Proposed Rules

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

DEPARTMENT OF ENERGY

10 CFR Parts 429 and 431

[EERE–2022–BT–STD–0002]

RIN 1904–AC55

Energy Conservation Program: Energy Conservation Standards for Fans and Blowers

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

ACTION: Request for information.

SUMMARY: The U.S. Department of Energy (''DOE'' or ''the Department'') is evaluating potential energy conservation standards for fans and blowers, including air circulating fans. Through this request for information (''RFI''), DOE seeks data and information to help determine whether potential energy conservation standards for fans and blowers, including air circulating fans, would result in standards that are technologically feasible and economically justified while producing significant conservation of energy. DOE welcomes written comments from the public on any subject within the scope of this document (including those topics not specifically raised in this RFI), as well as the submission of data and other relevant information.

DATES: Written comments and information are requested and will be accepted on or before March 10, 2022.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov.* Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2022–BT–STD–0002, by any of the following methods:

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

2. *Email:* To *FansAndBlowers2022STD0002@ee.doe.gov.* Include docket number EERE–2022–BT–STD–0002 in the subject line of the message.

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

Although DOE has routinely accepted public comment submissions through a variety of mechanisms, including the Federal eRulemaking Portal, email, postal mail, or hand delivery/courier, the Department has found it necessary to make temporary modifications to the comment submission process in light of the ongoing coronavirus 2019 (''COVID–19'') pandemic. DOE is currently suspending receipt of public comments via postal mail and hand delivery/courier. If a commenter finds that this change poses an undue hardship, please contact Appliance Standards Program staff at (202) 586–1445 to discuss the need for alternative arrangements. Once the COVID–19 pandemic health emergency is resolved, DOE anticipates resuming all of its regular options for public comment submission, including postal mail and hand delivery/courier.

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, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

The docket web page can be found at *www.regulations.gov/docket/EERE-2022-BT-STD-0002.* The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section III for information on how to submit comments through *www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT:

Mr. Jeremy Dommu, 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) 586–9870. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

Ms. Amelia Whiting, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: 202–586–2588. Email: *amelia.whiting@hq.doe.gov.*

For further information on how to submit a comment or review other public comments and the docket, 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. Introduction

A. Authority and Background

The Energy Policy and Conservation Act, as amended (''EPCA''),[1] authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Title III, Part C[2] 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.

EPCA specifies a list of equipment that constitutes covered equipment

[1] All references to EPCA in this document refer to the statute as amended through the Infrastructure Investment and Jobs Act, Public Law 117–58 (Nov. 15, 2021).

[2] For editorial reasons, upon codification in the U.S. Code, Part C was redesignated Part A–1.

(hereafter referred to as ''covered equipment'').[3] EPCA also provides that ''covered equipment'' includes any other type of industrial equipment for which the Secretary of Energy (''Secretary'') determines inclusion is necessary to carry out the purpose of Part A–1. (42 U.S.C. 6311(1)(L); 42 U.S.C. 6312(b)) EPCA specifies the types of industrial equipment that can be classified as covered in addition to the equipment enumerated in 42 U.S.C. 6311(1) This industrial equipment includes fans and blowers. (42 U.S.C. 6311(2)(B)(ii) and (iii)) Additionally, industrial equipment must be of a type that consumes, or is designed to consume, energy in operation; is distributed in commerce for industrial or commercial use[4]; and is not a covered product as defined in 42 U.S.C. 6291(a)(2) other than a component of a covered product with respect to which there is in effect a determination under 42 U.S.C. 6312(c). (42 U.S.C. 6311(2)(A)) On August 19, 2021, DOE published a final determination that the inclusion of fans and blowers as covered equipment was necessary to carry out the purpose of Part A–1 and classified fans and blowers as covered equipment. 86 FR 46579, 46588. Air circulating fans are a class of fans and blowers.

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

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 of EPCA. (42 U.S.C. 6316(b)(2)(D))

In proposing new standards, DOE must evaluate that proposal against the criteria of 42 U.S.C. 6295(o), as described in section I.C of this document, and follow the rulemaking procedures set out in 42 U.S.C. 6295(p). (42 U.S.C. 6316(a)) DOE is publishing this RFI consistent with its obligations in EPCA.

B. Rulemaking History

On June 28, 2011, DOE published a notice of proposed determination of coverage proposing to determine that fans, blowers, and fume hoods qualify as covered equipment. 76 FR 37678. DOE noted that there are no statutory definitions for ''fan,'' ''blower,'' or ''fume hood,'' and presented definitions for consideration. 76 FR 37678, 37679. DOE subsequently published a framework document on February 1, 2013 detailing the analytical approach for developing potential energy conservation standards for commercial and industrial fans and blowers should the Secretary classify such equipment as covered equipment (''Framework Document''). 78 FR 7306. In the Framework Document, DOE determined that it lacks authority to establish energy conservation standards for fume hoods because fume hoods are not listed as a type of equipment for which DOE could establish standards. (Docket EERE–2013–BT–STD–0006, No. 1 at p. 15) DOE acknowledged that the fan, which provides ventilation for the fume hood, consumes the largest portion of energy within the fume hood system, and that DOE planned to cover all commercial and industrial fan types, which includes fans used to ventilate fume hoods. *Id.*

On December 10, 2014, DOE published a notice of data availability that presented a provisional analysis estimating the economic impacts and energy savings from potential energy conservation standards for certain fans and blowers. This analysis did not include air circulating fans. 79 FR 73246.

On April 1, 2015, DOE published a notice of intent to establish an Appliance Standards and Rulemaking Federal Advisory Committee (''ASRAC'') Working Group for fans (hereafter referred to as the ''Working Group''). 80 FR 17359.

The Working Group commenced negotiations at an open meeting on May 18, 2015 and held 16 meetings and three webinars to discuss scope, metrics, test procedures, and standard levels for fans and blowers.[5] The Working Group concluded its negotiations on September 3, 2015, and, by consensus vote,[6] approved a term sheet containing 27 recommendations related to scope, test procedure and energy conservation standards (''term sheet'').[7] *See* Docket No. EERE–2013–BT–STD–0006, No. 179. ASRAC approved the term sheet on September 24, 2015. The Working Group term sheet recommended the exclusion of circulating fans.[8]

On May 10, 2021, DOE published a request for information requesting comments on a potential fan or blower definition. 86 FR 24752 (''May 2021 RFI''). On August 19, 2021, DOE published in the **Federal Register** a final coverage determination classifying fans and blowers as covered equipment (''August 2021 Final Coverage Determination''). 86 FR 46579.

To date, DOE has not proposed test procedures or energy conservation standards for fans and blowers, including air circulating fans.

C. Rulemaking Process

DOE must follow specific statutory criteria for prescribing new or amended standards for covered equipment. EPCA requires that any new or amended energy conservation standard prescribed by the Secretary of Energy (''Secretary'') be designed to achieve the maximum improvement in energy or water efficiency that is technologically feasible and economically justified. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(A)) Furthermore, DOE may not adopt any standard that would not result in the significant conservation of energy. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(3))

The significance of energy savings offered by a new or amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a

[3] ''Covered equipment'' means one of the following types of industrial equipment: Electric motors and pumps; small commercial package air conditioning and heating equipment; large commercial package air conditioning and heating equipment; very large commercial package air conditioning and heating equipment; commercial refrigerators, freezers, and refrigerator-freezers; automatic commercial ice makers; walk-in coolers and walk-in freezers; commercial clothes washers; packaged terminal air-conditioners and packaged terminal heat pumps; warm air furnaces and packaged boilers; and storage water heaters, instantaneous water heaters, and unfired hot water storage tanks. (42 U.S.C. 6311(1)(A)–(K))

[4] DOE notes that distribution for residential use does not preclude coverage as covered equipment, so long as the equipment is of a type that is also distributed in commerce for industrial and commercial use.

[5] All documentation from the Working Group meetings may be found in Docket No. EERE–2013–BT–STD–0006) at *www.regulations.gov/docket/EERE-2013-BT-STD-0006/document.*

[6] At the beginning of the negotiated rulemaking process, the Working Group defined that before any vote could occur, the Working Group must establish a quorum of at least 20 of the 25 members and defined consensus as an agreement with less than 4 negative votes. Twenty voting members of the Working Group were present for this vote. Two members (Air-Conditioning, Heating, and Refrigeration Institute and Ingersoll Rand/Trane) voted no on the term sheet.

[7] In addition to the 27 recommendations, there were five recommendations that did not receive a consensus vote. Recommendations 28, 29, 30, 31, and 32 are included in Appendix F of the term sheet and were not approved by ASRAC.

[8] *See* Recommendation 2 of the term sheet.

given rulemaking.[9] For example, the United States has now rejoined the Paris Agreement on February 19, 2021. As part of that agreement, the United States has committed to reducing the GHG emissions in order to limit the rise in mean global temperature. As such, energy savings that reduce GHG emission have taken on greater importance. Additionally, some covered products and equipment have most of their energy consumption occur during periods of peak energy demand. The impacts of these products on the energy infrastructure can be more pronounced than products with relatively constant demand. In evaluating the significance of energy savings, DOE considers differences in primary energy and full fuel cycle (''FFC'') effects for different covered products and equipment when determining whether energy savings are significant. Primary energy and FFC effects include the energy consumed in electricity production (depending on load shape), in distribution and transmission, and in extracting, processing, and transporting primary fuels (*i.e.,* coal, natural gas, petroleum fuels), and thus present a more complete picture of the impacts of energy conservation standards. Accordingly, DOE evaluates the significance of energy savings on a case-by-case basis.

To determine whether a standard is economically justified, EPCA requires that DOE determine whether the benefits of the standard exceed its burdens by considering, to the greatest extent practicable, the following seven factors:

(1) The economic impact of the standard on the manufacturers and consumers of the affected products;

(2) The savings in operating costs throughout the estimated average life of the product compared to any increases in the initial cost, or maintenance expenses;

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

(4) Any lessening of the utility or the performance of the products 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 and water conservation; and

(7) Other factors the Secretary considers relevant.

(42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(B)(i)(I)–(VII))

DOE fulfills these and other applicable requirements by conducting a series of analyses throughout the rulemaking process. Table I.1 shows the individual analyses that are performed to satisfy each of the requirements within EPCA.

TABLE I.1—EPCA REQUIREMENTS AND CORRESPONDING DOE ANALYSIS

EPCA requirement	Corresponding DOE analysis
Significant Energy Savings	Shipments Analysis, National Impact Analysis, Energy and Water Use Determination.
Technological Feasibility	Market and Technology Assessment, Screening Analysis, Engineering Analysis.
Economic Justification	
Economic Impact on Manufacturers and Consumers	Manufacturer Impact Analysis, Life-Cycle Cost and Payback Period Analysis, Life-Cycle Cost Subgroup Analysis, Shipments Analysis.
Lifetime Operating Cost Savings Compared to Increased Cost for the Product.	Markups for Product Price Determination, Energy and Water Use Determination, Life-Cycle Cost and Payback Period Analysis.
Total Projected Energy Savings	Shipments Analysis, National Impact Analysis.
Impact on Utility or Performance	Screening Analysis, Engineering Analysis.
Impact of Any Lessening of Competition	Manufacturer Impact Analysis.
Need for National Energy and Water Conservation	Shipments Analysis, National Impact Analysis.
Other Factors the Secretary Considers Relevant	Employment Impact Analysis, Utility Impact Analysis, Emissions Analysis, Monetization of Emission Reductions Benefits, Regulatory Impact Analysis.

As detailed throughout this RFI, DOE is publishing this document seeking input and data from interested parties to aid in the development of the technical analyses on which DOE will ultimately rely to determine whether (and if so, how) to establish the standards for air circulating fans.

D. Deviation From Appendix A

In accordance with section 3(a) of 10 CFR part 430, subpart C, appendix A, DOE notes that it is deviating from that appendix's provision requiring a 75-day comment period for all pre-NOPR standards documents. 10 CFR part 430, subpart C, appendix A, section 6(d)(2). DOE is opting to deviate from this step because DOE believes a 30-day comment period is sufficient given the substantial stakeholder engagement to date, as discussed in section I.B of this document. Further, the 30-day comment period will allow DOE to review comments received in response to this RFI to inform the scope of equipment considered in evaluating potential energy conservation standards, in particular whether air circulating fans should be included as part of that evaluation. DOE believes that the test procedure request for information on air circulating fan heads provided early notice that the Department is interested in evaluating potential energy savings for this equipment.

II. Request for Information

In the following sections, DOE has identified a variety of issues on which it seeks input to aid in the development of the technical and economic analyses regarding whether standards for air circulating fans may be warranted. DOE also welcomes comments on other issues relevant to its analysis that may not specifically be identified in this document.

A. Scope

On October 1, 2021, DOE published a request for information pertaining to potential test procedures for fans and blowers (''October 2021 TP RFI''). 86 FR 54412. As part of the October 2021 TP RFI, DOE discussed potential scope and definitions for air circulating fans, which include air circulating fan heads, personnel coolers, box fans, and table fans. 86 FR 54412, 54414–54415. DOE is considering including air circulating fans in its analysis of potential energy

[9] *See* 86 FR 70892, 70901 (Dec. 13, 2021).

conservation standards for fans and blowers.

B. Market and Technology Assessment

The market and technology assessment that DOE routinely conducts when analyzing the impacts of a potential new or amended energy conservation standard provides information about the air circulating fan industry that will be used in DOE's analysis throughout the rulemaking process. DOE uses qualitative and quantitative information to characterize the structure of the industry and market. DOE identifies manufacturers, estimates market shares and trends, addresses regulatory and non-regulatory initiatives intended to improve energy efficiency or reduce energy consumption, and explores the potential for efficiency improvements in the design and manufacturing of air circulating fans. DOE also reviews product literature, industry publications, and company websites. Additionally, DOE considers conducting interviews with manufacturers to improve its assessment of the market and to better understand available air circulating fan technologies.

1. Equipment Classes

When evaluating and establishing energy conservation standards, DOE may divide covered equipment into equipment classes by the type of energy used, by capacity, or by other performance-related features that may justify a different standard. (42 U.S.C. 6316(a); 42 U.S.C. 6295(q)(1)) In making a determination whether a performance-related feature justifies a different standard, DOE must consider such factors as the utility of the feature to the consumer and other factors DOE deems appropriate. *Id.* ANSI/AMCA Standard 230–15 ''Laboratory Methods of Testing Air Circulating Fans for Rating and Certification'' (''AMCA 230–15'') [10] is the industry test procedure for air circulating fans, which includes air circulating fan heads, personnel coolers, box fans, and table fans. Section 5.1. of AMCA 230–15 defines an air circulating fan as ''a non-ducted fan used for the general circulation of air within a confined space'' and provides additional definitions for air circulating fan head (section 5.1.1), ceiling fan (section 5.1.2), personnel cooler (section 5.1.3), box fan (section 5.1.4), and table fan (section 5.1.5).

Table II.2 lists the four categories of air circulating fans as defined in in AMCA 230–15. DOE is evaluating whether to consider these four categories of air circulating fans separately, or if they should be considered as a single equipment category.

TABLE II.2—DEFINITIONS OF AIR CIRCULATING FAN CATEGORIES

Category	Definition according to AMCA 230–15
Air Circulating Fan Head	An assembly consisting of a motor, impeller, and guard for mounting on a pedestal having a base and column, wall mount bracket, ceiling mount bracket, I-beam bracket, or other commonly accepted mounting means.
Box Fan	A fan used in an office or residential application and having the motor and impeller enclosed in an approximately square box frame having a handle.
Personnel Cooler	A fan used in shops, factories, etc. Generally supplied with wheels or casters on the housing or frame to aid in portability and with motor and impeller enclosed in a common guard and shroud.
Table Fan	A fan intended for use on a desk, table, or countertop. The fan may also be provided with the means for mounting to a wall.

DOE's evaluation of product literature indicates that drum fans, barrel fans, and portable blowers are also sold as air circulating fans. DOE has tentatively included these fans under the definition of personnel coolers in Table II.2 of this RFI.

DOE suggested a potential definition for air circulating fan heads in the October 2021 RFI, including that these fans are fans are designed for directional airflow. DOE is interested in understanding the type(s) of airflow typically associated with personnel coolers, box fans, and table fans. DOE will consider any feedback and comments on the flow and potential definitions for personnel cooler, box fan, and table fan in the test procedure docket (EERE–2021–BT–TP–0021).

Issue 1: DOE requests comment on whether it should consider air circulating fan heads, personnel coolers, box fans, and table fans as separate categories or whether some or all of these four categories should be grouped together when evaluating potential energy conservation standards for fans. Specifically, DOE seeks information and data on whether these four fan categories have unique features or applications that warrant separate consideration from each other or whether any of them are so similar that they should be grouped together. DOE also requests feedback on whether there are any air circulating fans that it should include in its analysis that are not listed in Table II.2 of this RFI.

Issue 2: DOE requests information on whether each of the four categories of air circulating fans shown in Table II.2 of this RFI provide general circulation of air, directional airflow, or some other type of airflow.

Issue 3: DOE requests feedback on whether air circulating fan heads, personnel coolers, box fans, or table fans could be delineated into separate equipment classes based on diameter, operating speed, efficiency, or utility. If so, DOE seeks feedback on what those equipment classes would be for the particular air circulating fan categories and what features distinguish them from one another.

Issue 4: DOE requests feedback on whether the definition of personnel coolers in Table II.2 of this RFI is sufficiently describes drum fans, barrel fans, and portable blower fans. If not, DOE requests information and data showing any differences in size, operating speed, efficiency, or utility between personnel coolers, drum fans, barrel fans, and portable blower fans.

2. Technology Assessment

In analyzing the feasibility of potential new energy conservation standards, DOE uses information about existing and past technology options and prototype designs to help identify technologies that manufacturers could use to meet and/or exceed a given energy conservation standard level under consideration. In consultation with interested parties, DOE intends to develop a list of technologies to consider in its analysis of air circulating fans.

DOE reviewed manufacturer catalogs, recent trade publications, and technical journals to develop a list of technology

[10] ANSI/AMCA 230–15 is available at the AMCA website at *www.amca.org/publish/publications-and-standards/amca-standards/amca-standard-230-15-laboratory-methods-of-testing-air-circulating-fans-for-rating-and-certification.html.*

options that could improve the efficiency of air circulating fans. A list of potential technology options for air circulating fans is shown in Table II.3 of this document.

TABLE II.3—POTENTIAL TECHNOLOGY OPTIONS FOR AIR CIRCULATING FANS

Technology option	Description
Improved aerodynamic design.	Improving the aerodynamics of fan components that are placed in the flow of air can improve efficiency. This includes the motor housing and the rear and front fan guards but does not include blade design.
Blade shape	Adjusting the amount or direction of the curvature of the blades can improve efficiency. Airfoil blades, in particular, may offer better efficiency than other blade shapes.[11]
More efficient motors	Three-phase AC Induction motors and Brushless DC motors have improved efficiencies compared to Single-phase AC Induction motors.
	Three-phase induction motors can produce higher torque than single-phase induction motors and can therefore turn the fan shaft more efficiently. They also have less thermal energy losses than single-phase induction motors.
	Brushless DC motors are a type of permanent magnet synchronous motor, which are more efficient than induction motors due to the lack of rotor losses.
Material selection	Different materials, such as aluminum, plastic, steel, and fiberglass can be used for fan blade impellers and may improve fan efficiency.
Variable speed drives (VSDs).	VSDs allow control over fan speed for fans sold with a motor. The fan speed can be optimized to maximize efficiency for fans that experience variable loads.

Issue 5: DOE requests information on how the technologies listed in Table II.3 of this document may impact the efficiency of air circulating fans. Specifically, DOE seeks data showing how one or more of the technology options listed in Table II.3 of this RFI improves air circulating fan efficiency. Additionally, DOE requests comment on whether the technology options listed in Table II.3 of this document apply equally to the different categories of air circulating fans (*i.e.,* air circulating fan heads, personnel fans, box fans, and table fans). If not, DOE requests information on why they cannot be applied equally for the different classes.

Issue 6: DOE requests data on the impact of curved blades and airfoil blades on the efficiency of air circulating fans. Additionally, DOE requests feedback on whether any blade shapes not listed in Table II.3 are typically used for air circulating fans. DOE also requests data on the percentage of shipments for each category of air circulating fan (*i.e.,* air circulating fan heads, personnel coolers, box fans, and table fans) with curved blades, airfoil blades, or other blade types.

Issue 7: DOE requests data on the percentage of air circulating fans sold with a motor. For those fans sold with a motor, DOE seeks data on the percentage of these fans currently sold with a variable speed drive. Additionally, DOE requests information on whether a higher percentage of certain categories of air circulating fans (*i.e.,* air circulating fan heads, personnel fans, box fans, and table fans) are sold with motors and/or variable speed drives than other types.

Issue 8: DOE requests feedback on the efficiency impact of the blade materials listed in Table II.3 of this RFI for air circulating fans. Specifically, DOE requests data on the percentage of air circulating fan shipments that utilize aluminum, plastic, steel, or fiberglass for the design and manufacture of fan blades. Additionally, DOE seeks information on whether any materials not listed in Table II.3 of this RFI are used, and if so, the percentage of fans sold with these other materials.

Issue 9: DOE seeks comment on technology options not listed in Table II.3 of this document that it should consider for inclusion in its analysis of air circulating fans, or for specific categories of air circulating fans (*i.e.,* air circulating fan heads, personnel fans, box fans, and table fans) and if these technologies may impact product features or consumer utility.

Issue 10: DOE requests feedback on the order in which manufacturers would implement the technology options listed in Table II.3 of this RFI to increase the energy efficiency of air circulating fans. Additionally, DOE solicits feedback on whether the order in which the technology options listed in Table II.3 of this document might change for the different categories of air circulating fans (*i.e.,* air circulating fan heads, personnel fans, box fans, and table fans). DOE is also interested in understanding whether the increased energy efficiency from any combination of the technology options in Table II.3 of this RFI would result in design changes that would not otherwise occur. Finally, DOE requests information on how incorporating any of the technology options listed in Table II.3 of this RFI may impact other fan functions or attributes in response to consumer demand.

C. Screening Analysis

The purpose of the screening analysis is to evaluate the technologies that improve energy efficiency to determine which technologies will be eliminated from further consideration and which will be passed to the engineering analysis for further consideration.

DOE determines whether to eliminate certain technology options from further consideration based on the following criteria:

(1) *Technological feasibility.* DOE will only consider technologies that are incorporated in commercial products or in working prototypes.

(2) *Practicability to manufacture, install, and service.* If DOE determines that mass production of a technology in commercial products and reliable installation and servicing of the technology could not be achieved on the scale necessary to serve the relevant market at the time of the compliance date of the standard, DOE will eliminate that technology from further consideration.

(3) *Impacts on product utility or product availability.* If DOE determines a technology has a significant adverse impact on the utility of the product to significant subgroups of consumers, or results in the unavailability of any covered product type with performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as products generally available in the

[11] United States Department of Energy Office of Energy Efficiency and Renewable Energy (2013). Energy Conservation Standards Rulemaking Framework for Commercial and Industrial Fans and Blowers. *www.regulations.gov/document/EERE-2013-BT-STD-0006-0001, p. 34.*

United States at the time, DOE will eliminate it from further consideration.

(4) *Adverse impacts on health or safety.* If DOE determines that a technology will have significant adverse impacts on health or safety, DOE will eliminate that technology from consideration.

(5) *Unique-Pathway Proprietary Technologies.* If a design option utilizes proprietary technology that represents a unique pathway to achieving a given efficiency level, DOE will eliminate that technology from consideration due to the potential for monopolistic concerns. 10 CFR 431.4; 10 CFR part 430, subpart C, appendix A, sections 6(b)(3) and 7(b)

Technology options identified in the technology assessment are evaluated against these criteria using DOE analyses and inputs from interested parties (*e.g.,* manufacturers, trade organizations, and energy efficiency advocates). Technologies that pass through the screening analysis are referred to as ''design options'' in the engineering analysis. As described above, DOE eliminates from consideration any technology options that fail to meet one or more of the five criteria.

Issue 11: DOE requests feedback on what impact, if any, the five screening criteria described in this section would have on each of the technology options listed in Table II.3 of this document with respect to air circulating fans. Similarly, DOE seeks information regarding how these same criteria would affect any other technology options not already identified in this document with respect to their potential use in air circulating fans.

Issue 12: DOE seeks information on the technology options listed in Table II.3 of this RFI for air circulating fans regarding their market adoption, costs, and any potential issues with incorporating them into products (*e.g.,* impacts on consumer utility, potential safety concerns, manufacturing, or production challenges, etc.). Additionally, DOE requests comment on if there are any differences in the market adoption, costs, safety, or utility of the technology options in Table II.3 of this RFI for the different categories of air circulating fans (*i.e.,* air circulating fan heads, personnel fans, box fans, and table fans).

D. Engineering Analysis

The purpose of the engineering analysis is to establish the relationship between the efficiency and cost of air circulating fans. There are two elements to consider in the engineering analysis: The selection of efficiency levels to analyze (*i.e.,* the ''efficiency analysis'') and the determination of product cost at each efficiency level (*i.e.,* the ''cost analysis''). In determining the performance of higher-efficiency products, DOE considers technologies and design option combinations not eliminated by the screening analysis. For each equipment class, DOE estimates the baseline cost, as well as the incremental cost for the equipment at efficiency levels above the baseline. The output of the engineering analysis is a set of cost-efficiency ''curves'' that are used in downstream analyses (*i.e.,* the life-cycle cost (''LCC'' and payback period (''PBP'') analyses and the national impacts analysis (''NIA'')).

1. Efficiency Analysis

DOE typically uses one of two approaches to develop energy efficiency levels for the engineering analysis: (1) Relying on observed efficiency levels in the market (*i.e.,* the efficiency level approach) or (2) determining the incremental efficiency improvements associated with incorporating specific design options to a baseline model (*i.e.,* the design-option approach). Using the efficiency-level approach, the efficiency levels established for the analysis are determined based on the market distribution of existing products (in other words, based on the range of efficiencies and efficiency level ''clusters'' that already exist on the market). Using the design option approach, the efficiency levels established for the analysis are determined through detailed engineering calculations and/or computer simulations of the efficiency improvements from implementing specific design options that have been identified in the technology assessment. DOE may also rely on a combination of these two approaches. For example, the efficiency-level approach (based on actual products on the market) may be extended using the design option approach to interpolate to define ''gap fill'' levels (to bridge large gaps between other identified efficiency levels) and/or to extrapolate to the max-tech level (particularly in cases where the max-tech level exceeds the maximum efficiency level currently available on the market).

a. Baseline Efficiency

For each evaluated equipment class, DOE selects a baseline model as a reference point against which any changes resulting from new or amended energy conservation standards can be measured. The baseline model in each equipment class represents the characteristics of common or typical equipment in that class. Air circulating fans do not currently have established energy conservation standards, so DOE cannot use certification values or current minimum energy conservation standards to determine a baseline for air circulating fans. Instead, DOE plans to use performance data from air circulating fans currently on the market to establish a baseline.

Issue 13: DOE requests efficiency data measured according to the ACMA 230–15 test procedure to characterize the baseline efficiency level of air circulating fans. Alternatively, DOE requests feedback on how it can best determine appropriate baseline efficiency levels for air circulating fans.

b. Maximum Available Efficiency

As part of DOE's analysis, the maximum available efficiency level is the highest efficiency unit currently available on the market. DOE also defines a ''max-tech'' efficiency level to represent the theoretical maximum possible efficiency if all available design options are incorporated in a model. In applying these design options, DOE would only include those that are compatible with each other and that when combined, would represent the theoretical maximum possible efficiency. In many cases, the max-tech efficiency level is not commercially available because it is not economically feasible.

Issue 14: DOE seeks input on the maximum available efficiencies for air circulating fans and whether the maximum available efficiencies are appropriate and technologically feasible for consideration as possible energy conservation standards for air circulating fans. Additionally, DOE requests comment on whether the maximum available efficiencies for air circulating fan categories (*i.e.,* air circulating fan heads, personnel coolers, box fans, and table fans) are comparable, or whether there are significant differences in maximum efficiencies between categories.

Issue 15: DOE seeks feedback on what design options would be incorporated at a max-tech efficiency level for all categories of air circulating fans, and the efficiencies associated with those levels. As part of this request, DOE also seeks information as to whether there are limitations on the use of certain combinations of design options.

c. Differences Between Air Circulating Fans and General Fans

DOE is aware that the design and use of air circulating fans is different from the fans and blowers evaluated by the Working Group. For instance, air

circulating fans use a total pressure basis rather than a static pressure basis. Additionally, Section 5.1.1 of AMCA 214–21 uses a target of 0.66 when establishing the FEI based on the total pressure of the air circulating fan under test.

Issue 16: DOE requests comment on additional differences between air circulating fans and general fans that it should include in its analysis.

2. Cost Analysis

The cost analysis portion of the engineering analysis is conducted using one or a combination of cost approaches. The selection of cost approach depends on a suite of factors, including availability and reliability of public information, characteristics of the regulated product, and the availability and timeliness of purchasing the product on the market. The cost approaches are summarized as follows:

- *Physical teardowns:* Under this approach, DOE physically dismantles a commercially available product, component-by-component, to develop a detailed bill of materials for the product.
- *Catalog teardowns:* In lieu of physically deconstructing a product, DOE identifies each component using parts diagrams (available from manufacturer websites or appliance repair websites, for example) to develop the bill of materials for the product.
- *Price surveys:* If neither a physical nor catalog teardown is feasible (for example, for tightly integrated products such as fluorescent lamps, which are infeasible to disassemble and for which parts diagrams are unavailable) or cost-prohibitive and otherwise impractical (*e.g.,* large commercial boilers), DOE conducts price surveys using publicly available pricing data published on major online retailer websites and/or by soliciting prices from distributors and other commercial channels.

The resulting bill of materials provides the basis for the manufacturer production cost (''MPC'') estimates. DOE then applies a manufacturer markup to convert the MPC to manufacturer selling price (''MSP''). The manufacturer markup accounts for costs such as overhead and profit.

As described at the beginning of this section, the main outputs of the engineering analysis are cost-efficiency relationships that describe the estimated increases in manufacturer production cost associated with the higher-efficiency products for the analyzed product classes.

As previously discussed, DOE is considering several technology options for improving the energy efficiency of air circulating fans. Those technology options are listed in Table II.3 of this document.

Issue 17: DOE requests input on the increase in MPC associated with incorporating each technology option for air circulating fans listed in Table II.3 of this document. DOE also seeks information on the investments necessary to incorporate specific design options, including, but not limited to, costs related to new or modified tooling (if any), materials, engineering, and development efforts to implement each design option, and manufacturing/production impacts.

DOE is also interested in determining a realistic production cost value for air circulating fans. This information is used to inform the MPC calculation and the total cost to the industry to redesign air circulating fans.

Issue 18: DOE requests data showing the total cost of manufacturing for air circulating fan heads, personnel coolers, box fans, and table fans.

E. Distribution Channels

In generating end-user price inputs for the life-cycle cost (''LCC'') analysis and national impact analysis (''NIA''), DOE must identify distribution channels (*i.e.,* how the products are distributed from the manufacturer to the consumer) and estimate relative sales volumes through each channel. DOE is interested in developing distribution channels for each categories of air circulating fans (*i.e.,* air circulating fan heads, personnel coolers, box fans, and table fans) and may consider different channels depending on the input power of the fans or other design characteristic.

Issue 19: DOE requests information to help characterize distribution channels for air circulating fans. DOE also requests data on the fraction of sales that go through these channels.

F. Energy Use Analysis

As part of the rulemaking process, DOE conducts an energy use analysis to identify how equipment is used by consumers, and thereby determine the energy savings potential of energy efficiency improvements. The energy use analysis is meant to represent the energy consumption of a given equipment when used in the field. The annual energy use of air circulating fans is calculated based on the fans' input power (in watts) and annual operating hours per year. In any future analysis, DOE may consider combining air circulating fan input power ratings in each operating mode (*e.g.,* high speed, medium speed, low speed) from the engineering analysis based on estimates of the distribution of annual operating hours at each mode.

DOE is interested in information to help characterize the annual operating hours of air circulating fans and time spend in each operating mode, if applicable.

In the absence of existing data indicating the daily hours of operation specific to air circulating fans, DOE may consider relying on the annual operating hours developed for ceiling fans as used in the final rule published on January 19, 2017. *See* 82 FR 6826, 6846–6847. For example, for air circulating fans used in commercial and industrial applications, DOE may consider an estimated 12 hours of use per day consistent with the hours of use estimated for large-diameter ceiling fans and high-speed small diameter fans as used in the final rule published on January 19, 2017. 82 FR 6826, 6847. Large-diameter ceiling fans and high-speed small diameter fans are also used in commercial and industrial applications.

Issue 20: DOE seeks information to help characterize the usage of air circulating fans. Specifically, DOE seeks input on data sources to help characterize the variability in annual energy consumption for air circulating fans. For each air circulating fan category, DOE is requesting data and information (by sectorial) related to: (1) Annual operating hours; and (2) fraction of time spent at each speed setting and standby mode (if applicable).

Issue 21: For each air circulating fan category, DOE is also interested in percentage of shipments by sector of application. To the extent any of these usage parameters differ by geographical region or other user characteristics, DOE requests information to help characterize these variations.

G. Life-Cycle Cost and Payback Period Analyses

DOE conducts the LCC and payback period (''PBP'') analysis to evaluate the economic effects of potential energy conservation standards for air circulating fans, on individual consumers. For any given efficiency level, DOE measures the PBP and the change in LCC relative to an estimated baseline level. The LCC is the total consumer expense over the life of the equipment, consisting of purchase, installation, and operating costs (expenses for energy use, maintenance, and repair). Inputs to the calculation of total installed cost include the cost of the equipment—which includes MSPs, distribution channel markups, and sales taxes—and installation costs. Inputs to the calculation of operating expenses

include annual energy consumption, energy prices and price projections, repair and maintenance costs, equipment lifetimes, discount rates, and the year that compliance with new and amended standards is required. In this section, DOE discusses specific inputs to the LCC and PBP analysis for which it requests comment and feedback.

1. Installation, Repair and Maintenance Costs

As part of a potential energy conservation standards rulemaking, should one be conducted, DOE will review available air circulating fan installation, maintenance, and repair cost information.

Issue 22: DOE requests information describing installation, maintenance, and repair practices of air circulating fans. DOE requests feedback and data on whether installation, maintenance, and repair costs of air circulating fans at higher efficiency levels differ in comparison to the baseline installation, maintenance, and repair costs. To the extent that these costs differ, DOE seeks supporting data and the reasons for those differences.

Issue 23: DOE requests information on the repair rate of each air circulating fan category (*i.e.,* percentage of fans purchased that are repaired).

2. Lifetime

The equipment lifetime is the age at which given equipment is retired from service. DOE typically develops survival probabilities using on a Weibull function to characterize variability in lifetimes. As part of a potential energy conservation standards rulemaking, DOE will review available air circulating fan lifetime data by category and sector of application.

Issue 24: DOE seeks data and input on the appropriate average, minimum, and maximum equipment lifetimes (by sector of application) for air circulating fans in years and/or in total lifetime operating hours that DOE should apply when performing its analysis.

3. Efficiency Distribution in the No-New Standards Case

To accurately estimate the share of consumers that would be affected by a potential energy conservation standard at a particular efficiency level, DOE's LCC analysis considers the projected distribution (market shares) of equipment efficiencies in the no-new-standards case (*i.e.,* the case without amended or new energy conservation standards) in the compliance year.

Issue 25: DOE seeks data and input on the appropriate efficiency distribution in the no-new standards case for each air circulating fan category. DOE seeks data that would support changes in efficiency distributions over time in the no-new standards case. To the extent any of the efficiency distributions in the no-new standards case differ by size or other user design characteristic within an air circulating fan category, DOE requests information to characterize these variations.

H. Shipments

DOE develops shipments forecasts to calculate the national impacts of potential energy conservation standards on energy consumption, net present value (''NPV''), and future manufacturer cash flows. DOE shipments projections are typically based on available historical data broken out by equipment class, capacity, and efficiency. Current sales estimates allow for a more accurate model that captures recent trends in the market.

As part of a potential energy conservation standards rulemaking, DOE will review available historical and current shipments data to estimate current and future shipments of air circulating fans by category (*i.e.,* air circulating fan heads, personnel coolers, box fans, and table fans).

Issue 26: DOE requests 2021 annual sales data (or the most recent year available)—*i.e.,* number of shipments—for air circulating fans. If disaggregated data of annual sales are not available for different air circulating fan categories, DOE requests more aggregated data of annual sales as available.

Issue 27: DOE requests 2021 data (or the most recent year available) on the fraction of shipments in the industrial, commercial, and residential sectors for air circulating fans. In each sector, DOE requests 2021 data (or the most recent year available) on the fraction of shipments that represent replacement versus new installations.

Issue 28: DOE requests information on the rate at which annual sales (*i.e.,* number of shipments) of air circulating fans is expected to change in the next 5–10 years. If possible, DOE requests this information for each air circulating fan category. If disaggregated data of annual sales are not available for each air circulating fan category, DOE requests more aggregated data of annual sales.

Issue 29: DOE requests data and information on any trends in the fans market that could be used to forecast expected trends in market share by efficiency levels for air circulating fans. If disaggregated data are not available for each air circulating fan category, DOE requests more aggregated data.

III. Submission of Comments

DOE invites all interested parties to submit in writing by the date specified under the **DATES** heading, comments and information on matters addressed in this RFI and on other matters relevant to DOE's consideration of energy conservation standards for fans and blowers. These comments and information will aid in the development of an energy conservation standards notice of proposed rulemaking for fans and blowers, including air circulating fans, if DOE determines that new energy conservation standards may be appropriate for this equipment.

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 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. Following this instruction, 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. Comments and documents submitted via email 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 on a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. Faxes will not 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, are written in English and are free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

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

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

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

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

Signing Authority

This document of the Department of Energy was signed on February 2, 2022, by Kelly J. Speakes-Backman, 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 February 3, 2022.

Treena V. Garrett,

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

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2022–0090; Project Identifier MCAI–2021–00399–T]

RIN 2120–AA64

Airworthiness Directives; Bombardier, Inc., 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 certain Bombardier, Inc., Model CL–600–1A11 (600), CL–600–2A12 (601), and CL–600–2B16 (601–3A, 601–3R, and 604 Variants) airplanes. This proposed AD was prompted by a report of smoke in the aft cabin during a maintenance activity, which an investigation determined was caused by a faulty drain line ribbon heater. This proposed AD would require a general visual inspection of all affected potable water-line ribbon heater installations and corrective actions and other specified 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 March 25, 2022.

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 *https://www.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.

For service information identified in this NPRM, contact Bombardier Business Aircraft Customer Response Center, 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; telephone 514–855–2999; email *ac.yul@aero.bombardier.com;* internet *http://www.bombardier.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.

Examining the AD Docket

You may examine the AD docket at *https://www.regulations.gov* by searching for and locating Docket No. FAA–2022–0090; 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.

FOR FURTHER INFORMATION CONTACT: Thomas Niczky, Aerospace Engineer,