DEPARTMENT OF ENERGY

10 CFR Part 431

[EERE-2024-BT-DET-0012]

RIN 1904-AE57

Energy Conservation Program: Commercial Warm Air Furnaces; Final Determination

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

ACTION: Final determination.

SUMMARY: On June 2, 2023, the U.S. Department of Energy ("DOE" or the "Department") published a test procedure final rule which established test procedures for commercial warm air furnaces ("CWAFs"). On August 1, 2023, the Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") filed a petition for review of the final rule in the United States Court of Appeals for the Fourth Circuit. In a February 6, 2024, order, the Fourth Circuit granted a voluntary remand of the final rule to the Department of Energy ("DOE") to determine whether establishment of the test procedure for the thermal efficiency two ("TE2") metric is supported by the specific provisions applicable to CWAFs under the Energy Policy and Conservation Act ("EPCA"). More specifically, DOE agreed in this voluntary remand to not enforce the TE2 test procedure unless and until the Department determines that the TE2 test procedure is consistent with the amended industry test procedure, or determines, supported by clear and convincing evidence, that the amended industry test procedure fails to satisfy the statutory requirements. This document provides DOE's determination that the amended industry test procedure fails to satisfy EPCA's statutory requirements.

DATES: The effective date of July 3, 2023, for the TE2 test procedure is confirmed.

ADDRESSES: The docket for this activity, which includes *Federal Register* notices, 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 information that is exempt from public disclosure.

The docket webpage can be found at *www.regulations.gov/docket/EERE-2024-BT-DET-0012*. The docket webpage 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*.

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I. Introduction

A. Authority

The Energy Policy and Conservation Act, Public Law 94-163, as amended ("EPCA"),[1] authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317, as codified) Title III, Part C of EPCA, added by Public Law 95-619, title IV, sec. 441(a), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a variety of provisions designed to improve energy efficiency. This equipment includes CWAFs, the subject of this document. (42 U.S.C. 6311(1)(J))

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 include definitions (42 U.S.C. 6311), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), energy conservation standards (42 U.S.C. 6313), and the authority to require information and reports from manufacturers (42 U.S.C. 6316; 42 U.S.C. 6296).

[1] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Pub. L. 116-260 (Dec. 27, 2020), which reflect the last statutory amendments that impact Parts A and A-1 of EPCA.

The Federal testing requirements consist of test procedures that manufacturers of covered equipment must use as the basis for: (1) certifying to DOE that their equipment complies with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6316(b); 42 U.S.C. 6296), and (2) making other representations about the efficiency of that equipment (42 U.S.C. 6314(d)). Similarly, DOE uses these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA. DOE's test procedures for CWAFs are currently prescribed at subpart D of part 431 of title 10 of the Code of Federal Regulations ("CFR").

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

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

EPCA generally requires that, at least once every seven years, DOE evaluate test procedures for each type of covered equipment, including CWAFs, 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. (42 U.S.C. 6314(a)(1)-(3)) DOE refers to these provisions as the "lookback" provisions and rulemakings conducted under these provisions as "lookback" rulemakings.

Specific to certain commercial equipment, including CWAFs, EPCA required that the initial test procedures for this equipment be those generally accepted industry testing procedures or rating procedures developed or recognized by AHRI or ASHRAE, as referenced in ASHRAE Standard 90.1, "Energy Standard for Buildings Except Low-Rise Residential Buildings" ("ASHRAE Standard 90.1"), that were in effect on June 30, 1992. (42 U.S.C. 6314(a)(4)(A)) Further, if such an industry test procedure is amended, DOE must update its test procedure to be consistent with the amended industry test procedure unless DOE determines, by rule published in the *Federal Register* and supported by clear and convincing evidence, that the amended test procedure would not meet the requirements in 42 U.S.C. 6314(a)(2) and (3), in which case DOE may establish an amended test procedure that does satisfy those statutory provisions. (42 U.S.C. 6314(a)(4)(B) and (C)) DOE refers to these provisions as the "ASHRAE trigger" provisions and rulemakings conducted under these provisions as "ASHRAE trigger" rulemakings.

Whether pursuant to the lookback provision or the ASHRAE trigger provision, if DOE determines that a test procedure amendment is warranted, EPCA requires that the Department publish proposed test procedures in the *Federal Register* and afford

interested persons an opportunity (of not less than 45 days duration) to present oral and written data, views, and arguments on the proposed test procedures. (42 U.S.C. 6314(b))

B. Energy Conservation Standards Rulemaking Process Under EPCA

The purpose of energy conservation standards issued under EPCA is to reduce energy use by improving the energy efficiency of covered products and equipment. (*See* 42 U.S.C. 6312(a)) The first step in establishing new or amended energy conservation standards for any covered product or equipment is to determine what energy use by a covered product or equipment will be within the scope of the energy conservation standard, *i.e.*, what is the representative average use cycle for the covered product or equipment. For example, prior to the Energy Independence and Security Act of 2007 ("EISA 2007"), the representative average use cycle for many covered products only included active mode energy use, *i.e.*, energy used while the product was performing its main function. As such, the representative use cycle did not include any energy used while the product was in a standby or off mode. Thus, manufacturers had little incentive to reduce standby or off mode energy use as it had no effect on whether a covered product complied with the applicable energy conservation standards. But in EISA 2007, Congress required DOE to include standby and off mode energy use as part of the representative average use cycle for any energy conservation standard adopted after July 1, 2010. (42 U.S.C. 6295(gg)(3))

Representative average use cycles for covered products and equipment can also change over time as DOE's understanding of how the product or equipment is used in the field improves, consumer habits change, or technologies improve. Of particular importance here is the introduction of variable-speed compressors in the heating, ventilation, and air conditioning (HVAC) market. Variable-speed technology allows

compressors used in HVAC equipment to run at part-load values in response to different operating conditions in the field. For example, if a room temperature is only 2 or 3 degrees warmer than the set temperature, an HVAC unit with variable-speed technology could run at partial capacity, *e.g.*, 40% capacity, to cool the room to the setpoint. This saves energy as the HVAC unit uses less energy running at a lower speed. And variable-speed HVAC units still maintain the capability of operating at 100% capacity when needed, *e.g.*, cooling down a home after a homeowner returns from vacation. As HVAC units with variable-speed technology have become more prevalent in the market, the representative average use cycle for this equipment has changed. HVAC units with variable-speed technology run for longer periods of time at slower speeds that single-speed HVAC units. As a result, DOE amends the test procedures for specific HVAC equipment to ensure the representative average use cycle reflects manufacturer innovation and how models with this technology will operate in the field. For example, DOE recently issued an amended test procedure for air-cooled commercial package air conditioners and heat pumps that, among other things, has provisions for measuring part-load energy use because of the presence of variable-speed technology in the market. 89 FR 43986 (May 20, 2024). DOE adopted this new test procedure for air-cooled commercial air conditioners and heat pumps with the support of a cross-section of stakeholders, including the heating and cooling industry, who recommended the details of the new test procedure to DOE as part of a negotiated consensus recommendation. *Id.* at 89 FR 43991. In fact, every type of HVAC consumer product or covered equipment regulated by DOE that has an energy conservation standard that accounts for part-load operation, *e.g.*, residential central air conditioners and heat pumps and variable refrigerant flow air conditioners and heat pumps has an associated test procedure that has provisions for measuring energy use during part-load operation.

Having determined a representative average use cycle for a covered product or equipment, the next step in EPCA's energy conservation standards rulemaking process is to prescribe a test procedure that is reasonably designed to produce test results that measure energy use of the covered product or equipment for that representative average use cycle and that is not unduly burdensome to conduct. (42 U.S.C. 6293(b)(3); 42 U.S.C. 6314(a)(2)) For example, when Congress required DOE to include standby and off mode energy use in standards for covered products, it first directed DOE to amend test procedures for all covered products to include provisions for measuring standby and off mode energy use. (42 U.S.C. 6295(gg)(2)(A)) Congress then directed DOE to use these amended test procedures when prescribing new or amended standards that incorporate standby and off mode energy use. (42 U.S.C. 6295(gg)(3)(A)) As the new standards would be based on a different representative use cycle, *i.e.*, one that includes active mode, standby mode, and off mode, Congress clarified that the amended test procedures "shall not be used to determine compliance with product standards established prior to the adoption of the amended test procedures." (42 U.S.C. 6295(gg)(2)(C)) It would have made little sense for Congress to require manufacturers to use test procedures that measure active, standby, and off mode energy when determining compliance with an energy conservation standard that is only based on active mode energy use. DOE takes the same approach when prescribing an amended test procedure for use in evaluating new or amended energy conservation standards that are based on an updated representative average use cycle. Use of the amended test procedure is only required upon the compliance date of the new or amended energy conservation standards. *See* section 8(f) of appendix A to subpart C of 10 CFR part 430.

C. Background

Under EPCA's lookback provision, DOE initiated a test procedure rulemaking for CWAFs by publishing a request for information ("RFI") in the *Federal Register* on May 5, 2020 ("May 2020 RFI"). 85 FR 26626. The current energy conservation standards for CWAFs are based on a representative average use cycle that assumes CWAFs always operate at 100 percent capacity in the field and that the only energy losses are from flue exhaust gases. The May 2020 RFI solicited public comments, data, and information on aspects of the existing DOE test procedure for CWAFs at 10 CFR part 431, subpart D, appendix A ("appendix A"), which measures Thermal Efficiency ("TE") and is used for determining compliance with the current energy conservation standards for CWAFs, including whether there were any issues with the existing test procedure at that time and whether it was in need of updates or revisions. *Id.*

DOE subsequently published a notice of proposed rulemaking ("NOPR") for the CWAFs test procedure in the *Federal Register* on February 25, 2022, which proposed amendments to the existing test procedure for TE as well as a new test procedure based on DOE's tentative determination that the representative average use cycle for CWAFs should include jacket losses and part-load operation. 87 FR 10726 ("February 2022 NOPR"). DOE noted that CWAFs are typically installed outdoors and, as a result, jacket losses can be a significant source of energy loss. 87 FR 10726, 10735. DOE also noted that many CWAFs now have multiple heating stages and performance for these CWAFs can vary at different heating loads. *Id*. As a result, DOE proposed that any new or amended energy conservation standards for CWAFs should be based on a representative average use cycle that includes jacket losses and part-load operation, and proposed a new metric, TE2, that captured those aspects of CWAF energy use. DOE proposed a new test procedure in 10 CFR part 431, subpart D, appendix B ("appendix B"), to measure energy efficiency under the TE2 metric. DOE tentatively determined that the appendix B test

procedure met the statutory criteria in 42 U.S.C. 6314(a)(2) and (3). 87 FR 10726, 10737-10738. The February 2022 NOPR had a 60-day comment period and DOE held a webinar public meeting on March 29, 2022.

Following publication of the February 2022 NOPR, the latest update to ASHRAE Standard 90.1 was released in January 2023 ("ASHRAE Standard 90.1-2022"). ASHRAE Standard 90.1-2022 references CSA/ANSI Z21.47-2021, *Gas-fired central furnaces* ("ANSI Z21.47-2021"), as the test method for gas-fired CWAFs and Underwriters Laboratories ("UL") standard UL 727-2018, "Standard for Safety Oil-Fired Central Furnaces" ("UL 727-2018"), as the test method for oil-fired CWAFs.

On June 2, 2023, DOE published a test procedure final rule for CWAFs. 88 FR 36217 ("June 2023 Final Rule"). In the June 2023 Final Rule, DOE amended the current test procedure for TE in appendix A and incorporated by reference the latest industry test procedures referenced in ASHRAE Standard 90.1-2022. The amendments to the industry test procedure were relatively minor and not based on any updates to the representative average use cycle for CWAFs. Rather, they were clarifications to the existing test procedure intended to improve clarity and help with the execution of the current test procedure. DOE also finalized the proposed appendix B test procedure that is based on an updated representative average use cycle that includes jacket losses and part-load operation. Similar to other rulemakings where DOE has determined that the representative average use cycle should be updated, *e.g.*, air-cooled commercial air conditioners and heat pumps, the June 2023 Final Rule states that use of the appendix B test procedure would not be required until such time as compliance is required with amended energy conservation standards based on the new metric, should DOE adopt such standards.

On August 1, 2023, following publication of the June 2023 Final Rule, the Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") filed a petition for review of

the final rule in the United States Court of Appeals for the Fourth Circuit. In its opening brief, AHRI argued that DOE failed to provide notice and an opportunity for comment after being triggered by the ASHRAE Standard 90.1-2022 publication prior to publishing the June 2023 Final Rule; that DOE did not undertake the required analysis under 42 U.S.C. 6314(a)(4)(B); and that if DOE had conducted the correct analysis under that provision, it would necessarily have concluded that it lacked clear and convincing evidence that the industry test procedure did not meet the statutory requirements. *See Air-Conditioning, Heating, and Refrigeration Institute v. United States Department of Energy*, No. 23–1793 (4th Cir. Oct. 23, 2023), 15-1.

On February 6, 2024, the Fourth Circuit granted the Department's motion for voluntary remand. In its order, the Court granted DOE's motion for voluntary remand to clarify that, in this particular circumstance, where ASHRAE published an amended industry test procedure during the pendency of a rulemaking under the 7-year lookback provision, the Department will solicit public comment prior to making: (1) a final determination that the test procedure in appendix B for the TE2 metric is consistent with the amended industry test procedure; or (2) a final determination, supported by clear and convincing evidence, that the industry test procedure fails to satisfy the statutory requirements. *See Air-Conditioning, Heating, and Refrigeration Institute v. United States Department of Energy*, No. 23–1793 (4th Cir. Feb. 6, 2024), 22-1 (hereafter "Remand Order"). The Remand Order did not vacate the June 2023 Final Rule; the challenged failure to solicit public comment (and other related claims brought in the petition for review) applied only to the determination that the industry test procedure did not meet the applicable statutory requirements and not DOE's determination that the appendix B test procedure satisfied the applicable statutory criteria. But, per the Remand Order, DOE will not enforce the appendix B test procedure until the Department determines that the appendix B test procedure is consistent with the amended industry test procedure or DOE

determines, supported by clear and convincing evidence, that the amended industry test procedure fails to satisfy the statutory requirements in 42 U.S.C. 6314(a)(2) and (3). *See* Remand Order at 2.

In accordance with the Remand Order from the Fourth Circuit, on December 26, 2024, DOE published a notification of tentative determination and request for comment ("December 2024 NOTD"), which tentatively determined, supported by clear and convincing evidence, that the industry test procedure is not reasonably designed to produce test results that reflect energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation. 89 FR 104859. The December 2024 NOTD sought comment on DOE's proposed determination that the amended industry test procedure, which does not have provisions for measuring energy loss to the ambient environment (jacket losses) and energy use during part-load operation, is not reasonably designed to produce test results that reflect energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation.

DOE received comments in response to the December 2024 NOTD from the interested parties listed in table I.1.

Table I.1 List of Commenters with Written Submissions in Response to the December 2024 NOTD

Commenter(s)	Abbreviation	Comment No. in the Docket	Commenter Type
Michael Ravnitzky	Ravnitzky	2	Individual
Air-Conditioning, Heating, and Refrigeration Institute	AHRI	6	Trade Association
Appliance Standards Awareness Project and Northwest Energy Efficiency Alliance (Joint Commenters)	ASAP and NEEA	7	Efficiency Organization
Trane Technologies	Trane	8	Manufacturer
Johnson Controls	JCI	9	Manufacturer
Daikin Applied Americas Inc	Daikin	10	Manufacturer

A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.[2]

II. Discussion

As discussed in the December 2024 NOTD, EPCA requires that if the industry test procedure for CWAFs is amended, DOE must update its test procedure to be consistent with the amended industry test procedure unless DOE determines, by rule published in the **Federal Register** and supported by clear and convincing evidence, that the amended test procedure would not meet the requirements in 42 U.S.C. 6314(a)(2) and (3), in which case DOE may establish an amended test procedure that does satisfy those statutory provisions. (42 U.S.C. 6314(a)(4)(B) and (C)) The publication of ASHRAE Standard 90.1-2022 represented an ASHRAE trigger for CWAFs.

However, due to the timing of the ASHRAE trigger, which occurred after DOE had published the February 2022 NOPR, but prior to the June 2023 Final Rule, DOE had not sought comment in the February 2022 NOPR on whether the amended industry test procedure met the applicable statutory requirements for measuring energy use for the

[2] The parenthetical reference provides a reference for information located in the docket. (Docket No. EERE-2024-BT-DET-0012-0001, which is maintained at *www.regulations.gov*.) The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

TE2 metric, which is based on a representative average use cycle that includes jacket losses and part-load operation in the field. DOE also did not initiate a separate process to determine whether the amended industry test procedure satisfied the applicable statutory criteria. DOE did, on the other hand, follow all of the procedural requirements in 42 U.S.C. 6314(b) for prescribing the appendix B test procedure. DOE published the proposed appendix B test procedure in the Federal Register, provided a comment period of not less than 45 days (i.e., 60 days), and held a public webinar meeting on March 29, 2022. *See* 42 U.S.C. 6314(b)(1)-(2). As a result, in accordance with the Remand Order, DOE is addressing only the challenged failure to determine, after notice and comment, whether the amended industry test procedure is consistent with the appendix B test procedure, or whether, as supported by clear and convincing evidence, the amended industry test procedure fails to satisfy the statutory requirements. Remand Order p. 2.

In the December 2024 NOTD, DOE tentatively determined, supported by clear and convincing evidence,[3] that the amended industry test procedure is not reasonably designed to produce test results that reflect energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation. In making that tentative determination, DOE noted that a CWAF with a TE of 81 percent as measured by the amended industry test procedure could, depending on jacket losses and part-load operation, have an actual range of efficiencies from 77.5 to 82 percent using the appendix B test procedure for TE2. 89 FR 104859, 104864. DOE found that to be a significant difference that would impact both consumers and manufacturers. The following sections discuss comments received in response to the December 2024 NOTD and DOE's decision to finalize its determination that the amended industry test procedure is not reasonably designed to produce test results that

[3] "[C]lear and convincing evidence requires a factfinder … to have an 'abiding conviction' that her findings . . . are 'highly probable' to be true." *Am. Pub. Gas Ass'n v. United States Dep't of Energy*, 22 F.4th 1018, 1025 (D.C. Cir. 2022) (quoting *Colorado v. New Mexico*, 467 U.S. 310, 316 (1984)).

reflect energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation.

A. Appendix B Test Procedure for TE2

DOE received several comments that focused on the appendix B test procedure. For example, both Trane and JCI stated that DOE had not shown that the appendix B test procedure met the statutory requirement of not being unduly burdensome to conduct. (Trane, No. 8, p. 3; JCI, No. 9, pp. 1-2) Similarly, AHRI commented on the representativeness, burden, and costs of the appendix B test procedure and attached comments that were previously submitted in response to the February 2022 NOPR. (AHRI, No. 6, pp. 6-9)

In response to these and similar comments, DOE reiterates that the scope of this rulemaking process, as laid out in the Remand Order, is to determine whether the amended industry test procedure is consistent with the appendix B test procedure for TE2, or whether the amended industry test procedure fails to satisfy the applicable requirements in 42 U.S.C. 6314(a)(2) and (3). In accordance with the Remand Order, DOE issued the December 2024 NOTD, which tentatively determined, supported by clear and convincing evidence, that the amended industry test procedure was not reasonably designed to produce test results that reflect energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation. DOE sought comment on this tentative determination. In the December 2024 NOTD, DOE specifically noted that the remand order did not vacate the June 2023 Final Rule, nor did it require DOE to revisit its determination that the appendix B test procedure meets the statutory requirements at 42 U.S.C. 6314(a)(2) and (3). 89 FR 104859, 104862. As such, DOE will not address comments on whether the appendix B test procedure meets the statutory requirements in 42 U.S.C 6314(a)(2) and (3). Instead,

DOE invites stakeholders to review the June 2023 Final Rule where these same comments regarding representativeness, burden, and cost of the appendix B test procedure were fully addressed.

B. Comment Period Length

Several commenters expressed concerns about the length of the comment period provided in the December 2024 NOTD. (Daiken, No. 10, p. 2; JCI, No. 9, p. 1; AHRI, no. 6, pp. 2-4) More specifically, JCI commented that there was not sufficient time to complete a notable research effort including the necessary internal reviews and approvals. (JCI, No. 9, p. 1) JCI also expressed concern that the shortened comment period could set a dangerous precedent for future rulemakings. *Id.* AHRI stated that the comment period fell short of the minimum 45-day comment period required for proposed test procedures under 42 U.S.C. 6314(b).

In response to these comments, DOE first notes, as AHRI correctly pointed out, that prior to prescribing a final test procedure DOE is required to publish the proposed test procedure in the Federal Register and provide at least a 45-day comment period. (42 U.S.C. 6314(b)). But, as clearly stated in the Remand Order, the December 2024 NOTD, and throughout this document, the court did not vacate the June 2023 Final Rule, nor did it require DOE to revisit its determination that the appendix B test procedure meets the statutory requirements at 42 U.S.C. 6314(a)(2) and (3), which remains in effect. Hence, this is not a rulemaking to prescribe a final test procedure to which the 45-day comment period would apply. Instead, DOE is determining, "by rule, published in the Federal Register and supported by clear and convincing evidence," that the amended industry test procedure does not meet the applicable statutory criteria in EPCA. (42 U.S.C. 6314(a)(4)(B)) There is no minimum comment period specified in EPCA for this type of determination. In some cases, DOE may choose to conduct one rulemaking to make this determination and propose an amended test procedure (*see* 42 U.S.C. 6314(a)(4)(C)),

which would require a 45-day comment period. But in other cases, DOE may issue a rule that only makes a determination, supported by clear and convincing evidence, that the amended industry test procedure does not satisfy the requirements in 42 U.S.C. 6314(a)(2) and (3). For example, if the current DOE test procedure satisfies the requirements in 42 U.S.C. 6314(a)(2) and (3) and DOE determines that the amended industry test procedure does not satisfy the requirements in 42 U.S.C. 6314(a)(2) and (3), there would be no need for DOE to propose an amended test procedure. As another example, if the ASHRAE trigger occurs after DOE has already proposed an amended test procedure under the 7-year lookback provision (as was the case here), DOE would conduct a separate rulemaking to make the required ASHRAE determination under 42 U.S.C. 6314(a)(4)(B).

Under the Administrative Procedure Act (APA), an agency engaged in rulemaking must: (1) publish a general notice of proposed rulemaking in the **Federal Register** that includes the terms or substance of the proposed rule or a description of the subjects and issues involved; (2) give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments; and (3) after consideration of the relevant matter presented incorporate in the rules adopted a concise general statement of their basis and purpose. *See* 5 U.S.C. 553(b) and (c). Taken together, Courts have typically understood these provisions to require Federal agencies to provide the public with a "meaningful opportunity" to comment. *See N. Carolina Growers' Ass'n, Inc. v. United Farm Workers*, 702 F.3d 755, 763 (4th Cir. 2012). Daiken, JCI, and AHRI take issue with the length of time provided to stakeholders to review the December 2024 NOTD and develop comments.

In response, DOE first notes that the Administrative Procedure Act does not provide for a minimum comment period (*see* 5 U.S.C. 553) and rules proposed by

Federal agencies run the gamut from the incredibly complex to the relatively simple. In other words, the length of time required to give the public a meaningful opportunity to comment will vary based on the content of the proposed rule. For example, the National Highway Traffic Safety Administration typically used a 60-day comment period when it proposed new fuel economy standards for passenger cars and light trucks. 88 FR 56128 (Aug. 17, 2023). This proposed rule was over 260 pages and used complex analytical methods to propose new fuel economy standards.

In contrast, the 7-page December 2024 NOTD simply sought comment on DOE's tentative determination that an amended industry test procedure that does not have provisions for measuring two sources of energy consumption, jacket losses and part-load operation, which can account for an over 4 percent difference in overall measured efficiency, is not reasonably designed to measure energy efficiency during a representative average use cycle that, as determined by DOE for the TE2 metric, includes jacket losses and part-load operation. It should be emphasized that DOE was not seeking comment on methodologies for calculating jacket losses and energy use in part-load operation for a CWAF, which would have warranted a longer comment period to give stakeholders time to evaluate those testing provisions. Instead, DOE sought comment on whether—as opposed to every other type of HVAC equipment where DOE determined that part-load operation was part of the representative average use cycle—an amended industry test procedure for CWAFs that does not have provisions for measuring jacket losses and energy use during part-load operation of a CWAF is reasonably designed to measure energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation.

DOE posted the signed, pre-publication copy of the December 2024 NOTD on the DOE website on December 13, 2024. That same day DOE sent an email to stakeholders, including AHRI, Daiken, and JCI, announcing the public availability of the document and providing stakeholders with a website link to the document. The document was then published in the **Federal Register** on December 26, 2024, with a 14-day comment period that ended on January 8, 2025. In total, stakeholders like AHRI, Daiken, and JCI had 4 weeks to review the document and provide comments. As such, this proceeding provided stakeholders with sufficient time to review the December 2024 NOTD and develop any comments on why an amended industry test procedure that does not have provisions for measuring jacket losses and energy use during part-load operation still gives reasonable results when used to measure CWAF energy use in the field that includes jacket losses and part-load operation.

C. Application of the ASHRAE Trigger Provision in 42 U.S.C. 6314(a)(4)(B)

In the December 2024 NOTD, DOE evaluated the amended industry test procedure in the context of the ASHRAE trigger provision and presented DOE's tentative determination, supported by clear and convincing evidence, that the amended industry test procedure is not reasonably designed to produce test results which reflect energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation. As support for this tentative determination, DOE estimated that the amended industry test procedure could not account for as much as a 4.5 percent difference in efficiency between a CWAF model with high jacket losses and poor part-load performance and a model with negligible jacket losses and good part-load performance. DOE noted that this variation in efficiency was significant. For example, when DOE last amended the standards for gas-fired CWAFs, the minimum required efficiency went from 80 to 81 percent, which DOE determined would result in significant

additional conservation of energy. 81 FR 2420, 2430. Further, the average life-cycle cost savings to a consumer from that 1 percent increase in efficiency was $284. *Id.* at 81 FR 2423. Those already significant impacts are only magnified when larger differences in measured efficiency are considered. Therefore, DOE tentatively determined, supported by clear and convincing evidence, that the amended industry test procedures referenced in ASHRAE Standard 90.1-2022 are not reasonably designed to produce test results which reflect energy efficiency during a representative average use cycle that, as determined by DOE for the TE2 metric, includes jacket losses and part-load operation.

In response to the December 2024 NOTD, the Joint Commenters stated that the potential 4.5 percent difference in energy efficiency corresponds to a significant difference in energy consumption and that the amended industry test procedure would likely result in an inaccurate ranking of equipment in the market in terms of energy use and operating cost. (Joint Commenters, No. 7, p. 1) As such, the Joint Commenters agreed with DOE's tentative determination that the amended industry test procedure is not reasonably designed to measure energy efficiency during a representative average use cycle. *Id.*

Daiken, on the other hand, stated that DOE did not provide any data to support its assertion that the industry test procedure is not representative but has stated that clear and convincing evidence is present. (Daiken, No. 9, p. 3) DOE strongly disagrees with this statement. As discussed previously, DOE provided estimates that jacket losses and part-load operation could account for as much as a 4.5 percent difference in efficiency. And DOE noted that even a 1 percent increase in efficiency corresponded to average life-cycle cost savings of $284.

AHRI asserted that DOE cannot satisfy the clear-and-convincing evidence requirements because AHRI believes the record did not demonstrate the test procedures referenced in Standard 90.1 would fail to meet the requirements of sections 6314(a)(2) and (a)(3). More specifically, AHRI commented that the range of efficiencies that would result from the inclusion of part-load operation is narrower than for other air-conditioning products. AHRI pointed to an example of a furnace in a large commercial unit in a milder climate primarily operating at night or during morning warm up to demonstrate its belief that CWAFs are basically on-off, *i.e.*, do not spend a significant amount of time operating at part-load. (AHRI, No. 6 at p. 7)

In the June 2023 Final Rule, after considering comments and input from stakeholders, DOE determined that the representative average use cycle for the TE2 metric should include part-load operation and adopted the 50 percent weighting at full load and part load. 88 FR 36217, 36226. In making that determination, DOE reviewed modeling submitted by NEEA that showed a range of times for CWAF operation at full and part loads, from operating as much as 70 percent of the time at full load (and 30 percent of the time at part load) to operating as little as 25 percent of the time at full load (and 75 percent at part load). DOE also observed that in the modeling certain building types (warehouses) were modeled to operate at full load over 50 percent of the time, while other buildings (retail) were modeled to operate at full load less than 50 percent of the time. DOE acknowledges that the time a CWAF operates at full load and part load could vary based on the climate region, building type and load, and CWAF sizing. But based on the available data, it is clear that CWAFs in the field spend a significant amount of time operating at part-load.

Even if AHRI were correct and part-load operation is less of a contributor to the overall energy efficiency of a CWAF, DOE notes that none of the commenters argued that jacket losses are not important to the overall efficiency of a CWAF. In fact, AHRI points out its importance by citing to the relevant provisions in ASHRAE 90.1 showing that CWAFs installed in buildings where ASHRAE 90.1-2022 building code requirements apply (*e.g.*, newly constructed commercial equipment where a jurisdiction has adopted the ASHRAE Standard 90.1-2022 building energy codes) must meet certain jacket loss provisions. This position highlights the importance of including jacket losses in the representative average use cycle for any future standards, which as DOE noted in the December 2024 NOTD could account for as much as a 2.5 percent difference in efficiency. 89 FR 104859, 104863.

III. Conclusion

The potential difference in CWAF efficiency measured under the industry test procedure and the appendix B test procedure is an excellent example of why Congress updated representative use cycles for covered products to include standby and off mode energy use in new or amended energy conservation standards and why stakeholders, including manufacturers, asked DOE to update the representative average use cycle for air-cooled commercial air conditioners and heat pumps—consumers and manufacturers are both better off when DOE test procedures and energy conservation standards capture more energy use in the field. For example, as discussed previously, a CWAF with a TE of 81 percent as measured by the industry test procedure could, depending on jacket losses and part-load operation, have an actual range of efficiencies from 77.5 to 82 percent using the appendix B test procedure for TE2. That is a significant difference in efficiency and corresponds to a significant difference in fuel costs over the lifetime of the CWAF, which is important information for consumers. The industry test procedure also

does not allow manufacturers to fully differentiate their products in the market. For example, under the industry test procedure, a manufacturer with a line of CWAF models with well-insulated jackets has no way to advertise their improved efficiency in the market. Under the industry test procedure, these models will have the same advertised efficiency as similar models that lack insulation and have higher jacket losses.

Having determined that any future, amended standards for CWAFs should be based on a representative average use cycle that includes jacket losses and part-load operation, DOE adopted the appendix B test procedure in the June 2023 Final Rule. The appendix B test procedure contains specific provisions for measuring jacket losses and energy use during part-load operation and will be used by DOE to evaluate potential amended standards for CWAFs. Use of the appendix B test procedure by manufacturers would not be required until such time as compliance is required with amended energy conservation standards based on the new representative average use cycle, should DOE adopt such standards.

For this final determination, as was done initially in the December 2024 NOTD, DOE evaluated whether the industry test procedure is reasonably designed to produce test results which reflect energy use during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation. Unlike the appendix B test procedure, the industry test procedure does not have provisions for calculating jacket losses and changes in energy efficiency due to part-load operation. As discussed previously, this results in the industry test procedure producing test results that do not account for significant variations in energy use across different CWAF models. As a result, DOE has determined, supported by clear and convincing evidence, that the industry test procedure is not reasonably designed to produce test results which reflect

energy efficiency during a representative average use cycle that, as determined by DOE, includes jacket losses and part-load operation for the TE2 metric.

IV. Procedural Issues and Regulatory Review

DOE has concluded that the determinations made pursuant to the various procedural requirements applicable to the June 2023 Final Rule remain unchanged for this notification of final determination. These determinations are set forth in the June 2023 Final Rule. 88 FR 36217, 36230-36233. DOE is publishing this document to present its final determination, supported by clear and convincing evidence, that the industry test procedure would not provide test results that are representative of an average use cycle for the TE2 metric.

V. Approval of the Office of the Secretary

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

Signing Authority

This document of the Department of Energy was signed on January 13, 2025, by Jeffrey 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 January 13, 2025.

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Treena V. Garrett
Federal Register Liaison Officer,
U.S. Department of Energy

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