DOCKETED	
Docket Number:	22-AAER-01
Project Title:	Commercial and Industrial Fans and Blowers
TN #:	241952
Document Title:	Initial Statement of Reasons
Description:	Initial Statement of Reasons for Commercial and Industrial Fans and Blowers
Filer:	Alex Galdamez
Organization:	California Energy Alliance
Submitter Role:	Commission Staff
Submission Date:	2/24/2022 10:55:06 AM
Docketed Date:	2/24/2022

CALIFORNIA ENERGY COMMISSION
715 P Street
Sacramento, California 95814

energy.ca.gov

CEC-057 (Revised 1/21)

INITIAL STATEMENT OF REASONS

2021 Appliance Efficiency Rulemaking for Commercial and Industrial Fans and Blowers
Title 20, California Code of Regulations, Sections 1601-1609.

Docket No. 22-AAER-01
Notice Published on February 25, 2022

INTRODUCTION

The California Energy Commission (CEC) proposes to adopt regulations for commercial and industrial fans and blowers after considering all comments, objections, and recommendations regarding the proposed action.

PROBLEM STATEMENT

The Warren-Alquist Act establishes the CEC as California's primary energy policy and planning agency. Sections 25213, 25218(e), and 25402(c) of the Public Resources Code mandates and/or authorizes that the CEC adopt rules and regulations, as necessary, to reduce the inefficient consumption of energy and water by prescribing efficiency standards and other cost-effective measures, including energy consumption and performance labeling, for appliances whose use requires a significant amount of energy or water statewide.

One of the ways the CEC satisfies this requirement is through the Appliance Efficiency Regulations, Title 20, Sections 1601-1609, which contain definitions, test procedures, efficiency standards, and marking and certification requirements for state and federally regulated appliances. Further, the regulations require that appliance manufacturers certify to the CEC that their products meet all applicable state and federal appliance efficiency regulations before their products can be included in the CEC's Modernized Appliance Efficiency Database System (MAEDbS) of appliances approved to be sold or offered for sale within California.

The CEC is proposing regulations for commercial and industrial fans and blowers. There are an estimated 2 million commercial and industrial fans and blowers in California used in a wide variety of applications including commercial building ventilation, commercial kitchen exhaust systems, industrial processes, and agricultural ventilation. The CEC analyzed available market data and concluded that the regulations

for commercial and industrial fans and blowers would significantly reduce energy consumption.

Therefore, the CEC has prepared the proposed regulations to provide definitions, test procedures, and reporting requirements for commercial and industrial fans and blowers used in building applications. The regulations would apply to all commercial and industrial fans and blowers greater than or equal to 1 horsepower, or for fans without a rated shaft input power, an electrical input power greater than or equal to 1kW, but no more than 150 air horsepower.

The CEC proposes to explicitly exclude the following types of fans from these regulations as provided in the proposed regulatory language:

- safety fans as defined in Section 1602(d) of this Article.
- ceiling fans as defined in 10 CFR § 430.2.
- circulating fans.
- induced flow fans.
- jet fans.
- crossflow fans.
- embedded fans as defined in ANSI/AMCA 214-21.
- fans mounted in or on motor vehicles or other mobile equipment.
- fans that create a vacuum of 30 in. water gauge or greater; and
- air curtain unit as defined in Section 1602(d) of this Article.

PURPOSE

The purpose of the proposed regulations is to carry out the CEC's statutory mandate to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy by providing standards or other cost-effective measures for commercial and industrial fans and blowers used in building applications.

BENEFITS

The benefits of the proposed regulations are utility cost savings to the consumer, and lower statewide energy use. The proposed regulations cover commercial and industrial fans and blowers used in building applications. The first year the regulations take effect, California will save around 61 gigawatt-hours (GWh) and about 1,755 GWh per year after full stock turnover in 2052. The approximate total appliance life-cycle net benefit at full stock turnover equates to over $5 billion for California businesses and industries.

The proposed standards will result in clearer information being provided to consumers regarding the energy efficient range in which a regulated fan or blower operates. This will ensure consumers have more accurate information to match the performance requirements needed for a particular installation with the energy efficient product that

can meet those requirements. This improved consumer information will lead to reduced overall energy consumption in the state.

Reduced energy consumption translates to fewer power plants built and less pressure on the limited energy resources, land, and water use associated with energy production. In addition, lower electricity consumption results in improved air quality through reduced greenhouse gas and criteria pollutant emissions, primarily from reduced generation in fossil fuel power plants, such as natural gas power plants.

STATEMENT OF SPECIFIC PURPOSE AND NECESSITY

SECTION 1601. SCOPE

SPECIFIC PURPOSE

The specific purpose is to add commercial and industrial fans and blowers, as defined, under the scope of the CEC's Appliance Efficiency Regulations.

NECESSITY

The CEC's appliance efficiency regulations set forth a framework of affirmatively identifying the categories of appliances that are subject to CEC jurisdiction. Product categories not identified in the scope are not subject to the CEC regulations. Thus, it is necessary to update the scope provision of the regulations contained in section 1601 when a new product class is added. This addition will ensure the regulated community and the public clearly understand the product types subject to the CEC's appliance efficiency regulations.

SECTION 1602. DEFINITIONS

SPECIFIC PURPOSE

For the CEC to meet its statutory mandate to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, the CEC is proposing to regulate certain types of fans and blowers. To ensure the correct types of fans and blowers are captured in the regulations, definitions have been developed to set forth the specific product types that are within the scope of the regulations and those that are not. In addition, because this is a new class of product, specific terms related to the components of fans and blowers, have been identified and defined to provide clarity when the terms are used in other relevant sections of the regulations and in the context of how the fans and blowers are tested using the required test method.

NECESSITY

The definitions are necessary because the product class, fans, and blowers, are generic named products, and the CEC is not intending the proposed regulations to cover all types of fans or blowers. The definitions are the primary tool to make specific the CEC's

statutory mandate to increase energy efficiency by setting forth the specific products that will be subject to the regulations and those that are not.

The definition of “commercial and industrial fans and blowers” limits the scope of products covered by including important operating parameters. Covered fans and blowers are defined as those that are rotary-bladed machines used to convert mechanical power to air power, with a specific work limit of 25 kilojoule per kilogram. The definition clearly sets the fans covered are those that operate with a lower limit of 1 horsepower, or 1 kilowatt for those without a rated shaft input power, and an output power of 150 horsepower.

These types were chosen by the CEC to maintain consistency with the terms as they are defined in the proposed test procedure, ANSI/AMCA 214-21, and proposed language considerations received from stakeholders. The CEC incorporated these terms to explain types of fans based on physical characteristics, rather than inconsistent industry conventions. Further, these different fan types were used for the analysis of the proposed regulation, and as such need to be included into the proposed regulation to ensure the public has a complete understanding of the kinds of fans evaluated by the CEC.

CEC finds it necessary to specify the work limit of the fan to 25 kilojoules or less because operating at a higher work value would generate pressure and would be considered an air compressor fan. CEC staff concluded through analysis that the list of descriptors of what constitutes a commercial and industrial fan or blower was necessary to match the definition in the proposed test procedure ANSI/AMCA 214-21.

CEC finds it necessary to have a defined upper and lower horsepower limit because through the analysis of the proposed regulation it was concluded that both boundaries are limited by technical or physical constraints. For the lower limit CEC found it necessary to match it to the technical applicability of the test procedure ANSI/AMCA 214-21. The upper limit is being proposed because CEC staff agreed with the determination by stakeholders that fans that operate above the proposed upper limit are custom jobs that are too big for testing facilities and are produced infrequently.

The definition also has a list of commercial and industrial fans and blowers that will be exempt or do not need to comply with the proposed regulation. The excluded fans include safety fans, ceiling fans, circulating fans, induced flow fans, jet fans, crossflow fans, embedded fans, fans mounted in or on motor vehicles or other mobile equipment, fans that create a vacuum, and air curtains. Of these terms, circulating fans, induced-flow fans, jet fans, and crossflow fans terms are necessary to be defined to ensure consistency with the terms not covered by the proposed test procedure ANSI/AMCA Standard 214-21.

CEC finds it necessary to include a list of exemptions in the proposed regulation because these are not applicable to the test procedure. CEC finds it necessary to exclude safety fans as defined in section 1602(d) because these units operate outside the efficiency boundaries to provide a safe environment in emergency situations. CEC

finds it necessary to exclude ceiling fans as defined in the Federal Code of Regulations, title 10, section 430.2. CEC finds it necessary to exclude circulating fans, induced flow fans, jet fans, crossflow fans, and embedded fans as defined in the proposed test procedure ANSI/AMCA 214-21 due to lack of technical applicability and not being part of the scope of the test procedure. The CEC finds it necessary to exclude fans mounted in or on motor vehicles, because these fans are not connected to the electrical grid. The CEC finds it necessary to exclude fans that are used to create vacuum of 30 in. water gauge or greater due the lack of technical applicability of the proposed test procedure and such will be out of scope of the proposed test procedure. The CEC finds it necessary to exclude air curtains because these are not within the scope of the proposed test procedure.

The following defined terms are necessary to explain the type of commercial and industrial fans as they appear in the proposed test procedure ANSI/AMCA 214-21 and subject to the proposed regulation: axial-inline fan, axial-panel fan, axial power roof ventilator, centrifugal housed fan, centrifugal unhoused fan, centrifugal inline fan, centrifugal power roof ventilator exhaust fan, centrifugal power roof ventilator supply fan, dual-use fan, fan array, inline mixed-flow fan, jet fan, mixed-flow fan, power roof ventilator, and radial-housed fan.

The following defined terms are necessary to further explain characteristic components or fan operation characteristics and support the type of commercial and industrial fan and blower definitions proposed: axial impeller, belt driven fan, centrifugal impeller, fan array, fan flow angle, housing, impeller, mixed-flow impeller, and radial impeller. These definitions are also consistent with the terms as they appear in ANSI/AMCA Standard 214-21, and it is necessary to incorporate them to ensure consistency and clarity.

The following list of definitions are necessary to clearly communicate terms that will be used for certification in the proposed regulations: Driver, fan energy index, fan electrical power, fan output power, fan shaft power, fan series, series calculated fan, and series tested fan. These definitions proposed are consistent with the term as they appear in ANSI/AMCA 214-21, and it is necessary to incorporate them to ensure consistency and clarity.

It is necessary to incorporate by reference ANSI/AMCA Standard 214-21, Test Procedure for Calculating Fan Energy Index for Commercial and Industrial Fans and Blowers (ANSI/AMCA 214-21) to allow the CEC to evaluate the performance efficiency to implement and enforce a requirement for this product. Rationale for including ANSI/AMCA 214-21 is provided below in Section 1604.

SECTION 1604. TEST METHODS
SPECIFIC PURPOSE

The specific purpose of proposed amendments to this section is to add subsections to the proposed test procedure, ANSI/AMCA 214-21, to table D-3. The proposed amendments clearly communicate the test procedure that is to be used by

manufacturers for certification under the proposed regulations for the commercial and industrial appliances covered under the proposed regulations.

Further, the purpose of 1604(d)(2)(A) is to communicate to the regulated community the requirements of the lab reports used to calculate and certify the commercial and industrial fan and blower. The lab reports will be essential for enforcement actions by the CEC by having all submittals for certification comply with the requirements listed in the test procedure under Annex J.

NECESSITY

The addition of the proposed test procedure, ANSI/AMCA 214-21 is necessary because it is the industry test procedure developed for the purpose of measuring the fan energy index (FEI) for the commercial and industrial fans and blowers covered under the proposed regulations. The FEI is an index number that clearly communicates the overall efficiency considering the motor, transmission, and motor-controllers' efficiencies as part of the calculation. This metric provides an easy way to demonstrate the conditions under which the fan performs within the range set by the regulations. Staff is not aware of another test procedure that could be used which also includes the widespread industry acceptance of the ANSI/AMCA 214-21.

The individual requirement listed in section 1604(d)(2)(A) is necessary to clearly communicate the requirements needed for the lab reports used for certification. By having a standard requirement on reporting test results, the CEC can compare and further analyze future regulatory requirements, engage in any potential enforcement action, and provide information to distributors and consumers to confirm compliance with the regulations.

SECTION 1606. FILING BY MANUFACTURERS; LISTING OF APPLIANCES IN DATABASE

SPECIFIC PURPOSE

The specific purpose is to add commercial and industrial fans and blowers to Table X to provide the data reporting requirements a manufacturer needs to report to certify compliance.

NECESSITY

It is necessary to add manufacturers reporting requirements for commercial and industrial fans and blowers to Table X. State law (Public Resources Code § 25402(c)(1)) requires manufacturers to report to the CEC that their appliances comply with the applicable energy efficiency standards and requirements before they are sold or offered for sale in the state. The appliance efficiency regulations require manufacturers to provide specified information to the CEC Modernized Appliance Efficiency Database System (MAEDbS) to confirm compliance with the applicable standards and requirements and collect information to aid in future adjustments or additions to the standards. MAEDbS is

used by manufacturers and maintained by CEC to list the regulated appliances authorized to be sold or offered for sale in California. This helps the CEC and consumers verify compliance with applicable federal and state standards and other requirements.

The specific required information in Table X is necessary to verify the certified model satisfies the added definitions, provides the relevant inputs to confirm test procedure measurements, and provides information that would allow the CEC to confirm compliance with the marking requirements in section 1607. The required information is necessary for consistent reporting of test results across product lines and accuracy of test results to ensure effective enforcement for noncompliant products.

SECTION 1607. MARKING OF APPLIANCES

SPECIFIC PURPOSE

The specific purpose is to provide the marking requirements for commercial and industrial fans and blowers to allow for identification of the name of manufacturer and the date of manufacture to support compliance efforts by the CEC.

NECESSITY

Existing regulations under section 1607(a) set forth in part that every unit of every appliance within the scope of section 1601 of this Article permanently and conspicuously display the following information: manufacturer's name or brand name or trademark, model number; and date of manufacture. As such, the addition of industrial fans and blowers to the scope set forth in section 1601, triggers the existing marking requirement obligations on the manufacturer.

The proposed language is amending section 1607 to add additional marking categories. The marking requirements under the proposed regulation are necessary for enforcement and consumer verification purposes. A label containing FEI requirements is necessary to ensure that only fans intended to operate within the efficient operating range are marketed to consumers. The proposed label will have the information used for certification into the CEC database assuring that the fan or blower purchased by consumers will be compliant to the requirements set by the proposed regulation. The regulations also require that all marketing information provided with products sold or offered for sale in California only reflect the FEI performance information included in section 1607(d)(16)(A). This requirement ensures that consumers are informed of the efficient performance of the commercial and industrial fan and blower at the point of sale, which encourages the purchase and installation of products that do not waste energy. By implementing this standard, manufacturers will be able to provide compliant options to air movement designers and engineers for commercial and industrial applications in which these fans or blowers are used.

The marking is essential so that consumers can more easily identify the fan or blower product that efficiently operates at the range needed by the consumer. Without the

proposed labeling information, a consumer would have difficulty knowing if a fan or blower could perform at a desired operating range and be at the efficient FEI range.

TECHNICAL, THEORETICAL, OR EMPIRICAL STUDIES, REPORTS, OR SIMILAR DOCUMENTS.

The CEC relied upon input from various stakeholders, subject matter experts, and interested parties that provided information, feedback, and subject matter expertise from operational, technical, and manufacturing perspectives, including but not limited to:

Air Movement and Control Association International, Appliance Standards Awareness Project, Northwest Energy Efficiency Alliance, Natural Resources Defense Council, American Council for an Energy-Efficient Economy, Pacific Gas and Electric Company, San Diego Gas and Electric, Southern California Edison, Morrison Products, Inc., Trane U.S. Inc., and the Air Conditioning Heating and Refrigeration Institute.

The CEC also relied upon the following document:

Staff Report: Analysis of Efficiency Standards and Test Procedures for Commercial and Industrial Fans and Blowers. 2021 Appliance Efficiency Rulemaking. Docket Number 17-AAER-06. CEC Publication Number: CEC-400-2021-012.

CONSIDERATION OF REASONABLE ALTERNATIVES, INCLUDING THOSE THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS

No reasonable alternatives to the proposed regulations have been proposed that would lessen any adverse impact on small businesses or that would be less burdensome and equally effective in achieving the purposes of the regulations in a manner that achieves the purposes of the statute being implemented.

The CEC is proposing to provide definitions, test procedures, and reporting requirements for commercial and industrial fans and blowers used in building applications. The regulations would apply to all commercial and industrial fans and blowers greater than or equal to 1 horsepower, or for fans without a rated shaft input power, an electrical input power greater than or equal to 1kW, but no more than 150 air horsepower.

The CEC considered alternatives including:

The CEC did consider not specifying test procedures for commercial and industrial fans and blowers. No costs would be imposed, and no energy savings would be achieved under this proposal. However, the CEC believes that proposing no requirement for commercial and industrial fans and blowers would represent a lost opportunity for energy savings in California and would not be consistent with the state’s greenhouse gas emission reduction and energy efficiency goals. Therefore, this alternative was not chosen.

Under another alternative, the CEC assessed the FEI standard with an Efficiency Level 4 or higher using information provided in a DOE November 2016 Notice of Data Availability (NODA). Although an FEI metric at Efficiency Level 4 would provide greater energy savings that are cost-effective and technically feasible, this level does not strike the right balance for a first-time regulation because of the higher incremental cost required to achieve this level of efficiency. Therefore, this alternative was not chosen.

SPECIFIC TECHNOLOGIES OR EQUIPMENT

The proposed regulations do not mandate proprietary technology or equipment.

ECONOMIC IMPACT ANALYSIS/ASSESSMENT

The Creation or Elimination of Jobs within the State of California

The proposed regulations will require manufacturers to include certain information, and prohibit other specified information, on the labeling of commercial and industrial fans and blowers. The CEC estimates the proposed regulations will not have an impact on jobs in the state. The CEC estimates annual California shipments of commercial and industrial fans and blowers to be 86,775 per year. The estimated useful lifetime per unit varies between twenty-seven to thirty years by model type. Fans shipments and sales are not expected to change significantly because of the proposed regulations and commercial and industrial fans and blowers are unlikely to be eliminated from the market. The one-time incremental cost is a small fraction of the total cost of the unit and will not change the current demand for these types of fans or blowers covered by the proposed regulation. Therefore, the CEC has determined that jobs will not be created or eliminated as a result of the proposed regulation.

The Creation of New Businesses or the Elimination of Existing Businesses within the State of California

The proposed regulation will require manufacturers to include certain information, and prohibit other specified information, on the labeling of commercial and industrial fans and blowers. Businesses may be impacted if they purchase regulated commercial and industrial fans and blowers. The CEC assumes that manufacturers will pass the incremental cost to meet these requirements onto the businesses involved in the distribution and sales, which in turn will then pass the cost on to the consumers. The CEC assumes that commercial and industrial fans and blowers are typically purchased by businesses and not by individuals. The proposed regulations for commercial and industrial fans and blowers may have an initial increased incremental cost to businesses but will also result in lower utility bills to those businesses through reduced electricity consumption. The savings from the lower utility bills over the useful lifetime of the more efficient appliance exceeds the incremental costs. Therefore, the CEC has determined that demand for these fan and blower systems will not change, and new businesses will not be created or eliminated as a result of the proposed regulations.

The Expansion of Businesses Currently Doing Business within the State of California

The proposed regulations are not expected to change the availability nor the general demand of commercial and industrial fans and blowers. Rather the CEC anticipates a small change on the type of unit being acquired for use. Therefore, the CEC has determined that supply and demand for commercial and industrial fans and blowers will remain the same and will not result in an expansion of business currently doing business within the state of California.

Benefits of the Regulations to the Health and Welfare of California Residents, Worker Safety, and the State's Environment

The benefits of the proposed regulations are utility cost savings to the consumer, and lower statewide energy use. The proposed standards cover commercial and industrial fans and blowers used in building applications. The first year the regulations take effect, California will save around 61 gigawatt-hours (GWh) and about 1,755 GWh per year after full stock turnover in 2052. The total cumulative net benefit at full stock turnover equates to about $5 billion for California businesses and industries.

The proposed regulations will not adversely impact the health and welfare of California residents, worker safety, or the state's environment.

Results of the Economic Impact Assessment/Analysis

The CEC concludes that: (1) the proposal will not create jobs within California, (2) that the proposal will not eliminate jobs within California, (3) the proposal will not create new businesses in California, (4) the proposal will not eliminate existing businesses within California, and (5) the proposal will not result in the expansion of businesses currently doing business within the state.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

The CEC has determined that there are no existing comparable federal regulations or statutes.

The U.S. Department of Energy (DOE) issued a notice of proposed determination June 28, 2011, proposing that commercial and industrial fans, blowers, and fume hoods meet the criteria for covered equipment under the Energy Policy and Conservation Act (EPCA). On December 10, 2014, DOE issued a NODA, followed by a second NODA on May 1, 2015. The Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) formed a working group to negotiate potential efficiency standards and test procedures for fans. The negotiations resulted in a term sheet that included scope, test procedures, and standards for fans. The DOE released a third NODA to support the recommendations in the term sheet on November 1, 2016. However, DOE suspended its rulemaking for commercial and industrial fans and blowers in January 2017.

On August 19, 2021, DOE published a final coverage determination for specified fans and blowers. As of the publication of this document, DOE has not

proposed test procedures or energy conservation standards for commercial and industrial fans and blowers.

EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT AFFECTING BUSINESS

The CEC has made an initial determination that the proposed regulations will not have a statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. This determination is supported by the detailed savings and cost analysis performed by staff and contained in Chapter 7 of the Staff Report available in the proceeding's docket, Staff *Report: Analysis of Efficiency Standards and Test Procedures for Commercial and Industrial Fans and Blowers. 2021 Appliance Efficiency Rulemaking*. Docket Number 17-AAER-06. CEC Publication Number: CEC-400-2021-012. The Staff Report utilizes information obtained by a variety of sources including industry, the Department of Energy, and California utilities.

In Chapter 7 of the Staff Report, staff considered the incremental cost to comply with the proposed standard to the utility bill savings over the lifetime of a compliant fan. This allows staff to assess the cost-effectiveness of the proposed efficiency standard for each category of fan and understand impacts to California businesses.

FOR FURTHER INFORMATION

Inquiries concerning all aspects of the rulemaking process, including the substance of the proposed regulations or any other information upon which the rulemaking is based, should be directed to Corrine Fishman at corrine.fishman@energy.ca.gov.