expenditures of $75,800 and a $0.15 per hundredweight assessment rate. The Committee expects the industry to handle 426,000 hundredweight of assessable dates during the 2023–2024 crop year. Thus, at the $0.15 per hundredweight rate, the Committee anticipates $63,900 in assessment income (426,000 multiplied by $0.15). The Committee also expects to utilize surplus allocation ($5,100) and the Committee's monetary reserve ($6,800) to cover the remaining $11,900 of expenses. Income derived from all sources are expected to be adequate to meet budgeted expenditures for the 2023–2024 crop year. The Committee's reserve balance (approximately $49,400 at the end of the 2023–2024 crop year) will be maintained at a level that the Committee believes is appropriate and is compliant with the provisions of the Order.

The Committee's budgeted expenditures for the 2023–2024 crop year total $75,800. The Committee's expenses include $48,000 for management services, $16,800 for office administration, and $11,000 for the financial audit. In comparison, the previous crop year's total budget was $77,250, with $48,000 for management services, $19,750 for office administration, and $9,500 for the financial audit.

Prior to arriving at the budget and assessment rate, the Committee discussed various alternatives. However, the Committee determined that the assessment rate established herein will be able to reduce the financial burden on the industry without drawing down reserves to an unsustainable rate. The assessment rate of $0.15 per hundredweight of assessable dates was derived by considering anticipated expenses, the projected volume of dates handled, the projected monetary balance held in reserve, and additional pertinent factors.

A review of NASS information indicates that the average producer price for the 2022 crop year was $2,840 per ton ($142.00 per hundredweight). Utilizing the recommended assessment rate of $0.15 per hundredweight, the estimated assessment revenue as a percentage of total producer revenue will be approximately 0.106 percent ($0.15 divided by $142.00 and multiplied by 100).

This final rule decreases the assessment obligation imposed on handlers. Assessments are applied uniformly on all handlers, and some of the costs may be passed on to producers. However, these costs are expected to be offset by the benefits derived by the operation of the Order.

The Committee's meetings are widely publicized throughout the production area. The California date industry and all other interested persons are invited to attend the meetings and participate in Committee deliberations on all issues. Like all Committee meetings, the June 27, 2023, meeting was a public meeting and all entities, both large and small, were able to express views on this issue. Finally, interested persons were invited to submit comments on this rule, including the regulatory and information collection impacts of this action on small businesses.

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35), the Order's information collection requirements have been previously approved by OMB and assigned OMB No. 0581–0178, Vegetable and Specialty Crops. No changes in those requirements will be necessary as a result of this action. Should any changes become necessary, they will be submitted to OMB for approval.

This final rule will not impose any additional reporting or recordkeeping requirements on either small or large California date handlers. As with all Federal marketing order programs, reports and forms are periodically reviewed to reduce information requirements and duplication by industry and public sector agencies.

AMS is committed to complying with the E-Government Act, to promote the use of the internet and other information technologies to provide increased opportunities for citizen access to Government information and services, and for other purposes.

AMS has not identified any relevant Federal rules that duplicate, overlap, or conflict with this final rule.

A proposed rule concerning this action was published in the **Federal Register** on December 27, 2023 (88 FR 89327). Copies of the proposed rule were provided to all California date handlers. The proposal was also made available through the internet by USDA and the Office of the Federal Register. A 30-day comment period ending January 26, 2024, was provided for interested persons to respond to the proposal. No comments were received. Accordingly, no changes have been made to the rule as proposed.

A small business guide on complying with fruit, vegetable, and specialty crop marketing agreements and orders may be viewed at: *https://www.ams.usda.gov/rules-regulations/moa/small-businesses.* Any questions about the compliance guide should be sent to Richard Lower at the previously mentioned address in the **FOR FURTHER INFORMATION CONTACT** section.

After consideration of all relevant material presented, including the information and recommendations submitted by the Committee and other available information, USDA has determined that this final rule is consistent with and will effectuate the purposes of the Act.

List of Subjects in 7 CFR Part 987

Dates, Marketing agreements, Reporting and recordkeeping requirements.

For the reasons set forth in the preamble, the Agricultural Marketing Service amends 7 CFR part 987 as follows:

PART 987—DOMESTIC DATES PRODUCED OR PACKED IN RIVERSIDE COUNTY, CALIFORNIA

■ 1. The authority citation for 7 CFR part 987 continues to read as follows:

Authority: 7 U.S.C. 601–674.

■ 2. Revise § 987.339 to read as follows:

§ 987.339 Assessment rate.

On and after October 1, 2023, an assessment rate of $0.15 per hundredweight is established for dates produced or packed in Riverside County, California.

Erin Morris,

Associate Administrator, Agricultural Marketing Service.

[FR Doc. 2024–07768 Filed 4–11–24; 8:45 am]

BILLING CODE 3410–02–P

DEPARTMENT OF ENERGY

10 CFR Part 430

[EERE–2020–BT–TP–0041]

RIN 1904–AE15

Energy Conservation Program: Test Procedure for Consumer Furnace Fans

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

ACTION: Final rule.

SUMMARY: The U.S. Department of Energy (''DOE'') is amending the test procedure for consumer furnace fans to: clarify the scope of applicability of the furnace fan test procedure; incorporate by reference the most recent versions of industry test methods; establish a test method for furnace fans incapable of operating at the required external static pressure; clarify testing of certain products, including furnace fans with

modulating controls, certain two-stage furnaces that operate at reduced input only for a preset period of time, and dual-fuel furnaces; and make updates to improve test procedure repeatability and reproducibility.

DATES: The effective date of this rule is June 26, 2024. The amendments will be mandatory for product testing starting October 9, 2024.

The incorporation by reference of certain material listed in this rule is approved by the Director of the Federal Register on June 26, 2024.

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

A link to the docket web page can be found at *www.regulations.gov/docket/EERE–2020–BT–TP–0041.* The docket web page contains instructions on how to access all documents, including public comments, in the docket.

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

FOR FURTHER INFORMATION CONTACT:

Ms. Julia Hegarty, 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: (240) 597–6737. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

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

SUPPLEMENTARY INFORMATION: DOE maintains a previously approved incorporation by reference (ASHRAE 41.1–1986 (Reapproved (''RA'') 2006)) and incorporates by reference the following industry standards into 10 CFR part 430:

ANSI/ASHRAE Standard 37–2009 (Reaffirmed 2019), *Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment,*'' ASHRAE approved June 21, 2019 (''ASHRAE 37–2009 (RA 2019)'').

ANSI/ASHRAE Standard 37–2009 Errata Sheet, *Errata Sheet for ANSI/ASHRAE Standard 37–2009—Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment,* ASHRAE approved March 27, 2019 (''ASHRAE 37–2009 Errata Sheet'').

ANSI/ASHRAE Standard 103–2017, *Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers,* ANSI-approved July 3, 2017 (''ASHRAE 103–2017'').

2021 ASHRAE Handbook—Fundamentals Inch-Pound Edition, Chapter 1, ''Psychrometrics''; copyright 2021 (''2021 ASHRAE Handbook'').

Copies of ASHRAE Standard 37–2009 (RA 2019), ASHRAE 37–2009 Errata Sheet, ASHRAE Standard 103–2017, and the 2021 ASHRAE Handbook can be obtained from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (''ASHRAE''), 180 Technology Parkway NW, Peachtree Corners, GA 30092,(800) 527–4723 or (404) 636–8400, or online at *www.ashrae.org.*

For a further discussion of these standards, please see section IV.N of this document.

Table of Contents

I. Authority and Background

The Energy Policy and Conservation Act, as amended (''EPCA''),[1] authorizes DOE to establish and amend energy conservation standards and test procedures for consumer furnace fans. (42 U.S.C. 6295(f)(4)(D)) DOE's energy conservation standards and test procedure for consumer furnace fans are currently prescribed at title 10 of the Code of Federal Regulations (''CFR''), part 430, § 430.32(y), and 10 CFR part 430, subpart B, appendix AA (''appendix AA''), respectively. The following sections discuss DOE's authority to establish a test procedure for consumer furnace fans and relevant background information regarding DOE's consideration of a test procedure for this product.

A. Authority

EPCA authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Title III, Part B of EPCA [2] 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 consumer furnace fans, the subject of this document. (42 U.S.C. 6295(f)(4)(D))

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 testing requirements consist of test procedures that manufacturers of covered products must use as the basis

[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), which reflect the last statutory amendments that impact Parts A and A–1 of EPCA.

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

for (1) certifying to DOE that their products comply with the applicable energy conservation standards adopted under EPCA (42 U.S.C. 6295(s)), and (2) making other representations about the efficiency of those products (42 U.S.C. 6293(c)). Similarly, DOE must use these test procedures to determine whether the products comply with any relevant standards promulgated under EPCA. (42 U.S.C. 6295(s))

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) DOE may, however, grant waivers of Federal preemption 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 under this section 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 (as determined by the Secretary) or period of use and shall not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

EPCA also requires that, at least once every 7 years, DOE evaluate test procedures for each type of covered product, including consumer furnace fans, 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 her 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 a 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 its determination not to amend the test procedures.

In addition, EPCA requires that DOE amend its test procedures for all covered products to integrate measures of standby mode and off mode energy consumption into the overall energy efficiency, energy consumption, or other energy descriptor, 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. (42 U.S.C. 6295(gg)(2)(A)(iii)) Any such amendment must consider the most current versions of the International Electrotechnical Commission (''IEC'') Standard 62301 [3] and IEC Standard 62087 [4] as applicable. (42 U.S.C. 6295(gg)(2)(A))

DOE is publishing this final rule pursuant to the 7-year review requirement specified in EPCA. (42 U.S.C. 6293(b)(1)(A))

B. Background

As discussed, DOE's existing test procedure for consumer furnace fans appears at appendix AA. Appendix AA provides procedures and calculations to determine the fan energy rating (''FER''), expressed as watts per 1,000 cubic feet per minute of airflow (''W/1000 cfm'').

DOE established the test procedure for consumer furnace fans at appendix AA in a final rule published on January 3, 2014 (''January 2014 Final Rule''). 79 FR 499. The test procedure is applicable to furnace fans used by weatherized and non-weatherized gas furnaces, oil furnaces, electric furnaces, and modular blowers.[5] *See* section 1, appendix AA. For each of these categories, the test procedure covers both mobile home and non-mobile home models. The test procedure is not applicable to non-ducted products, such as whole-house ventilation systems without ductwork, central air-conditioning (''CAC'') condensing unit fans, room fans, and furnace draft inducer fans because a ''furnace fan'' is defined as ''an electrically-powered device used in a consumer product for the purpose of circulating air through ductwork.'' 10 CFR 430.2.

As established in the January 2014 Final Rule, appendix AA incorporates by reference the definitions, test setup and equipment, and procedures for measuring steady-state combustion efficiency from the 2007 version of American National Standards Institute (''ANSI'')/American Society of Heating, Refrigeration, and Air-Conditioning Engineers (''ASHRAE'') Standard 103, ''Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers'' (''ASHRAE 103–2007''). In addition to these provisions, appendix AA includes provisions for apparatuses and procedures for measuring temperature rise, external static pressure (''ESP''), and furnace fan electrical input power. Appendix AA also incorporates by reference provisions for measuring temperature and ESP from ANSI/ASHRAE 37–2009, ''Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment'' (''ASHRAE 37–2009''), including its reference in section 5.1 to ASHRAE 41.1–1986 (RA 2006), ''Standard Method for Temperature Measurement.'' Lastly, appendix AA includes a reference to the psychrometric chapter (*i.e.,* chapter 1) in the 2001 *ASHRAE Handbook—Fundamentals* (''2001 ASHRAE Handbook'') for use in calculating the specific volume of dry air at specified operating conditions.

In the January 2014 Final Rule, DOE determined that there is no need to address standby and off mode energy use in the test procedure for consumer furnace fans, as the standby mode and off mode energy use associated with furnace fans is measured by test procedures for the products in which furnace fans are used (*i.e.,* consumer furnaces and consumer CACs and heat pumps). 79 FR 499, 504–505.

On July 7, 2021, DOE published in the **Federal Register** a request for information (''July 2021 RFI'') seeking

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

[4] IEC 62087, *Audio, video and related equipment—Methods of measurement for power consumption* (Edition 1.0, Parts 1–6: 2015, Part 7: 2018).

[5] DOE defines the term ''modular blower'' in section 2.9 of appendix AA as a product which only uses single-phase electric current, and which is: (a) designed to be the principal air circulation source for the living space of a residence; (b) not contained within the same cabinet as a furnace or central air conditioner; and (c) designed to be paired with heating, ventilating, and air-conditioning (''HVAC'') products that have a heat input rate of less than 225,000 Btu per hour and cooling capacity less than 65,000 Btu per hour.

comments on the existing DOE test procedure for consumer furnace fans to determine whether amendments are warranted for the test procedure for consumer furnace fans. 86 FR 35660. More specifically, DOE requested comments, information, and data about a number of issues, mainly concerning: test settings (including selection of airflow control settings and ESP requirements for airflow settings other than the maximum setting); incorporation by reference of the most recent industry test method; clarifications for testing of certain products, including furnace fans with modulating controls, furnace fans and modular blowers tested with electric heat kits, certain two-stage furnaces that operate at reduced input only for a preset period of time, dual-fuel furnaces, and certain oil-fired furnaces; and issues related to test procedure repeatability and reproducibility. *Id.*

On May 13, 2022, DOE published in the **Federal Register** a notice of proposed rulemaking (''NOPR'') proposing to update appendix AA (''May 2022 NOPR''). 87 FR 29576. Specifically, DOE proposed to: (1) specify testing instructions for furnace fans incapable of operating at the required ESP; (2) incorporate by reference the most recent versions of industry standards, ASHRAE 103–2017 and ASHRAE 37–2009 (RA 2019), in 10 CFR 430.3; (3) define dual-fuel furnace fans and exclude them from the scope of appendix AA; (4) change the term ''default airflow-control settings'' to ''specified airflow-control settings''; (5) add provisions to directly measure airflow; (6) revise the ambient temperature conditions allowed during testing to between 65 degrees Fahrenheit (''°F'') and 85 °F for all units (both condensing and non-condensing); and (7) assign an allowable range of relative humidity during testing to be between 20 percent and 80 percent. 87 FR 29576, 29579. DOE held a webinar related to the May 2022 NOPR on May 19, 2022 (hereafter, the ''NOPR webinar'').

DOE received comments in response to the May 2022 NOPR from the interested parties listed in Table II.1.

TABLE II.1—LIST OF COMMENTERS IN RESPONSE TO THE MAY 2022 NOPR

Commenter(s)	Reference in this final rule	Comment No. in the docket	Commenter type
Air-Conditioning, Heating, and Refrigeration Institute	AHRI	15	Trade Organization.
Appliance Standards Awareness Project, American Council for an Energy-Efficient Economy, Northwest Energy Efficiency Alliance, and the National Consumer Law Center.	Joint Commenters	14	Efficiency Advocacy Organizations.
Pacific Gas and Electric Company, San Diego Gas and Electric, Southern California Edison; collectively, the California Investor-Owned Utilities.	CA IOUs	13; *9	Utilities.
Carrier Global Corporation	Carrier	12	Manufacturer.
Johnson Controls Inc.	JCI	10	Manufacturer.
Lennox International Inc.	Lennox	11	Manufacturer.
Morrison Products, Inc.	Morrison	*9	Manufacturer.
Rheem Manufacturing	Rheem	*9	Manufacturer.

* Comment No. 9 corresponds to the transcript for NOPR webinar.

A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.[6] To the extent that interested parties have provided written comments that are substantively consistent with any oral comments provided during the NOPR webinar, DOE cites the written comments throughout this final rule. Any oral comments provided during the webinar that are not substantively addressed by written comments are summarized and cited separately throughout this final rule.

II. Synopsis of the Final Rule

In this final rule, DOE amends appendix AA to subpart B of 10 CFR part 430, ''Uniform test method for measuring the energy consumption of furnace fans,'' as follows:

- Specify testing instructions for furnace fans incapable of operating at the required ESP;
- Incorporate by reference the most recent versions of industry standards, ASHRAE 103–2017 and ASHRAE 37–2009 (RA 2019), in 10 CFR 430.3;
- Incorporate by reference chapter 1 of the 2021 ASHRAE Handbook;
- Define dual-fuel furnace fans and exclude them from the scope of appendix AA;
- Change the term ''default airflow-control settings'' to ''specified airflow-control settings;''
- Make clarifications to nomenclature, correct the value of the conversion factor from Watts to BTU/h, and correct the units of specific volume of dry air;
- Revise the ambient temperature conditions allowed during testing to between 65 °F and 85 °F for all units (both condensing and non-condensing);
- Assign an allowable range of relative humidity during testing to be between 20 percent and 80 percent; and
- Require that the power measurements be determined as an average over the last 30 seconds of each steady state period at intervals of no less than 1 per second, rather than taken as a single point measurement.

The adopted amendments are summarized in Table II.1 compared to the test procedure provision prior to the amendment, as well as the reason for the adopted change.

[6] The parenthetical reference provides a reference for information located in the docket of DOE's rulemaking to develop test procedures for consumer furnace fans. (Docket No. EERE–2020–BT–TP–0041, which is maintained at *www.regulations.gov*) The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

TABLE II.1—SUMMARY OF CHANGES IN THE AMENDED CONSUMER FURNACE FAN TEST PROCEDURE

DOE test procedure prior to amendment	Amended test procedure	Attribution
Does not specify instructions for testing furnace fans that are incapable of operating at the specified ESP.	Specifies testing instructions for furnace fans incapable of operating at the specified ESP.	Address waiver from the prior test procedure.
Incorporates by reference ASHRAE 103–2007 and ASHRAE 37–2009.	Incorporates by reference ASHRAE 103–2017 and ASHRAE 37–2009 (RA 2019).	Incorporate by reference the most recent industry test procedures.
References 2001 ASHRAE Handbook psychrometric chapter.	Incorporates by reference the 2021 ASHRAE Handbook psychrometric chapter (*i.e.,* chapter 1).	Incorporate by references all industry test procedures that are referenced in appendix AA.
Does not address dual-fuel furnace fans	Defines dual-fuel furnace fans in appendix AA and explicitly excludes them from the scope of the test method.	Clarify scope of coverage of the test procedure.
Defines ''default airflow-control settings''	Defines ''specified airflow-control settings'' to differentiate the settings used in testing from the as-shipped settings.	Clarify selection of airflow control settings during testing
Utilizes potentially unclear nomenclature, attributes the wrong value to the conversion factor from Watts to BTU/h, and assigns the incorrect units to the specific heat of dry air.	Utilizes clearer nomenclatures, attributes the correct value to the conversion factor from Watts to BTU/h, and assigns the correct units to the specific heat of dry air.	Clarify nomenclature and correct typos.
Ambient temperature must remain between 65 °F and 100 °F for non-condensing furnaces and between 65 °F and 85 °F for condensing furnaces.	Ambient temperature must remain between 65 °F and 85 °F for all furnaces.	Improve repeatability and reproducibility of test results.
Does not specify an allowable range of relative humidity.	Requires ambient relative humidity to be maintained between 20% and 80% for all furnaces.	Improve repeatability and reproducibility of test results.
Electrical input power is measured as single point after steady-state conditions are met.	Electrical input power will be determined as the average value of readings taken over the last 30 seconds of each steady state period at intervals of no less than 1 per second.	Improve repeatability and reproducibility of test results.

DOE has determined that the amendments described in section III of this document and adopted in this document will not alter the measured efficiency of consumer furnace fans or require retesting or recertification solely as a result of DOE's adoption of the amendments to the test procedure. Additionally, DOE has determined that the amendments will not increase the cost of testing. Discussion of DOE's actions are addressed in detail in section III of this document

The effective date for the amended test procedure adopted in this final rule is 75 days after publication of this document in the **Federal Register**. Representations of energy use or energy efficiency must be based on testing in accordance with the amended test procedure beginning 180 days after the publication of this final rule.

III. Discussion

A. Scope and Definitions

1. Air-Conditioning Products and Testing During Cooling Operation

As discussed, a ''furnace fan'' is an electrically-powered device used in a consumer product for the purpose of circulating air through ductwork. 10 CFR 430.2. And, as stated, DOE's test procedure is applicable to furnace fans used in weatherized and non-weatherized gas furnaces, oil furnaces, electric furnaces, and modular blowers. *See* section 1, appendix AA. The test procedure is not applicable to non-ducted products, such as whole-house ventilation systems without ductwork, CAC or central air-conditioning heat pump (''HP'') condensing unit fans, small-duct high-velocity (''SDHV'') air conditioner unit fans, room fans, and furnace draft inducer fans.

DOE received a comment in response to the July 2021 RFI that suggested modifying the consumer furnace fans test procedure to account for lower fan power during low-stage cooling operation. In the May 2022 NOPR, DOE requested information and data regarding the electrical energy consumption of multi-stage furnace fans during low-stage cooling operation, specifically in relation to single-stage furnace fans in cooling mode. 87 FR 29576, 29580.

In response, JCI commented that a two-stage cooling blower offers significant energy savings resultant, in part, from the circulating air blower operating at a lower speed during low-stage cooling. JCI stated that the electronically commutated motors (''ECMs'') used in units with two-stage blowers are more efficient at lower speeds. JCI also commented that the increased motor efficiency at low stage is not reflected in the current furnace fan test procedure. JCI commented that, unlike furnaces designed for strictly single-stage cooling, furnaces designed for two-stage cooling applications typically include thermostat connections for control and have the ability to switch automatically to a lower blower speed when low-stage cooling is in operation. JCI commented that the consumer furnace fan test procedure should be modified to properly capture the actual field behavior of two-stage cooling units. (JCI, No. 10 at p. 1)

Lennox stated that fan energy consumption is significantly reduced when operating multi-stage furnace fans during low-stage cooling operation relative to single-stage furnace fans operating in cooling mode. Lennox suggested that fan energy for low-stage operations is reduced by over 25 percent for two-stage products. Lennox commented that field data indicate multi-stage products spend the majority of operating hours in low-stage operation and that DOE should fully consider low-stage and multi-stage operation because they are representative of actual field operation. Lennox expressed support for transitioning the currently applicable consumer furnace fan test procedure to

include low-stage operation. (Lennox, No. 11 at p. 3)

Carrier commented that it does not have data regarding low-stage cooling operation in relation to single-stage furnace fans in cooling mode. However, Carrier stated that engineering principles suggest that accounting for the low-stage fan electrical energy consumption would make the FER rating more representative than the current method of using the high-stage fan electrical energy consumption as if it were a single-stage blower unit. Carrier suggested that DOE consider creating a cooling capacity ratio multiplier to account for the reduced fan electrical energy in low stage. (Carrier, No. 12 at pp. 1–2)

AHRI commented that there may be significant energy savings associated with running multi-stage furnace fans during low-stage cooling operation. AHRI stated that it is in favor of using low-stage cooling operation for package units that employ two-stage or multi-stage cooling modes. (AHRI, No. 15 at p. 2)

In response to these comments, DOE continues to evaluate the potential benefits of accounting for lower fan power during low-stage cooling operation, as well any additional testing burden that such test provisions would entail. DOE has considered the feedback provided by commenters and has concluded that at this time, DOE does not have sufficient data and information to specify amended procedures for testing furnace fans at low-stage cooling operation. In particular, commenters did not provide sufficient data at this time to determine representative additional test points and reapportion the operating hours outlined in table IV.2 of appendix AA to reflect low-stage cooling. Further, adding test points to DOE's test procedure for consumer furnace fans would likely require manufacturers to recertify units and could add burden to the test procedure. DOE is therefore not modifying the consumer furnace fans test procedure to account for lower fan power during low-stage cooling operation in this final rule, but DOE may consider such provisions in a future test procedure rulemaking for furnace fans.

In the May 2022 NOPR, DOE stated that it was not proposing to include fans used in other types of heating, ventilating, and air-conditioning (''HVAC'') products—such as CACs, HPs, and SDHV modular blowers—within the scope of appendix AA. DOE tentatively concluded that the electrical energy consumption of furnace fans used in the aforementioned types of HVAC products will be accounted for by the seasonal energy efficiency ratio 2 (''SEER2'') and heating seasonal performance factor 2 (''HSPF2'') metrics measured by the test procedure for CACs and HPs at appendix M1 to subpart B of part 430 (''appendix M1''). 87 FR 29576, 29580.

In response to the May 2022 NOPR, the CA IOUs stated that the calculations for the SEER2 and HSPF2 metrics do not account for the fractional bin hours between 55 °F and 64 °F. The CA IOUs commented that fan energy during any air circulation through the ductwork at those temperatures is unaddressed in SEER2 and HSPF2; therefore, the CA IOUs recommended that DOE further investigate the fans installed in these residential HVAC products to determine if such fans would meet the current furnace fan energy conservation standards and consider including them in this rulemaking. (CA IOUs, No. 13 at p. 4)

The Joint Commenters stated that they agreed with DOE regarding potential backsliding concerns about furnace fan energy use if single-package air conditioner units with gas heat were excluded from the scope of the furnace fan test procedure and stated that they support continued inclusion of these products within the scope of the furnace fan test procedure. (Joint Commenters, No. 14 at p. 1)

With regards to the comments from the CA IOUs and the Joint Commenters. DOE notes that the test method of determining SEER2, Energy Efficiency Ratio 2 (''EER2''), HSPF2, and $P_{W,OFF}$ for CACs and HPs is provided at appendix M1. Table 19 of appendix M1 specifies the distribution of fractional hours within cooling season temperature bins for the calculation of SEER2. These bins range from 65 °F to 104 °F, and, accordingly, do not cover the 55 °F to 64 °F range, as mentioned by the CA IOUs. Table 20 specifies the distribution of fractional hours within heating season temperature bins for the calculation of HSPF2, which range from –23 °F to 62 °F. Collectively, these two tables cover the entire temperature range from –23 °F to 104 °F except for the relatively narrow range between 62 °F and 65 °F.

As discussed in section I.A of this document, DOE is required by EPCA to develop test procedures that are 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 (as determined by the Secretary) or period of use and shall not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) Accordingly, the SEER2 and HSPF2 metrics must reflect representative average annual use of products subject to those metrics, including CACs, HPs, and SDHV modular blowers, but do not necessarily need to account for performance at every possible temperature condition. DOE has previously determined that SEER2 and HSPF2 capture a representative measure of CAC and HP performance, including fan energy consumption, during heating and cooling operations. (See, for example, discussion of appendix M1 amendments at 82 FR 1426, 1446–1460 (Jan. 5, 2017)) Therefore, DOE has determined that the consumer furnace fan test procedure does not need to be amended to specifically address fan energy use in CACs and HPs.

2. Dual-Fuel Heating Products

Some consumer heating products include an electric heat pump as well as a gas burner and are often referred to as ''dual-fuel'' or ''hybrid heating'' units. These products are designed to provide space heating with the heat pump and/or gas burner, depending on the operating conditions (*e.g.,* outdoor air temperature and heating demand). The annual operating characteristics of a dual-fuel product may differ significantly from a typical furnace because the inclusion of a heat pump may change the operating time necessary to meet the heating load demand when compared with a gas burner alone, resulting in changes to the operating hours of the furnace fan. Additionally, as stated in the May 2022 NOPR, the current DOE consumer furnace fan test procedure does not specify provisions to set up or operate furnace fans for dual-fuel heating units, and the estimated annual national operating values in appendix AA may not be representative of average use cycle for furnace fans installed in dual-fuel applications. 87 FR 29576, 29580.

However, as was also discussed in the May 2022 NOPR, dual-fuel units are subject to the separate applicable standards for both HPs (*i.e.,* in terms of SEER2 and HSPF2) and furnaces (*i.e.,* in terms of annual fuel utilization efficiency (''AFUE'')). Therefore, DOE tentatively concluded that the fan energy use of these products is already accounted for by the metrics measured by the applicable test procedure. The SEER2 and HSPF2 metrics measure the fan energy in its cooling and heating modes, respectively, covering the two major functions of furnace fans. Furthermore, furnace fans in dual-fuel models have not been subject to appendix AA and, therefore, were not

part of the previous standards analysis. *Id.* at 87 FR 29581.

In the May 2022 NOPR, DOE proposed to define dual-fuel units as a consumer product that includes both a heat pump and a burner in a single cabinet. Further, DOE proposed to explicitly exclude furnace fans used in them from the scope of appendix AA. *Id.*

In response to the May 2022 NOPR, the CA IOUs commented that dual-fuel products—such as package units with electric heat pumps and a gas burner that are intended to provide the same utility as a typical weatherized, non-condensing furnace fan and a weatherized gas furnace—will likely grow in popularity for consumers. The CA IOUs agreed with DOE's assertion that the annual operating characteristics of a dual-fuel product may differ significantly from a typical furnace but noted this is not sufficient justification for exclusion from this rulemaking. Moreover, the CA IOUs stated that manufacturers currently need to test these furnace fans in otherwise identical package units with a cooling-only coil and a furnace; therefore, including such furnace fans in the scope would not increase manufacturer burden. The CA IOUs suggested that because heat pump capacity is expected to correlate to cooling capacity, units with lower heating capacity than cooling capacity installed in high-heat-demand climate zones would result in more gas-specific heating operation for a dual-fuel system during heating degree days. The CA IOUs stated that, as a result, the estimated national average operating hour values for calculating FER are also relevant for dual-fuel systems. The CA IOUs therefore recommended that DOE not exclude the furnace fans in dual-fuel heating products from the scope of the test procedure. (CA IOUs, No. 13 at p. 4)

The Joint Commenters stated that the gas furnaces that are part of dual-fuel units are essentially identical to those that are part of currently covered single-package air conditioning units with a gas furnace. The Joint Commenters added that they were unclear as to how DOE made the determination that dual-fuel fans are presently excluded from the currently applicable test procedure. The Joint Commenters encouraged DOE to clarify its determination that dual-fuel fans are excluded from the scope of the currently applicable consumer furnace fan test procedure and to consider adding provisions for testing these furnace fans. (Joint Commenters, No. 14 at pp. 1–2)

Conversely, Carrier, Lennox, and AHRI commented in support of the proposed definition for dual-fuel units and the proposal to exclude the furnace fans in them from the scope of appendix AA. (Carrier, No. 12 at p. 2; Lennox, No. 11 at p. 3; AHRI, No. 15 at p. 2)

In response to these comments, DOE notes that although furnace fans used in dual-fuel units were not explicitly excluded in the currently applicable consumer furnace fan test procedure, the test procedure does not specify provisions for the testing of these products. Additionally, in response to the CA IOUs' suggestion that heating contribution from the heat pump may be small in comparison to the furnace component, DOE notes that these assumptions would not be applicable to all product designs, nor is it necessarily representative of typical installations and usage patterns throughout the U.S. Therefore, DOE continues to conclude that the operating hours used in appendix AA would not be representative of the fans in dual-fuel units. It follows that these products necessarily were not intended to be subject to the currently applicable consumer furnace fan test procedure. DOE further notes that there is a distinction between packaged dual-fuel units, which include both a furnace for heating operation and a heat pump for heating and cooling operation, and package air conditioner units, which include only a furnace for heating operation (along with an air conditioner that provides cooling only). The single-package air conditioner system can be tested according to the currently applicable test procedure for furnace fans, the operating hours are representative for these products, and furnace fans used in package air conditioners are currently subject to the standards established for this product type. Further, as noted previously in this section, the energy consumption of the fans in dual-fuel heating products is already captured in the SEER2 and HSPF2 metrics specified in appendix M1. Therefore, to clarify the distinction between dual-fuel products and products within the scope of this consumer furnace fan test procedure, DOE is finalizing its proposed definition for dual-fuel units within appendix AA in this final rule. Accordingly, DOE is finalizing its proposal to specify more explicitly that furnace fans in dual-fuel products are excluded from the scope of appendix AA.

B. Referenced Industry Standards

1. Updates to Industry Standards

The currently applicable DOE test procedure for consumer furnace fans incorporates by reference ASHRAE 103–2007, ASHRAE 37–2009, and ASHRAE 41.1–1986 (RA 2006). Since publication of the January 2014 Final Rule, ASHRAE published an update to ASHRAE 103, *i.e.,* ASHRAE 103–2017, and two addenda to ASHRAE 37–2009 (ASHRAE 37–2009 (RA 2019)). In the May 2022 NOPR, DOE proposed to incorporate by reference ASHRAE 103–2017 and ASHRAE 37–2009 (RA 2019) in its test procedure for consumer furnace fans to stay consistent with the latest industry testing practices. 87 FR 29576, 29581. Further, DOE proposed to update all references of ASHRAE 37–2009 to ASHRAE 37–2009 (RA 2019). *Id.* Finally, DOE proposed to maintain reference to ASHRAE 41.1–1986 (RA 2006). *Id.*

In response to the May 2022 NOPR, Carrier commented that it agrees with the incorporation by reference of ASHRAE 103, ASHRAE 37, and ASHRAE 41.1. Carrier stated these references are important for the direct measurement method. (Carrier, No. 12 at p. 2) Additionally, Carrier and AHRI recommended that the DOE adopt the most recent versions of all ASHRAE standards relevant to this rule (*i.e.,* ASHRAE 103–2022 and ASHRAE 41.1–2020). (Carrier, No. 12 at p. 2; AHRI, No. 15 at p. 2) Rheem and AHRI commented that DOE should consider the new version of ASHRAE 37 that will be coming out soon. (Rheem, NOPR Webinar Transcript, No. 9 at pp. 19–20; AHRI, No.15 at p. 4)

For the reasons discussed in the preceding section and in the May 2022 NOPR, DOE is finalizing its proposal to incorporate by reference in appendix AA the most recent version of ASHRAE 37 (ASHRAE 37–2009 (RA 2019)). With regards to the comments from Rheem and AHRI, DOE notes that a new version of ASHRAE 37 has not been published yet so DOE is incorporating by reference the most recent version of ASHRAE 37. Relatedly, DOE notes that ASHRAE 37–2009 (RA 2019) references ASHRAE 41.1–1986 (RA 2006) as opposed to the more recent ASHRAE 41.1–2020. Consequently, to maintain consistency with ASHRAE 37–2009 (RA 2019), DOE is finalizing its proposal to maintain the incorporation by reference of ASHRAE 41.1–1986 (RA 2006) in appendix AA. In response to the comments from Carrier and AHRI, DOE notes that ASHRAE 103–2022 updated the references to relevant standard test methods and standard specifications from ASHRAE 103–2017. Notably, the amended ASHRAE 103 standard adds references to ASTM D396–2019, ''Standard Specification for Fuel Oils'' and ANSI/ASHRAE Standard 41.6–2014, ''Standard Methods for Humidity

Measurement,'' while removing the reference to *Heat Transmission* by W.H. McAdams. As discussed, in the May 2022 NOPR, DOE proposed to incorporate by reference ASHRAE 103–2017. 87 FR 29576, 29581. Although DOE continues to evaluate the differences between ASHRAE 103–2017 and ASHRAE 103–2022 (and the standards referenced therein), DOE has not yet determined whether the changes between the versions of the standards would impact appendix AA and, in turn, FER ratings. Therefore, DOE maintains its proposal in the May 2022 NOPR and incorporates by reference ASHRAE 103–2017 into appendix AA in this final rule. DOE will continue to evaluate ASHRAE 103–2022 for future incorporation by reference.

2. Additional References

Appendix AA as established in the January 2014 Final Rule included a reference to the psychrometric chapter (*i.e.,* chapter 1) in the 2001 ASHRAE Handbook for use in calculating the specific volume of dry air at specified operating conditions. Although the 2001 ASHRAE Handbook was not incorporated by reference in appendix AA at the time in the January 2014 Final Rule, DOE notes that its inclusion in the test procedure should necessitate its incorporation by reference. As the 2001 version of the ASHRAE Handbook is no longer widely available, DOE is updating appendix AA to reference to the 2021 version of the ASHRAE Handbook. Because appendix AA already references the 2001 version of the ASHRAE Handbook, which uses the same method to determine the specific volume of dry air as the 2021 version of the ASHRAE Handbook, incorporating by reference chapter 1 of the 2021 ASHRAE Handbook will not change the results of FER. DOE is therefore incorporating by reference chapter 1, ''Psychrometrics'' of the 2021 ASHRAE Handbook into appendix AA in this final rule.

C. Furnace Fans That Operate at Low External Static Pressures

On February 20, 2019, DOE received a petition for waiver and an application for interim waiver from ECR International, Inc. (''ECR'') for certain basic models of furnace fans that ECR described as belt-driven, single-speed furnace fans designed for heating-only applications in oil-fired warm air furnaces.[7] ECR asserted that the furnace fan basic models specified in the petition have design characteristics that prevent testing of the basic model according to the test procedure prescribed in the currently applicable appendix AA. Specifically, ECR claimed that the specified products are not designed to operate within the range of ESP required in the currently applicable appendix AA and that testing such furnace fans at the required ESP reduces airflow and increases temperature rise to the point where the units shut off during testing due to high temperature limits, making it impossible to achieve the steady-state operation required for testing.[8]

On March 9, 2021, DOE published a Decision and Order (''2021 Decision and Order'') granting ECR a test procedure waiver specifying an alternate test procedure that must be used to test and rate the specified basic models.[9] 86 FR 13530, 13534–13535.

Specifically, the 2021 Decision and Order specified adjustments to the ESP test conditions specified in section 8.6.1.2 of the currently applicable appendix AA. Basic models subject to the 2021 Decision and Order must be tested at the specified ESP. *Id.* The alternate test procedure in the 2021 Decision and Order further specifies that if the unit under test shuts down prior to completion of the test, the ESP range is incrementally reduced by 0.05 inches of water column (''w.c.''), and the test is to be re-run. *Id.* This process is repeated until a range is reached at which the test can be conducted to its conclusion, with a minimum allowable ESP range of 0.30–0.35'' w.c., which corresponds to the lowest ESP at which shut-off occurred in the ECR data. *Id.*

The test procedure waiver provision at 10 CFR 430.27(l) provides that, as soon as practicable after the granting of any waiver, DOE will publish in the **Federal Register** a NOPR to amend its regulations so as to eliminate any need for the continuation of such waiver. As soon thereafter as practicable, DOE will publish in the **Federal Register** a final rule. 10 CFR 430.27(l). Therefore, to amend the test procedure so as to eliminate any need for the continuation of this waiver, in the May 2022 NOPR, DOE proposed to add provisions requiring that furnace fans be initially tested at the applicable ESP range specified in table 1 of appendix AA. If the unit under test is unable to complete the testing (*i.e.,* the unit shuts down), the ESP range would be incrementally reduced by 0.05'' w.c. (*e.g.,* for units designed to be paired with an evaporator coil but without one installed, first from 0.65''–0.70'' to 0.60''–0.65'' w.c.). This process would be repeated until an ESP range at which the test can be conducted to its conclusion is reached. 87 FR 29576, 29582–29583.

In response to the May 2022 NOPR, Lennox, Carrier, and AHRI commented that they support the proposed test procedure instructions for products that cannot be tested at the ESPs in the currently applicable test procedure. (Lennox, No. 11 at p. 3; Carrier, No. 12 at p. 2; AHRI, No. 15 at p. 2) Lennox stated that it supports these test procedure changes, which would eliminate the current test procedure waiver and not create separate product classes for low-ESP products. (Lennox, No. 11 at p. 3) JCI commented that the FER test procedure should not specify a static pressure setting that is above the maximum static pressure specified by the furnace manufacturer. (JCI, No. 10 at pp. 4–5)

The Joint Commenters commented that this proposal could allow the products subject to the 2021 Decision and Order (*i.e.,* ''heating only'' products that cannot be tested at the ESPs in the currently applicable test procedure) to meet the standard more easily. The Joint Commenters stated that despite DOE's discussion in the May 2022 NOPR that these ''heating only'' furnace fans are not manufactured for the same applications as other covered furnace fans (*e.g.,* in a system with cooling), the manufacturer literature for these ''heating-only'' models repeatedly discusses usage in cooling applications. The Joint Commenters encouraged DOE to further consider appropriate testing provisions for ''heating-only'' furnace fans that cannot reach the ESPs defined in appendix AA. (Joint Commenters, No. 14 at p. 2)

The CA IOUs commented that DOE should not require furnace fans that cannot meet the required ESP to be tested using an alternative test procedure because it would result in an unrepresentative metric. Instead, the CA IOUs recommended that DOE either add a correction factor or create a new product class for these products. (CA IOUs, No. 13 at p. 1) The CA IOUs stated that the method of reducing ESP until a test could be complete would result in testing at a much lower airflow and higher temperature rise than the maximum shown on the furnace nameplate. The CA IOUs stated that operating at this condition contradicts the manufacturer's installation and operating instructions and is not representative of field use. The CA IOUs expressed concern that this approach sets a precedent for manufacturers of

[7] *See www.regulations.gov/document?D=EERE-2019-BT-WAV-0004-0001* at p. 1.

[8] *See id.* at pp. 2–3.

[9] *See www.regulations.gov/document/EERE-2019-BT-WAV-0004-0015.*

other products to deviate from Federal test procedures without changing their product rating. (*Id.* at pp. 1–2) The CA IOUs stated that the product for which the waiver was granted has a motor capable of operating at the required ESP. Further, the CA IOUs stated that the motor is supplied with a fixed belt drive that does not allow the fan to run at the speed necessary to achieve the higher ESP. Finally, the CA IOUs stated that the manufacturer's literature provides instructions for changing the pulleys in the field to work at the required speed. (*Id.* at p. 2)

In response to these comments, DOE notes that, as is discussed in the grant of an interim waiver to ECR, test data submitted by ECR showed that the specified furnace fan basic models stop operating at an ESP between 0.30'' and 0.60'' w.c., depending on the particular basic model, with units shutting down at an average ESP of 0.47'' w.c. 85 FR 50808, 50811. These ESPs are below the values listed in table 1 of appendix AA, indicating that these units could not complete a test according to the current consumer furnace fan test procedure without the proposed changes to ESP requirements. DOE further notes that a unit using a different motor or replacing the pulley, belt, or other components would constitute a different basic model.

The CA IOUs reiterated their comments previously submitted in response to the July 2021 RFI in which they demonstrated that for a given speed, forward curve fan efficacy is higher at low airflow and high ESP than at a low ESP with high airflow. The CA IOUs commented that the requirement in the proposed test procedure would test the fixed-speed fan at a much lower airflow and higher ESP than the fan would operate at under normal conditions, resulting in a measured efficacy that is significantly better than would result if the fan were tested at a representative airflow. (*Id.* at p. 2) The CA IOUs stated that the problem is exacerbated by the lack of correction to account for the difference between the tested ESP and the ESP listed in table 1 of appendix AA in the reported FER. The CA IOUs noted that while they are unaware of a validated equation specifically for FER, DOE employs a similar correction for water-source heat pumps by incorporating ANSI/AHRI/ASHRAE ISO Standard 1346–1:1998 (RA 2012). The CA IOUs noted that water-source heat pumps require this correction to determine the power consumption and capacity at the rating condition of 0.0″ wc because the actual tests use a positive ESP. The CA IOUs commented that they believe this DOE-approved equation applies equally well to furnace fans. (*Id.* at pp. 2–3)

The CA IOUs also recommended that DOE require testing at an airflow no less than that required to meet the maximum temperature rise on the furnace nameplate. Alternatively, the CA IOUs suggested that DOE create a new product class for heating-only units and require a specific ESP in table 1 of appendix AA that is lower. The CA IOUs stated that this would reduce test burden because the products would complete testing on the first attempt rather than incrementally reducing ESP in further attempts. The CA IOUs noted that there is a similar breakdown of products based on application and static pressure for ducted blower coil systems for central air conditioners and heat pumps. Further, the CA IOUs stated that appendix M1 has different ESP test conditions for conventional, low static, and mid static blower coil systems based on the external static pressure produced during operation. (*Id.* at p.3)

In response to the comment from the CA IOUs, DOE notes that no data indicate that the correction equation used for water-source heat pumps is appropriate for use in the furnace fans test procedure. Because these two products are tested according to different procedures, DOE cannot conclude that this equation would be appropriate to use to predict the change in FER. Further, as previously stated in the 2021 Decision and Order, validating an equation for extrapolating to FER at an ESP that is higher than that at which the unit can operate may be difficult or even not possible (as the unit cannot operate at that point). *See* 86 FR 13530, 13533.

In addition, products that operate at low ESPs are typically used in heating-only applications, and the products subject to the waiver are not to make any representations in any public-facing materials that these basic models are designed to be installed in systems that provide both heating and cooling. *Id.* Therefore, DOE concludes that these heating-only products do not compete with products intended for both heating and cooling, and DOE is not implementing an adjustment factor to the test procedure for furnace fans that are unable to complete testing at the ESPs specified in table 1 of the revised appendix AA. Additionally, DOE concludes that the proposed modified test provisions reflect the actual use of these products that cannot operate at higher ESPs and result in a metric that is representative.

Therefore, for the reasons discussed here and in the May 2022 NOPR, in this final rule, DOE is finalizing its proposal to adopt the modified test provisions for units that cannot meet the ESPs outlined in table 1 of appendix AA.

D. Test Procedure Repeatability and Reproducibility

Comment responses to the July 2021 RFI indicated that stakeholders encountered difficulty obtaining repeatable and reproducible FER results using the current appendix AA. Based on feedback collected during manufacturer interviews prior to the May 2022 NOPR, DOE understands that there are several key areas of possible revision to the currently applicable consumer furnace fan test procedure that could improve repeatability and reproducibility. 87 FR 29576, 29583.

In response to the May 2022 NOPR, Lennox commented that it evaluated over 60 furnace fans tested through the AHRI audit program and found the correlation between manufacturer test values and audit test values to be within an acceptable variation, such that test procedure repeatability is not a concern. (Lennox, No. 11 at p. 1)

JCI referenced AHRI work project 8020 which, JCI stated, studied the FER metric, attempted to develop a predictive metric, and reviewed possible alternatives to the current standard. JCI quoted the results of the AHRI project as follows: ''Appendix AA results in a wide metric tolerance. AHRI's members report, and the research shows, that the results are affected by the natural gas input rate and relative humidity, which is problematic as testing is not conducted in a controlled environment. Further, the current test method lends itself to test inaccuracies resulting in the inability to achieve repeatability.'' JCI also listed AHRI's recommendations for member companies as follows: (1) evaluate their lab measurement systems, procedures, and the uncertainty of each input variable; (2) test in a controlled environment to reduce variability; and (3) complete a statistical number of tests to improve rating confidence. JCI commented that the first and third recommendations are feasible and less expensive to the test labs, but JCI suggested that reduced variability could be achieved through actions other than testing in a controlled environment. (JCI, No. 10 at p. 2)

DOE notes that feedback from comment responses to the July 2021 RFI and manufacturer interviews have indicated challenges with test procedure repeatability and reproducibility in contrast to the comment from Lennox. Additionally, DOE has received feedback that units are often rated conservatively due to these repeatability

challenges. Further, in the May 2022 NOPR, DOE proposed and requested feedback on specific solutions to minimize variability and uncertainty in results. 87 FR 29576, 29583–29586. The following sections address specific topics on which DOE has received feedback in this regard.

1. Fuel Input Rate Tolerance

DOE received feedback in response to the July 2021 RFI that the natural gas input rate could impact FER, so DOE considered whether tightening the tolerance on firing rate (from ±2 percent) would improve the repeatability of the test procedure without imposing substantial burden. In a NOPR published on March 11, 2015, DOE determined that it could not change the tolerance on firing rate without increasing manufacturer burden because of variations in gas valve performance. 80 FR 12875, 12886–12887. Because DOE is not aware of any data suggesting it would now be possible to tighten this tolerance without imposing substantial test burden, DOE did not propose to change the tolerance on fuel input rating in the May 2022 NOPR. 87 FR 29576, 29583–29584.

In response to the May 2022 NOPR, AHRI, Carrier, and Lennox commented that they support the decision not to tighten the tolerance on fuel input ratings beyond what is required in ASHRAE 103–2017. (AHRI, No. 15 at p. 2; Carrier, No. 12 at p. 2; Lennox, No. 11 at p. 3) Lennox stated also that tightening the tolerance beyond ± 2 percent would increase manufacturer burden. (Lennox, No. 11 at p. 3)

For the reasons discussed in the May 2022 NOPR, and as supported by these comments, DOE is not making any changes to the fuel input rating in this final rule.

2. Ambient Conditions

In the May 2022 NOPR, DOE tentatively concluded that FER results are affected by ambient air temperature and humidity. To help improve the repeatability and reproducibility of test results, DOE proposed to tighten the range of allowable ambient conditions during testing. Specifically, DOE proposed to specify that ambient air temperature must be maintained between 65 °F and 85 °F and relative humidity must be maintained between 20 percent and 80 percent. 87 FR 29576, 29584. DOE tentatively concluded that these limits would not impose additional burden on manufacturers while maintaining the representativeness of the test procedure. *Id.*

DOE requested comment on these proposed constraints, and on its tentative determination that this proposal would decrease variability between tests. *Id.* at 87 FR 29584–29585.

In response to the May 2022 NOPR, Lennox, Carrier, and the Joint Commenters commented that they support the proposed modifications to the allowable ambient temperature range in appendix AA to be between 65 °F and 85 °F for non-condensing and condensing furnaces. (Lennox, No. 11 at p. 4; Carrier, No. 12 at p. 3; Joint Commenters, No. 14 at p. 2) AHRI similarly commented that it supports the change in the ambient air temperature requirement in appendix AA and suggested that the change would not introduce additional burden. (AHRI, No. 15 at p. 2) Lennox and Carrier both commented that their laboratories have the capability to condition the ambient air within the newly specified range; therefore, the requirement will not add significant burden. (Lennox, No. 11 at p. 4; Carrier, No. 12 at p. 3) Lennox stated that this change will reduce FER variability for non-condensing furnaces as well as standardize existing requirements for condensing furnaces. (Lennox, No. 11 at p. 4)

Lennox, Carrier, JCI, and AHRI further commented that they support the proposal to require maintaining the room relative humidity between 20 percent and 80 percent because it will decrease test variability without adding significant burden. (Lennox, No. 11 at p. 4; Carrier, No. 12 at p. 3; JCI, No. 10 at p. 2; AHRI, No. 15 at p. 3) However, they each commented that a tighter range, for example 30 percent to 50 percent, for relative humidity would require FER testing to be conducted in a special conditioned test room rather than in the main laboratory test area, which would add significant manufacturer testing burden. (*Id.*) Additionally, AHRI stated that the narrower band of 30 to 50 percent would require using tighter humidity controls in the test room than the current requirement. (AHRI, No. 15 at p. 3) JCI similarly stated that a tighter humidity range of 30 to 50 percent is beyond the capability of existing lab facilities where FER testing is currently performed. JCI stated that it does not support a relative humidity range tighter than 20 to 80 percent. Furthermore, JCI commented that the test repeatability of FER is less significantly sensitive to the tolerance in relative humidity (''RH'') compared to other test parameters. (JCI, No. 10 at p. 2)

For the reasons discussed in the May 2022 NOPR, and in consideration of these stakeholder comment responses, DOE is finalizing its proposal to specify in section 7.1 of appendix AA that the room temperature shall not fall below 65 °F (18.3 °C) or exceed 85 °F (29.4 °C) and the relative humidity shall not fall below 20 percent or exceed 80 percent in this final rule.

3. Airflow Determination

Section 10.1 of the current appendix AA compares the input heat energy to the heat picked up by the air when the furnace is in heating mode based on the temperature rise of air passing through the furnace and the specific conditions of the inlet air to calculate airflow in the specified heating setting (''Q_{heat}''). If this heating mode airflow setting is the maximum airflow-control setting, then Q_{heat} is equal to the expected airflow at the maximum airflow-control setting (''Q_{max}''). If this heating mode airflow setting is not the maximum airflow-control setting, a second calculation is performed to calculate Q_{max} based on Q_{heat}. Section 10.1, appendix AA. In the May 2022 NOPR, DOE evaluated whether the current method of calculating airflow indirectly based on measurements of other parameters leads to repeatability challenges within the test procedure. 87 FR 29576, 29585.

Each parameter involved in the calculation of Q_{max} and FER has its own inherent variability. Measuring airflow directly reduces the number of parameters required to be measured and therefore could reduce the overall variation inherent in the final FER value.

In the May 2022 NOPR, DOE acknowledged that requiring the use of an airflow-measuring device for furnace fans could introduce a one-time cost for manufacturers that either do not utilize such devices for their current testing programs (presumably of other products) or do not have enough of such devices available to test furnace fans in addition to other HVAC products that use airflow-measuring devices. The estimated cost of an airflow-measuring device is up to $50,000. *Id.*

In the May 2022 NOPR, DOE tentatively concluded that the benefits of measuring airflow would directly outweigh the associated burdens and that the requirement to directly measure airflow would not be unduly burdensome. *Id.* DOE therefore proposed to require that airflow be measured directly during each test. *Id.* Specifically, DOE proposed that this measurement be done using the procedures and methods for measuring airflow specified in ASHRAE 37–2009 (RA 2019), similar to how it is done for central air conditioners and heat pumps.

Id. As part of this proposal, DOE proposed to incorporate by reference Figure 12 of ANSI/Air Movement and Control Association International, Inc. (''AMCA'') 210–07, ANSI/ASHRAE 51–07 (''AMCA 210–2007''), titled ''Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating;'' and Figure 14 of ANSI/ASHRAE Standard 41.2–1987 (RA 92), (''ASHRAE 41.2–1987 (RA 1992)''), titled ''Standard Methods for Laboratory Airflow Measurement.'' *Id.* DOE requested comment on this proposal. *Id.*

In the May 2022 NOPR, DOE also requested comment on whether it is necessary to reference AMCA 210–2007 and ASHRAE 41.2–1987 (RA 1992) in the test procedure instructions for constructing an airflow measuring apparatus. *Id.* DOE also requested comment on alternative methods of directly measuring airflow, such as methods outlined in AMCA 210 (*e.g.,* the pitot traverse method),[10] as well as duct-mounted airflow measurement devices and anemometers, and whether these methods could prove more accurate and repeatable. *Id.* Specifically, DOE requested comment on alternative methods of direct airflow measurement, including on the level of measurement accuracy associated with each approach and any associated test burden. *Id.* at 87 FR 29585–29586.

In response to the May 2022 NOPR, the Joint Commenters expressed support for the proposed requirement for direct measurement of airflow, suggesting that it should improve repeatability and reproducibility. (Joint Commenters, No. 14 at p. 2) Carrier commented that it would support the test procedure change to direct airflow measurement provided that gas heat operation is not required during the direct airflow measurement test. (Carrier, No. 12 at pp. 3–4) Carrier added that it performed comparison tests without gas heating operation on four models, which represented a cross-section of non-weatherized gas furnaces, to compare the methods of the currently applicable test procedure to the proposed direct airflow measurement method. Carrier reported that the results of the test showed slight favoring of the current method over the direct measurement method; however, Carrier stated that the FER results differed by less than 1 percent and maximum airflow averaged 2 percent lower when using the direct measurement method. (*Id.* at p. 4) AHRI stated that it has a limited data set and is unable to provide a meaningful comparison between FER generated by the direct and indirect airflow measurement methods. (AHRI, No. 15 at p. 3)

Lennox stated that the variation in airflow between DOE sample units and AHRI audit units calculated under the currently applicable test procedure would be similar to the typical variation when using direct airflow measurement systems, as motor performance variation is the primary driver for the airflow variation. (Lennox, No. 11 at p. 5) Lennox commented that it did not support the proposal to change the test procedure from the current method to a direct airflow measurement method as it would cause a significant increase in manufacturer burden. (*Id.* at p. 4) However, Lennox commented that, if DOE were to adopt the proposal to measure airflow directly, DOE should carefully ensure that results are cross-walked should ratings change as a result of direct airflow measurement. (*Id.* at p. 5)

JCI commented that it does not support changing to direct measurement of airflow because JCI is unsure if the proposed change to directly measure airflow would resolve the repeatability issues associated with the furnace fan test procedure. (JCI, No. 10 at pp. 2–3, 4) JCI agreed that measuring airflow directly should reduce the uncertainty in calculating maximum airflow compared to the current method, but the proposed change does not guarantee that it would constrain the uncertainty in the FER. JCI commented that the proposal does not address furnace fan electrical consumption, which also has an associated uncertainty. (JCI, No. 10 at pp. 2–3)

Carrier commented that the direct measurement method would improve the accuracy of the test procedure while reducing the difficulty to run it. Carrier suggested that, if DOE were to adopt the direct airflow measurement method, DOE should consider applying the new test procedure only to new models and allowing models tested under the existing test procedure to remain compliant until that model is discontinued. (Carrier, No. 12 at p. 4) Carrier stated that the proposed method of direct airflow measurement would be a slight improvement in the burden imposed on manufacturers from the furnace fans test procedure. (*Id.* at p. 7)

AHRI noted that transitioning to the direct method would create a significant burden for manufacturer test labs and third-party testing facilities as the direct method would require a different set of measurements and therefore additional equipment along with a reconfiguration of the test setup that would require additional floor space. AHRI added that the direct method would further increase testing burden through doubling the number of samples run on code testers. (AHRI, No. 15 at p. 3) AHRI commented that third-party and manufacturer testing facilities would be required to construct code testers and reconfigure heating labs to fit the sizeable instrumentation in order to have the necessary set-up and capacity to conduct direct airflow measurements. AHRI stated that if this is not an option due to space constraints, third-party test facilities would need to move the set-up equipment to small unitary test facilities that already have the built-in flow meters. AHRI concluded that both of these options would significantly increase test time and expenses, including operating costs, and there would be a significant increase in burden for labs not already set up to conduct this type of testing. (*Id.* at p. 7) AHRI commented that manufacturers are equipped to conduct the current furnace fan test procedure and stated that the additional burden posed by transitioning to the direct method will outweigh the value of any potential increased accuracy offered. (*Id.* at p. 3)

Additionally, AHRI commented that should DOE proceed with the direct measurement method, the equipment should remain unfired throughout the testing process. AHRI added that the use of flow measurement devices with high temperature applications will create significant issues and may decrease the life of said measurement devices. AHRI stated that there is limited data available to make accurate comparisons between methods. AHRI requested that data supporting the reasoning for a transition to the direct measurement method be made available prior to requiring the change. AHRI requested that DOE conduct an adequate evaluation of the impact that the direct measurement method will have on FER values and that a crosswalk be created if necessary. Finally, AHRI suggested that DOE consider alternative approaches to reduce testing burden while achieving the same objectives. (*Id.* at p. 4)

Lennox commented that it does not support the proposed change of the furnace fan test procedure from the current method to the direct airflow measurement method due to the increased burden it would impose. (Lennox, No. 11 at p. 1) Lennox commented that the current furnace fan test setup allows the AFUE and FER test to be conducted in a single setup, but a direct airflow measurement approach would require a second setup which would significantly increase burden. (*Id.* at p. 5) Lennox stated that measuring

[10] See *www.amca.org/assets/resources/public/pdf/Education%20Modules/AMCA%20210-16.pdf* (last accessed January 11, 2023.)

airflow directly would cause significant upfront manufacturer costs to purchase code testers and would additionally create ongoing operating costs. Lennox added that additional investments in adequate lab and personnel capacity for direct airflow measurement would be required. Lennox stated that it has multiple product development facilities where furnace fan testing is conducted, so investments would need to be made in each facility. Lennox estimated the ongoing increase in burden to conduct FER direct airflow testing to be up to a 100-percent increase over the currently applicable test method. Lennox stated that DOE should consider the total cumulative regulatory burden associated with any changes to the FER test procedure to require direct airflow measurement. (Lennox, No. 11 at p. 7) Lennox added that, because the FER metric is a part of the AHRI audit program, the additional setup would increase burden when conducting audits. Lennox commented that, while manufacturers do directly measure airflow in the process of developing airflow application tables, it is often done on one sample and is not inclusive of all the iterations required in furnace development, so burden would be added. (*Id.* at p. 5)

JCI commented that the instrumentation for airflow measurement is often found in a different location than the gas lab, where heating equipment is tested, and code tester labs are frequently unequipped to supply fuel gas to a furnace or to dispose of flue gas. Furthermore, JCI stated that the airflow code testers used by JCI and other manufacturers are not intended to have heated air passing through them. JCI noted that the proposed procedure presents issues because it directs that the furnace burners be fired at the same time as the unit is set up on the code tester for direct measurement of airflow. (JCI, No. 10 at p. 3) JCI commented also that the only reason that burners are fired in the current furnace fan test procedure is because they must be fired in order to obtain the temperature rise value used in the calculation of Q_{max}. JCI stated that if the airflow is to be measured directly, there is no need to fire the burners during testing. JCI also commented that changing to a direct airflow measurement would add significant burden because it would require a separate setup from the furnace test procedure, whereas the current furnace fan test procedure setup is the same as the setup used for the furnace AFUE test procedure. (*Id.* at p. 4)

JCI stated that independent testing should be conducted to verify that the two test methods yield the same FER ratings. JCI noted that DOE regulations require that if there is a change of test method, then a unit that complies when tested by the old method must still be compliant when tested by the new method. JCI stated that it would take many months to verify that the hundreds of products they produce which comply with the standards when tested to the currently applicable test procedure still comply when tested according to the proposed method. JCI commented that if test data reveal that the FER results are different when tested according to the proposed method, DOE should be prepared to adjust the maximum allowable FER rating to accommodate the difference. (*Id.* at p. 3) Finally, JCI commented that the proposed method would impose substantial additional test burden and/or equipment costs and that there has been no demonstrated benefit to making the change to direct airflow measurement. (*Id.* at p. 5)

Morrison commented that there are a variety of factors in the airflow measurement procedure as outlined by ASHRAE 37 that could lead to uncertainty associated with this procedure. Morrison noted that DOE should investigate the error specific to this procedure as it relates to furnace fan testing. (Morrison, NOPR Webinar Transcript, No. 9 at pp. 20–23)

In response to the May 2022 NOPR, Lennox commented that AMCA 210–2007 and ASHRAE 41.2–1987 (RA 1992) are associated with the direct airflow measurement method, which Lennox does not support; therefore, Lennox stated, the current furnace fan test procedure airflow calculation is adequate. (Lennox, No. 11 at p. 5) Carrier recommended that DOE reference ASHRAE 41.2–2018 as it is a newer and more current standard. Carrier further commented that it does not recommend other methods beyond ASHRAE 37–2009. (Carrier, No. 12 at p. 4) AHRI recommended that DOE reference ASHRAE 41.2–2018, as opposed to ASHRAE 41.2–1987 (RA 1992), because it is more current. AHRI suggested that establishing standardization across original equipment manufacturers (''OEMs'') would be the best practice. AHRI stated that an updated version of ASHRAE 37 is coming out soon and that ASHAE 37–2009 is the industry standard for equipment and is preferred over AMCA 210–2007, which is a fan-only standard. (AHRI, No. 15 at p. 4)

JCI stated that there are other less expensive measures that, if progressively implemented, would result in repeatability improvements in the furnace fan test procedure and, specifically, reduction in maximum airflow variability. These measures include higher accuracy requirements for instrumentation; providing additional clarity regarding the thermocouple grid, statistical, and sampling techniques; and limiting uncertainty in fuel input rate. JCI stated that these measures would not impose additional burden and disruption to lab facilities, would only require programmatic updates, would not incur the expenses associated with purchasing a code tester, would not put smaller OEMs at a competitive disadvantage, and would expedite improving test procedure repeatability. (JCI, No. 10 at p. 3) Lennox stated that while other airflow measurement methods exist, they are generally less accurate than the methods specified in ASHRAE 37–2009 (RA 2019) and would consequently negate the purpose of transitioning to a direct-airflow measurement method. (Lennox, No. 10 at p. 6)

AHRI noted that there are alternative instruments for direct airflow measurement, but they are less accurate than the methods specified in ASHRAE 37–2009 and would consequently negate the purpose of transitioning to a direct airflow measurement method. (AHRI, No. 15 at p. 4)

The CA IOUs commented that ASHRAE 37 is sufficient, and that referencing AMCA 210 is not necessary. The CA IOUs further commented that they expect that a commercial industrial fans NOPR would lead to an update AMCA 210–2016, and that this test procedure should reference the 2016 version of AMCA 210 if any version is referenced. (CA IOUs, NOPR Webinar Transcript, No. 9 at pp. 25–26)

In response to these comments regarding the proposals to measure airflow directly in the furnace fan test procedure and to reference AMCA 210–2007 and ASHRAE 41.2–1987 (RA 1992) in the furnace fan test procedure, DOE maintains that measuring airflow directly using a code tester could reduce the error associated with airflow measurement in comparison to calculating the airflow and, in turn, reduce concerns about the repeatability and reproducibility of the furnace fan test procedure. However, since the May 2022 NOPR, DOE has conducted preliminary testing to compare the values of Q_{max} and FER determined according to the current test procedure for consumer furnace fans and a modified test method similar to that proposed in the May 2022 NOPR that included direct airflow measurements.

The preliminary results indicated that values determined from tests directly measuring airflow could differ from values determined using the current test method. This preliminary testing did not indicate whether such differences would be more or less representative than the results obtained under the current test procedure requirements. Further, during the preliminary testing, DOE attempted to test some units in the heating mode without the burner firing, as suggested by commenters in response to the May 2022 NOPR, but found that some units were not able to be operated in this way, indicating that a test procedure that requires the test to be conducted unfired may not be possible for all furnace fans. Due to these concerns combined with concerns raised by commenters about potential changes to ratings and the burden associated with implementing this change, DOE has determined to not finalize the proposal from the May 2022 NOPR to measure airflow directly in this final rule. Relatedly, DOE is not incorporating by reference AMCA 210–2007 and ASHRAE 41.2–1987 (RA 1992). Additionally, DOE is adopting other provisions in this final rule that are intended to improve repeatability of the current test procedure without affecting existing ratings or significantly increasing test burden, as discussed elsewhere in section III.D of this document. However, DOE is still investigating the impact of direct airflow measurement on furnace fan ratings, including the impact of running tests with and without the burners firing during heating-mode tests, and may further assess directly measuring airflow in a future test procedure rulemaking for consumer furnace fans.

4. Location of External Static Pressure Measurements

Appendix AA currently requires that external static pressure be measured 18 inches from the outlet. This differs from the requirements outlined in section 6.4 of ASHRAE 37–2009, in which the measurement location varies depending on the dimensions of the duct outlet. In the May 2022 NOPR, DOE reevaluated this provision and how it might impact the repeatability of the test procedure. 87 FR 29576, 29586. DOE expressed concern that measuring at a fixed location of 18 in from the outlet could lead to a less accurate and less repeatable measurement than the approach provided in ASHRAE 37–2009 because the airflow profile may not be fully developed. *Id.*

However, DOE did not have sufficient information to propose a change in the May 2022 NOPR, and therefore requested comment on whether requiring that the external static pressure be measured at the location specified in section 6.4 of ASHRAE 37–2009, as opposed to specifying that external static pressure taps always be placed 18 in from the outlet (*i.e.,* the instructions currently in appendix AA), could improve test repeatability. *Id.* DOE also requested comment on whether manufacturer facilities and other test laboratories would be able to accommodate the added duct length during testing. *Id.* Further, if test facilities would not be able to accommodate the added duct length during testing, DOE requested comment on whether a different length requirement could improve test repeatability while not preventing any existing test facilities from completing a valid test for furnace fans. *Id.*

In response to the May 2022 NOPR, Carrier and AHRI commented that they are opposed to the change in location of measurement if the change results in a higher FER value. If the change does not result in a higher FER value, Carrier and AHRI stated that they would not be opposed to the change. (Carrier, No. 12 at p. 5; AHRI, No. 15 at p. 5) AHRI recommended that the furnace fan test procedure be aligned with furnace test procedures because existing ductwork can be utilized and AFUE will meet existing space constraints. (AHRI, No. 15 at p. 5)

AHRI and JCI stated that they do not support any change to the location of pressure taps for furnace fan testing, and that if the furnace is to be tested on the code tester, the ASHRAE standard for that airflow measurement process includes a description of the duct design and the location of pressure taps. (AHRI, No. 15 at p. 5; JCI, No. 10 at p. 4) AHRI and JCI noted that for furnaces tested in the gas heating lab, the ASHRAE 103 standard includes a description of the ducts and pressure tap locations. (*Id.*) AHRI added that these standards have been in use for many years and yield reliable and repeatable results. AHRI stated that the FER test procedure does not need to specify test duct details; it only needs to reference the appropriate existing standard. (AHRI, No. 15 at p. 5) JCI commented that these standards (*e.g.,* ASHRAE 103) have been in use for many years and provide reliable and repeatable results. JCI stated that the research they conducted concluded that repeatability will not be improved by changing the location of the pressure taps. Moreover, JCI stated that placing the pressure taps at 18 in from the outlet (instead of at a location based on the outlet dimensions) will result in measuring pressure at inconsistent duct lengths within the turbulent flow development region into the supply duct. JCI commented that DOE should engage with OEMs in a research effort to test the assumption in this proposal before finalizing the change. (JCI, No. 10 at p. 4)

Lennox commented that for the current method of calculating airflow based on temperature rise, DOE should maintain the location of 18 in from the outlet to standardize to the same test ducts used for all safety and performance tests performed under Z21.47 and ASHRAE 103–2017. Lennox added that DOE should gather test data that show that a longer duct required by ASHRAE 37–2009, which would require an elbow with 9 thermocouples added to measure outlet temperature, would justify the added manufacturer burden of building additional ducts and switching back and forth between these and those required by all other tests. (Lennox, No. 11 at p. 6)

DOE notes that, in response to the discussion presented in the May 2022 NOPR regarding whether the current method for measuring ESP at a fixed location of 18 in from the outlet could lead to a less accurate and less repeatable measurement than the approach provided in ASHRAE 37–2009, commenters have not provided any data that demonstrate the impact on accuracy or repeatability of changing the location of external static pressure measurements, nor does DOE have any additional information beyond the discussion provided in the May 2022 NOPR. And in response to the comment from JCI, DOE notes that the currently applicable test procedure at appendix AA requires that external static pressure be measured 18 inches from the outlet, as opposed to a measurement location that varies depending on the dimensions of the duct outlet. Additionally, commenters generally did not support the change to the location of pressure taps for consumer furnace fan testing. For these reasons, DOE is not changing the ESP measurement location in this final rule.

5. Language Updates

In the May 2022 NOPR, DOE responded to several comments in response to the July 2021 RFI regarding revisions to the language in appendix AA that could reduce confusion about the test procedure and, in turn, improve test procedure repeatability. 87 FR 29576, 29586–29589.

a. Definitions

For furnace fans used in furnaces or modular blowers with single-stage

heating, the three airflow-control settings required to be tested are: the maximum setting, the default constant-circulation setting, and the default setting when operated using the maximum heat input rate.[11] For furnace fans used in furnaces or modular blowers with multi-stage heating or modulating heating, the airflow-control settings to be tested are: the maximum setting, the default constant-circulation setting, and the default setting when operated using the reduced heat input rate. *See* sections 8.6.1, 8.6.2, 8.6.3, appendix AA. For both single-stage and two-stage or modulating units, if a default constant-circulation setting is not specified, the lowest airflow-control setting is used to represent constant circulation for testing. *See* section 8.6.2, appendix AA.

In addition, if the manufacturer specifies multiple heating airflow-control settings, the highest heating airflow-control setting specified for the given function (*i.e.,* at the maximum or reduced input, as applicable) is used. *See* section 8.6.3, appendix AA.

Inquiries sent to DOE since the publication of the January 2014 Final Rule indicate that there are differing interpretations regarding the appropriate airflow-control settings for testing, with some manufacturers interpreting the DOE consumer furnace fan test procedure as requiring testing only the ''as-shipped'' airflow-control settings. However, the definition for ''default airflow-control setting'' specifically states that ''[i]n instances where a manufacturer specifies multiple airflow-control settings for a given function to account for varying installation scenarios, the highest airflow-control setting specified for the given function shall be used for the procedures specified in this appendix.'' Section 2.6, appendix AA. Further, the default airflow-control settings are defined as airflow-control settings specified for installed use by the manufacturer. That section in turn clarifies that the ''manufacturer specifications for installed use'' are those specifications provided for typical consumer installations in the product literature shipped with the product in which the furnace fan is installed.

Additionally, inquiries sent to DOE indicate that some manufacturers may be interpreting the test procedure to require testing according to installation instructions printed on the control board. However, DOE notes that the same control board may be used across multiple products to reduce manufacturing complexity and costs, and, as a result, instructions provided on a control board may not be applicable to every unit in which a control board is used and could contradict the specifications in product literature. For this reason, DOE specifies in the definition of ''default airflow-control setting'' that the manufacturer specifications for installed use are those specifications provided for typical consumer installations in the product literature shipped with the product in which the furnace fan is installed. Section 2.6, appendix AA.

Based on feedback received in response to the July 2021 RFI, DOE proposed in the May 2022 NOPR to change the defined term at section 2.6 in appendix AA from ''default airflow-control settings'' to ''specified airflow-control settings.'' This revised definition would avoid potential misinterpretation of the term ''default,'' which is not intended to limit testing to the as-shipped airflow-control settings. 87 FR 29576, 29587.

DOE also notes that there is currently conflicting direction from sections 8.6.2 and 2.6 of appendix AA, with section 2.6 specifying that the testing laboratory use the highest available airflow-control setting and section 8.6.2 specifying that the testing laboratory use the lowest available airflow-control setting. To address this discrepancy, DOE also proposed in the May 2022 NOPR to add the phrase ''unless otherwise specified within the test procedure'' to the end the definition of ''specified airflow-control settings'' to clarify that the hierarchy within appendix AA is for the airflow-control settings to be selected according to section 2.6, unless section 8.6.2 applies, in which case section 8.6.2 should be used to select airflow-control settings. *Id.*

In response to the May 2022 NOPR, Lennox and Carrier commented that they support the proposal to change the term ''default airflow-control settings'' to ''specified airflow-control settings.'' (Lennox, No. 11 at p. 6; Carrier, No. 12 at p. 5) JCI commented that while it agrees with the need to clarify what speed tap is to be used for testing a furnace in heating mode, the rule should explicitly state that the heating speed to be used during heat-mode testing is the speed tap specified by the furnace manufacturer in the product literature shipped with the furnace. (JCI, No. 10 at p. 4) AHRI requested that DOE provide clarification regarding what ''default airflow-control settings'' refers to and provide the reasoning for this change. AHRI also suggested that DOE specify what is meant by ''unless otherwise specified within the test procedure.'' (AHRI, No. 15 at p. 5)

Lennox added that it also supports the addition of the phrase ''unless otherwise specified within the test procedure.'' Lennox stated that these changes would improve clarity. (Lennox, No. 11 at p. 6) JCI commented that the phrase ''unless otherwise specified within the test procedure'' is confusing, as the furnace should always be tested at the manufacturer-specified heating speed and the test procedure should not specify otherwise. (JCI, No. 10 at p. 4)

In response to the comment from JCI, DOE notes that the definition it proposed in the May 2022 NOPR and is adopting in this final rule for specified airflow-control settings explicitly states that these settings are those in the product literature shipped with the product in which the furnace fan is installed. In response to the comment from AHRI, DOE notes that this change was proposed in response to inquiries received since the publication of the January 2014 Final Rule. Some inquiries expressed confusion regarding the distinction between the ''default airflow-control settings'' and the ''as-shipped airflow-control settings.'' Others indicated that some manufacturers may be interpreting the test procedure to require testing according to installation instructions printed on the control board. By proposing to change ''default airflow-control settings'' to ''specified airflow-control settings,'' DOE intended to clarify that this refers to the manufacturer-specified settings for each testing mode.

To provide clarity and resolve the conflicting instruction, in this final rule, DOE is finalizing its proposal to change the term ''default airflow-control settings'' to ''specified airflow-control settings'' and to add the phrase ''unless otherwise specified within the test procedure'' to the end the definition of ''specified airflow-control settings'' in section 2.9 of appendix AA.

b. Heating Airflow-Control Settings

In the May 2022 NOPR, DOE stated that it expects that if a fan setting is identified for heating mode operation that the fan would be capable operating in that mode at the ESP specified in appendix AA (which is representative of a typical ESP that would be encountered in the field) and at the specified temperature rise range. DOE requested comment on whether it is necessary to specify that the maximum heating airflow-control setting used during

[11] For furnace fans where the maximum airflow control setting is a heating setting, the maximum airflow-control setting test and the default heating airflow-control setting test would be identical, such that only two tests are required: (1) maximum airflow (which is the same as the default heating setting) and (2) constant circulation.

testing be one that also allows for operation within the manufacturer-specified temperature rise range during testing. DOE also requested information regarding how often furnace fans operate outside of the manufacturer-specified temperature rise range during FER testing under the current requirements. 87 FR 29576, 29587.

In response to the May 2022 NOPR, Lennox, Carrier, AHRI, and JCI suggested that the maximum heating airflow-control setting should allow for operation within the manufacturer's specified rise range during testing. (Lennox, No. 11 at p. 6; Carrier, No. 12 at p. 5; AHRI, No. 15 at p. 6; JCI, No. 10 at p. 4) Carrier stated that it creates unnecessary confusion to require compliance otherwise. (Carrier, No. 12 at p. 5) JCI commented that realistic FER ratings depend on operating the furnace in a realistic manner. JCI added that testing at heating speeds resulting in a temperature rise outside of the manufacturer-specified range is not a realistic operating condition. (JCI, No. 10 at p. 4)

DOE agrees with the commenters that the temperature rise during testing should be within the manufacturer-specified range. If the temperature rise were outside of the manufacturer-specified range, it would not be representative of typical performance. Therefore, in this final rule, DOE is adding clarification in section 8.6.3 of appendix AA that the maximum heating airflow-control setting used during testing be one that also allows for operation within the manufacturer-specified temperature rise range during testing.

c. Power Measurements

Sections 8.6.1.1, 8.6.1.2, 8.6.2, and 8.6.3 of appendix AA require the following parameters to be measured after steady-state operation is achieved: the furnace fan electrical input power, fuel or electric resistance heat kit input energy, external static pressure, steady-state efficiency, outlet air temperature, and/or temperature rise. DOE is aware that some test facilities take a single reading for each of these parameters after achieving the steady-state criteria. As noted in the May 2022 NOPR, in DOE testing, during which these parameters were measured in 1-second intervals throughout the steady-state period, data showed that the values fluctuate sometimes significantly between readings, even while steady-state conditions are maintained. 87 FR 29576, 29588. Due to the potential for significant differences from one reading to the next, these fluctuations could contribute to repeatability issues in FER testing if a value from a single point in time is used for each test. In particular, DOE testing has shown that the standard deviation of furnace fan power measurements for most units over a 30-minute period (at steady state operation) can be up to 16 percent of the average, although for most units the standard deviation is less than 1 percent of the average power consumption. DOE stated in the May 2022 NOPR that it was considering whether further clarifications are necessary for appendix AA to clarify how manufacturers should take power measurements. Specifically, DOE explained that that increasing the number of discrete measurements taken (*i.e.,* increasing the sample size) and averaging them to determine each furnace fan power consumption measurement may yield a result that is more representative and repeatable than using single point measurements of the furnace fan power. *Id.* For example, DOE could require that power measurements be based on the average value over a 1-minute interval beginning immediately after steady-state operation has been achieved, during which the power is measured at least once per second. Alternatively, DOE could require furnace fan power measurements to be based on the average of measurements taken over the entire steady-state period at certain specified intervals (*e.g.,* every minute or every 5 minutes). *Id.*

In the May 2022 NOPR, DOE requested data and information on the methods and granularity with which test facilities currently measure the aforementioned variables, particularly furnace fan power (E_{Max}, E_{Circ}, and E_{Heat}). DOE also requested comment on the intervals at which test facilities are currently capable of recording these measurements with their current instrumentation. Finally, DOE requested information on whether there are variables aside from the fan power consumption variables for which there are significant fluctuations in measurements that DOE should also consider requiring be determined as an average of multiple measurements. *Id.* at 87 FR 29588–29589.

DOE also requested comment on the number of samples that should be taken, and the length of time over which data should be collected in order for a representative average to be achieved. DOE requested comment on the associated costs, if any, to upgrade measurement instruments or software to be able to collect furnace fan power consumption measurements at frequencies of once per second, once per minute, once per 5 minutes, and/or other recommended sampling frequencies. *Id.* at 87 FR 29589.

In response to the May 2022 NOPR, AHRI commented that the number of samples per period of time is dependent on the specific testing conditions; however, AHRI suggested that, generally, manufacturers take power samples every second for 30 seconds, and in alternative testing scenarios once every 2 seconds for 60 seconds to achieve representative averages. (AHRI, No. 15 at p. 6)

Carrier, JCI, and AHRI recommended that short periods of average power measurements should be allowed for instrumentation accuracy and consistency. (Carrier, No. 12 at p. 5; Joint Commenters, No. 14 at pp. 2–3; AHRI, No. 15 at p. 6) Carrier stated that airflow pressure measurements can fluctuate such that using a sample rate of one reading per second for 30 seconds or some other variation to obtain a several-reading average would be preferred. (Carrier, No. 12 at pp. 5–6) AHRI commented that airflow pressure measurements especially have fluctuations that are improved using averaging techniques over multiple measurements and stated that the currently applicable test method on existing equipment does not have the capacity to automatically collect the requested data and information. AHRI noted that the test stand does not have significant fluctuations in data values. (AHRI, No. 15 at p. 6) The Joint Commenters commented that DOE should consider requiring time-averaged values for other test variable measurements as well. (Joint Commenters, No. 14 at p. 3)

Carrier stated that it has not evaluated the associated costs to upgrade lab infrastructure for more frequent readings. (Carrier, No. 12 at p. 6)

These stakeholder comments suggest that current laboratory setups are capable of reporting power data in 1-second intervals and averaging this reported data over the last thirty seconds of the furnace fan test without incurring additional cost or burden. Therefore, in this final rule, DOE is clarifying in section 8.6 of appendix AA that furnace fan electrical input power ($E_{Max,}$ $E_{Circ,}$ and E_{Heat}) shall be determined using an average of the measurements taken over the final 30 seconds of the test at an interval no less frequent than every 1 second.

d. Other Language Clarifications

The title of section 8.3 of appendix AA is ''Steady-State Conditions for Gas and Oil Furnaces,'' the title of section 8.4 is ''Steady-State Conditions for Electric Furnaces and Modular

Blowers,'' and the title of section 8.5 of appendix AA is ''Steady-State Conditions for Cold Flow Tests.'' Sections 8.3 and 8.4 describe the steady-state conditions for ''hot flow'' tests during which the burner or heating element is on, while section 8.5 describes the steady-state conditions for ''cold flow'' tests during which the burner or heating element is off.

In the May 2022 NOPR, DOE proposed to amend the section titles to include the terminology ''for Hot Flow Tests'' in the titles to provide better consistency between the section titles and to provide clarity for the intended use of sections 8.3 and 8.4 of appendix AA. 87 FR 29576, 29589. DOE did not receive any comments in response to this proposal. For the reasons discussed here and in the May 2022 NOPR, DOE is finalizing this change as proposed.

DOE also proposed in the May 2022 NOPR to redesignate the description of operating-mode hours from ''cooling hours'' with variable ''CH'' to ''maximum airflow hours'' with variable ''MH.'' DOE tentatively concluded that these descriptions would be more accurate, as the maximum airflow-control setting is not necessarily a cooling airflow-control setting, and that this proposed change would provide consistency with the description of the operational mode and E_{Max} measurement and avoid the implication that the maximum airflow-control setting will always be a cooling mode. *Id.*

Finally, in the May 2022 NOPR, DOE proposed to add an asterisk prior to the statement ''once the specified ESP has been achieved, the same outlet duct restrictions shall be used for the remainder of the furnace fan test'' in section 8.6.1.2 of appendix AA to link this statement to the ESP column of table 1. *Id.* at 87 FR 29588. This change would clarify the appropriate duct restrictions for testing and not make any substantive changes. *Id.*

DOE did not receive any comments in response to these proposals. Therefore, for the reasons discussed in this final rule and in the May 2022 NOPR, DOE is finalizing these changes as proposed.

E. Nomenclature and Equations

In response to comments submitted following the July 2021 RFI, DOE considered several changes to the nomenclature and equations in appendix AA. First, in the May 2022 NOPR, DOE noted the term Q_i in appendix AA, which refers to the airflow control setting in airflow-control setting *i,* could lead to confusion as the subscript ''i'' has two different meanings: the airflow-control setting and the heat input setting. *Id.* at 87 FR 29589.

DOE also evaluated revising the nomenclature for variables and conversion factors, including steady-state efficiency (''$Effy_{SS}$''), the specific volume of dry air (''v_{air}''), jacket loss (''L_J''), airflow (''Q_i''), the conversion factor from hours to minutes (60), the approximate specific heat of dry air (0.24), and the approximate specific heat capacity of saturated water vapor (0.44). *Id.* at 87 FR 29589–29590.

In the May 2022 NOPR, DOE noted that, should DOE adopt its proposal to measure airflow directly, the equations to calculate airflow would no longer be needed. *Id.* at 87 FR 29590. (However, as discussed in section III.D.3 of this document, DOE is not adopting its proposal to measure airflow directly and is instead maintaining the equations for calculating airflow.) Further, because the variable $Q_{IN,i}$ would be relevant regardless of whether DOE ultimately adopts its proposal to directly measure airflow, DOE proposed to revise the variable $Q_{IN,i}$ within the test procedure for furnace fans at appendix AA. *Id.* DOE also stated that should DOE not adopt the proposal to measure airflow directly, DOE would propose to include the following definitions in section 9 of appendix AA:

- 60 = conversion factor from hours to minutes (min/h)
- 0.24 = approximate specific heat capacity of dry air (Btu/lb-°F)
- 0.44 = approximate specific heat capacity of saturated water vapor, (Btu/lb-°F)
- $Effy_{ss,i}$ = Steady-State Efficiency in airflow-control setting i. For gas and oil furnaces, $Effy_{ss,i}$ as specified in sections 11.2.7 (Non-Condensing and Non modulating), 11.3.7.3 (Condensing and Non modulating), 11.4.8.8 (Non-Condensing and Modulating), or 11.5 (Condensing and Modulating) of ASHRAE 103–2017, in %. For electric furnaces or modular blowers, $Eff_{yss,i}$ equals 100, in %.
- L_J = jacket loss as determined as specified in section 8.6 of ASHRAE 103–2017 or a default value of 1% if the jacket loss test is not performed, in %.
- $T_{i,k,\ In}$ = inlet air temperature at time of the electrical power measurement, in °F, in airflow-control setting *i* and heat setting *k,* where *i* can be ''Circ'' to represent constant-circulation (or minimum airflow) mode, ''Heat'' to represent heating mode, or ''Max'' to represent maximum airflow (typically designated for cooling) mode. If *i* = Heat, *k* can be ''H'' to represent the high heat setting or ''R'' to represent the reduced heat setting. If *i* = Max or Circ, *k* is not needed.
- $T_{i,k,\ Out}$ = average outlet air temperature as measured by the outlet thermocouple grid at time of the electrical power measurement, in °F, in airflow-control setting *i* and heat setting *k,* where *i* can be ''Circ'' to represent constant-circulation (or minimum airflow) mode, ''Heat'' to represent heating mode, or ''Max'' to represent maximum airflow (typically designated for cooling) mode If *i* = Heat, *k* can be ''H'' to represent the high heat setting or ''R'' to represent the reduced heat setting. If *i* = Max or Circ, *k* is not needed.
- $\Delta T_{i,k} = T_{i,k,\ Out}$ minus $T_{i,k,\ In}$, which is the air throughput temperature rise in setting *i* and heat setting *k,* in °F
- $Q_{i,k}$ = airflow in airflow-control setting *i* and heat setting *k,* in cubic feet per minute (CFM)
- $Q_{IN,k}$ = measured fuel energy input rate, in Btu/h, at specified operating conditions *k* based on the fuel's high heating value (HHV) determined as required in section 8.2.1.3 or 8.2.2.3 of ASHRAE 103–2017, where *k* can be ''H'' for the maximum heat setting or ''R'' for the reduced heat setting
- v_{air} = specific volume of dry air at specified operating conditions per chapter 1 of the 2021 ASHRAE Handbook in ft^3/lb [12]

Id.

Further, DOE proposed to correct the conversion factor from watts to Btu/h to match the units designated for the fuel energy input rate ($Q_{IN,k}$), changing it from 3,413 to 3.413. *Id.* Finally, DOE noted that there should be different variables assigned to represent relative humidity and the humidity ratio. To provide clarity regarding these variables, DOE proposed to redesignate the variable for relative humidity from ''W'' to ''φ.'' *Id.* at 87 FR 29590–29591.

In response, AHRI and Carrier commented that ''W'' is defined as humidity ratio; therefore, it would not be necessary to change ''W'' to ''φ.'' (AHRI, No. 15 at p. 6; Carrier, No. 12 at p. 6) Lennox commented it agreed with adding definitions to certain variables

[12] The current version of appendix AA defines v_{air} as ''the specific volume of dry air at specified operating conditions per the equations in the psychrometric chapter in the 2001 ASHRAE Handbook in ft^3/lb.'' DOE proposed an identical definition in the May 2022 NOPR. 87 FR 29576, 29591. However, the specific volume of dry air can be read from tables so, in this final rule, DOE is removing the reference to equations in this definition for clarity. Additionally, as previously discussed in section III.B.2 in this document, DOE is now incorporating by reference chapter 1 of the 2021 AHSRAE Handbook, which uses the same method to determine the specific volume of dry air as the psychrometric chapter of the 2001 ASHRAE Handbook.

and constants as proposed and to change the conversion factor to (Btu/h)/W. (Lennox, No. 11 at p. 7)

With regards to the comments from AHRI and Carrier, while ''W'' is defined as the humidity ratio in section 9 of appendix AA, DOE notes that ''W'' is also defined as relative humidity in section 8.6.1 of appendix AA. To provide clarity and distinguish between the two terms, DOE is finalizing its proposal to designate ''φ'' as the relative humidity in section 8.6.1 of appendix AA. For the reasons discussed in this final rule and in the May 2022 NOPR, DOE is finalizing the additional proposals regarding nomenclature and equation adjustments in appendix 9 of appendix AA, consistent with the proposals in the May 2022 NOPR.

F. Thermocouple Accuracy

Section 5.1 of appendix AA, which references section 5.1 of ASHRAE 37–2009, requires that temperature-measuring instruments must be accurate to within 0.75 °F. Section 6 of appendix AA references section 7 of ASHRAE 103–2007 for the test apparatus setup. Section 7.6 of ASHRAE 103–2007 includes instructions to take temperature measurements with thermocouple grids constructed of either 5, 9, or 17 thermocouples, depending on the stack diameter. The measurement accuracy of a thermocouple grid depends on the type and number of thermocouples used, as well as the magnitude of the air temperature being measured.

In the May 2022 NOPR, DOE evaluated commenter feedback to the July 2021 RFI and tentatively concluded that, assuming that the stack temperatures of gas furnaces would not likely exceed 450 °F, current instrumentation is adequate to measure the stack temperature of furnaces on the market. Thus, DOE did not propose any changes to the accuracy of temperature-measuring instruments in appendix AA. 87 FR 29576, 29591. DOE did not receive any comments in response to the May 2022 NOPR. As a result, this final rule makes no changes to the specified accuracy of temperature measuring instruments in appendix AA.

G. Alternatives to the FER Metric

In response to the May 2022 NOPR, AHRI stated that the FER metric may not be the most appropriate method for testing furnace fans. AHRI stated that furnace fans are not sold directly to consumers and consumers are generally unconcerned with FER values when selecting the best product for their application. AHRI stated that it would appreciate DOE working through concerns about this test procedure with manufacturers to achieve a workable solution. (AHRI, No. 15 at p. 4)

Lennox stated that furnace fan standards do not impact consumer buying decisions for the furnaces in which residential furnace fans are used. Lennox added that when considering energy efficiency, consumers evaluate AFUE because it represents the majority of the energy use of a furnace, and furnace fans consume less than 2 percent of the overall energy use of a residential furnace. Lennox recommended that DOE explore less burdensome approaches regarding ensuring minimum furnace fan efficiency. Lennox added that there are limited opportunities for manufacturers to improve furnace fan energy efficiency and that it is not likely to be economically justified for non-weatherized and weatherized gas furnaces. (Lennox, No. 11 at p. 2)

In response to the comments from AHRI and Lennox, DOE notes that AHRI and Lennox did not provide any specific suggestions as to an alternate test procedure that would better satisfy EPCA's requirement that the test procedure produce test results which measure energy efficiency, energy use, or estimated annual operating cost of a furnace fan during a representative average use cycle or period of use without being unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) Throughout this final rule, DOE has considered and responded to each comment received regarding specific aspects of the furnace fan test procedure. DOE has determined that the amended test procedure adopted in this final rule produces a representative measure of furnace fan energy efficiency and is not unduly burdensome to conduct. Regarding improved furnace fan efficiencies, DOE evaluates opportunities for increased efficiency as part of the separate energy conservation standards rulemaking for consumer furnace fans.[13]

H. Test Procedure Costs

EPCA requires that test procedures proposed by DOE not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) In this final rule, DOE is finalizing its proposals to amend the existing test procedure for consumer furnace fans by specifying a test method for furnace fans that operate at low ESPs, updating the incorporation by reference of certain industry test procedures to the most recent versions, clarifying the scope of the definition of ''furnace fans,'' tightening ambient conditions, clarifying language for airflow-control settings, clarifying nomenclature, and correcting typographical errors. As discussed in section III.D.3 of this document, DOE is not finalizing its proposal to require direct measurement of airflow in this final rule. DOE has determined that the amendments adopted in this final rule will not impact test costs, as discussed in the remainder of this section.

In response to a petition for waiver and an application for interim waiver for heating-only furnace fans, DOE granted a waiver requiring use of an alternate test procedure that specifies alternate ESP test conditions for furnace fans that operate at low ESPs. Any such furnace fan models currently on the market have already been granted a test procedure waiver from DOE, which specifies use of the alternate test procedure. As such, incorporating a similar methodology as the waiver methodology into the test procedure for furnace fans that operate at low ESPs will not result in any additional costs for manufacturers.

DOE is updating the material it incorporates by reference to include more recent versions of ASHRAE 103 and ASHRAE 37. DOE is also incorporating by reference chapter 1 of 2021 ASHRAE Handbook. As discussed previously, DOE's review of these standards indicates that reference to the revised versions of them will not impact FER ratings and will not require that manufacturers recertify their units. Therefore, manufacturers will not incur any additional costs.

Defining and explicitly excluding dual-fuel furnace fans from the scope of appendix AA will make clear that such products are not subject to testing under appendix AA and will not impose any additional burden.

In this final rule, DOE is also tightening ambient conditions to limit the permissible ambient temperature range to between 65 °F and 85 °F and the ambient humidity range to between 20 percent and 80 percent for both condensing and non-condensing furnaces. As discussed, appendix AA currently already limits ambient temperatures to between 65 °F and 85 °F, as well as humidity to below 80 percent for condensing furnaces, and DOE understands that testing laboratories are generally able to meet these criteria in their testing laboratories without the use of a specialized test chamber. Additionally, based on feedback received from Lennox, Carrier, JCI, and AHRI as outlined in section III.D.2 of this document and in confidential manufacturer interviews, DOE has

[13] *See* docket ID EERE–2021–BT–STD–0029 on *www.regulations.gov.*

concluded that it is unlikely that test laboratories would be unable to meet a minimum relative humidity requirement of 20 percent because that limit would exclude only the driest conditions. Therefore, DOE expects that test laboratories will not incur additional cost in applying these same temperature tolerances to testing of non-condensing furnaces as well. These changes to the ambient condition requirements are intended to increase the accuracy of FER ratings and the consistency of test results but are not expected to change the actual performance of any units. Additionally, DOE will not require units that are currently certified to retest according to the updated test procedure.

DOE's remaining changes (clarifying nomenclature and fixing typographic errors) will similarly not result in any changes to the test conduct and therefore will not affect the cost of testing. For these reasons, manufacturers will be able to rely on data generated under the test procedure in effect prior to the adoption of this amendment. However, if a manufacturer chooses to retest as a result of these test procedure amendments, DOE estimates a testing cost of $3,500 per unit and a minimum total cost of $7,000 per basic model.

I. Effective and Compliance Dates

The effective date for the adopted test procedure amendment will be 75 days after publication of this final rule in the **Federal Register**. EPCA prescribes that all representations of energy efficiency and energy use, including those made on marketing materials and product labels, must be made in accordance with an amended test procedure, beginning 180 days after publication of the final rule in the **Federal Register**. (42 U.S.C. 6293(c)(2)) 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.*)

Upon the compliance date of test procedure provisions in this final rule, any waivers that had been previously issued and are in effect that pertain to issues addressed by such provisions are terminated. 10 CFR 430.27(h)(3). Recipients of any such waivers are required to test the products subject to the waiver according to the amended test procedure as of the compliance date of the amended test procedure. The amendments adopted in this document pertain to issues addressed by waivers granted to ECR International, Inc. (Case number 2019–001). *See* 86 FR 13530.

IV. Procedural Issues and Regulatory Review

A. Review Under Executive Orders 12866, 13563, and 14094

Executive Order (''E.O.'') 12866, ''Regulatory Planning and Review,'' as supplemented and reaffirmed by E.O. 13563, ''Improving Regulation and Regulatory Review,'' 76 FR 3821 (Jan. 21, 2011), and amended by E.O. 14094, ''Modernizing Regulatory Review,'' 88 FR 21879 (April 11, 2023), requires agencies, to the extent permitted by law, to (1) propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify); (2) tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; (3) select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); (4) to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt; and (5) identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public. DOE emphasizes as well that E.O. 13563 requires agencies to use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible. In its guidance, the Office of Information and Regulatory Affairs (''OIRA'') in the Office of Management and Budget (''OMB'') has emphasized that such techniques may include identifying changing future compliance costs that might result from technological innovation or anticipated behavioral changes. For the reasons stated in this preamble, this final regulatory action is consistent with these principles.

Section 6(a) of E.O. 12866 also requires agencies to submit ''significant regulatory actions'' to OIRA for review. OIRA has determined that this final regulatory action does not constitute a ''significant regulatory action'' under section 3(f) of E.O. 12866. Accordingly, this action was not submitted to OIRA for review under E.O. 12866.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of a final regulatory flexibility analysis (''FRFA'') for any final rule where the agency was first required by law to publish a proposed rule 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: *www.energy.gov/gc/office-general-counsel.* DOE reviewed this final rule under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. DOE has concluded that the rule would not have a significant impact on a substantial number of small entities. The factual basis for this certification is as follows.

DOE used the Small Business Administration's (''SBA'') small business size standards to determine whether any small entities would be subject to the requirements of the rule. The size standards are listed by North American Industry Classification System (''NAICS'') code as well as by industry description and are available at *www.sba.gov/document/support--table-size-standards.* Manufacturing of consumer furnace fans is classified under NAICS 333415, ''Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing.'' The SBA sets a threshold of 1,250 employees or fewer for an entity to be considered as a small business for this category.[14]

DOE used available public information to identify potential small manufacturers. DOE reviewed the

[14] U.S. Small Business Administration, ''Table of Size Standards'' (effective December 19, 2022). Available at: *www.sba.gov/document/support-table-size-standards* (last accessed January 23, 2022).

Compliance Certification Database [15] (''CCD''), the Modernized Appliance Efficiency Database System [16] (''MAEDbS''), individual company websites, and prior consumer furnace fan energy conservation standards rulemakings to create a list of companies that import or otherwise manufacture the products covered by this final rule. DOE then consulted other publicly available data, such as manufacturer specifications and product literature, U.S. import and export data (*e.g.,* Panjiva [17]) and basic model numbers, to identify OEMs of the products covered by this rulemaking. DOE further relied on public sources and subscription-based market research tools (*e.g.,* Dun & Bradstreet reports [18]) to determine company location, headcount, and annual revenue. DOE screened out companies that do not offer products covered by this rulemaking, do not meet the SBA's definition of a ''small business,'' or are foreign-owned and operated.

DOE identified 25 OEMs offering consumer furnace fans for the U.S. market. Of the 25 OEMs identified, DOE estimates that 8 companies qualify as small businesses and are not foreign-owned and operated.

DOE did not receive written comments that specifically addressed impacts on small businesses or that were provided in response to the initial regulatory flexibility analysis.

In this final rule, DOE is finalizing its proposals to amend the existing test procedure for consumer furnace fans by specifying a test method for furnace fans that operate at low ESPs, incorporating by reference the most recent industry test procedures, clarifying the scope of the definition of ''furnace fans,'' tightening ambient conditions, clarifying language for airflow-control settings, and clarifying nomenclature and correcting typographical errors. DOE is not finalizing its proposal to require direct measurement of airflow in this final rule. DOE has determined that the amendments adopted in this final rule will not impact test costs.

In response to a petition for waiver and an application for interim waiver for heating-only furnace fans, DOE granted a waiver requiring use of an alternate test procedure that specifies alternate ESP test conditions for furnace fans that operate at low ESPs. Any such furnace fan models currently on the market have already been granted a test procedure waiver from DOE, which specifies use of the alternate test procedure. As such, incorporating a similar methodology as the waiver methodology into the test procedure for furnace fans that operate at low ESPs will not result in any additional costs for manufacturers. DOE is updating the material it incorporates by reference to include more recent versions of ASHRAE 103 and ASHRAE 37. DOE is also incorporating by reference chapter 1 of 2021 ASHRAE Handbook. As discussed previously, DOE's review of these standards indicates that reference to the newer versions of them will not impact FER and will not require that manufacturers recertify their units. Therefore, manufacturers will not incur any additional costs. Defining and explicitly excluding dual-fuel furnace fans from the scope of appendix AA will make clear that such products are not subject to testing under appendix AA and will not impose any additional burden.

DOE is also tightening ambient conditions to limit the permissible ambient temperature range to between 65 °F and 85 °F and the ambient humidity range to between 20 percent and 80 percent for both condensing and non-condensing furnaces. As discussed, appendix AA currently already limits ambient temperatures to between 65 °F and 85 °F, as well as humidity to below 80 percent for condensing furnaces, and DOE understands that testing laboratories are generally able to meet these criteria in their testing laboratories without the use of a specialized test chamber. Additionally, DOE concluded that it is unlikely that test laboratories would be unable to meet a minimum requirement of 20 percent, because that limit would exclude only the driest conditions. Therefore, DOE expects that test laboratories will not incur additional cost in applying these same temperature tolerances to testing of non-condensing furnaces as well. These changes to the ambient condition requirements are intended to increase the accuracy of FER ratings and the consistency of test results but are not expected to change the actual performance of any units. DOE will not require units that are currently certified to retest according to the updated test procedure.

DOE's remaining changes, which clarify nomenclature and fix typographic errors, will not result in any changes to the test conduct and therefore will not affect the cost of testing. For these reasons, manufacturers will be able to rely on data generated under the test procedure in effect prior to the adoption of this amendment.

DOE has determined that the amendments described in section III of the final rule will not alter the measured efficiency of consumer furnace fans, or require retesting or recertification solely as a result of DOE's adoption of the amendments to the test procedures. Additionally, DOE has determined that the amendments will not increase the cost of testing. Therefore, DOE concludes that the cost effects accruing from the final rule would not have a ''significant economic impact on a substantial number of small entities,'' and that the preparation of a FRFA is not warranted. DOE has submitted a 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 consumer furnace fans 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 consumer furnace fans. (*See generally* 10 CFR part 429.) The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act (''PRA''). This requirement has been approved by OMB 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.

DOE is not amending the certification or reporting requirements for consumer furnace fans in this final rule.

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[15] U.S. Department of Energy, Compliance Certification Database. Available at: *www.regulations.doe.gov/certification-data/#q=Product_Group_s%3A** (last accessed February 4, 2022).

[16] California Energy Commission, Modernized Appliance Efficiency Database System. Available at: *cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx* (last accessed February 4, 2022).

[17] Panjiva: S&P Global. Available at: *panjiva.com/import-export/United-States* (last access January 20, 2023).

[18] The Dun & Bradstreet Hoovers subscription login is accessible online at *app.dnbhoovers.com/* (last accessed January 20, 2023).

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

D. Review Under the National Environmental Policy Act of 1969

In this final rule, DOE establishes test procedure amendments that it expects will be used to develop and implement future energy conservation standards for consumer furnace fans. DOE has determined that this rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) and DOE's implementing regulations at 10 CFR part 1021. Specifically, DOE has determined that adopting test procedures for measuring energy efficiency of consumer products and industrial equipment is consistent with activities identified in 10 CFR part 1021, appendix A to subpart D, A5 and A6. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 13132

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

F. Review Under Executive Order 12988

Regarding the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, ''Civil Justice Reform,'' 61 FR 4729 (Feb. 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide a clear legal standard for affected conduct rather than a general standard; and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation (1) clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this final rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

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

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

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

I. Review Under Executive Order 12630

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

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

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). Pursuant to OMB Memorandum M–19–15, Improving Implementation of the Information Quality Act (April 24, 2019), DOE published updated guidelines which are available at *www.energy.gov/sites/prod/*

files/2019/12/f70/DOE%20Final%20Updated%20IQA%20Guidelines%20Dec%202019.pdf. DOE has reviewed this final rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

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

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

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

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

The modifications to the test procedure for consumer furnace fans adopted in this final rule incorporate testing methods contained in certain sections of the following commercial standards: ASHRAE 103–2017, ASHRAE 37–2009 (RA 2019), and ASHRAE 41.1–1986 (RA 2006), as well as chapter 1 of the 2021 ASHRAE Handbook. 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 has consulted with both the Attorney General and the Chairman of the FTC about the impact on competition of using the methods contained in these standards and has received no comments objecting to their use.

M. Congressional Notification

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

N. Description of Materials Incorporated by Reference

ASHRAE Standard 37–2009 (RA 2019) is an industry-accepted test procedure that provides a method of test for many categories of air conditioning and heating equipment. ANSI/ASHRAE Standard 37–2009 (RA 2019) is available on ANSI's website at *webstore.ansi.org/RecordDetail.aspx?sku=ANSI%2FASHRAE+Standard+37-2009.*

ASHRAE 37–2009 Errata Sheet is a technical corrections sheet for ASHRAE 37–2009. The errata sheet for ASHRAE 37–2009 is reasonably available on ASHRAE's website at: *www.ashrae.org/.*

ASHRAE 103–2017 is an industry-accepted test procedure for measuring the performance of consumer furnaces and boilers. Copies of ASHRAE 103–2017 may be purchased from ANSI at 1899 L Street, NW, 11th Floor, Washington DC 20036, or by going to *webstore.ansi.org/standards/ashrae/ansiashrae1032017.*

The 2021 ASHRAE Handbook is an industry-accepted handbook that covers basic principles and data used in the heating, ventilation, air-conditioning, and refrigeration industries. The 2021 ASHRAE Handbook is available on ASHRAE's website at *www.ashrae.org/technical-resources/ashrae-handbook.*

The following standard was previously approved for incorporation by reference in the sections where it appears in this final rule and no change is made: ASHRAE 41.1–1986 (RA 2006).

V. Approval of the Office of the Secretary

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

List of Subjects in 10 CFR Part 430

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

Signing Authority

This document of the Department of Energy was signed on March 25, 2024, by Jeff Marootian, Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on April 5, 2024.

Treena V. Garrett,

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

For the reasons stated in the preamble, DOE amends 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. Amend § 430.3 by:
■ a. In paragraph (g)(3), removing the text ''appendices AA, CC, and CC1'' and adding in its place the text ''appendices CC and CC1'';
■ b. Removing paragraph (g)(18);
■ c. Redesignating paragraphs (g)(19) through (22) as paragraphs (g)(20) through (23);
■ d. Redesignating paragraphs (g)(5) through (17) as paragraphs (g)(7) through (19), respectively;

■ e. Adding new paragraphs (g)(5) and (6);
■ f. In newly redesignated paragraph (g)(20), removing the text ''appendices O and EE'' and adding in its place the text ''appendices O, AA, and EE''; and
■ g. Adding paragraph (g)(24).

The additions read as follows:

§ 430.3 Materials incorporated by reference.

* * * * *

(g) * * *

(5) ANSI/ASHRAE Standard 37–2009 (RA 2019) (''ASHRAE 37–2009 (RA 2019)''), *Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment,* ASHRAE-approved June 21, 2019; IBR approved for appendix AA to subpart B.

(6) ANSI/ASHRAE Standard 37–2009 Errata Sheet (''ASHRAE 37–2009 Errata Sheet''), *Errata Sheet for ANSI/ASHRAE Standard 37–2009—Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment,* ASHRAE-approved March 27, 2019; IBR approved for appendix AA to subpart B.

* * * * *

(24) 2021 ASHRAE Handbook—Fundamentals Inch-Pound Edition, Chapter 1, ''Psychrometrics'' (''2021 ASHRAE Handbook''), copyright 2021; IBR approved for appendix AA to subpart B.

* * * * *

■ 3. Appendix AA to subpart B of part 430 is revised to read as follows:

Appendix AA to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of Furnace Fans

Note: Prior to October 9, 2024, any representations with respect to energy use or efficiency of furnace fans must be made either in accordance with the results of testing pursuant to this appendix or with the results of testing pursuant to this appendix as it appeared in the 10 CFR parts 200–499 edition revised as of January 1, 2023. On or after October 9, 2024, any representations, including certifications of compliance, made with respect to the energy use or efficiency of furnace fans must be made in accordance with the results of testing pursuant to this appendix.

0. *Incorporation by Reference*

DOE incorporated by reference in § 430.3, the entire standard for ASHRAE 37–2009 (RA 2019), as corrected by the ASHRAE 37–2009 Errata Sheet; ASHRAE 41.1–1986; as well as Chapter 1 of the 2021 ASHRAE Handbook and ASHRAE 103–2017. In cases where there is a conflict, the language of the test procedure in this appendix takes precedence over the incorporated standards.

1. Scope. This appendix covers the test requirements used to measure the energy consumption of fans used in weatherized and non-weatherized gas furnaces, oil furnaces, electric furnaces, and modular blowers. This appendix does not apply to furnace fans used in dual-fuel units.

2. *Definitions.* Definitions include the definitions as specified in section 3 of ASHRAE 103–2017 and the following additional definitions, some of which supersede definitions found in ASHRAE 103–2017:

2.1. *Active mode* means the condition in which the product in which the furnace fan is integrated is connected to a power source and circulating air through ductwork.

2.2. *Airflow-control settings* are programmed or wired control system configurations that control a fan to achieve discrete, differing ranges of airflow—often designated for performing a specific function (*e.g.,* cooling, heating, or constant circulation)—without manual adjustment other than interaction with a user-operable control such as a thermostat that meets the manufacturer specifications for installed-use. For the purposes of this appendix, manufacturer specifications for installed-use shall be found in the product literature shipped with the unit.

2.3. *Dual-fuel unit* means a consumer product that includes both a heat pump and a burner in a single cabinet.

2.4. *External static pressure* (ESP) means the difference between static pressures measured in the outlet duct and return air opening (or return air duct when used for testing) of the product in which the furnace fan is integrated.

2.5. *Furnace fan* means an electrically-powered device used in a consumer product for the purpose of circulating air through ductwork.

2.6. *Modular blower* means a product which only uses single-phase electric current, and which:

(a) Is designed to be the principal air circulation source for the living space of a residence;

(b) Is not contained within the same cabinet as a furnace or central air conditioner; and

(c) Is designed to be paired with HVAC products that have a heat input rate of less than 225,000 Btu per hour and cooling capacity less than 65,000 Btu per hour.

2.7. *Off mode* means the condition in which the product in which the furnace fan is integrated either is not connected to the power source or is connected to the power source but not energized.

2.8. *Seasonal off switch* means a switch on the product in which the furnace fan is integrated that, when activated, results in a measurable change in energy consumption between the standby and off modes.

2.9. *Specified airflow-control settings* are the airflow-control settings specified for installed-use by the manufacturer. For the purposes of this appendix, manufacturer specifications for installed-use are those specifications provided for typical consumer installations in the product literature shipped with the product in which the furnace fan is installed. In instances where a manufacturer specifies multiple airflow-control settings for a given function to account for varying installation scenarios, the highest airflow-control setting specified for the given function shall be used for the procedures specified in this appendix, unless otherwise specified within this test procedure.

2.10. *Standby mode* means the condition in which the product in which the furnace fan is integrated is connected to the power source and energized, but the furnace fan is not circulating air.

2.11. *Thermal stack damper* means a type of stack damper that opens only during the direct conversion of thermal energy of the stack gases.

3. *Classifications.* Classifications are as specified in section 4 of ASHRAE 103–2017.

4. *Requirements.* Requirements are as specified in section 5 of ASHRAE 103–2017. In addition, Fan Energy Rating (FER) of furnace fans shall be determined using test data and estimated national average operating hours pursuant to section 10.1 of this appendix.

5. *Instruments.* Instruments must be as specified in section 6, not including section 6.2, of ASHRAE 103–2017; and as specified in sections 5.1 and 5.2 of this appendix.

5.1. *Temperature.* Temperature measuring instruments shall meet the provisions specified in section 5.1 of ASHRAE 37–2009 (RA 2019) (as corrected by the ASHRAE 37–2009 Errata Sheet), including the references to ASHRAE 41.1–1986, and shall be accurate to within 0.75 degrees Fahrenheit (within 0.4 degrees Celsius).

5.1.1. *Outlet Air Temperature Thermocouple Grid.* Outlet air temperature shall be measured as described in section 8.2.1.5.5 of ASHRAE 103–2017 and illustrated in Figure 2 of ASHRAE 103–2017. Thermocouples shall be placed downstream of pressure taps used for external static pressure measurement.

5.2. *Humidity.* Air humidity shall be measured with a relative humidity sensor that is accurate to within 5% relative humidity. Air humidity shall be measured as close as possible to the inlet of the product in which the furnace fan is installed.

6. *Apparatus.* The apparatus used in conjunction with the furnace during the testing shall be as specified in section 7 of ASHRAE 103–2017 except for section 7.1, the second paragraph of sections 7.2.2.2, 7.2.2.5, and 7.7, and as specified in sections 6.1, 6.2, 6.3, 6.4, 6.5, and 6.6 of this appendix.

6.1. *General.* The product in which the furnace fan is integrated shall be installed in the test room in accordance with the product manufacturer's written instructions that are shipped with the product unless required otherwise by a specific provision of this appendix. The apparatus described in this section is used in conjunction with the product in which the furnace fan is integrated. Each piece of the apparatus shall conform to material and construction specifications and the reference standard cited. Test rooms containing equipment shall have suitable facilities for providing the utilities necessary for performance of the test and be able to maintain conditions within the limits specified.

6.2. *Downflow furnaces.* Install the internal section of vent pipe the same size as the flue collar for connecting the flue collar to the top

of the unit, if not supplied by the manufacturer. Do not insulate the internal vent pipe during steady-state test described in section 9.1 of ASHRAE 103–2017. Do not insulate the internal vent pipe before the cool-down and heat-up tests described in sections 9.5 and 9.6, respectively, of ASHRAE 103–2017. If the vent pipe is surrounded by a metal jacket, do not insulate the metal jacket. Install a 5-ft test stack of the same cross-sectional area or perimeter as the vent pipe above the top of the furnace. Tape or seal around the junction connecting the vent pipe and the 5-ft test stack. Insulate the 5-ft test stack with insulation having a minimum R-value of 7 and an outer layer of aluminum foil. (*See* Figure 3–E of ASHRAE 103–2017.)

6.3. *Modular Blowers.* A modular blower shall be equipped with the electric heat resistance kit that is likely to have the largest volume of retail sales with that particular basic model of modular blower.

6.4. *Ducts and Plenums.* Ducts and plenums shall be built to the geometrical specifications in section 7 of ASHRAE 103–2017 and section 6.7 of this appendix. An apparatus for measuring external static pressure shall be integrated in the plenum and test duct as specified in sections 6.4 of ASHRAE 37–2009 (RA 2019) (as corrected by the ASHRAE 37–2009 Errata Sheet), excluding specifications regarding the minimum length of the ducting and minimum distance between the external static pressure taps and product inlet and outlet, and section 6.5 of ASHRAE 37–2009 (RA 2019) (as corrected by the ASHRAE 37–2009 Errata Sheet). External static pressure measuring instruments shall be placed between the furnace openings and any restrictions or elbows in the test plenums or ducts. For all test configurations, external static pressure taps shall be placed 18 inches from the outlet.

6.4.1. *For tests conducted using a return air duct.* Additional external static pressure taps shall be placed 12 inches from the product inlet. Pressure shall be directly measured as a differential pressure as depicted in Figure 8 of ASHRAE 37–2009 (RA 2019) rather than determined by separately measuring inlet and outlet static pressure and subtracting the results.

6.4.2. *For tests conducted without a return air duct.* External static pressure shall be directly measured as the differential pressure between the outlet duct static pressure and the ambient static pressure as depicted in Figure 7a of ASHRAE 37–2009 (RA 2019).

6.5. *Air Filters.* Air filters shall be removed.

6.6. *Electrical Measurement.* Only electrical input power to the furnace fan (and electric resistance heat kit for electric furnaces and modular blowers) shall be measured for the purposes of this appendix. Electrical input power to the furnace fan and electric resistance heat kit shall be sub-metered separately. Electrical input power to all other electricity-consuming components of the product in which the furnace fan is integrated shall not be included in the electrical input power measurements used in the FER calculation. If the procedures of this appendix are being conducted at the same time as another test that requires metering of components other than the furnace fan and electric resistance heat kit, the electrical input power to the furnace fan and electric resistance heat kit shall be sub-metered separately from one another and separately from other electrical input power measurements.

7. *Test Conditions.* The testing conditions shall be as specified in section 8, not including sections 8.5.2 and 8.6.1.1 of ASHRAE 103–2017; and as specified in sections 7.1 and 7.2 of this appendix.

7.1 *Ambient Temperature and Humidity Conditions.* During the time required to perform all tests, maintain the room temperature within ±5 °F (2.8 °C) of the air temperature value measured at the end of the steady-state performance test (T_{RA}). For condensing furnaces and boilers, maintain the relative humidity within ±5% of the relative humidity measured at the end of the steady-state performance test. During all tests, the room temperature shall not fall below 65 °F (18.3 °C) or exceed 85 °F (29.4 °C) and the relative humidity shall not fall below 20% or exceed 80%.

7.2. *Measurement of Jacket Surface Temperature (optional).* The jacket of the furnace or boiler shall be subdivided into 6-inch squares when practical, and otherwise into 36-square-inch regions comprising 4 in. x 9 in. or 3 in. x 12 in. sections, and the surface temperature at the center of each square or section shall be determined with a surface thermocouple. The 36-square-inch areas shall be recorded in groups where the temperature differential of the 36-square-inch area is less than 10 °F for temperature up to 100 °F above room temperature and less than 20 °F for temperature more than 100 °F above room temperature. For forced air central furnaces, the circulating air blower compartment is considered as part of the duct system and no surface temperature measurement of the blower compartment needs to be recorded for the purpose of this test. For downflow furnaces, measure all cabinet surface temperatures of the heat exchanger and combustion section, including the bottom around the outlet duct, and the burner door, using the 36 square-inch thermocouple grid. The cabinet surface temperatures around the blower section do not need to be measured (*see* Figure 3–E of ASHRAE 103–2017.)

8. *Test Procedure.* Testing and measurements shall be as specified in section 9 of ASHRAE 103–2017 except for sections 9.1.2.1, 9.3, 9.5.1.1, 9.5.1.2.1, 9.5.1.2.2, 9.5.2.1, and section 9.7.1; and as specified in sections 8.1 through 8.6 of this appendix.

8.1. *Direct Measurement of Off-Cycle Losses Testing Method.* [Reserved]

8.2. *Measurement of Electrical Standby and Off Mode Power.* [Reserved]

8.3. *Steady-State Conditions for Hot Flow Tests for Gas and Oil Furnaces.* Steady-state conditions are indicated by an external static pressure within the range shown in table 1 to this appendix and a temperature variation in three successive readings, taken 15 minutes apart, of not more than any of the following:

(a) 3 °F in the stack gas temperature for furnaces equipped with draft diverters;

(b) 5 °F in the stack gas temperature for furnaces equipped with either draft hoods, direct exhaust, or direct vent systems; and

(c) 1 °F in the flue gas temperature for condensing furnaces.

8.4. *Steady-State Conditions for Hot Flow Tests for Electric Furnaces and Modular Blowers.* Steady-state conditions are indicated by an external static pressure within the range shown in table 1 to this appendix and a temperature variation of not more than 5 °F in the outlet air temperature in four successive temperature readings taken 15 minutes apart.

8.5. *Steady-State Conditions for Cold Flow Tests.* For tests during which the burner or electric heating elements are turned off (*i.e.,* cold flow tests), steady-state conditions are indicated by an external static pressure within the range shown in table 1 to this appendix and a variation in the difference between outlet temperature and ambient temperature of not more than 3 °F in three successive temperature readings taken 15 minutes apart.

8.6. *Fan Energy Rating (FER) Test.*

8.6.1. *Initial FER test conditions and maximum airflow-control setting measurements.* Measure the relative humidity (φ) and dry bulb temperature (T_{db}) of the test room.

8.6.1.1. *Furnace fans for which the maximum airflow-control setting is not a specified heating airflow-control setting.* The main burner or electric heating elements shall be turned off. Adjust the external static pressure to within the range shown in table 1 to this appendix. Maintain these settings until steady-state conditions are attained as specified in sections 8.3, 8.4, and 8.5 of this appendix. Measure furnace fan electrical input power (E_{Max}), external static pressure (ESP_{Max}), and outlet air temperature ($T_{Max,Out}$). The measurement of E_{Max} shall be taken over the final 30 seconds of the steady-state period, at intervals of no less than 1 per second, and averaged over the 30 second period.

8.6.1.2. *Furnace fans for which the maximum airflow-control setting is a specified heating airflow-control setting.* Adjust the main burner or electric heating element controls to the default heat setting designated for the maximum airflow-control setting. Burner adjustments shall be made as specified by section 8.4.1 of ASHRAE 103–2017. Adjust the furnace fan controls to the maximum airflow-control setting. Adjust the external static to within the range shown in table 1 to this appendix. Maintain these settings until steady-state conditions are attained as specified in sections 8.3, 8.4, and 8.5 of this appendix and the temperature rise (ΔT_{Max}) is at least 18 °F. Measure furnace fan electrical input power (E_{Max}), fuel or electric resistance heat kit input energy ($Q_{IN,H}$), external static pressure (ESP_{Max}), steady-state efficiency for this setting ($Effy_{SS,Max}$) as specified in sections 11.2 and 11.3 of ASHRAE 103–2017, outlet air temperature ($T_{Max,Out}$), and temperature rise (ΔT_{Max}). The measurement of E_{Max} shall be taken over the final 30 seconds of the steady-state period, at intervals of no less than 1 per second, and averaged over the 30 second period.

TABLE 1—REQUIRED MINIMUM EXTERNAL STATIC PRESSURE IN THE MAXIMUM AIRFLOW-CONTROL SETTING BY INSTALLATION TYPE

Installation type	ESP (in. wc.) *
Units with an internal, factory-installed evaporator coil	0.50–0.55
Units designed to be paired with an evaporator coil, but without one installed	0.65–0.70
Mobile home	0.30–0.35

* Once the specified ESP has been achieved, the same outlet duct restrictions shall be used for the remainder of the furnace fan test. If the unit under test is unable to complete the testing (*i.e.,* the unit shuts down before completing a test), reduce the target ESP range by 0.05″ w.c. and restart the test. Repeat this process until the test can be completed.

8.6.2. *Constant circulation airflow-control setting measurements.* The main burner or electric heating elements shall be turned off. The furnace fan controls shall be adjusted to the specified constant circulation airflow-control setting. If the manufacturer does not specify a constant circulation airflow-control setting in the installation and operations manual supplied with the unit, the lowest airflow-control setting shall be used. Maintain these settings until steady-state conditions are attained as specified in sections 8.3, 8.4, and 8.5 of this appendix. Measure furnace fan electrical input power (E_{Circ}) and external static pressure (ESP_{Circ}). The measurement of E_{Circ} shall be taken over the final 30 seconds of the steady-state period, at intervals of no less than 1 per second, and averaged over the 30 second period.

8.6.3. *Heating airflow-control setting measurements.* For single-stage gas and oil furnaces, the burner shall be fired at the maximum heat input rate. For single-stage electric furnaces, the electric heating elements shall be energized at the maximum heat input rate. For multi-stage and modulating furnaces, the reduced heat input rate settings shall be used. Burner adjustments shall be made as specified by section 8.4.1 of ASHRAE 103–2017. After the burner is activated and adjusted or the electric heating elements are energized, the furnace fan controls shall be adjusted to operate the fan in the specified heating airflow-control setting that also allows for operation within the manufacturer-specified temperature rise range. In instances where a manufacturer specifies multiple airflow-control settings for a given function to account for varying installation scenarios, the highest airflow-control setting specified for the given function that also allows for operation within the manufacturer-specified temperature rise range shall be used. High heat and reduced heat shall be considered different functions for multi-stage heating units. Maintain these settings until steady-state conditions are attained as specified in sections 8.3, 8.4, and 8.5 of this appendix and the temperature rise (ΔT_{Heat}) is at least 18 °F. Measure furnace fan electrical input power (E_{Heat}), fuel or electric resistance heat kit input energy ($Q_{IN,k}$)external static pressure (ESP_{Heat}), steady-state efficiency for this setting ($Effy_{SS}$) as specified in sections 11.2 and 11.3 of ASHRAE 103–2017, outlet air temperature ($T_{Heat,\ Out}$) and temperature rise (ΔT_{Heat}). The measurement of E_{Heat} shall be taken over the final 30 seconds of the steady-state period, at intervals of no less than 1 per second, and averaged over the 30 second period.

9. *Nomenclature.* Nomenclature shall include the nomenclature specified in section 10 of ASHRAE 103–2017 and the following additional variables:

60 = conversion factor from hours to minutes, (min/h)

0.24 = approximate specific heat capacity of dry air, (Btu/lb-°F)

0.44 = approximate specific heat capacity of saturated water vapor, (Btu/lb-°F)

$Effy_{SS,i}$ = Steady-State Efficiency in airflow-control setting *i.* For gas and oil furnaces $Effy_{SS,i}$ is specified in sections 11.2.7 (Non-Condensing and Modulating), 11.3.7.3 (Condensing and Non-modulating), 11.4.8.8 (Non-Condensing and Non-modulating), or 11.5 (Condensing and Modulating) of ASHRAE 103–2017, in %. For electric furnaces or modular blowers, $Effy_{SS,i}$ equals 100, in %.

L_J = jacket loss as determined as specified in section 8.6 of ASHRAE 103–2017 or a default value of 1% if the jacket loss test is not performed, in %

CCH = annual furnace fan constant-circulation hours

E_{Circ} = furnace fan electrical consumption at the specified constant-circulation airflow-control setting (or minimum airflow-control setting operating point if a default constant-circulation airflow-control setting is not specified), in watts

E_{Heat} = furnace fan electrical consumption in the specified heat airflow-control setting for single-stage heating products or the specified low-heat setting for multi-stage heating products, in watts

E_{Max} = furnace fan electrical consumption in the maximum airflow-control setting, in watts

ESP_i = external static pressure, in inches water column, at time of the electrical power measurement in airflow-control setting *i,* where *i* can be ''Circ'' to represent constant-circulation (or minimum airflow) mode, ''Heat'' to represent heating mode, or ''Max'' to represent cooling (or maximum airflow mode).

FER = fan energy rating, in watts/1000 cfm

HH = annual furnace fan heating operating hours

HCR = heating capacity ratio (nameplate reduced heat input capacity divided by nameplate maximum input heat capacity)

k_{ref} = physical descriptor characterizing the reference system

T_{db} = dry bulb temperature of the test room in, °F

$T_{i,k,in}$ = inlet air temperature at time of the electrical power measurement, in °F, in airflow-control setting *i* and heat setting *k,* where *i* can be ''Circ'' to represent constant-circulation (or minimum airflow) mode, ''Heat'' to represent heating mode, or ''Max'' to represent maximum airflow (typically designated for cooling) mode. If *i* = Heat, *k* can be ''H'' to represent high heat setting or ''R'' to represent the reduced heat setting. If *i* = Max or Circ, *k* is not needed.

$T_{i,k,out}$ = average outlet air temperature as measured by the outlet thermocouple grid at time of the electrical power measurement, in °F, in airflow-control setting *i* and heat setting *k,* where *i* can be ''Circ'' to represent constant-circulation (or minimum airflow) mode, ''Heat'' to represent heating mode, or ''Max'' to represent maximum airflow (typically designated for cooling) mode. If *i* = Heat, *k* can be ''H'' to represent high heat setting or ''R'' to represent the reduced heat setting. If *i* = Max or Circ, *k* is not needed.

$\Delta T_{i,k}$ = $T_{i,k,Out}$ minus $T_{i,k,in}$, which is the air throughput temperature rise in setting *i* and heat setting *k,* in °F

Qi,k = airflow in airflow-control setting *i* and heat setting *k,* in cubic feet per minute (CFM)

MH = annual furnace fan maximum airflow hours

$Q_{IN,k}$ = nameplate fuel energy input rate, in Btu/h, at specified operating conditions *k,* based on the fuel's high heating value (''HHV'') determined as required in section 8.2.1.3 or 8.2.2.3 of ASHRAE 103–2017, where *k* can be ''H'' for the maximum heat setting or ''R'' for the reduced heat setting.

W = humidity ratio in pounds water vapor per pounds dry air

v_{air} = specific volume of dry air at specified operating conditions per the 2021 ASHRAE Handbook, in ft^3/lb

10. *Calculation of derived results from test measurements for a single unit.* Calculations shall be as specified in section 11 of ASHRAE 103–2017, except for appendices B and C; and as specified in sections 10.1 through 10.10 and Figure 1 of this appendix.

10.1. *Fan Energy Rating (FER)*

$$FER = \frac{(MH \times E_{Max}) + (HH \times E_{Heat}) + (CCH \times E_{circ})}{(MH + 830 + CCH) + Q_{Max}} \times 1000$$

Where: $Q_{Max} = Q_{Heat}$ for products for which the maximum airflow-control setting is a specified heat setting, or

$$Q_{Max} = Q_{Heat} \sqrt{\frac{ESP_{Max}}{ESP_{Heat}} \times \frac{(T_{Heat,Out} + 460)}{(T_{Max,Out} + 460)}}$$

For products for which the maximum airflow control setting is only designated for cooling; and

$$Q_{i,k} = \frac{\left(Effy_{SS,i} - L_J\right) \times Q_{IN,k} + (3.413 \times E_k)}{60 \times (0.24 + 0.44 \times W) \times \left(\frac{1}{v_{air}}\right) \times \Delta T_{i,k}}$$

The estimated national average operating hours presented in table 2 to this appendix shall be used to calculate FER.

TABLE 2—ESTIMATED NATIONAL AVERAGE OPERATING HOUR VALUES FOR CALCULATING FER

Operating mode	Variable	Single-stage (hours)	Multi-stage or modulating (hours)
Heating	HH	830	830/HCR.
Maximum Airflow	MH	640	640.
Constant Circulation	CCH	400	400.

Where:

$$HCR = \frac{Q_{IN,R\ (nameplate)}}{Q_{IN,H\ (nameplate)}}$$

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SECURITIES AND EXCHANGE COMMISSION

17 CFR 210, 229, 230, 232, 239, and 249

[Release Nos. 33–11280; 34–99908; File No. S7–10–22]

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The Enhancement and Standardization of Climate-Related Disclosures for Investors; Delay of Effective Date

AGENCY: Securities and Exchange Commission.

ACTION: Final rules; delay of effective date.

SUMMARY: On March 28, 2024, the Securities and Exchange Commission (''Commission'') published final rules in the **Federal Register**, titled ''The Enhancement and Standardization of Climate-Related Disclosures for Investors'' (''Final Rules'' or ''Rules''), in order to amend its rules under the Securities Act of 1933 (''Securities Act'') and Securities Exchange Act of 1934 (''Exchange Act'') to require registrants to provide certain climate-related information in their registration statements and annual reports. The Final Rules were to become effective on May 28, 2024. This document announces that the effective date of the Final Rules is delayed pending the completion of judicial review in consolidated proceedings in the Eighth Circuit.

DATES: As of April 12, 2024, the effective date of the Final Rules, published at 89 FR 21668, March 28, 2024, is delayed indefinitely. The Commission will publish a subsequent notification in the **Federal Register** announcing the effective date of the Final Rules following the completion of judicial review of the consolidated Eighth Circuit petitions.

FOR FURTHER INFORMATION CONTACT: Elliot Staffin, Senior Special Counsel, Office of Rulemaking, at (202) 551–3430, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549.

SUPPLEMENTARY INFORMATION:

On March 6, 2024, the Commission adopted Final Rules that will require registrants to provide certain climate-related information in their registration