air flow through the heater as specified by the manufacturer. If adjustable air discharge registers are provided, adjust them to provide the maximum possible air restriction.

2.6 *Location of temperature measuring instrumentation.*

2.6.1 *Gas-fueled vented home heating equipment (including direct vent systems).* Install thermocouples for measuring the heated air temperature as described in section 11.7.5 of ANSI Z21.86–2016. Establish the temperature of the inlet air by means of a single No. 24 AWG bead-type thermocouple located in the center of the plane of each inlet air opening. Use bead-type thermocouples having wire size not greater than No. 24 American Wire Gauge (AWG). If a thermocouple has a direct line of sight with the fire, install a radiation shield, meeting the material and minimum thickness requirements from section 8.14.1 of ANSI Z21.86–2016, on the fire side of the thermocouple only and position the shield so that it does not touch the thermocouple junction.

2.6.1.1 *Integral draft diverter.* For units employing an integral draft diverter, install nine thermocouples, wired in parallel, in a horizontal plane in the five foot test stack located one foot from the test stack inlet. Equalize the length of all thermocouple leads before paralleling. Locate one thermocouple in the center of the stack. Locate eight thermocouples along imaginary lines intersecting at right angles in this horizontal plane at points one third and two thirds of the distance between the center of the stack and the stack wall.

For units with a stack diameter 2 inches or less, five thermocouples may be installed instead of nine. Locate one thermocouple in the center of the stack. Locate four thermocouples along imaginary lines intersecting at right angles in this horizontal plane at points halfway between the center of the stack and the stack wall.

2.6.1.2 *Direct vent system.* For units which employ a direct vent system, locate at least one thermocouple at the center of each flue way exiting the heat exchanger. Provide radiation shields if the thermocouples are exposed to burner radiation.

2.6.1.3 *Draft hood or direct vent system which does not intentionally preheat incoming air.* For units which employ a draft hood or units which employ a direct vent system which does not intentionally preheat the incoming combustion air, such as a non-concentric direct vent system, install nine thermocouples, wired in parallel, in a horizontal plane located within 12 inches (304.8 mm) of the heater outlet and upstream of the draft hood on units so equipped. Locate one thermocouple in the center of the pipe and eight thermocouples along imaginary lines intersecting at right angles in this horizontal plane at points one third and two thirds of the distance between the center of the pipe and the pipe wall.

For units with a flue pipe diameter of 2 inches or less, five thermocouples may be installed instead of nine. Locate one thermocouple in the center of the pipe and four thermocouples along imaginary lines intersecting at right angles in this horizontal plane at points halfway between the center of the pipe and the pipe wall.

2.6.1.4 *Direct vent system which intentionally preheat incoming air.* For units which employ direct vent systems that intentionally preheat the incoming combustion air, such as a concentric direct vent system, install nine thermocouples, wired in parallel, in a plane parallel to and located within 6 inches (152.4 mm) of the vent/air intake terminal. Equalize the length of all thermocouple leads before paralleling. Locate one thermocouple in the center of the flue pipe and eight thermocouples along imaginary lines intersecting at right angles in this plane at points one third and two thirds of the distance between the center of the flue pipe and the pipe wall.

For units with a flue pipe diameter of 2 inches or less, five thermocouples may be installed instead of nine. Locate one thermocouple in the center of the flue pipe and four thermocouples along imaginary lines intersecting at right angles in this plane at points halfway between the center of the flue pipe and the pipe wall.

2.6.2 *Oil-fueled vented home heating equipment (including direct vent systems).* Install thermocouples for measuring the heated air temperature as described in sections 37.5.8 through 37.5.18 of UL 730–2003 (RA 2016) . Establish the temperature of the inlet air by means of a single No. 24 AWG bead-type thermocouple located in the center of the plane of each inlet air opening. Use bead-type thermocouples having a wire size not greater than No. 24 AWG. If there is a thermocouple that has a direct line of sight with the fire, install a radiation shield, meeting the material and minimum thickness requirements from section 8.14.1 of ANSI Z21.86–2016, on the fire side of the thermocouple only and position the shield so that it does not touch the thermocouple junction.

Install nine thermocouples, wired in parallel and having equal length leads, in a plane perpendicular to the axis of the flue pipe. Locate this plane at the position shown in Figure 36.4 of UL 730–2003 (RA 2016), or Figure 38.1 and 38.2 of UL 729–2003 (RA 2016) for a single thermocouple, except that on direct vent systems which intentionally preheat the incoming combustion air, locate this plane within 6 inches (152.5 mm) of the outlet of the vent/air intake terminal. Locate one thermocouple in the center of the flue pipe and eight thermocouples along imaginary lines intersecting at right angles in this plane at points one third and two thirds of the distance between the center of the pipe and pipe wall.

For units with a flue pipe diameter of 2 inches or less, five thermocouples may be installed instead of nine. Wire the thermocouples in parallel with equal length leads, in a plane perpendicular to the axis of the flue pipe. Locate this plane at the position shown in Figure 36.4 of UL 730–2003 (RA 2016), or Figure 38.1 and 38.2 of UL 729–2003 (RA 2016) for a single thermocouple, except that on direct vent systems which intentionally preheat the incoming combustion air, locate this plane within 6 inches (152.5 mm) of the outlet of the vent/air intake terminal. Locate one thermocouple in the center of the flue pipe and four thermocouples along imaginary lines intersecting at right angles in this plane at points halfway between the center of the pipe and pipe wall.

2.7 *Combustion measurement instrumentation.* Analyze the samples of

stack and flue gases for vented heaters to determine the concentration by volume of carbon dioxide present in the dry gas with instrumentation which will result in a reading having an accuracy of ±0.1 percentage point.

2.8 *Energy flow instrumentation.* Install one or more instruments, which measure the rate of gas flow or fuel oil supplied to the vented heater, and if appropriate, the electrical energy with an error no greater than one percent.

2.9 *Room ambient temperature.* The room ambient temperature shall be the arithmetic average temperature of the test area, determined by measurement with four No. 24 AWG bead-type thermocouples with junctions shielded against radiation using shielding meeting the material and minimum thickness requirements from section 8.14.1 of ANSI Z21.86–2016, located approximately at 90-degree positions on a circle circumscribing the heater or heater enclosure under test, in a horizontal plane approximately at the vertical midpoint of the appliance or test enclosure, and with the junctions approximately 24 inches from sides of the heater or test enclosure and located so as not to be affected by other than room air.

The value T_{RA} is the room ambient temperature measured at the last of the three successive readings taken 15 minutes apart described in section 3.1.1 or 3.1.2 as applicable. During the time period required to perform all the testing and measurement procedures specified in section 3.0 of this appendix, maintain the room ambient temperature within ±5 °F (±2.8 C) of the value T_{RA}. At no time during these tests shall the room ambient temperature exceed 100 °F (37.8 C) or fall below 65 °F (18.3 C).

Locate a thermocouple at each elevation of draft relief inlet opening and combustion air inlet opening at a distance of approximately 24 inches from the inlet openings. The temperature of the air for combustion and the air for draft relief shall not differ more than ±5 °F from the room ambient temperature as measured above at any point in time. This requirement for combustion air inlet temperature does not need to be met once the burner is shut off during the testing described in sections 3.3 and 3.6 of this appendix.

2.10 *Equipment used to measure mass flow rate in flue and stack.* The tracer gas chosen for this task should have a density which is less than or approximately equal to the density of air. Use a gas unreactive with the environment to be encountered. Using instrumentation of either the batch or continuous type, measure the concentration of tracer gas with an error no greater than 2 percent of the value of the concentration measured.

2.11 *Equipment with multiple control modes.*

2.11.1 For equipment that has both manual and automatic thermostat control modes, test the unit according to the procedure for its automatic control mode, *i.e.* single-stage, two-stage, or step-modulating.

2.11.2 For equipment that has multiple automatic thermostat control modes, test in the default mode (or similarly-named mode identified for normal operation) as defined by the manufacturer in its I&O manual. If a default mode is not defined in the I&O manual, test in the mode that the equipment operates in as shipped from the manufacturer.

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3.1.2 *Oil-fueled vented home heating equipment (including direct vent systems).* Set up and adjust the vented heater as specified in sections 2.1, 2.2, and 2.3.4 of this appendix. Begin the steady-state performance test by operating the burner and the circulating air blower, on units so equipped, with the adjustments specified by sections 2.4.2 and 2.5 of this appendix, until steady-state conditions are attained as indicated by a temperature variation of not more than ±5 °F (2.8 C) in the flue gas temperature in three successive readings taken 15 minutes apart. The measurements described in this section are to coincide with the last of these 15 minutes readings.

For units equipped with power burners, do not allow smoke in the flue to exceed a No. 1 smoke during the steady-state performance test as measured by the procedure described in ASTM D2156–09 (RA 2018). Maintain the average draft over the fire and in the breeching during the steady-state performance test at that recommended by the manufacturer ±0.005 inches of water gauge.

Measure the room temperature (T_{RA}) as described in section 2.9 of this appendix. Measure the steady-state flue gas temperature ($T_{F,SS}$) using nine thermocouples located in the flue pipe as described in section 2.6.2 of this appendix. From the plane where $T_{F,SS}$ was measured, collect a sample of the flue gas and determine the concentration by volume of CO_2 (X_{CO2F}) present in dry flue gas. Measure and record the steady-state heat input rate (Q_{in}).

For manually controlled oil fueled vented heaters, determine the steady-state efficiency at a fuel input rate that is within ±5 percent of 50 percent of the maximum fuel input rate; or, if the design of the heater is such that the fuel input rate cannot be set to ±5 percent of 50 percent of the maximum rated fuel input rate, determine the steady-state efficiency at the minimum rated fuel input rate as measured in section 3.1.2 of this appendix for manually controlled oil fueled vented heaters.

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3.2 *Jacket loss measurement.* Conduct a jacket loss test for vented floor furnaces. Measure the jacket loss (Lj) in accordance with ASHRAE 103–2017 section 8.6, applying the provisions for furnaces and not the provisions for boilers.

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3.6.2.4.2 If absolutely no smoke is drawn into the combustion air intake, the vented heater meets the requirements to allow use of the default draft factor of 0.05.

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3.8.2 *Cyclic condensate collection tests.* If existing controls do not allow for cyclical operation of the tested unit, install control devices to allow cyclical operation of the vented heater. Run three consecutive test cycles. For each cycle, operate the unit until flue gas temperatures at the end of each on-cycle, rounded to the nearest whole number, are within 5 °F of each other for two consecutive cycles. On-cycle and off-cycle times are 4 minutes and 13 minutes respectively. Control of ON and OFF operation actions shall be within ±6 seconds of the scheduled time. For fan-type vented heaters, maintain circulating air adjustments as specified in section 2.5 of this appendix. Begin condensate collection at one minute before the on-cycle period of the first test cycle. Remove the container one minute before the end of each off-cycle period. Measure condensate mass for each test-cycle. The error associated with the mass measurement instruments shall not exceed ±0.5 percent of the quantity measured.

Record fuel input during the entire test period starting at the beginning of the on-time period of the first cycle to the beginning of the on-time period of the second cycle, from the beginning of the on-time period of the second cycle to the beginning of the on-time period of the third cycle, *etc.,* for each of the test cycles. Record fuel HHV, temperature, and pressure necessary for determining fuel energy input, Q_C. Determine the mass of condensate for each cycle, M_C, in pounds. If at the end of three cycles, the sample standard deviation is less than or equal to 20 percent of the mean value for three cycles, use total condensate collected in the three cycles as Mc; if not, continue collection for an additional three cycles and use the total condensate collected for the six cycles as M_C. Determine the fuel energy input, Q_C, during the three or six test cycles, expressed in Btu.

For units with step-modulating controls, conduct the cyclic condensate collection test at reduced input rate only. For units with two-stage controls, the cyclic condensate collection test is conducted at both maximum and reduced input rates unless the balance-point temperature (T_C) as determined in section 4.1.10 of this Appendix O is equal to or less than the typical outdoor design temperature of 5 °F (−5 °C), in which case test at reduced input rate only.

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DEPARTMENT OF ENERGY

10 CFR Parts 429 and 431

[EERE–2020–BT–TP–0032]

Energy Conservation Program: Test Procedure for Commercial & Industrial Pumps

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

ACTION: Request for information.

SUMMARY: The U.S. Department of Energy (''DOE'') is undertaking the preliminary stages of a rulemaking to consider amendments to the test procedure for Commercial and Industrial Pumps (''pumps''). Through this request for information (''RFI''), DOE seeks data and information