Proposed Rules

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

DEPARTMENT OF ENERGY

10 CFR Part 431

[EERE–2022–BT–STD–0015]

RIN 1904–AF34

Energy Conservation Program: Energy Conservation Standards for Air-Cooled Commercial Package Air Conditioners and Heat Pumps

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

ACTION: Notice of proposed rulemaking.

SUMMARY: The Energy Policy and Conservation Act, as amended (''EPCA''), prescribes energy conservation standards for various consumer products and certain commercial and industrial equipment, including air-cooled commercial package air conditioners and heat pumps with a rated cooling capacity greater than or equal to 65,000 Btu/h. In this notice of proposed rulemaking (''NOPR''), the U.S. Department of Energy (''DOE'') proposes amended energy conservation standards, based on clear and convincing evidence, identical to those set forth in a direct final rule (''DFR'') published elsewhere in this issue of the **Federal Register**. If DOE receives adverse comment and determines that such comment may provide a reasonable basis for withdrawal of the direct final rule, DOE will publish a notification of withdrawal and will proceed with this proposed rule.

DATES: DOE will accept comments, data, and information regarding this NOPR no later than September 9, 2024. Comments regarding the likely competitive impact of the proposed standard should be sent to the Department of Justice contact listed in the **ADDRESSES** section on or before June 20, 2024.

ADDRESSES: See section IV of this document, ''Public Participation,'' for details. If DOE withdraws the direct final rule published elsewhere in this issue of the **Federal Register**, DOE will hold a public meeting to allow for additional comment on this proposed rule. DOE will publish notice of any meeting in the **Federal Register**.

Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov* under docket number EERE–2022–BT–STD–0015. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2022–BT–STD–0015, by any of the following methods:

Email: ApplianceStandardsQuestions@ee.doe.gov. Include the docket number EERE–2022–BT–STD–0015 in the subject line of the message.

Postal Mail: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. If possible, please submit all items on a compact disc (''CD''), in which case it is not necessary to include printed copies.

Hand Delivery/Courier: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza SW, 6th Floor, Washington, DC 20024. Telephone: (202) 287–1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimiles (''faxes'') will be accepted. For detailed instructions on submitting comments and additional information on this process, see section IV of this document (Public Participation).

Docket: 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 web page can be found at *www.regulations.gov/docket/EERE-2022-BT-STD-0015.* The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section IV of this document for information on how to submit comments through *www.regulations.gov.*

EPCA requires the Attorney General to provide DOE a written determination of whether the proposed standard is likely to lessen competition. The U.S. Department of Justice Antitrust Division invites input from market participants and other interested persons with views on the likely competitive impact of the proposed standard. Interested persons may contact the Antitrust Division at *energy.standards@usdoj.gov* on or before the date specified in the **DATES** section. Please indicate in the ''Subject'' line of your email the title and Docket Number of this proposed rulemaking.

FOR FURTHER INFORMATION CONTACT:

Mr. Lucas Adin, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–5904. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

Mr. Eric Stas, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 586–4798. Email: *Eric.Stas@hq.doe.gov.*

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

SUPPLEMENTARY INFORMATION:

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I. Synopsis of the Proposed Rule

The Energy Policy and Conservation Act, Public Law 94–163, as amended (''EPCA''),[1] authorizes the 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[2] of EPCA established the Energy Conservation Program for Certain Industrial Equipment. (42 U.S.C. 6311–6317) This covered equipment includes small, large, and very large commercial package air conditioning and heating equipment. (42 U.S.C. 6311(1)(B)–(D)) Such equipment includes as equipment categories air-cooled commercial unitary air conditioners with a rated cooling capacity greater than or equal to 65,000 Btu/h (''ACUACs'') and air-cooled commercial unitary heat pumps with a rated cooling capacity greater than or equal to 65,000 Btu/h (''ACUHPs''), which are the subject of this proposed rulemaking.[3] The current energy conservation standards for the subject equipment are found in the Code of Federal Regulations (''CFR'') at 10 CFR 431.97(b).

In accordance with the authority provided by 42 U.S.C. 6295(p)(4) and 42 U.S.C. 6316(b)(1), DOE is proposing this rule establishing and amending the energy conservation standards for ACUACs and ACUHPs and is concurrently issuing a direct final rule published elsewhere in this issue of the **Federal Register**.[4] DOE will proceed with this notice of proposed rulemaking only if it determines it must withdraw the direct final rule pursuant to the criteria provided in 42 U.S.C. 6295(p)(4). The amended standards levels in both this NOPR and that DFR reflect the culmination of a negotiated rulemaking that included the following document and stakeholder comments thereon: May 2020 energy conservation standards request for information (''May 2020 ECS RFI'') (85 FR 27941 (May 12, 2020)); May 2022 test procedure (''TP'')/ECS RFI (87 FR 31743 (May 25, 2022)); and the 2022 Appliance Standards and Rulemaking Federal Advisory Committee (''ASRAC'') commercial unitary air conditioners and heat pumps working group negotiations, hereinafter referred to as ''the 2023 ECS Negotiations'' (87 FR 45703 (July 29, 2022)). Participants in the 2023 ECS Negotiations included stakeholders representing manufacturers, energy-efficiency and environmental advocates, States, and electric utility companies. See section II.B.2 of this document for a detailed history of the current rulemaking.

The consensus reached by the ACUAC/HP ASRAC Working Group (hereinafter referred to as ''the ACUAC/HP Working Group'') on amended energy conservation standards (''ECS'') is outlined in the ASRAC Working Group Term Sheet (hereinafter referred to as ''the ACUAC/HP Working Group ECS Term Sheet''). (ASRAC Working Group ECS Term Sheet, Docket No. EERE–2022–BT–STD–0015, No. 87) As discussed in more detail in the accompanying direct final rule and in accordance with the provisions at 42 U.S.C. 6295(p)(4), DOE has tentatively determined that the recommendations contained in the ACUAC/HP Working Group ECS Term Sheet are compliant with the requirements of 42 U.S.C. 6313(a)(6)(B).

In accordance with these and other statutory provisions discussed in this document, DOE proposes amended energy conservation standards for ACUACs and ACUHPs. The standards for ACUACs and ACUHPs are expressed in terms of the new integrated ventilation, economizing and cooling (''IVEC'') and integrated ventilation and heating efficiency (''IVHE''), as determined in accordance with the ACUAC/ACUHP test procedure set forth a final rule amending the test procedure for ACUACs and ACUHPs.[5] The newly adopted DOE test procedure for ACUACs and ACUHPs appears at 10 CFR part 431, subpart F, appendix A1 (appendix A1).

Table I.1 presents the proposed amended standards for ACUACs and ACUHPs. The proposed standards are the same as those recommended by the ACUAC/HP Working Group. These proposed standards would apply to all equipment listed in Table I.1 and manufactured in, or imported into the United States starting on January 1, 2029, as recommended by the ACUAC/HP Working Group.

[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 C was re-designated Part A–1.

[3] While ACUACs and ACUHPs with rated cooling capacity less than 65,000 Btu/h are included in the broader category of commercial unitary air conditioners and heat pumps (''CUACs and CUHPs''), they are not addressed in this NOPR. The standards for ACUACs and ACUHPs with rated cooling capacity less than 65,000 Btu/h have been addressed in a separate rulemaking (*see* Docket No. EERE–2022–BT–STD–0008). Accordingly, all references within this NOPR to ACUACs and ACUHPs exclude equipment with rated cooling capacity less than 65,000 Btu/h.

[4] *See* 42 U.S.C. 6316(b) (applying 42 U.S.C. 6295(p)(4) to energy conservation standard rulemakings involving a variety of industrial equipment, including ACUACs and ACUHPs).

[5] The final rule amending the test procedure can be found at *www.regulations.gov* under docket number EERE–2023–BT–TP–0014.

Table I.1 Proposed Energy Conservation Standards for ACUACs and ACUHPs (Compliance Starting January 1, 2029)

Cooling Capacity	Subcategory	Supplementary Heating Type	Minimum Efficiency
≥65,000 Btu/h and <135,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 14.3
		All Other Types of Heating	IVEC = 13.8
	HP	All Types of Heating or No Heating	IVEC = 13.4 IVHE = 6.2
≥135,000 Btu/h and <240,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 13.8
		All Other Types of Heating	IVEC = 13.3
	HP	All Types of Heating or No Heating	IVEC = 13.1 IVHE = 6.0
≥240,000 Btu/h and <760,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 12.9
		All Other Types of Heating	IVEC = 12.2
	HP	All Types of Heating or No Heating	IVEC = 12.1 IVHE = 5.8

II. Introduction

The following section briefly discusses the statutory authority underlying this proposed rule, as well as some of the relevant historical background related to the establishment of energy conservation standards for ACUACs and ACUHPs.

A. Authority

EPCA, Public Law 94–163, as amended, authorizes DOE to regulate the energy efficiency of certain consumer products and industrial equipment. Title III, Part C of EPCA, added by Public Law 95–619, Title IV, section 441(a) (42 U.S.C. 6311–6317, as codified), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a variety of provisions designed to improve energy efficiency. This equipment includes ACUACs and ACUHPs, which are a category of small, large, and very large commercial package air conditioning and heating equipment and the subject of this rulemaking. (42 U.S.C. 6311(1)(B)–(D)) EPCA prescribed initial standards for this equipment. (42 U.S.C. 6313(a)(1)–(2))

Pursuant to EPCA, DOE must amend the energy conservation standards for certain types of commercial and industrial equipment, including the equipment at issue in this document, whenever ASHRAE amends the standard levels or design requirements prescribed in ASHRAE Standard 90.1, ''Energy Standard for Buildings Except Low-Rise Residential Buildings'' (''ASHRAE Standard 90.1''). DOE must adopt the amended ASHRAE Standard 90.1 levels for these equipment (hereafter ''ASHRAE equipment''), unless the Secretary of Energy (''the Secretary'') determines by rule published in the **Federal Register** and supported by clear and convincing evidence that adoption of a more-stringent uniform national standard would result in significant additional conservation of energy and is technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)–(B))

In addition, EPCA contains a review requirement for this same equipment (the six-year-lookback review), which requires DOE to consider the need for amended standards every six years. To adopt more-stringent standards under that provision, DOE must once again have clear and convincing evidence to show that such standards would be technologically feasible and economically justified and would save a significant additional amount of energy. (42 U.S.C. 6313(a)(6)(C)); *see id.* 6313(a)(6)(A)(ii)(II) & (a)(6)(B)(i))

In deciding whether a more-stringent standard is economically justified, under either the provisions of 42 U.S.C. 6313(a)(6)(A) or 42 U.S.C. 6313(a)(6)(C), DOE must determine whether the benefits of the standard exceed its burdens. DOE must make this determination after receiving comments on the proposed standard, and by considering, to the maximum extent practicable, the following seven factors:

(1) The economic impact of the standard on manufacturers and consumers of equipment subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered equipment in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered equipment that are likely to result from the standard;

(3) The total projected amount of energy savings likely to result directly from the standard;

(4) Any lessening of the utility or the performance of the covered equipment likely to result from the standard;

(5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;

(6) The need for national energy conservation; and

(7) Other factors the Secretary of Energy considers relevant.

(42 U.S.C. 6313(a)(6)(B)(ii)(I)–(VII))

The energy conservation program under EPCA, consists essentially of four parts: (1) testing; (2) labeling; (3) the establishment of Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of the EPCA specifically include definitions (42 U.S.C. 6311), energy conservation standards (42 U.S.C. 6313), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), and the authority to require information and reports from manufacturers (42 U.S.C. 6316; 42 U.S.C. 6296(a), (b) and (d)).

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 (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 set forth under EPCA. (42 U.S.C. 6316(b)(2)(D))

Under 42 U.S.C. 6314, EPCA sets forth the criteria and procedures DOE is required to follow when prescribing or amending test procedures for covered equipment. EPCA requires that any test procedure prescribed or amended under this section must be reasonably designed to produce test results which reflect energy efficiency, energy use, or estimated annual operating cost of covered equipment during a representative average use cycle and requires that the test procedure not be unduly burdensome to conduct. (42 U.S.C. 6314(a)(2)) Manufacturers of covered equipment must use the Federal test procedures as the basis for 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 when making 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. The current DOE test procedure for ACUACs and ACUHPs appear at 10 CFR part 431, subpart F, appendix A.

EPCA also contains what is known as an ''anti-backsliding'' provision, which prevents the Secretary from prescribing any amended standard that either increases the maximum allowable energy use or decreases the minimum required energy efficiency of a covered product. (42 U.S.C. 6313(a)(6)(B)(iii)(I)) Also, the Secretary may not prescribe an amended or new standard if interested persons have established by a preponderance of the evidence that the standard is likely to result in the unavailability in the United States in any covered equipment type (or class) of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the United States. (42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa))

Finally, the Energy Independence and Security Act of 2007 (''EISA 2007''), Public Law 110–140, amended EPCA, in relevant part, to grant DOE authority to directly issue a final rule (hereinafter referred to as a ''direct final rule'' or ''DFR'') establishing an energy conservation standard on receipt of a statement submitted jointly by interested persons that are fairly representative of relevant points of view (including representatives of manufacturers of covered products/equipment, States, and efficiency advocates), as determined by the Secretary, that contains recommendations with respect to an energy or water conservation standard that are in accordance with the provisions of 42 U.S.C. 6295(o). (42 U.S.C. 6316(b)(1); 42 U.S.C. 6295(p)(4)) Pursuant to 42 U.S.C. 6295(p)(4), the Secretary must also determine whether a jointly-submitted recommendation for an energy or water conservation standard satisfies 42 U.S.C. 6295(o) or 42 U.S.C. 6313(a)(6)(B), as applicable.

A NOPR that proposes an identical energy efficiency standard must be published simultaneously with the direct final rule, and DOE must provide a public comment period of at least 110 days on this proposal. (42 U.S.C. 6316(b)(1); 42 U.S.C. 6295(p)(4)(A)–(B)) While DOE typically provides a comment period of 60 days on proposed energy conservation standards, for a NOPR accompanying a direct final rule, DOE provides a comment period of the same length as the comment period on the direct final rule—*i.e.,* 110 days. Based on the comments received during this period, the direct final rule will either become effective, or DOE will withdraw it not later than 120 days after its issuance if: (1) one or more adverse comments is received, and (2) DOE determines that those comments, when viewed in light of the rulemaking record related to the direct final rule, may provide a reasonable basis for withdrawal of the direct final rule under 42 U.S.C. 6295(o), 42 U.S.C. 6313(a)(6)(B), or any other applicable law. (42 U.S.C. 6316(b)(1); 42 U.S.C. 6295(p)(4)(C)) Receipt of an alternative joint recommendation may also trigger a DOE withdrawal of the direct final rule in the same manner. (*Id.*) After withdrawing a direct final rule, DOE must proceed with the notice of proposed rulemaking published simultaneously with the direct final rule and publish in the **Federal Register** the reasons why the direct final rule was withdrawn. *Id.*

DOE has previously explained its interpretation of its direct final rule authority. In a final rule amending the Department's ''Procedures, Interpretations and Policies for Consideration of New or Revised Energy Conservation Standards for Consumer Products'' at 10 CFR part 430, subpart C, appendix A, DOE noted that it may issue standards recommended by interested persons that are fairly representative of relative points of view as a direct final rule when the recommended standards are in accordance with 42 U.S.C. 6295(o) or 42 U.S.C. 6313(a)(6)(B), as applicable. 86 FR 70892, 70912 (Dec. 13, 2021). But the direct final rule provision in EPCA does not impose additional requirements applicable to other standards rulemakings, which is consistent with the unique circumstances of rules issued as consensus agreements under DOE's direct final rule authority. *Id.* DOE's discretion remains bounded by its statutory mandate to adopt a standard that results in the maximum improvement in energy efficiency that is technologically feasible and economically justified—a requirement found in 42 U.S.C. 6313(a)(6)(B). As such, DOE's review and analysis of the Joint Agreement is limited to whether the recommended standards satisfy the criteria in 42 U.S.C. 6313(a)(6)(B).

B. Background

1. Current Standards

In a direct final rule published in the **Federal Register** on January 15, 2016 (''January 2016 Direct Final Rule''), DOE prescribed the current energy conservation standards for ACUACs and ACUHPs manufactured on and after January 1, 2023. 81 FR 2420. These standards are set forth in DOE's regulations at 10 CFR 431.97(b) and are repeated in Table II.1.

Table II.1 Federal Energy Efficiency Standards for ACUACs and ACUHPs

Equipment Type	Cooling Capacity	Subcategory	Supplementary Heating Type	Minimum Efficiency
Small Commercial Packaged Air Conditioning and Heating Equipment (Air-Cooled)	≥65,000 Btu/h and <135,000 Btu/h	AC	Electric Resistance Heating or No Heating	IEER = 14.8
			All Other Types of Heating	IEER = 14.6
		HP	Electric Resistance Heating or No Heating	IEER = 14.1 COP = 3.4
			All Other Types of Heating	IEER = 13.9 COP = 3.4
Large Commercial Packaged Air Conditioning and Heating Equipment (Air-Cooled)	≥135,000 Btu/h and <240,000 Btu/h	AC	Electric Resistance Heating or No Heating	IEER = 14.2
			All Other Types of Heating	IEER = 14.0
		HP	Electric Resistance Heating or No Heating	IEER = 13.5 COP = 3.3
			All Other Types of Heating	IEER = 13.3 COP = 3.3
Very Large Commercial Packaged Air Conditioning and Heating Equipment (Air-Cooled)	≥240,000 Btu/h and <760,000 Btu/h	AC	Electric Resistance Heating or No Heating	IEER = 13.2
			All Other Types of Heating	IEER = 13.0
		HP	Electric Resistance Heating or No Heating	IEER = 12.5 COP = 3.2
			All Other Types of Heating	IEER = 12.3 COP = 3.2

2. History of Standards Rulemaking for ACUACs and ACUHPs

Since publication of the January 2016 Direct Final Rule, ASHRAE published an updated version of ASHRAE Standard 90.1 (''ASHRAE 90.1–2019''), which updated the minimum efficiency levels for ACUACs and ACUHPs to align with those adopted by DOE in the January 2016 Direct Final Rule (*i.e.,* specifying two tiers of minimum levels for ACUACs and ACUHPs, with a January 1, 2023 compliance date for the second tier). ASHRAE published another version of ASHRAE Standard 90.1 in January 2023 (''ASHRAE 90.1–2022''), which includes the same minimum efficiency levels for ACUACs and ACUHPs as those included in ASHRAE Standard 90.1–2019.

On May 12, 2020, DOE began its six-year-lookback review with for ACUACs and ACUHPs by publishing in the **Federal Register** the May 2020 ECS RFI.[6] 85 FR 27941. The May 2020 ECS RFI sought information to help DOE inform its decisions, consistent with its obligations under EPCA. DOE received multiple comments from interested stakeholders in response to the May 2020 ECS RFI, which prompted DOE to publish the May 2022 TP/ECS RFI in the **Federal Register** on May 25, 2022, to investigate additional aspects of the ACUAC and ACUHP TP and standards. 87 FR 31743. In the latter document, DOE identified several issues that it determined would benefit from further comment. DOE discussed these topics (including any comments received in response to the May 2020 ECS RFI that are related to these topics) in the May 2022 TP/ECS RFI. Once again, DOE received a number of written comments from interested parties related to standards for CUACs and CUHPs in response to the May 2020 ECS RFI and the May 2022 TP/ECS RFI. DOE considered these comments in preparation of this NOPR and the direct final rule, and they are discussed in further detail in the direct final rule published elsewhere in this issue of the **Federal Register**.

On July 29, 2022, DOE published in the **Federal Register** a notice of intent to establish a working group for commercial unitary air conditioners and heat pumps to negotiate proposed test procedures and amended energy conservation standards for this equipment (''July 2022 Notice of Intent''). 87 FR 45703. The ACUAC/HP Working Group was established under ASRAC in accordance with the Federal Advisory Committee Act (''FACA'') (5 U.S.C. App 2) and the Negotiated Rulemaking Act (''NRA'') (5 U.S.C. 561–570, Pub. L. 104–320). The purpose of the ACUAC/HP Working Group was to discuss, and if possible, reach consensus on recommended amendments to the test procedures and energy conservation standards for ACUACs and ACUHPs. The ACUAC/HP Working Group consisted of 14 voting members, including DOE. (See appendix A, Working Group Members, Document

[6] The May 2020 ECS RFI also addressed commercial warm-air furnaces, a separate type of covered equipment which was subsequently handled in a different rulemaking proceeding (*see* Docket No. EERE–2019–BT–STD–0042 in *www.regulations.gov*).

No. 65 in Docket No. EERE–2022–BT–STD–0015) On December 15, 2022, the ACUAC/HP Working Group signed a Term Sheet (''ACUAC/HP Working Group TP Term Sheet'') of recommendations regarding ACUAC and ACUHP test procedures, including two new efficiency metrics: IVEC and IVHE. (*See Id.*)

The ACUAC/HP Working Group met five times to discuss energy conservation standards for ACUACs and ACUHPs. These meetings took place on February 22–23, March 21–22, April 12–13, April 26–27, and May 1, 2023. As a result of these efforts, the ACUAC/HP Working Group successfully reached consensus on recommended energy conservation standards in terms of the new IVEC and IVHE metrics for CUACs and CUHPs. On May 1, 2023, the ACUAC/HP Working Group signed the ACUAC/HP Working Group ECS Term Sheet outlining its recommendations which ASRAC approved on October 17, 2023. These recommendations are discussed further in section II.B.3 of this NOPR.

3. 2022–2023 ASRAC ACUAC/HP Working Group Recommended Standard Levels

This section summarizes the standard levels recommended in the Term Sheet submitted by the ACUAC/HP Working Group for ACUAC/HP energy conservation standards and the subsequent procedural steps taken by DOE. Recommendation #1 of the ACUAC/HP Working Group ECS Term Sheet recommends standard levels for ACUACs and ACUHPs with a recommended compliance date of January 1, 2029. (ASRAC Term Sheet, No. 87 at p. 2) These recommended standard levels are presented in Table II.2. Recommendation #2 of the ACUAC/HP Working Group ECS Term Sheet recommends revising existing certification requirements to support the new metrics and standards presented in Table II.2, specifically requesting that manufacturers be required to certify the following information publicly to DOE for each basic model: (1) crankcase heat wattage for each compressor stage, and (2) 5 °F heating capacity and COP, if applicable. DOE will address recommendation #2 regarding certification in a separate rulemaking.

Table II.2 Recommended Amended Energy Conservation Standards for ACUACs and ACUHPs

Cooling Capacity	Subcategory	Supplementary Heating Type	Minimum Efficiency
≥65,000 Btu/h and <135,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 14.3
		All Other Types of Heating	IVEC = 13.8
	HP	All Types of Heating or No Heating	IVEC = 13.4 IVHE = 6.2
≥135,000 Btu/h and <240,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 13.8
		All Other Types of Heating	IVEC = 13.3
	HP	All Types of Heating or No Heating	IVEC = 13.1 IVHE = 6.0
≥240,000 Btu/h and <760,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 12.9
		All Other Types of Heating	IVEC = 12.2
	HP	All Types of Heating or No Heating	IVEC = 12.1 IVHE = 5.8

After carefully considering the consensus recommendations for amending the energy conservation standards for ACUACs and ACUHPs submitted by the ACUAC/HP Working Group and adopted by ASRAC, DOE has tentatively determined that these recommendations are in accordance with the statutory requirements of 42 U.S.C. 6295(p)(4) and 42 U.S.C. 6316(b)(1) for the issuance of a direct final rule. The following paragraphs explain DOE's rationale in making this tentative determination.

First, with respect to the requirement that recommended energy conservation standards be submitted by interested persons that are fairly representative of relevant points of view, DOE notes that the ACUAC/HP Working Group ECS Term Sheet was signed and submitted by a broad cross-section of interests, including the manufacturers who produce the subject equipment. To satisfy this requirement, DOE has generally found that the group submitting a joint statement must, where appropriate, include larger concerns and small businesses in the regulated industry/manufacturer community, energy advocates, energy utilities, consumers, and States. However, the Department has explained that it will be necessary to evaluate the meaning of ''fairly representative'' on a case-by-case basis, subject to the circumstances of a particular rulemaking, to determine whether additional parties must be part of a joint statement beyond the required ''manufacturers of covered products, States, and efficiency advocates'' specifically called out by EPCA at 42 U.S.C. 6295(p)(4)(A). In this case, in addition to manufacturers, the ACUAC/HP Working Group ECS Term Sheet also included environmental and energy-efficiency advocacy organizations, and electric utility companies. Although States were not direct signatories to the ACUAC/HP Working Group ECS Term Sheet, the ASRAC Committee approving the ACUAC/HP Working Group's recommendations included at least two members representing States—one representing the State of New York and one representing the State of California. As a result, DOE has tentatively determined that these recommendations were submitted by interested persons who are fairly representative of relevant points of view on this matter, including those specifically identified by Congress: manufacturers of covered equipment, States, and efficiency advocates. (42 U.S.C. 6295(p)(4)(A); 42 U.S.C. 6316(b)(1))

Pursuant to 42 U.S.C. 6295(p)(4), the Secretary must also determine whether a jointly-submitted recommendation for an energy or water conservation standard satisfies 42 U.S.C. 6295(o) or 42 U.S.C. 6313(a)(6)(B), as applicable. In making this determination, DOE conducted an analysis to evaluate

whether the potential energy conservation standards under consideration achieve significant energy savings and are technologically feasible and economically justified. The evaluation is similar to the comprehensive approach that DOE typically conducts whenever it considers potential new or amended energy conservation standards for a given type of product or equipment. DOE applies the same principles to any consensus recommendations it may receive to satisfy its statutory obligations. Upon review, the Secretary tentatively determined that the ACUAC/HP Working Group ECS Term Sheet comports with the standard-setting criteria set forth under 42 U.S.C. 6313(a)(6)(B).

Accordingly, DOE published a direct final rule establishing amended energy conservation standards for the subject ACUACs and ACUHPs published elsewhere in this issue of the **Federal Register**, which includes the consensus-recommended efficiency levels as the ''recommended trial standard level (''TSL'') for ACUACs and ACUHPs.

For further background information on these proposed standards and the supporting analyses, please see the direct final rule published elsewhere in this issue of the **Federal Register**, including section V.A of the DFR which provides a description of all the considered TSLs. That document and the accompanying technical support document (''TSD'') contain an in-depth discussion of the analyses conducted in evaluating the ACUAC/HP Working Group ECS Term Sheet, the methodologies DOE used in conducting those analyses, and the analytical results.

In sum, the Secretary has tentatively determined that the relevant criteria under 42 U.S.C. 6295(p)(4) and 42 U.S.C. 6316(b)(1) have been satisfied, such that it is appropriate to propose the consensus-recommended amended energy conservation standards for ACUACs and ACUHPs through this NOPR, based on the clear and convincing evidence, as discussed in section III.A of this document.

III. Proposed Standards

As noted previously, EPCA specifies that, for any commercial and industrial equipment addressed under 42 U.S.C. 6313(a)(6)(A)(i), DOE may prescribe an energy conservation standard more stringent than the level for such equipment in ASHRAE Standard 90.1, as amended, only if ''clear and convincing evidence'' shows that a more-stringent standard would result in significant additional conservation of energy and is technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)(ii)(II)) For this proposed rule, DOE considered the impacts of amended standards for ACUACs and ACUHPs at each TSL, beginning with the maximum technologically feasible (''max-tech'') level, to determine whether that level was economically justified. Where the max-tech level was not justified, DOE then considered the next most efficient level and undertook the same evaluation until it reached the highest efficiency level that is both technologically feasible and economically justified and saves a significant amount of energy.

To aid the reader as DOE discusses the benefits and/or burdens of each TSL, tables in this section present a summary of the results of DOE's quantitative analysis for each TSL. In addition to the quantitative results presented in the tables, DOE also considers other burdens and benefits that affect economic justification. These include the impacts on identifiable subgroups of consumers who may be disproportionately affected by a national standard and impacts on employment.

A. Benefits and Burdens of TSLs Considered for ACUAC and ACUHP Standards

Table III.1 and Table III.2 summarize the quantitative impacts estimated for each TSL for ACUACs and ACUHPs. The national impacts are measured over the lifetime of ACUACs and ACUHPs purchased in the 30-year period that begins in the anticipated year of compliance with amended standards (2029–2058). The energy savings, emissions reductions, and value of emissions reductions refer to full-fuel-cycle (''FFC'') results. DOE is presenting monetized benefits of greenhouse gas (''GHG'') emissions reductions in accordance with the applicable Executive Orders, and DOE would reach the same conclusion presented in this document in the absence of the social cost of greenhouse gases, including the Interim Estimates presented by the Interagency Working Group (''IWG''). The efficiency levels contained in each TSL are described in section V.A of the direct final rule published elsewhere in this issue of the **Federal Register**.

Table III.1 Summary of Analytical Results for ACUACs and ACUHPs TSLs: National Impacts

Category	TSL 1	TSL 2	TSL 3 (Recommended)	TSL 4
Cumulative FFC National Energy Savings				
Quads	3.13	4.20	5.52	14.81
Cumulative FFC Emissions Reduction				
CO_2 (*million metric tons*)	61.55	82.79	108.73	291.39
CH_4 (*thousand tons*)	478.93	643.91	845.55	2,268.24
N_2O (*thousand tons*)	0.47	0.63	0.83	2.21
SO_2 (*thousand tons*)	14.31	19.25	25.29	67.71
NO_X (*thousand tons*)	104.78	140.93	185.10	495.97
Hg (*tons*)	0.09	0.13	0.17	0.45
Present Value of Benefits and Costs (*3% discount rate, billion 2022$*)				
Consumer Operating Cost Savings	13.52	18.23	23.89	61.32
Climate Benefits*	2.70	3.68	4.86	12.60
Health Benefits**	4.94	6.71	8.84	23.18
Total Benefits†	21.17	28.62	37.59	97.11
Consumer Incremental Equipment Costs‡	3.40	5.27	8.59	39.65
Consumer Net Benefits	10.12	12.96	15.30	21.67
Total Net Benefits	17.77	23.35	29.00	57.46
Present Value of Benefits and Costs (*7% discount rate, billion 2022$*)				
Consumer Operating Cost Savings	5.02	6.81	8.94	22.61
Climate Benefits*	2.70	3.68	4.86	12.60
Health Benefits**	1.66	2.27	3.00	7.75
Total Benefits†	9.39	12.76	16.81	42.96
Consumer Incremental Equipment Costs‡	1.81	2.80	4.56	21.06
Consumer Net Benefits	3.22	4.01	4.39	1.54
Total Net Benefits	7.58	9.96	12.25	21.90

Note: This table presents the costs and benefits associated with ACUACs and ACUHPs shipped in 2029–2058. These results include benefits to consumers which accrue after 2058 from the equipment shipped in 2029–2058. Abbreviations used in this table include CO_2 (carbon dioxide); CH_4 (methane); N_2O (nitrous oxide); NO_X (nitrogen oxide); SO_2 (sulfur dioxide), Hg (mercury), and PM (particulate matter).

* Climate benefits are calculated using four different estimates of the social cost ("SC") of certain pollutants – SC-CO_2, SC-CH_4 and SC-N_2O. Together, these represent the global social cost of greenhouse gases ("SC-GHG"). For presentational purposes of this table, the climate benefits associated with the average SC-GHG at a 3-percent discount rate are shown, but the Department does not have a single, central SC-GHG point estimate. DOE emphasizes the value of considering the benefits calculated using all four sets of SC-GHG estimates. To monetize the benefits of reducing GHG emissions, this analysis uses the interim estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the IWG. *See www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.*

** Health benefits are calculated using benefit-per-ton values for NO_X and SO_2. DOE is currently only monetizing (for NO_X and SO_2) $PM_{2.5}$ precursor health benefits and (for NO_X) ozone precursor health benefits, but will continue to assess the ability to monetize other effects such as health benefits from reductions in direct $PM_{2.5}$ emissions. The health benefits are presented at real discount rates of 3 and 7 percent. See section IV.L of the direct final rule published elsewhere in this issue of the *Federal Register* for more details.

† Total and net benefits include consumer, climate, and health benefits that can be monetized. For presentation purposes, total and net benefits for both the 3-percent and 7-percent cases are presented using the average SC-GHG with 3-percent discount rate. DOE emphasizes the importance and value of considering the benefits calculated using all four sets of SC-GHG estimates.

‡ Costs include incremental equipment costs as well as installation costs.

Table III.2 Summary of Analytical Results for ACUACs and ACUHPs TSLs: Manufacturer and Consumer Impacts

Category	TSL 1	TSL 2	TSL 3 (Recommended)	TSL 4
Industry NPV (million 2022$) (No-new-standards case INPV = 2,653.0) for ACUACs and ACUHPs	2,560.1 – 2,608.8	2,511.2 – 2,577.0	2,459.1 – 2,573.5	1,102.4 – 1,822.9
Industry NPV (% change) for ACUACs and ACUHPs	(3.5) – (1.7)	(5.3) – (2.9)	(7.3) – (3.0)	(58.4) – (31.3)
Consumer Average LCC Savings (2022$)				
Small ACUACs	1,047	1,523	1,380	242
Large ACUACs	1,363	1,363	2,488	3,880
Very Large ACUACs	6,431	6,431	6,431	12,766
Shipment-Weighted Average*	1,662	1,974	2,154	2,379
Consumer Simple PBP (years)				
Small ACUACs	4.72	4.82	5.91	10.44
Large ACUACs	3.45	3.45	3.45	7.05
Very Large ACUACs	1.13	1.13	1.13	7.46
Shipment-Weighted Average*	4.05	4.12	4.83	9.32
Percent of Consumers that Experience a Net Cost				
Small ACUACs	22	9	26	60
Large ACUACs	3	3	4	31
Very Large ACUACs	1	1	1	24
Shipment-Weighted Average*	15	7	18	49

Note: This table uses the following abbreviations: LCC (life-cycle cost), NPV (net present value), and INPV (industry net present value). Parentheses indicate negative (-) values.

* Weighted by shares of each equipment class in total projected shipments in 2022.

DOE first considered TSL 4, which represents the max-tech efficiency levels. The max-tech efficiency levels for all equipment classes would require complete redesigns of almost all models currently available on the market to be optimized around the new test procedure and energy efficiency metrics to provide better field performance. TSL 4 could necessitate using a combination of numerous design options, including the most efficient compressors, fans, and motor designs, more-efficient heat exchangers, and/or advanced controls. TSL 4 would save an estimated 14.8 quads of energy, an amount DOE considers significant. Under TSL 4, the NPV of consumer net benefit would be $1.5 billion using a discount rate of 7 percent, and $21.7 billion using a discount rate of 3 percent.

The cumulative emissions reductions at TSL 4 are 291.4 Mt of CO_2, 67.7 thousand tons of SO_2, 496.0 thousand tons of NO_X, 0.45 tons of Hg, 2,268.2 thousand tons of CH_4, and 2.2 thousand tons of N_2O. The estimated monetary value of the climate benefits from reduced GHG emissions (associated with the average SC–GHG at a 3-percent discount rate) at TSL 4 is $12.6 billion. The estimated monetary value of the health benefits from reduced SO_2 and NO_X emissions at TSL 4 is $7.8 billion using a 7-percent discount rate and $23.2 billion using a 3-percent discount rate.

Using a 7-percent discount rate for consumer benefits and costs, health benefits from reduced SO_2 and NO_X emissions, and the 3-percent discount rate case for climate benefits from reduced GHG emissions, the estimated total NPV at TSL 4 is $21.9 billion. Using a 3-percent discount rate for all benefits and costs, the estimated total NPV at TSL 4 is $57.5 billion. The estimated total NPV is provided for additional information; however, DOE primarily relies upon the NPV of consumer benefits when determining whether a potential standard level is economically justified.

At TSL 4, the average LCC impact is a savings of $242 for small ACUACs, $3,880 for large ACUACs, and $12,766 for very large ACUACs. The simple payback period is 10 years for small ACUACs and seven years for large and very large ACUACs. The fraction of consumers experiencing a net LCC cost is 60 percent for small ACUACs, 31 percent for large ACUACs, and 24 percent for very large ACUACs. On a shipment-weighted average basis, the average LCC impact is a savings of $2,379, the simple payback period is 9 years, and the fraction of consumers experiencing a net LCC cost is 49 percent.

At TSL 4, the projected change in INPV ranges from a decrease of $1,550.6 million to a decrease of $830.1 million, which corresponds to decreases of 58.4 percent to 31.3 percent, respectively. DOE estimates that industry would need to invest $1,891 million to comply with standards set at TSL 4. DOE estimates that approximately 2 percent of small ACUAC and ACUHP models, 10 percent of large ACUAC and ACUHP models, and 1 percent of very large ACUAC and ACUHP models currently available for purchase meet the efficiency levels that would be required at TSL 4 after testing using the amended test procedure and when represented in the new metric. Very few manufacturers produce equipment at TSL 4 efficiency levels at this time. DOE estimates that only three of the nine manufacturers of small ACUACs and ACUHPs currently offer models that meet the efficiency levels that would be required for small ACUACs and ACUHPs at TSL 4. DOE estimates that only two of the eight manufacturers of large ACUACs and ACUHPs offer models that meet the efficiency levels that would be required for large ACUACs and ACUHPs at TSL 4. DOE estimates that only one of the eight manufacturers of very large

ACUACs and ACUHPs offer models that meet the efficiency level that would be required for very large ACUACs and ACUHPs at TSL 4.

At TSL 4, DOE understands that all of the manufacturers would need to utilize significant engineering resources to redesign their current offerings to bring them into compliance with TSL 4 efficiencies. All manufacturers would have to invest heavily in their production facilities and source more-efficient components for incorporation into their designs. One of the challenges that certain members of the ACUAC/HP Working Group expressed was ensuring the footprint of the large and very large ACUACs and ACUHPs did not grow to a level that was not suitable for existing retrofits. While there was some uncertainty surrounding what those footprints might look like, most manufacturers were generally concerned that TSL 4 could require such increases, especially for very large models. DOE understands that to meet max-tech IVEC levels, a high fraction of models would need larger cabinet footprints to accommodate the increased size of efficiency-improving design options, which would require substantial investment in retooling as well as redesign engineering efforts.

DOE estimates that at TSL 4, most manufacturers would be required to redesign every ACUAC and ACUHP model offering covered by this rulemaking. Some manufacturers may not have the engineering capacity to complete the necessary redesigns within the compliance period. If manufacturers were unable to redesign all their covered ACUAC and ACUHP models within the compliance period, they would likely prioritize redesigns based on model sales volume. In such case, model offerings of large and very large ACUACs and ACUHPs might decrease, given that there are many capacities offered for large and very large ACUACs and ACUHPs and comparatively fewer shipments across which to distribute conversion costs. Furthermore, DOE recognizes that a standard set at max-tech could greatly limit equipment differentiation in the ACUAC and ACUHP market.

Based upon the previous considerations, the Secretary tentatively concludes that at TSL 4 for ACUACs and ACUHPs, the benefits of energy savings, positive NPV of consumer benefits, emission reductions, and the estimated monetary value of the emissions reductions would be outweighed by the impacts on manufacturers, including the large conversion costs, profit margin impacts that could result in a large reduction in INPV, and the scale and magnitude of the redesign efforts needed for manufacturers to bring their current equipment offerings into compliance at this TSL. DOE is concerned that manufacturers may narrow their equipment offerings and focus on high-volume models to meet the standard within the compliance window. DOE is also concerned with the potential footprint implications, especially for very large ACUAC and ACUHP models, as manufacturer optimize around the new test procedure and metric for the largest of ACUAC and ACUHP models. Consequently, DOE has tentatively concluded that it is unable to make a determination, supported by clear and convincing evidence, that TSL 4 is economically justified.

DOE then considered TSL 3 (the Recommended TSL), which represents efficiency levels 4, 2, and 1 for small, large, and very large ACUACs and ACUHPs, respectively. At TSL 3 efficiency levels, DOE understand that manufacturers would likely need to implement fewer design options than needed for TSL 4. These design options could include increasing outdoor and/or indoor coil size, modifying compressor staging, and improving fan and/or fan motor efficiency in order to meet these levels. These technologies and design paths are familiar to manufacturers as they produce equipment today that can meet TSL 3 efficiency levels, but they are not optimized around the new test procedure and metrics, which are more representative of field performance. The Recommended TSL would save an estimated 5.5 quads of energy, an amount DOE considers significant. Under TSL 3, the NPV of consumer net benefit would be $4.4 billion using a discount rate of 7 percent, and $15.3 billion using a discount rate of 3 percent.

The cumulative emissions reductions at the Recommended TSL are 108.7 Mt of CO_2, 25.3 thousand tons of SO_2, 185.1 thousand tons of NO_X, 0.2 tons of Hg, 845.6 thousand tons of CH_4, and 0.8 thousand tons of N_2O. The estimated monetary value of the climate benefits from reduced GHG emissions (associated with the average SC–GHG at a 3-percent discount rate) at the Recommended TSL is $4.86 billion. The estimated monetary value of the health benefits from reduced SO_2 and NO_X emissions at the Recommended TSL is $3.0 billion using a 7-percent discount rate and $8.8 billion using a 3-percent discount rate.

Using a 7-percent discount rate for consumer benefits and costs, health benefits from reduced SO_2 and NO_X emissions, and the 3-percent discount rate case for climate benefits from reduced GHG emissions, the estimated total NPV at TSL 3 is $12.3 billion. Using a 3-percent discount rate for all benefits and costs, the estimated total NPV at TSL 3 is $29.0 billion. The estimated total NPV is provided for additional information; however, DOE primarily relies upon the NPV of consumer benefits when determining whether a potential standard level is economically justified.

At the Recommended TSL, the average LCC impact is a savings of $1,380 for small ACUACs, $2,488 for large ACUACs, and $6,431 for very large ACUACs. The simple payback period is six years for small ACUACs, 3.5 years for large ACUACs, and 1 year for very large ACUACs. The fraction of consumers experiencing a net LCC cost is 26 percent for small ACUACs, 4 percent for large ACUACs, and 1 percent for very large ACUACs. On a shipment-weighted average basis, the average LCC impact is a savings of $2,154, the simple payback period is 4.8 years, and the fraction of consumers experiencing a net LCC cost is 18 percent.

At the Recommended TSL, TSL 3, the projected change in INPV ranges from a decrease of $193.9 million to a decrease $79.5 million, which correspond to decreases of 7.3 percent and 3.0 percent, respectively. DOE estimates that industry must invest $288 million to comply with standards set at the Recommended TSL. The ACUAC/HP Working Group manufacturers were more comfortable with TSL 3 efficiency levels, because the technologies anticipated to be used are the same as technologies employed in the commercially-available products today. In some cases, manufacturers believed existing cabinets could be maintained, while in other cases, investments would be needed to modify production equipment for new cabinet designs to optimize fan design and accommodate other changes. DOE estimates that at TSL 3 efficiency levels, manufacturers might likely utilize staging of the compressor instead of moving the entire market to variable-speed compressors. However, DOE understands that both of these are options that manufacturers may choose to improve efficiency for those models needing redesign. While DOE estimates that there are currently few shipments at the Recommended TSL, particularly for small ACUACs/HPs (as discussed in section IV.F.8 of the direct final rule published elsewhere in this issue of the **Federal Register**), DOE estimates that approximately 37 percent of small ACUAC and ACUHP models, 50 percent of large ACUAC and

ACUHP models, and 64 percent of very large ACUAC and ACUHP models currently available would have the capability of meeting the efficiency levels required at TSL 3 without being redesigned. This indicates that there is already a significant number of models available on the market that would meet the Recommended TSL when represented in the new metrics, and that the technology to meet these standards is readily available. Manufacturers understand the design pathways and have significant experience with the existing technologies needed to bring the remaining models into compliance within the timeframe given. DOE estimates that five of the nine manufacturers of small ACUACs and ACUHPs offer models that would meet the efficiency level required at TSL 3. DOE estimates that six of the eight manufacturers of large ACUACs and ACUHPs offer models that meet the efficiency level required at TSL 3. DOE estimates that six of the eight manufacturers of very large ACUACs and ACUHPs offer models that meet the efficiency level required at TSL 3. Given the support expressed by the ACUAC/HP Working Group for TSL 3 (the Recommended TSL), DOE has tentatively concluded that all manufacturers of ACUACs/HPs will be able to redesign their model offerings in the compliance timeframe.

After considering the analysis and weighing the benefits and burdens, the Secretary has tentatively concluded that the Recommended TSL (TSL 3) for ACUACs and ACUHPs is in accordance with 42 U.S.C. 6313(a)(6)(B), which contains provisions for adopting a uniform national standard more stringent than the amended ASHRAE Standard 90.1 [7] for the equipment considered in this document. Specifically, the Secretary has tentatively determined, supported by clear and convincing evidence as described in a direct final rule published elsewhere in this issue of the **Federal Register** and accompanying TSD, that such adoption would result in significant additional conservation of energy and is technologically feasible and economically justified. In determining whether the recommended standards are economically justified, the Secretary has tentatively determined that the benefits of the recommended standards exceed the burdens. At this TSL, the average LCC savings for consumers of ACUACs is positive. An estimated 18 percent of ACUAC consumers experience a net cost. The FFC national energy savings are significant, and the NPV of consumer benefits is positive using both a 3-percent and 7-percent discount rate. Notably, the benefits to consumers vastly outweigh the cost to manufacturers. At the Recommended TSL, the NPV of consumer benefits, even measured at the more conservative discount rate of 7 percent, is over 47 times higher than the maximum estimated manufacturers' loss in INPV. The economic justification for standard levels at the Recommended TSL is clear and convincing even without weighing the estimated monetary value of emissions reductions. When those emissions reductions are included—representing $4.9 billion in climate benefits (associated with the average SC–GHG at a 3-percent discount rate), and $9.0 billion (using a 3-percent discount rate) or $3.0 billion (using a 7-percent discount rate) in health benefits—the rationale becomes stronger still.

Accordingly, the Secretary has tentatively concluded, supported by clear and convincing evidence, that the Recommended TSL (TSL 3) would offer the maximum improvement in efficiency that is technologically feasible and economically justified and would result in the significant additional conservation of energy. As stated, DOE conducts the walk-down analysis to determine the TSL that represents the maximum improvement in energy efficiency that is technologically feasible and economically justified as required under EPCA. The walk-down is not a comparative analysis, as a comparative analysis would result in the maximization of net benefits instead of energy savings that are technologically feasible and economically justified, which would be contrary to the statute. *See* 86 FR 70892, 70908 (Dec. 13, 2021). Although DOE has not conducted a comparative analysis to select the amended energy conservation standards, DOE notes that compared to TSL 4, the Recommended TSL results in shorter payback periods and fewer consumers with net cost and results in a lower maximum decrease in INPV and lower manufacturer conversion costs.

Although DOE considered amended standard levels for ACUACs and ACUHPs by grouping the efficiency levels for each equipment class into TSLs, DOE evaluates all analyzed efficiency levels in its analysis. Although there are ELs for each equipment class above those of TSL 3, the previously discussed uncertainty around the economic justification to support amended standards at TSL 4 applies for all efficiency levels higher than those of the Recommended TSL. As discussed, there is substantial uncertainty as to which combinations of design options manufacturers may employ to achieve high IVEC levels (*i.e.,* those above the Recommended TSL), which may result in very high product conversion costs. In addition, manufacturers' capacity to redesign all models that do not meet the amended standard levels is constrained by resources devoted to the low-GWP refrigerant transition and becomes increasingly difficult as minimum efficiency levels increases above the Recommended TSL. Also, similar to TSL 4, many more cabinets would need to be redesigned at efficiency levels above those at TSL 3, which would require substantial investment in design and retooling. For small ACUACs and ACUHPs, adopting an efficiency level above that at TSL 3 would result in nearly 50 percent of purchasers experiencing a net cost. For large and very large ACUACs and ACUHPs, higher ELs could potentially result in reduced configuration and model availability due to large jumps in failing model counts, high cost of redesign, high conversion costs, and lower shipment volumes (as compared to small ACUACs and ACUHPs) across which to distribute conversion costs. Therefore, DOE has tentatively concluded that it is unable to make a determination, supported by clear and convincing evidence, that efficiency levels above TSL 3 are economically justified.

However, at the Recommended TSL, there are substantially more model offerings currently available on the market, and significantly less redesign would be required than for higher efficiency levels. Additionally, the efficiency levels at TSL 3 result in positive LCC savings for all equipment classes and with far fewer consumers experiencing a net LCC cost, and mitigate the impacts on INPV and conversion costs to the point where DOE has tentatively concluded they are economically justified, as discussed for the Recommended TSL in the preceding paragraphs.

The proposed amended energy conservation standards for ACUACs and ACUHPs, which are expressed as minimum efficiency values in terms of

[7] As discussed in section II.B.2 of this document, ASHRAE Standard 90.1–2019 updated the minimum efficiency levels for ACUACs and ACUHPs to align with those adopted by DOE in the January 2016 Direct Final Rule (*i.e.,* ASHRAE Standard 90.1–2019 includes minimum efficiency levels that are aligned with the current Federal energy conservation standards). ASHRAE Standard 90.1–2022 includes the same minimum efficiency levels for ACUACs and ACUHPs as ASHRAE Standard 90.1–2019.

IVEC and IVHE, are shown in Table III.3.

Table III.3 Proposed Amended Energy Conservation Standards for ACUACs and ACUHPs (Compliance Starting 2029)

Cooling Capacity	Subcategory	Supplementary Heating Type	Minimum Efficiency
≥65,000 Btu/h and <135,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 14.3
		All Other Types of Heating	IVEC = 13.8
	HP	All Types of Heating or No Heating	IVEC = 13.4 IVHE = 6.2
≥135,000 Btu/h and <240,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 13.8
		All Other Types of Heating	IVEC = 13.3
	HP	All Types of Heating or No Heating	IVEC = 13.1 IVHE = 6.0
≥240,000 Btu/h and <760,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 12.9
		All Other Types of Heating	IVEC = 12.2
	HP	All Types of Heating or No Heating	IVEC = 12.1 IVHE = 5.8

B. Annualized Benefits and Costs of the Proposed Standards

The benefits and costs of the proposed standards can also be expressed in terms of annualized values. The annualized net benefit is: (1) the annualized national economic value (expressed in 2022$) of the benefits from operating equipment that meet the proposed standards (consisting primarily of operating cost savings from using less energy, minus increases in equipment purchase costs, and (2) the annualized monetary value of the climate and health benefits from emission reductions.

Table III.4 shows the annualized values for ACUACs and ACUHPs under the Recommended TSL (TSL 3), expressed in 2022$. The results under the primary estimate are as follows.

Using a 7-percent discount rate for consumer benefits and costs and health benefits from reduced NO_X and SO_2 emissions, and the 3-percent discount rate case for climate benefits from reduced GHG emissions, the estimated cost of the proposed standards for ACUACs and ACUHPs is $481.3 million per year in increased equipment costs, while the estimated annual benefits are $944.7 million in reduced equipment operating costs, $279.2 million in climate benefits, and $317.1 million in health benefits. In this case, the net benefit would amount to $1.1 billion per year.

Using a 3-percent discount rate for all benefits and costs, the estimated cost of the proposed standards for ACUACs and ACUHPs is $493.2 million per year in increased equipment costs, while the estimated annual benefits are $1371.6 billion in reduced operating costs, $279.2 million in climate benefits, and $507.9 million in health benefits. In this case, the net benefit would amount to $1.7 billion per year.

Table III.4 Annualized Benefits and Costs of Proposed Standards (Recommended TSL 3) for ACUACs and ACUHPs (Recommended TSL 3)<PHOTO>

	Million 2022$/year		
	Primary Estimate	**Low-Net-Benefits Estimate**	**High-Net-Benefits Estimate**
3% discount rate			
Consumer Operating Cost Savings	1,371.6	1,326.3	1,432.6
Climate Benefits*	279.2	278.0	285.1
Health Benefits**	507.9	505.7	518.6
Total Monetized Benefits†	2,158.7	2,110.0	2,236.3
Consumer Incremental Equipment Costs‡	493.2	526.8	423.9
Total Net Benefits	1,665.5	1,583.2	1,812.4
Change in Producer Cashflow (INPV‡‡)	(13) – (5)		
7% discount rate			
Consumer Operating Cost Savings	944.7	915.9	984.9
Climate Benefits* (3% discount rate)	279.2	278.0	285.1
Health Benefits**	317.1	316.1	323.0
Total Monetized Benefits†	1,541.0	1,509.9	1,593.0
Consumer Incremental Equipment Costs‡	481.3	509.9	422.0
Total Net Benefits	1,059.7	1,000.1	1,171.0
Change in Producer Cashflow (INPV‡‡)	(13) – (5)		

Note: This table presents the costs and benefits associated with ACUACs and ACUHPs shipped in 2029-2058. These results include consumer, climate, and health benefits that accrue after 2058 from the equipment shipped in 2029-2058. The Primary, Low-Net-Benefits, and High-Net-Benefits Estimates utilize projections of energy prices and floor space from the *AEO 2023* Reference case, Low-Economic-Growth case, and High-Economic-Growth case, respectively. In addition, incremental equipment costs reflect a constant rate in the Primary Estimate, an increasing rate in the Low-Net-Benefits Estimate, and a decreasing rate in the High-Net-Benefits Estimate. The methods used to derive projected price trends are explained in sections IV.F.1 and IV.H.3 of the direct final rule published elsewhere in this issue of the *Federal Register*. Note that the Benefits and Costs may not sum to the Net Benefits due to rounding.

* Climate benefits are calculated using four different estimates of the global SC-GHG (see section IV.L of the direct final rule published elsewhere in this issue of the *Federal Register*). For presentational purposes of this table, the climate benefits associated with the average SC-GHG at a 3-percent discount rate are shown, but DOE does not have a single, central SC-GHG point estimate, and it emphasizes the value of considering the benefits calculated using all four sets of SC-GHG estimates. To monetize the benefits of reducing GHG emissions, this analysis uses the interim estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the IWG.

** Health benefits are calculated using benefit-per-ton values for NO_X and SO_2. DOE is currently only monetizing (for SO_2 and NO_X) $PM_{2.5}$ precursor health benefits and disbenefits and (for NO_X) ozone precursor health benefits, but will continue to assess the ability to monetize other effects such as health benefits from reductions in direct $PM_{2.5}$ emissions. See section IV.L of the direct final rule published elsewhere in this issue of the *Federal Register* for more details.

† Total benefits for both the 3-percent and 7-percent cases are presented using the average SC-GHG with 3-percent discount rate, but DOE does not have a single, central SC-GHG point estimate.

‡ Costs include incremental equipment costs as well as installation costs.

‡‡ Operating Cost Savings are calculated based on the life-cycle costs analysis and national impact analysis as discussed in detail below. *See* sections IV.F and IV.H of the direct final rule published elsewhere in this issue of the *Federal Register*. DOE's national impacts analysis includes all impacts (both costs and benefits) along the distribution chain beginning with the increased costs to the manufacturer to manufacture the equipment and ending with the increase in price experienced by the consumer. DOE also separately conducts a detailed analysis on the impacts on manufacturers (*i.e.*, the manufacturer impact analysis, or "MIA"). *See* section IV.J of the direct final rule published elsewhere in this issue of the *Federal Register*. In the detailed MIA, DOE models manufacturers' pricing decisions based on assumptions regarding investments, conversion costs, cashflow, and margins. The MIA produces a range of impacts, which is the rule's expected impact on the INPV. The change in INPV is the present value of all changes in

industry cash flow, including changes in production costs, capital expenditures, and manufacturer profit margins. The annualized change in INPV is calculated using the industry weighted-average cost of capital value of 5.9 percent that is estimated in the manufacturer impact analysis (*see* chapter 12 of the direct final rule TSD for a complete description of the industry weighted-average cost of capital). For ACUACs and ACUHPs, the annualized change in INPV ranges from -$13 million to -$5 million. DOE accounts for that range of likely impacts in analyzing whether a trial standard level is economically justified. See section V.C of the direct final rule published elsewhere in this issue of the *Federal Register*. DOE is presenting the range of impacts to the INPV under two manufacturer markup scenarios: the Preservation of Gross Margin scenario, which is the manufacturer markup scenario used in the calculation of Consumer Operating Cost Savings in this table; and the Preservation of Operating Profit Markup scenario, where DOE assumed manufacturers would not be able to increase per-unit operating profit in proportion to increases in manufacturer production costs. DOE includes the range of estimated annualized change in INPV in the above table, drawing on the MIA explained further in section IV.J of the direct final rule published elsewhere in this issue of the *Federal Register* to provide additional context for assessing the estimated impacts of this proposed rule to society, including potential changes in production and consumption, which is consistent with OMB's Circular A-4 and E.O. 12866. If DOE were to include the INPV into the annualized net benefit calculation for this NOPR, the annualized net benefits would range from $1,652 million to $1,660 million at 3-percent discount rate and would range from $1,046 million to $1,054 million at 7-percent discount rate. Parentheses () indicate negative values.

IV. Public Participation

A. Submission of Comments

DOE will accept comments, data, and information regarding this proposed rule unit the date provided in the **DATES** section at the beginning of this proposed rule. Interested parties may submit comments, data, and other information using any of the methods described in the **ADDRESSES** section at the beginning of this document. Comments relating to the direct final rule published elsewhere in this issue of the **Federal Register** should be submitted as instructed therein.

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

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

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

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

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

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via postal mail or hand delivery/courier, please provide all items on a CD, if feasible, in which case it is not necessary to submit printed copies. No telefacsimiles (''faxes'') will be accepted.

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

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

Confidential Business Information. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email two well-marked copies: one copy of the document marked ''confidential'' including all the information believed to be confidential, and one copy of the document marked ''non-confidential'' with the information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

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

B. Public Meeting

As stated previously, if DOE withdraws the direct final rule published elsewhere in this issue of the **Federal Register** pursuant to 42 U.S.C. 6316(b)(1) and 42 U.S.C. 6295(p)(4)(C), DOE will hold a public meeting to allow for additional comment on this proposed rule. DOE will publish notice of any meeting in the **Federal Register**.

V. Procedural Issues and Regulatory Review

The regulatory reviews conducted for this proposed rule are identical to those conducted for the direct final rule published elsewhere in this issue of the **Federal Register**. Please see the direct final rule for further details.

A. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis (''IRFA'') and a final regulatory flexibility analysis (''FRFA'') for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by E.O. 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 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*).

For manufacturers of ACUACs and ACUHPs, the Small Business Administration (''SBA'') has set a size threshold, which defines those entities classified as ''small businesses'' for the purposes of the statute. DOE used the SBA's small business size standards to determine whether any small entities would be subject to the requirements of the rule. (See 13 CFR part 121.) The size standards are listed by North American Industry Classification System (''NAICS'') code and industry description and are available at *www.sba.gov/document/support--table-size-standards.* Manufacturing of ACUACs and ACUHPs 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.

To estimate the number of companies that could be small business manufacturers of ACUACs and ACUHPs, DOE conducted a market survey using public information and subscription-based company reports to identify potential small business manufacturers. DOE reviewed its Compliance Certification Database,[8] the California Energy Commission's Modernized Appliance Efficiency Database System,[9] the ENERGY STAR Product Finder dataset,[10] individual company websites, import/export logs (*e.g.,* ImportYeti [11]), and equipment specifications to create a list of companies that manufacture, produce, import, or private label the equipment covered by this proposed rulemaking. DOE further relied on public information and market research tools (*e.g.,* reports from Dun and Bradstreet [12]) to determine company structure, location, headcount, and annual revenue. DOE screened out companies that do not offer the equipment covered by this proposed rulemaking, do not meet the SBA's definition of a ''small business,'' or are foreign-owned and operated.

DOE identified nine original equipment manufacturers (''OEMs'') that sell ACUACs and ACUHPs in the United States. Of these nine OEMs, DOE determined none of them qualify as a domestic small business manufacturer of ACUACs or ACUHPs. Given the lack of small domestic OEMs with a direct compliance burden, DOE tentatively concludes and certifies that this proposed rule would not have ''a significant impact on a substantial number of small entities,'' and that the preparation of an IRFA is not warranted.

DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

[8] U.S. Department of Energy's Compliance Certification Database is available at *regulations.doe.gov/certification-data* (last accessed March 30, 2023).

[9] California Energy Commission's Modernized Appliance Efficiency Database System is available at *cacertappliances.energy.ca.gov/Pages/Search/AdvancedSearch.aspx* (last accessed Nov. 28, 2023).

[10] ENERGY STAR Product Finder is available at *www.energystar.gov/productfinder* (last accessed Nov. 28, 2023).

[11] ImportYeti login is available at *www.importyeti.com/* (last accessed Jan. 11, 2024).

[12] The Dun & Bradstreet subscription login is available at *app.dnbhoovers.com* (last accessed Jan. 11, 2024).

VI. Approval of the Office of the Secretary

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

List of Subjects in 10 CFR Part 431

Administrative practice and procedure, Confidential business information, Energy conservation, Reporting and recordkeeping requirements.

Signing Authority

This document of the Department of Energy was signed on April 12, 2024, 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 April 17, 2024.

Treena V. Garrett,

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

For the reasons set forth in the preamble, DOE proposes to amend part 431 of chapter II, subchapter D, of title 10 of the Code of Federal Regulations, as set forth below:

PART 431—ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT

■ 1. The authority citation for part 431 continues to read as follows:

Authority: 42 U.S.C. 6291–6317; 28 U.S.C. 2461 note.

■ 2. Revise § 431.97 to read as follows:

§ 431.97 Energy efficiency standards and their compliance dates.

(a) All basic models of commercial package air conditioning and heating equipment must be tested for performance using the applicable DOE test procedure in § 431.96, be compliant with the applicable standards set forth in paragraphs (b) through (i) of this section, and be certified to the Department under 10 CFR part 429.

(b) Each air-cooled commercial package air conditioning and heating equipment (excluding air-cooled equipment with cooling capacity less than 65,000 Btu/h and double-duct air conditioners or heat pumps) manufactured on or after January 1, 2023, and before January 1, 2029, must meet the applicable minimum energy efficiency standard level(s) set forth in table 1 to this paragraph (b). Each air-cooled commercial package air conditioning and heating equipment (excluding air-cooled equipment with cooling capacity less than 65,000 Btu/h and double-duct air conditioners or heat pumps) manufactured on or after January 1, 2029, must meet the applicable minimum energy efficiency standard level(s) set forth in table 2 to this paragraph (b). Each water-cooled commercial package air conditioning and heating equipment manufactured on or after the compliance date listed in table 3 to this paragraph (b) must meet the applicable minimum energy efficiency standard level(s) set forth in table 3. Each evaporatively-cooled commercial air conditioning and heating equipment manufactured on or after the compliance date listed in table 4 to this paragraph (b) must meet the applicable minimum energy efficiency standard level(s) set forth in table 4. Each double-duct air conditioner or heat pump manufactured on or after January 1, 2010, must meet the applicable minimum energy efficiency standard level(s) set forth in table 5 to this paragraph (b).

TABLE 1 TO PARAGRAPH (b)—MINIMUM EFFICIENCY STANDARDS FOR AIR-COOLED COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT WITH A COOLING CAPACITY GREATER THAN OR EQUAL TO 65,000 Btu/h

[Excluding double-duct air-conditioners and heat pumps]

Air-Cooled Commercial Package Air Conditioning and Heating Equipment with a Cooling Capacity Greater Than or Equal to 65,000 Btu/h (Excluding Double-Duct Air Conditioners and Heat Pumps)				
Cooling capacity	Subcategory	Supplementary heating type	Minimum efficiency [1]	Compliance date: equipment manufactured starting on . . .
≥65,000 Btu/h and <135,000 Btu/h	AC	Electric Resistance Heating or No Heating	IEER = 14.8	January 1, 2023.
≥65,000 Btu/h and <135,000 Btu/h	AC	All Other Types of Heating	IEER = 14.6	January 1, 2023.
≥65,000 Btu/h and <135,000 Btu/h	HP	Electric Resistance Heating or No Heating	IEER = 14.1 COP = 3.4.	January 1, 2023.
≥65,000 Btu/h and <135,000 Btu/h	HP	All Other Types of Heating	IEER = 13.9 COP = 3.4.	January 1, 2023.
≥135,000 Btu/h and <240,000 Btu/h	AC	Electric Resistance Heating or No Heating	IEER = 14.2	January 1, 2023.
≥135,000 Btu/h and <240,000 Btu/h	AC	All Other Types of Heating	IEER = 14.0	January 1, 2023.
≥135,000 Btu/h and <240,000 Btu/h	HP	Electric Resistance Heating or No Heating	IEER = 13.5 COP = 3.3.	January 1, 2023.
≥135,000 Btu/h and <240,000 Btu/h	HP	All Other Types of Heating	IEER = 13.3 COP = 3.3.	January 1, 2023.
≥240,000 Btu/h and <760,000 Btu/h	AC	Electric Resistance Heating or No Heating	IEER = 13.2	January 1, 2023.
≥240,000 Btu/h and <760,000 Btu/h	AC	All Other Types of Heating	IEER = 13.0	January 1, 2023.
≥240,000 Btu/h and <760,000 Btu/h	HP	Electric Resistance Heating or No Heating	IEER = 12.5 COP = 3.2.	January 1, 2023.
≥240,000 Btu/h and <760,000 Btu/h	HP	All Other Types of Heating	IEER = 12.3 COP = 3.2.	January 1, 2023.

[1] See section 3 of appendix A to this subpart for the test conditions upon which the COP standards are based.

TABLE 2 TO PARAGRAPH (b)—UPDATED MINIMUM EFFICIENCY STANDARDS FOR AIR-COOLED COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT WITH A COOLING CAPACITY GREATER THAN OR EQUAL TO 65,000 Btu/h

[Excluding double-duct air-conditioners and heat pumps]

Air-Cooled Commercial Package Air Conditioning and Heating Equipment with a Cooling Capacity Greater Than or Equal to 65,000 Btu/h (Excluding Double-Duct Air Conditioners and Heat Pumps)				
Cooling capacity	Subcategory	Supplementary heating type	Minimum efficiency	Compliance date: equipment manufactured starting on . . .
≥65,000 Btu/h and <135,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 14.3	January 1, 2029.
≥65,000 Btu/h and <135,000 Btu/h	AC	All Other Types of Heating	IVEC = 13.8	January 1, 2029.
≥65,000 Btu/h and <135,000 Btu/h	HP	All Types of Heating	IVEC = 13.4 IVHE = 6.2.	January 1, 2029.
≥135,000 Btu/h and <240,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 13.8	January 1, 2029.
≥135,000 Btu/h and <240,000 Btu/h	AC	All Other Types of Heating	IVEC = 13.3	January 1, 2029.
≥135,000 Btu/h and <240,000 Btu/h	HP	All Types of Heating	IVEC = 13.1 IVHE = 6.0.	January 1, 2029.
≥240,000 Btu/h and <760,000 Btu/h	AC	Electric Resistance Heating or No Heating	IVEC = 12.9	January 1, 2029.
≥240,000 Btu/h and <760,000 Btu/h	AC	All Other Types of Heating	IVEC = 12.2	January 1, 2029.
≥240,000 Btu/h and <760,000 Btu/h	HP	All Types of Heating	IVEC = 12.1 IVHE = 5.8.	January 1, 2029.

TABLE 3 TO PARAGRAPH (b)—MINIMUM COOLING EFFICIENCY STANDARDS FOR WATER-COOLED COMMERCIAL PACKAGE AIR CONDITIONING EQUIPMENT

Water-Cooled Commercial Package Air Conditioning Equipment			
Cooling capacity	Supplementary heating type	Minimum efficiency	Compliance date: equipment manufactured starting on . . .
<65,000 Btu/h	All	EER = 12.1	October 29, 2003.
≥65,000 Btu/h and <135,000 Btu/h	No Heating or Electric Resistance Heating	EER = 12.1	June 1, 2013.
≥65,000 Btu/h and <135,000 Btu/h	All Other Types of Heating	EER = 11.9	June 1, 2013.
≥135,000 Btu/h and <240,000 Btu/h	No Heating or Electric Resistance Heating	EER = 12.5	June 1, 2014.
≥135,000 Btu/h and <240,000 Btu/h	All Other Types of Heating	EER = 12.3	June 1, 2014.
≥240,000 Btu/h and <760,000 Btu/h	No Heating or Electric Resistance Heating	EER = 12.4	June 1, 2014.
≥240,000 Btu/h and <760,000 Btu/h	All Other Types of Heating	EER = 12.2	June 1, 2014.

TABLE 4 TO PARAGRAPH (b)—MINIMUM COOLING EFFICIENCY STANDARDS FOR EVAPORATIVELY-COOLED COMMERCIAL PACKAGE AIR CONDITIONING EQUIPMENT

Evaporatively-Cooled Commercial Package Air Conditioning Equipment			
Cooling capacity	Supplementary heating type	Minimum efficiency	Compliance date: equipment manufactured starting on . . .
<65,000 Btu/h	All	EER = 12.1	October 29, 2003.
≥65,000 Btu/h and <135,000 Btu/h	No Heating or Electric Resistance Heating	EER = 12.1	June 1, 2013.
≥65,000 Btu/h and <135,000 Btu/h	All Other Types of Heating	EER = 11.9	June 1, 2013.
≥135,000 Btu/h and <240,000 Btu/h	No Heating or Electric Resistance Heating	EER = 12.0	June 1, 2014.
≥135,000 Btu/h and <240,000 Btu/h	All Other Types of Heating	EER = 11.8	June 1, 2014.
≥240,000 Btu/h and <760,000 Btu/h	No Heating or Electric Resistance Heating	EER = 11.9	June 1, 2014.
≥240,000 Btu/h and <760,000 Btu/h	All Other Types of Heating	EER = 11.7	June 1, 2014.

TABLE 5 TO PARAGRAPH (b)—MINIMUM EFFICIENCY STANDARDS FOR DOUBLE-DUCT AIR CONDITIONERS OR HEAT PUMPS

Double-Duct Air Conditioners or Heat Pumps				
Cooling capacity	Subcategory	Supplementary heating type	Minimum efficiency [1]	Compliance date: equipment manufactured starting on . . .
≥65,000 Btu/h and <135,000 Btu/h	AC	Electric Resistance Heating or No Heating	EER = 11.2	January 1, 2010.
≥65,000 Btu/h and <135,000 Btu/h	AC	All Other Types of Heating	EER = 11.0	January 1, 2010.
≥65,000 Btu/h and <135,000 Btu/h	HP	Electric Resistance Heating or No Heating	EER = 11.0 COP = 3.3.	January 1, 2010.
≥65,000 Btu/h and <135,000 Btu/h	HP	All Other Types of Heating	EER = 10.8 COP = 3.3.	January 1, 2010.
≥135,000 Btu/h and <240,000 Btu/h	AC	Electric Resistance Heating or No Heating	EER = 11.0	January 1, 2010.
≥135,000 Btu/h and <240,000 Btu/h	AC	All Other Types of Heating	EER = 10.8	January 1, 2010.
≥135,000 Btu/h and <240,000 Btu/h	HP	Electric Resistance Heating or No Heating	EER = 10.6 COP = 3.2.	January 1, 2010.
≥135,000 Btu/h and <240,000 Btu/h	HP	All Other Types of Heating	EER = 10.4 COP = 3.2.	January 1, 2010.
≥240,000 Btu/h and <300,000 Btu/h	AC	Electric Resistance Heating or No Heating	EER = 10.0	January 1, 2010.
≥240,000 Btu/h and <300,000 Btu/h	AC	All Other Types of Heating	EER = 9.8	January 1, 2010.
≥240,000 Btu/h and <300,000 Btu/h	HP	Electric Resistance Heating or No Heating	EER = 9.5 COP = 3.2.	January 1, 2010.
≥240,000 Btu/h and <300,000 Btu/h	HP	All Other Types of Heating	EER = 9.3 COP = 3.2.	January 1, 2010.

[1] See section 3 of appendix A to this subpart for the test conditions upon which the COP standards are based.

(c) Each water-source heat pump manufactured starting on the compliance date listed in table 6 to this paragraph (c) must meet the applicable minimum energy efficiency standard level(s) set forth in this paragraph (c).

TABLE 6 TO PARAGRAPH (c)—MINIMUM EFFICIENCY STANDARDS FOR WATER-SOURCE HEAT PUMPS

[Water-to-air, water-loop]

Water-Source Heat Pumps (Water-to-Air, Water-Loop)		
Cooling capacity	Minimum efficiency	Compliance date: equipment manufactured starting on . . .
<17,000 Btu/h	EER = 12.2 COP = 4.3.	October 9, 2015.
≥17,000 Btu/h and <65,000 Btu/h	EER = 13.0 COP = 4.3.	October 9, 2015.
≥65,000 Btu/h and <135,000 Btu/h	EER = 13.0 COP = 4.3.	October 9, 2015.

(d) Each non-standard size packaged terminal air conditioner (PTAC) and packaged terminal heat pump (PTHP) manufactured on or after October 7, 2010, must meet the applicable minimum energy efficiency standard level(s) set forth in table 7 to this paragraph (d). Each standard size PTAC manufactured on or after October 8, 2012, and before January 1, 2017, must meet the applicable minimum energy efficiency standard level(s) set forth in table 7. Each standard size PTHP manufactured on or after October 8, 2012, must meet the applicable minimum energy efficiency standard level(s) set forth in table 7. Each standard size PTAC manufactured on or after January 1, 2017, must meet the applicable minimum energy efficiency standard level(s) set forth in table 8 to this paragraph (d).

TABLE 7 TO PARAGRAPH (d)—MINIMUM EFFICIENCY STANDARDS FOR PTAC AND PTHP

Equipment type	Category	Cooling capacity	Minimum efficiency	Compliance date: products manufactured on and after . . .
PTAC	Standard Size	<7,000 Btu/h	EER = 11.7	October 8, 2012.[2]
		≥7,000 Btu/h and ≤15,000 Btu/h	EER = 13.8 − (0.3 × Cap[1])	October 8, 2012.[2]
		>15,000 Btu/h	EER = 9.3	October 8, 2012.[2]
	Non-Standard Size	<7,000 Btu/h	EER = 9.4	October 7, 2010.
		≥7,000 Btu/h and ≤15,000 Btu/h	EER = 10.9 − (0.213 × Cap[1])	October 7, 2010.
		>15,000 Btu/h	EER = 7.7	October 7, 2010.
PTHP	Standard Size	<7,000 Btu/h	EER = 11.9 COP = 3.3.	October 8, 2012.
		≥7,000 Btu/h and ≤15,000 Btu/h	EER = 14.0 − (0.3 × Cap[1]) COP = 3.7 − (0.052 × Cap[1]).	October 8, 2012.
		>15,000 Btu/h	EER = 9.5 COP = 2.9.	October 8, 2012.
	Non-Standard Size	<7,000 Btu/h	EER = 9.3 COP = 2.7.	October 7, 2010.
		≥7,000 Btu/h and ≤15,000 Btu/h	EER = 10.8 − (0.213 × Cap[1]) COP = 2.9 − (0.026 × Cap[1]).	October 7, 2010.
		>15,000 Btu/h	EER = 7.6 COP = 2.5.	October 7, 2010.

[1] "Cap" means cooling capacity in thousand Btu/h at 95 °F outdoor dry-bulb temperature.

[2] And manufactured before January 1, 2017. See table 8 to this paragraph (d) for updated efficiency standards that apply to this category of equipment manufactured on and after January 1, 2017.

TABLE 8 TO PARAGRAPH (d)—UPDATED MINIMUM EFFICIENCY STANDARDS FOR PTAC

Equipment type	Category	Cooling capacity	Minimum efficiency	Compliance date: products manufactured on and after . . .
PTAC	Standard Size	<7,000 Btu/h	EER = 11.9	January 1, 2017.
		≥7,000 Btu/h and ≤15,000 Btu/h	EER = 14.0 − (0.3 × Cap[1])	January 1, 2017.
		>15,000 Btu/h	EER = 9.5	January 1, 2017.

[1] "Cap" means cooling capacity in thousand Btu/h at 95 °F outdoor dry-bulb temperature.

(e)(1) Each single package vertical air conditioner and single package vertical heat pump manufactured on or after January 1, 2010, but before October 9, 2015 (for models ≥65,000 Btu/h and <135,000 Btu/h), or October 9, 2016 (for models ≥135,000 Btu/h and <240,000 Btu/h), must meet the applicable minimum energy conservation standard level(s) set forth in this paragraph (e)(1).

TABLE 9 TO PARAGRAPH (e)(1)—MINIMUM EFFICIENCY STANDARDS FOR SINGLE PACKAGE VERTICAL AIR CONDITIONERS AND SINGLE PACKAGE VERTICAL HEAT PUMPS

Equipment type	Cooling capacity	Subcategory	Efficiency level	Compliance date: products manufactured on and after . . .
Single package vertical air conditioners and single package vertical heat pumps, single-phase and three-phase.	<65,000 Btu/h	AC	EER = 9.0	January 1, 2010.
		HP	EER = 9.0 COP = 3.0.	January 1, 2010.
Single package vertical air conditioners and single package vertical heat pumps.	≥65,000 Btu/h and <135,000 Btu/h.	AC	EER = 8.9	January 1, 2010.
		HP	EER = 8.9 COP = 3.0.	January 1, 2010.
Single package vertical air conditioners and single package vertical heat pumps.	≥135,000 Btu/h and <240,000 Btu/h.	AC	EER = 8.6	January 1, 2010.
		HP	EER = 8.6 COP = 2.9.	January 1, 2010.

(2) Each single package vertical air conditioner and single package vertical heat pump manufactured on and after October 9, 2015 (for models ≥65,000 Btu/h and <135,000 Btu/h), or October 9, 2016 (for models ≥135,000 Btu/h and <240,000 Btu/h), but before September 23, 2019, must meet the applicable minimum energy conservation standard level(s) set forth in this paragraph (e)(2).

TABLE 10 TO PARAGRAPH (e)(2)—MINIMUM EFFICIENCY STANDARDS FOR SINGLE PACKAGE VERTICAL AIR CONDITIONERS AND SINGLE PACKAGE VERTICAL HEAT PUMPS

Equipment type	Cooling capacity	Subcategory	Efficiency level	Compliance date: products manufactured on and after . . .
Single package vertical air conditioners and single package vertical heat pumps, single-phase and three-phase.	<65,000 Btu/h	AC	EER = 9.0	January 1, 2010.
		HP	EER = 9.0 COP = 3.0.	January 1, 2010.
Single package vertical air conditioners and single package vertical heat pumps.	≥65,000 Btu/h and <135,000 Btu/h.	AC	EER = 10.0	October 9, 2015.
		HP	EER = 10.0 COP = 3.0.	October 9, 2015.
Single package vertical air conditioners and single package vertical heat pumps.	≥135,000 Btu/h and <240,000 Btu/h.	AC	EER = 10.0	October 9, 2016.
		HP	EER = 10.0 COP = 3.0.	October 9, 2016.

(3) Each single package vertical air conditioner and single package vertical heat pump manufactured on and after September 23, 2019, must meet the applicable minimum energy conservation standard level(s) set forth in this paragraph (e)(3).

TABLE 11 TO PARAGRAPH (e)(3)—UPDATED MINIMUM EFFICIENCY STANDARDS FOR SINGLE PACKAGE VERTICAL AIR CONDITIONERS AND SINGLE PACKAGE VERTICAL HEAT PUMPS

Equipment type	Cooling capacity	Subcategory	Efficiency level	Compliance date: products manufactured on and after . . .
Single package vertical air conditioners and single package vertical heat pumps, single-phase and three-phase.	<65,000 Btu/h	AC	EER = 11.0	September 23, 2019.
		HP	EER = 11.0 COP = 3.3.	September 23, 2019.
Single package vertical air conditioners and single package vertical heat pumps.	≥65,000 Btu/h and <135,000 Btu/h.	AC	EER = 10.0	October 9, 2015.
		HP	EER = 10.0 COP = 3.0.	October 9, 2015.
Single package vertical air conditioners and single package vertical heat pumps.	≥135,000 Btu/h and <240,000 Btu/h.	AC	EER = 10.0	October 9, 2016.
		HP	EER = 10.0 COP = 3.0.	October 9, 2016.

(f)(1) Each computer room air conditioner with a net sensible cooling capacity less than 65,000 Btu/h manufactured on or after October 29, 2012, and before May 28, 2024 and each computer room air conditioner with a net sensible cooling capacity greater than or equal to 65,000 Btu/h and less than 760,000 Btu/h manufactured on or after October 29, 2013, and before May 28, 2024 must meet the applicable minimum energy efficiency standard level(s) set forth in this paragraph (f)(1).

TABLE 12 TO PARAGRAPH (f)(1)—MINIMUM EFFICIENCY STANDARDS FOR COMPUTER ROOM AIR CONDITIONERS

Equipment type	Net sensible cooling capacity	Minimum SCOP efficiency	
		Downflow	Upflow
Air-Cooled	<65,000 Btu/h	2.20	2.09
	≥65,000 Btu/h and <240,000 Btu/h	2.10	1.99
	≥240,000 Btu/h and <760,000 Btu/h	1.90	1.79
Water-Cooled	<65,000 Btu/h	2.60	2.49
	≥65,000 Btu/h and <240,000 Btu/h	2.50	2.39
	≥240,000 Btu/h and <760,000 Btu/h	2.40	2.29
Water-Cooled with Fluid Economizer	<65,000 Btu/h	2.55	2.44
	≥65,000 Btu/h and <240,000 Btu/h	2.45	2.34
	≥240,000 Btu/h and <760,000 Btu/h	2.35	2.24
Glycol-Cooled	<65,000 Btu/h	2.50	2.39
	≥65,000 Btu/h and <240,000 Btu/h	2.15	2.04
	≥240,000 Btu/h and <760,000 Btu/h	2.10	1.99
Glycol-Cooled with Fluid Economizer	<65,000 Btu/h	2.45	2.34
	≥65,000 Btu/h and <240,000 Btu/h	2.10	1.99
	≥240,000 Btu/h and <760,000 Btu/h	2.05	1.94

(2) Each computer room air conditioner manufactured on or after May 28, 2024, must meet the applicable minimum energy efficiency standard level(s) set forth in this paragraph (f)(2).

TABLE 13 TO PARAGRAPH (f)(2)—UPDATED MINIMUM EFFICIENCY STANDARDS FOR FLOOR-MOUNTED COMPUTER ROOM AIR CONDITIONERS

Equipment type	Downflow and upflow ducted			Upflow non-ducted and horizontal flow		
	Net sensible cooling capacity	Minimum NSenCOP efficiency		Net sensible cooling capacity	Minimum NSenCOP efficiency	
		Downflow	Upflow ducted		Upflow non-ducted	Horizontal flow
Air-Cooled	<80,000 Btu/h	2.70	2.67	<65,000 Btu/h	2.16	2.65
	≥80,000 Btu/h and <295,000 Btu/h	2.58	2.55	≥65,000 Btu/h and <240,000 Btu/h	2.04	2.55
	≥295,000 Btu/h and <930,000 Btu/h.	2.36	2.33	≥240,000 Btu/h and <760,000 Btu/h.	1.89	2.47
Air-Cooled with Fluid Economizer	<80,000 Btu/h	2.70	2.67	<65,000 Btu/h	2.09	2.65
	≥80,000 Btu/h and <295,000 Btu/h	2.58	2.55	≥65,000 Btu/h and <240,000 Btu/h	1.99	2.55
	≥295,000 Btu/h and <930,000 Btu/h.	2.36	2.33	≥240,000 Btu/h and <760,000 Btu/h.	1.81	2.47
Water-Cooled	<80,000 Btu/h	2.82	2.79	<65,000 Btu/h	2.43	2.79
	≥80,000 Btu/h and <295,000 Btu/h	2.73	2.70	≥65,000 Btu/h and <240,000 Btu/h	2.32	2.68
	≥295,000 Btu/h and <930,000 Btu/h.	2.67	2.64	≥240,000 Btu/h and <760,000 Btu/h.	2.20	2.60
Water-Cooled with Fluid Economizer.	<80,000 Btu/h	2.77	2.74	<65,000 Btu/h	2.35	2.71
	≥80,000 Btu/h and <295,000 Btu/h	2.68	2.65	≥65,000 Btu/h and <240,000 Btu/h	2.24	2.60
	≥295,000 Btu/h and <930,000 Btu/h.	2.61	2.58	≥240,000 Btu/h and <760,000 Btu/h.	2.12	2.54
Glycol-Cooled	<80,000 Btu/h	2.56	2.53	<65,000 Btu/h	2.08	2.48
	≥80,000 Btu/h and <295,000 Btu/h	2.24	2.21	≥65,000 Btu/h and <240,000 Btu/h	1.90	2.18
	≥295,000 Btu/h and <930,000 Btu/h.	2.21	2.18	≥240,000 Btu/h and <760,000 Btu/h.	1.81	2.18
Glycol-Cooled with Fluid Economizer.	<80,000 Btu/h	2.51	2.48	<65,000 Btu/h	2.00	2.44
	≥80,000 Btu/h and <295,000 Btu/h	2.19	2.16	≥65,000 Btu/h and <240,000 Btu/h	1.82	2.10
	≥295,000 Btu/h and <930,000 Btu/h.	2.15	2.12	≥240,000 Btu/h and <760,000 Btu/h.	1.73	2.10

TABLE 14 TO PARAGRAPH (f)(2)—MINIMUM EFFICIENCY STANDARDS FOR CEILING-MOUNTED COMPUTER ROOM AIR CONDITIONERS

Equipment type	Net sensible cooling capacity	Minimum SCOP efficiency	
		Ducted	Non-ducted
Air-Cooled with Free Air Discharge Condenser	<29,000 Btu/h	2.05	2.08
	≥29,000 Btu/h and <65,000 Btu/h	2.02	2.05
	≥65,000 Btu/h and <760,000 Btu/h	1.92	1.94
Air-Cooled with Free Air Discharge Condenser and Fluid Economizer	<29,000 Btu/h	2.01	2.04
	≥29,000 Btu/h and <65,000 Btu/h	1.97	2
	≥65,000 Btu/h and <760,000 Btu/h	1.87	1.89
Air-Cooled with Ducted Condenser	<29,000 Btu/h	1.86	1.89

TABLE 14 TO PARAGRAPH (f)(2)—MINIMUM EFFICIENCY STANDARDS FOR CEILING-MOUNTED COMPUTER ROOM AIR CONDITIONERS—Continued

Equipment type	Net sensible cooling capacity	Minimum SCOP efficiency	
		Ducted	Non-ducted
	≥29,000 Btu/h and <65,000 Btu/h	1.83	1.86
	≥65,000 Btu/h and <760,000 Btu/h ..	1.73	1.75
Air-Cooled with Fluid Economizer and Ducted Condenser	<29,000 Btu/h	1.82	1.85
	≥29,000 Btu/h and <65,000 Btu/h	1.78	1.81
	≥65,000 Btu/h and <760,000 Btu/h ..	1.68	1.7
Water-Cooled	<29,000 Btu/h	2.38	2.41
	≥29,000 Btu/h and <65,000 Btu/h	2.28	2.31
	≥65,000 Btu/h and <760,000 Btu/h ..	2.18	2.2
Water-Cooled with Fluid Economizer	<29,000 Btu/h	2.33	2.36
	≥29,000 Btu/h and <65,000 Btu/h	2.23	2.26
	≥65,000 Btu/h and <760,000 Btu/h ..	2.13	2.16
Glycol-Cooled	<29,000 Btu/h	1.97	2
	≥29,000 Btu/h and <65,000 Btu/h	1.93	1.98
	≥65,000 Btu/h and <760,000 Btu/h ..	1.78	1.81
Glycol-Cooled with Fluid Economizer	<29,000 Btu/h	1.92	1.95
	≥29,000 Btu/h and <65,000 Btu/h	1.88	1.93
	≥65,000 Btu/h and <760,000 Btu/h ..	1.73	1.76

(g)(1) Each variable refrigerant flow air conditioner or heat pump manufactured on or after the compliance date listed in table 15 to this paragraph (g)(1) and prior to January 1, 2024, must meet the applicable minimum energy efficiency standard level(s) set forth in this paragraph (g)(1).

TABLE 15 TO PARAGRAPH (g)(1)—MINIMUM EFFICIENCY STANDARDS FOR VARIABLE REFRIGERANT FLOW MULTI-SPLIT AIR CONDITIONERS AND HEAT PUMPS

Equipment type	Cooling capacity	Heating type [1]	Efficiency level	Compliance date: equipment manufactured on and after . . .
VRF Multi-Split Air Conditioners (Air-Cooled).	≥65,000 Btu/h and <135,000 Btu/h.	No Heating or Electric Resistance Heating.	11.2 EER	January 1, 2010.
		All Other Types of Heating	11.0 EER	January 1, 2010.
	≥135,000 Btu/h and <240,000 Btu/h.	No Heating or Electric Resistance Heating.	11.0 EER	January 1, 2010.
		All Other Types of Heating	10.8 EER	January 1, 2010.
	≥240,000 Btu/h and <760,000 Btu/h.	No Heating or Electric Resistance Heating.	10.0 EER	January 1, 2010.
		All Other Types of Heating	9.8 EER	January 1, 2010.
VRF Multi-Split Heat Pumps (Air-Cooled).	≥65,000 Btu/h and <135,000 Btu/h.	No Heating or Electric Resistance Heating.	11.0 EER, 3.3 COP	January 1, 2010.
		All Other Types of Heating	10.8 EER, 3.3 COP	January 1, 2010.
	≥135,000 Btu/h and <240,000 Btu/h.	No Heating or Electric Resistance Heating.	10.6 EER, 3.2 COP	January 1, 2010.
		All Other Types of Heating	10.4 EER, 3.2 COP	January 1, 2010.
	≥240,000 Btu/h and <760,000 Btu/h.	No Heating or Electric Resistance Heating.	9.5 EER, 3.2 COP	January 1, 2010.
		All Other Types of Heating	9.3 EER, 3.2 COP	January 1, 2010.
VRF Multi-Split Heat Pumps (Water-Source).	<17,000 Btu/h	Without Heat Recovery	12.0 EER	October 29, 2012.
			4.2 COP	October 29, 2003.
		With Heat Recovery	11.8 EER	October 29, 2012.
			4.2 COP	October 29, 2003.
	≥17,000 Btu/h and <65,000 Btu/h	All	12.0 EER, 4.2 COP	October 29, 2003.
	≥65,000 Btu/h and <135,000 Btu/h.	All	12.0 EER, 4.2 COP	October 29, 2003.
	≥135,000 Btu/h and <760,000 Btu/h.	Without Heat Recovery	10.0 EER, 3.9 COP	October 29, 2013.
		With Heat Recovery	9.8 EER, 3.9 COP	October 29, 2013.

[1] VRF multi-split heat pumps (air-cooled) with heat recovery fall under the category of ''All Other Types of Heating'' unless they also have electric resistance heating, in which case it falls under the category for ''No Heating or Electric Resistance Heating.''

(2) Each variable refrigerant flow air conditioner or heat pump (except air-cooled systems with cooling capacity less than 65,000 Btu/h) manufactured on or after January 1, 2024, must meet the applicable minimum energy efficiency standard level(s) set forth in this paragraph (g)(2).

TABLE 16 TO PARAGRAPH (g)(2)—UPDATED MINIMUM EFFICIENCY STANDARDS FOR VARIABLE REFRIGERANT FLOW MULTI-SPLIT AIR CONDITIONERS AND HEAT PUMPS

Equipment type	Size category	Heating type	Minimum efficiency
VRF Multi-Split Air Conditioners (Air-Cooled)	≥65,000 and <135,000 Btu/h	All	15.5 IEER.
	≥135,000 and <240,000 Btu/h	All	14.9 IEER.
	≥240,000 Btu/h and <760,000 Btu/h	All	13.9 IEER.
VRF Multi-Split Heat Pumps (Air-Cooled)	≥65,000 and <135,000 Btu/h	Heat Pump without Heat Recovery	14.6 IEER, 3.3 COP.
		Heat Pump with Heat Recovery	14.4 IEER, 3.3 COP.
	≥135,000 and <240,000 Btu/h	Heat Pump without Heat Recovery	13.9 IEER, 3.2 COP.
		Heat Pump with Heat Recovery	13.7 IEER, 3.2 COP.
	≥240,000 Btu/h and <760,000 Btu/h	Heat Pump without Heat Recovery	12.7 IEER, 3.2 COP.
		Heat Pump with Heat Recovery	12.5 IEER, 3.2 COP.
VRF Multi-Split Heat Pumps (Water-Source)	<65,000 Btu/h	Heat Pump without Heat Recovery	16.0 IEER, 4.3 COP.
		Heat Pump with Heat Recovery	15.8 IEER, 4.3 COP.
	≥65,000 and <135,000 Btu/h	Heat Pump without Heat Recovery	16.0 IEER, 4.3 COP.
		Heat Pump with Heat Recovery	15.8 IEER, 4.3 COP.
	≥135,000 and <240,000 Btu/h	Heat Pump without Heat Recovery	14.0 IEER, 4.0 COP.
		Heat Pump with Heat Recovery	13.8 IEER, 4.0 COP.
	≥240,000 Btu/h and <760,000 Btu/h	Heat Pump without Heat Recovery	12.0 IEER, 3.9 COP.
		Heat Pump with Heat Recovery	11.8 IEER, 3.9 COP.

(h) Each direct expansion-dedicated outdoor air system manufactured on or after the compliance date listed in table 17 to this paragraph (h) must meet the applicable minimum energy efficiency standard level(s) set forth in this paragraph (h).

TABLE 17 TO PARAGRAPH (h)—MINIMUM EFFICIENCY STANDARDS FOR DIRECT EXPANSION-DEDICATED OUTDOOR AIR SYSTEMS

Equipment category	Subcategory	Efficiency level	Compliance date: equipment manufactured starting on . . .
Direct expansion-dedicated outdoor air systems	(AC)—Air-cooled without ventilation energy recovery systems	ISMRE2 = 3.8	May 1, 2024.
	(AC w/VERS)—Air-cooled with ventilation energy recovery systems.	ISMRE2 = 5.0	May 1, 2024.
	(ASHP)—Air-source heat pumps without ventilation energy recovery systems.	ISMRE2 = 3.8 ISCOP2 = 2.05.	May 1, 2024.
	(ASHP w/VERS)—Air-source heat pumps with ventilation energy recovery systems.	ISMRE2 = 5.0 ISCOP2 = 3.20.	May 1, 2024.
	(WC)—Water-cooled without ventilation energy recovery systems	ISMRE2 = 4.7	May 1, 2024.
	(WC w/VERS)—Water-cooled with ventilation energy recovery systems.	ISMRE2 = 5.1	May 1, 2024.
	(WSHP)—Water-source heat pumps without ventilation energy recovery systems.	ISMRE2 = 3.8 ISCOP2 = 2.13.	May 1, 2024.
	(WSHP w/VERS)—Water-source heat pumps with ventilation energy recovery systems.	ISMRE2 = 4.6 ISCOP2 = 4.04.	May 1, 2024.

(i) Air-cooled, three-phase, commercial package air conditioning and heating equipment with a cooling capacity of less than 65,000 Btu/h and air-cooled, three-phase variable refrigerant flow multi-split air conditioning and heating equipment with a cooling capacity of less than 65,000 Btu/h manufactured on or after the compliance date listed in tables 18 and 19 to this paragraph (i) must meet the applicable minimum energy efficiency standard level(s) set forth in this paragraph (i).

TABLE 18 TO PARAGRAPH (i)—MINIMUM EFFICIENCY STANDARDS FOR AIR-COOLED, THREE-PHASE, COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT WITH A COOLING CAPACITY OF LESS THAN 65,000 Btu/h AND AIR-COOLED, THREE-PHASE, SMALL VARIABLE REFRIGERANT FLOW MULTI-SPLIT AIR CONDITIONING AND HEATING EQUIPMENT WITH A COOLING CAPACITY OF LESS THAN 65,000 Btu/h

Equipment type	Cooling capacity	Subcategory	Minimum efficiency	Compliance date: equipment manufactured starting on . . .
Commercial Package Air Conditioning Equipment	<65,000 Btu/h	Split-System	13.0 SEER	June 16, 2008.[1]
Commercial Package Air Conditioning Equipment	<65,000 Btu/h	Single-Package	14.0 SEER	January 1, 2017.[1]
Commercial Package Air Conditioning and Heating Equipment	<65,000 Btu/h	Split-System	14.0 SEER; 8.2 HSPF	January 1, 2017.[1]
Commercial Package Air Conditioning and Heating Equipment	<65,000 Btu/h	Single-Package	14.0 SEER; 8.0 HSPF	January 1, 2017.[1]
VRF Air Conditioners	<65,000 Btu/h		13.0 SEER	June 16, 2008.[1]
VRF Heat Pumps	<65,000 Btu/h		13.0 SEER; 7.7 HSPF	June 16, 2008.[1]

[1] And manufactured before January 1, 2025. For equipment manufactured on or after January 1, 2025, see table 19 to this paragraph (i) for updated efficiency standards.

TABLE 19 TO PARAGRAPH (i)—UPDATED MINIMUM EFFICIENCY STANDARDS FOR AIR-COOLED, THREE-PHASE, COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT WITH A COOLING CAPACITY OF LESS THAN 65,000 Btu/h AND AIR-COOLED, THREE-PHASE, SMALL VARIABLE REFRIGERANT FLOW MULTI-SPLIT AIR CONDITIONING AND HEATING EQUIPMENT WITH A COOLING CAPACITY OF LESS THAN 65,000 Btu/h

Equipment type	Cooling capacity	Subcategory	Minimum efficiency	Compliance date: equipment manufactured starting on . . .
Commercial Package Air Conditioning Equipment	<65,000 Btu/h	Split-System	13.4 SEER2	January 1, 2025.
Commercial Package Air Conditioning Equipment	<65,000 Btu/h	Single-Package	13.4 SEER2	January 1, 2025.
Commercial Package Air Conditioning and Heating Equipment	<65,000 Btu/h	Split-System	14.3 SEER2; 7.5 HSPF2	January 1, 2025.
Commercial Package Air Conditioning and Heating Equipment	<65,000 Btu/h	Single-Package	13.4 SEER2; 6.7 HSPF2	January 1, 2025.
Space-Constrained Commercial Package Air Conditioning Equipment.	≤30,000 Btu/h	Split-System	12.7 SEER2	January 1, 2025.
Space-Constrained Commercial Package Air Conditioning Equipment.	≤30,000 Btu/h	Single-Package	13.9 SEER2	January 1, 2025.
Space-Constrained Commercial Package Air Conditioning and Heating Equipment.	≤30,000 Btu/h	Split-System	13.9 SEER2; 7.0 HSPF2	January 1, 2025.
Space-Constrained Commercial Package Air Conditioning and Heating Equipment.	≤30,000 Btu/h	Single-Package	13.9 SEER2; 6.7 HSPF2	January 1, 2025.
Small-Duct, High-Velocity Commercial Package Air Conditioning.	<65,000 Btu/h	Split-System	13.0 SEER2	January 1, 2025.
Small-Duct, High-Velocity Commercial Package Air Conditioning and Heating Equipment.	<65,000 Btu/h	Split-System	14.0 SEER2; 6.9 HSPF2	January 1, 2025.
VRF Air Conditioners	<65,000 Btu/h		13.4 SEER2	January 1, 2025.
VRF Heat Pumps	<65,000 Btu/h		13.4 SEER2; 7.5 HSPF2	January 1, 2025.

[FR Doc. 2024–08545 Filed 5–17–24; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2024–1467; Project Identifier AD–2023–01241–T]

RIN 2120–AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for all The Boeing Company Model 737–100, –200, –200C, –300, –400, and –500 series airplanes. This proposed AD was prompted by a report indicating cracks in the frame inner chord and web at station (STA) 727. This proposed AD would require an inspection for any repair, repetitive inspections of the frame inner chord and web at STA 727 for any crack, and applicable on-condition actions. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by July 5, 2024.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- *Federal eRulemaking Portal:* Go to *regulations.gov*. Follow the instructions for submitting comments.
- *Fax:* 202–493–2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2024–1467; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For service information identified in this NPRM, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110–SK57, Seal Beach, CA 90740–5600; telephone 562–797–1717; website *myboeingfleet.com*.
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195. It is also available at *regulations.gov* by searching for and locating Docket No. FAA–2024–1467.

FOR FURTHER INFORMATION CONTACT: Muoi Vuong, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: 562–627–5205; email: *muoi.vuong@faa.gov*.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under **ADDRESSES**. Include ''Docket No. FAA–2024–1467; Project Identifier AD–2023–01241–T'' at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to *regulations.gov*, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or