

California Energy Commission Title 20 Fan Regulation
Key Provisions and Dates
Michael Ivanovich, Senior Director, Global Affairs, AMCA International
mivanovich@amca.org

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Documents prepared by the CEC for this rulemaking have been posted at <https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20/appliance-efficiency-proceedings-11>.

Original Documents:

Click on the document names below to download a PDF of that document.

- [Notice of Proposed Action](#): Contains most information about process plus some material on scope and content of the regulation.
- [Initial Statement of Reasons](#): Contains background information on why California is regulating fans and the expected energy savings and industry/customer impacts.
- [Proposed Regulatory Language](#): Contains the proposed regulatory language, including scope, exemptions, definitions, test standard, compliance filing, marking/lableing and other specifications.
- [Economic and Fiscal Impact Statement \(399\)](#): Not reviewed at this time.
- [Document relied upon: Staff Report](#): Not reviewed at this time. Comments are not being accepted for this document. Previous draft was published in 2018.

Early Assessment:

1. Information in this edition of the Early Assessment is based on Notice of Proposed Action, Initial Statement of Reasons, and Proposed Regulatory Language.
2. In several documents associated with the regulation CEC communicates that the scope of Title 20 is for “building applications.” Staff checked with CEC and CEC confirmed that the scoping statement was for “context,” but does not limit the express terms, which, indeed, cover all commercial and industrial applications.
3. CEC has adopted ANSI/AMCA 214-21 as the test standard, thereby adopting FEI and FEP as the regulatory metrics. The minimum efficiency provision is based on FEI, not FEP, although FEP_{act} must be filed with the compliance data. This signals the success of AMCA advocacy because adopting 214-21 allows use of interpolations, Fan Laws and other calculations from basic models, which would have been prohibited under normal California product regulations.
4. The regulations would apply to commercial and industrial fans rated with at least 1 hp fan shaft power, or rated with at least 1 kW electrical power, but no more than 150 air horsepower.
5. It is not stated in the regulation (that staff could find at this stage), but a sample size of one unit is required for rating fans. This preserves historical data.
6. Keeping the minimum FEI requirement at 1.00 for all fan categories is a win. CEC could have amplified the requirements for higher pressure fans. The 1.00 threshold also is consistent with the Title 24 energy-code requirements, making life easier for manufacturers and practitioners.
7. Compliance-filing data is reasonable and follows AMCA recommendations except for the inclusion of fan diameter, which has no bearing on the FEI requirement.

8. Marking/labeling requirements may be problematic given that individual fans need to have permanent labels with many parameters.
9. The prohibition of manufacturers communicating fan duty points having FEI values less than 1.00 is problematic. This could interfere with sizing/selection software, especially in regions outside California. There also could be safety reasons for opposing this restriction.
10. Having the comment period conclude the day before public hearings (April 11 and 12, 2022) is problematic because information exchanged during the hearing could be material to the comments.
11. Having the 'business meeting' less than six months from publication of the draft language, and enforcement one year after that, is problematic because it does not give industry sufficient time to prepare their manufacturing/labeling processes, and distributors and customers, to adjust to the regulation.
12. Most of the draft regulatory language are definitions. These need to be reviewed.
13. The exclusions list is acceptable – but definitions for safety fan and air curtain unit need to be carefully reviewed.
14. Staff concludes that the majority of our concerns seem to have been addressed by development and acceptance of AMCA 214-21 as the test procedure. Compliance filing requirements are reasonable. FEI levels, exclusions, and scope are as expected.
15. Staff recommends filing a request for comment-deadline extension as soon as possible. It is believed that the maximum extension possible is 45 days. This will allow sufficient time to review the materials published on Fe. 24, 2022, and enable stakeholders to consider materials presented and exchanged during the public hearing. AMCA will collaborate with AHRI and NEMA on the extension request.
16. Staff will continue to review materials, discuss the regulation with other stakeholders, and hold meetings with members in AMCARC and its Energy Efficiency Subcommittee.
17. This document will be updated as often as possible and communicated to AMCARC and EE Subcommittee.

Key Dates:

February 24, 2021:

Draft regulatory language published and regulatory timeline. To receive documents and notices of upcoming workshops and hearings as they are filed please subscribe to the **Appliance list serve** at: <https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20/appliance-efficiency-proceedings>

April 11, 2022: Comment deadline

The CEC appreciates receiving written comments at the earliest possible date. Comments submitted outside this comment period are considered untimely. CEC may, but is not required to, respond to untimely comments.

The CEC encourages use of its electronic commenting system. Visit the e-commenting page at <https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20/appliance-efficiency-proceedings-11> which links to the comment page for this docket. Comments may entered in text box or attached as file. The maximum files size allowed is 10 MB. Can also send comment file by email to docket@energy.ca.gov. Include docket number 22-AAER-01 in the subject line.

April 12, 2022, 10:00 a.m (Pacific Time): Public Hearing

The public hearing may be accessed by clicking the Zoom link below or visiting Zoom at <https://join.zoom.us> and entering the ID and password below.

<https://energy.zoom.us/j/92683364288?pwd=cGprWHZiMnpuMkhJVFZyMk1Ua09QQT09>

Webinar ID: 926 8336 4288 • Passcode: 290779

To participate by telephone dial (213) 338-8477 or (888) 475-4499 (toll free). When prompted, enter the Webinar ID and password listed above. To comment or ask a question over the telephone, dial *9 to “raise your hand” and *6 to mute/unmute your phone line.

June 8, 2022 10:00 a.m. (Pacific Time): Business Meeting – to adopt regulation

Please consult the public agenda, which will be posted ten days before the June 8, 2022. The Listserve will advise when agenda posted and communicate connection information.

Scope:

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 test fans using ANSI/AMCA 214-21 test procedure to test and calculate the fan energy index (FEI) for standalone commercial and industrial fans and blowers. The fan categories covered by this proposal include a wide variety of common commercial and industrial applications. In contrast, the excluded fan categories are fan types that are primarily used in specialty applications including those embedded in equipment with a main function other than the movement of air.

The CEC proposes to explicitly exclude the following types of fans from these regulations:

- 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.

Rationale (Benefits):

The CEC is proposing regulations for new 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.

The specific 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 estimated net benefit for end users of commercial and industrial fans and blowers is between \$407 to \$6,117 per unit, depending on fan type. The first year the requirements take effect, California will save around 61 gigawatt-hours (GWh) and about 1,755 GWh per year after full stock turnover in 2052. These savings equate to about \$303 million in savings per year after full stock turnover for an approximate total appliance life-cycle net benefit of over \$5 billion for California businesses and industries.

[Although]... there are direct fan requirements in the building code under Title 24, Part 6, Section 140.4(c) of the California Code of Regulations, but these requirements are applicable only to new buildings and not every installation. The Title 24 requirements apply to fan systems used for space conditioning and do not conflict with the requirements of the proposed regulation.

Impacts to Manufacturers and California Businesses:

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. Business 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 the 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 not individuals. The proposed regulations for commercial and industrial fans and blowers may have an initial increased incremental cost to businesses but will result in lower utility bills to those businesses through reduced electricity consumption. The savings from the lower utility bills over the lifetime of the more efficient appliance exceeds the incremental costs.

Retailers are responsible for ensuring that the regulated products they sell are certified to the CEC and appear in the CEC Modernized Appliance Efficiency Database System (MAEDbS) before they are sold or offered for sale in California. Because commercial and industrial fans and blowers are newly covered products, the CEC assumes that retailers will experience some additional costs associated with checking MAEDbS to ensure that the appliance(s) they sell are certified to the CEC and appear in the MAEDbS and are therefore compliant and lawful to sell in the state.

Key Provisions:

- Fan Energy Index \geq 1.00 for covered fans
- Covered fans per ASRAC Term Sheet
 - Most types of centrifugal and axial fans
- AMCA 214 referenced as method of test
 - ISO 5801 and AMCA 210 would be applicable test procedures
 - Test methods yield data for FEI calculation
 - AMCA 214 focuses on calculating FEI at a duty point (specified air flow and pressure)

Manufacturers will be able to use The Fan Laws and other “alternative efficiency determination methods” (AEDMs) per Annex E in AMCA 214. This includes use of Fan Laws to calculating ratings for sizes other than tested sizes, and interpolating between fan widths, blade pitches, etc.

Compliance Filing:

The following parameters must be filed in the CEC Modernized Appliance Efficiency Database System (MAEDbS) for every fan model manufactured. *Note: draft regulatory language incorrectly has one decimal place for FEI values. Note: What about custom fans?*

Required Information	Permissible Answers
Fan type	Centrifugal housed, centrifugal inline, centrifugal unboxed, centrifugal PRV supply, centrifugal PRV exhaust, axial inline, axial PRV, inline mixed-flow, power roof/wall ventilators, axial panel, radial housed
Fan impeller diameter (in.)	
Motor model number (if fan is certified with a motor)	
Transmission	Direct, V-belt, synchronous-belt, flexible coupling, none
Controller model number (if fan is certified with a controller)	
Maximum fan speed (RPM) at FEI=1.0	
Maximum pressure (inches water gauge) at FEI=1.0	
Maximum compliant air flow (SCFM) at FEI=1.0	
FEP _{act}	Tested, calculated
Associated Series Tested Fan Model Number (if calculated)	Fan product line and model, (N/A if tested)
Method of FEP _{act} determination	Section 6.1, 6.2, 6.3, 6.4, or 6.5 of the test method
FEP _{ref} at FEI=1.0	Reference fan electrical power (kW)
FEP _{act} at FEI=1.0	Actual fan electrical power (kW)

➤ Being reviewed by Armin Hauer

Marking/Labeling:

Commercial and Industrial Fans and Blowers. Each commercial and industrial fan and blower shall be marked with a legible and permanently fixed label, which may be in tabular form (as shown below):

(A) The label shall include the following information:

1. manufacturer name;
2. brand name or brand code;
3. model number;
4. serial number;
5. date of manufacture;
6. FEP_{ref} at FEI=1.0;
7. maximum air flow (SCFM) at FEI=1.0;
8. maximum speed (RPM) at FEI=1.0; and
9. maximum pressure (inches water gauge) at FEI=1.0.

➤ Being reviewed by Greenheck

Definition of Safety Fan (as excluded products)

“Safety fan” means:

(1) a fan that is designed and marketed to operate only at or above 482 degrees Fahrenheit (250 degrees Celsius);

(2) a reversible axial fan in cylindrical housing that is designed and marketed for use in ducted tunnel ventilation that will reverse operations under emergency ventilation conditions;

(3) a fan bearing an Underwriter Laboratories or Electric Testing Laboratories listing for “Power Ventilators for Smoke Control Systems”;

(4) an open discharge exhaust fan with integral discharge nozzles which develop or maintain a minimum discharge velocity of 3000 FPM;

(5) a fan constructed in accordance with AMCA type A or B spark resistant construction as defined in ANSI/AMCA Standard 99-16 Standards Handbook;

(6) a fan designed and marketed for use in explosive atmospheres and tested and marked according to EN 13463-1:2001 Non-electrical Equipment for Potentially Explosive Atmospheres; or

(7) an electric-motor-driven- Positive Pressure Ventilator as defined in ANSI/AMCA Standard 240-15 Laboratory Methods of Testing Positive Pressure Ventilators for Aerodynamic Performance Rating.

➤ Being reviewed by Keith Lins

Definition of Air Curtain Unit

“Air curtain unit” means equipment providing a directionally controlled stream of air moving across the entire height and width of an opening that reduces the infiltration or transfer of air from one side of the opening to the other and/or inhibits the passage of insects, dust, or debris.

➤ Being reviewed by Air Curtain Engineering Committee

Contacts:

AMCA Staff:

Michael Ivanovich, senior director, global affairs, AMCA: mivanovich@amca.org

Aaron Gunzner, senior manager, advocacy, AMCA: agunzner@amca.org

California Energy Commission Staff:

Corrine Fishman, Regulations Manager

Efficiency Division 715 P Street

Sacramento, CA 95814

(916) 805-7452

corrine.fishman@energy.ca.gov

or

Alejandro Galdamez, P.E. (AMCA's key contact)

Efficiency Division

(916) 237-2550

alejandro.galdamez@energy.ca.gov

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