DOCKETED

Docket Number:	15-AAER-01
Project Title:	Appliance Efficiency Rulemaking for Toliets, Urinals, Faucets, HVAC Air Filters, Fluorescent Dimming Ballasts, and Heat Pump Water Chilling Packages
TN #:	203716
Document Title:	Initial Statement of Reasons (ISOR) Proposed Amendments to Appliance Efficiency Regulations
Description:	California Code of Regulations, Title 20: Sections 1601-1608: Appliance Efficiency Regulations, California Energy Commission
Filer:	Patty Paul
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	2/20/2015 2:10:45 PM
Docketed Date:	2/20/2015

California Energy Commission
STAFF REPORT

INITIAL STATEMENT OF REASONS (ISOR) PROPOSED AMENDMENTS TO APPLIANCE EFFICIENCY REGULATIONS

CALIFORNIA CODE OF REGULATIONS, TITLE 20:

SECTIONS 1601-1608: APPLIANCE EFFICIENCY REGULATIONS

CALIFORNIA ENERGY COMMISSION

DOCKET NUMBER 15-AAER-01

CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown Jr., Governor

FEBRUARY 2015

CEC-400-2015-004-ISOR

CALIFORNIA ENERGY COMMISSION

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CALIFORNIA ENERGY COMMISSION
Docket Number 15-AAER-1
Date February 13, 2015

INTRODUCTION

This Initial Statement of Reasons ("ISOR") describes the purposes, rationales, and necessity of the California Energy Commission's proposed amendments to its appliance water and energy efficiency regulations, Title 20 Sections 1601 through 1607. The amendments cover three distinct areas: Water efficiency standards for toilets, urinals, and faucets; energy efficiency standards for dimming ballasts; labeling standards for replacement air filters in heating and ventilation systems, and heat pump water chilling packages. In addition, updates to the federal provision contained in the Commission's regulations are included. An assessment of the costs and benefits of each of these proposed regulations is discussed below.

Since 1975, California's building and appliance energy efficiency standards have saved Californians an estimated $75 billion in reduced electricity bills. The state's appliance efficiency regulations saved an estimated 22,923 gigawatt hours (GWh) of electricity and 1,626 million therms of natural gas in 2012 alone, resulting in about $5.24 billion in savings to California consumers from these regulations. The proposed standards represent the next step in California's long history of resource efficiency and economic savings.

A. Scope of this Rulemaking, Problem the Agency Intends to Address and Anticipated Benefits (Gov Code section 11346.2(b)(1))

The Appliance Efficiency Regulations (Title 20, Sections 1601-1608 of the California Code of Regulations (CCR)) contain definitions, test procedures, labeling requirements, and efficiency standards for state-regulated appliances. Appliance manufacturers are required to certify to the California Energy Commission that their products meet all applicable state regulations pertaining to efficiency before their products can be included in the Commission's data base of approved appliances to be sold or offered for sale within California.

I Water Efficiency Standards: Toilets, Urinals, and Faucets

Water is a scarce resource, which is often taken for granted. California relies on rainfall and the annual snowpack, which accounts for about a third of the state's water supply. Rainfall has been lower than

normal in 2012, and 2013 was the driest year in recorded history for many areas in California. The snow survey taken on February 27, 2014, showed that the snowpack's water content is about 25 percent of average. This has raised serious concerns over the state's water supply, and on January 17, 2014, Governor Brown proclaimed a State of Emergency and directed officials to take all necessary measures to prepare for drought conditions.

As climate change continues to increase the intensity and duration of droughts, California must aggressively pursue actions that reduce the consumption of water to ensure future supplies. As stated in the 2014 Staff Report titled, *Staff Analysis of Toilets, Urinals and Faucets*, California consumes about 2.9 trillion gallons of water per year for residential indoor, outdoor, commercial, and industrial uses. About 12 percent of this water is used for flushing toilets, and urinals, and flows through faucets. These three sources make up the largest use of urban indoor water consumption. Thus, reducing the water consumption of these three sources by establishing minimum efficiency standards is a key component of California's overall strategy of conserving water and the embedded energy used to treat and move water around the state.

Section 25402 (c)(1), of the Public Resources Code mandates the California Energy Commission reduce the inefficient consumption of energy and water by prescribing efficiency standards and other cost-effective measures for appliances whose use requires a significant amount of energy and water on a statewide basis. Such standards must be technically feasible and attainable and must not result in any added total cost to the consumer over the designed life of the appliance.

In 2007, the California Legislature enacted Assembly Bill 715 (AB 715), which set a schedule for manufacturers to meet water conservation standards for toilets and urinals sold or installed in the state such that after January 1, 2014, toilets cannot use more than 1.28 gallons per flush (gpf) and urinals cannot use more than 0.5 gpf. AB 715 required the California Building Standards Commission to incorporate these standards into the California Building Code, which it did in adopting the 2013 California Plumbing Code (§ 401.2). Therefore, one of the purposes for these proposed regulations is to harmonize the Commission's Title 20 efficiency standards for toilets with AB 715 and the California Building Code.

As noted in the revised Staff Report, the proposed standards for toilets, urinals, and faucets would save about 8.4 billion gallons of water, 24.6 million therms (Mtherm) of natural gas, and 171 gigawatt hours (GWh) of electricity per year the first year the standard is in effect.

By the year that the toilet stock turns over (2039), the proposed standards would have a combined annual savings of about 116 billion gallons of water, 315 Mtherm of natural gas, and 2,380 GWh of electricity. This equates to roughly $1.23 billion in savings to California businesses and individuals.

II Energy Efficiency Standards: Dimming Fluorescent Ballasts

Due to the requirements of Title 24 section 130.1 of the California Code of Regulations, it can be anticipated that the purchase and installation of dimming fluorescent ballasts will be greatly accelerated. Effective July 1, 2014 new nonresidential, high-rise residential, and hotel/motel buildings that install dimming fluorescent ballasts, use ballasts that are able to dim below 50 percent of full rated power.

This large expansion of the dimming ballast market increases the importance of the energy efficiency of the product to California's grid. Currently, only an estimated 225 GWh/yr of energy are used in dimmable fluorescent ballasts and their attached lamps. However, this is estimated to reach nearly 3,600 GWh/yr by 2020 by displacing fixed output ballasts. Of that energy, 20 percent on average is wasted in the ballast itself before ever reaching the fluorescent lamp. The market expansion will also put pressure on supply and price, encouraging the potential introduction of less efficient and cheaper dimming ballast solutions than are available.

No current state or federal efficiency standards, test procedures, or labeling requirements exist for deep-dimming fluorescent ballasts, those that dim at or greater than 50 percent of the full rated power. As noted in the Staff Report, Figure 13, the estimated annual energy savings after full implementation is 388 GWh/y. The expected incremental costs are minimal for an energy efficient compliant ballast. A conservative estimate ranges from $.79 for a one lamp system to $1.09 for a four lamp system.

III HVAC Air Filter Testing and Labeling

Heating ventilation and air conditioning equipment (HVAC) tends to be one of the more expensive systems in a house or commercial building. To ensure HVAC equipment is not wasting energy and is operating properly it is important that the correct replacement air filter is installed. There are two elements of air filter performance: (1) the effectiveness at removing particles from the air and (2) resistance to airflow (or pressure drop) across the filter. The minimum efficiency reporting value (MERV) rating is one measurement of an air filter's ability to capture particles sized from 0.3 to 10 micrometers (μm) from the air stream. Another measurement of an air filter's effectiveness at removing particles is *particle size efficiency*, which is the fraction (percentage) of particles captured on an air filter.

Air filters with the appropriate particle capture and pressure drop performance that meets the HVAC system specifications need to be installed to ensure energy efficiency and equipment damage prevention. Depending on the type of system, an incorrect air filter can lead to increase motor speed and power draw, increased time to heat and cool, overheating of furnaces, and freezing of condensing coils in air conditioning units.

Currently, there is a lack of labeling standards on replacement air filters resulting in improper filters being installed, wasted energy and premature equipment damage. Residential HVAC air filters sold in the market do not disclose pressure drop, and if they disclose particle efficiency, they do so inconsistently as air filter manufacturers and retailers have their own rating systems for air filter

particle capture. Therefore labeling of replacement filters is essential to ensure the air filter is the correct one for the installed HVAC system.

Under Title 24 of the building efficiency standards, the location of the air filter in the HVAC system must have a label to disclose the designed airflow rate of the system and the pressure drop of the air filter, therefore consumers should be able to easily match the appropriate air filter to their system specifications if the replacement filter is labeled. These proposed regulations seek to complete the cycle ensuring a correct filter beyond the originally installed one.

IV Heat-Pump Water Chilling Packages

Heat-pump water chilling packages are not regulated for energy efficiency but represent an opportunity for efficiency that is hard to quantify due to a lack of available, credible, and verifiable data. These products are among key equipment that can contribute to reaching cost effective, zero-net-energy buildings.

Staff proposes data gathering through a test and list requirement for heat-pump, water-chilling packages. The definition for this product and test method is based on ANSI/AHRI 550-590 (I-P) -2011. The data collected from testing the equipment are the minimum necessary for modeling in building efficiency software. Additional data requirements related to power draw and capacity are collected to distinguish whether units are likely to be used in residential buildings versus commercial buildings. The reporting requirements are harmonized with the certification requirements in existence through the Energy Commission's Building Energy Efficiency Program. The collected data includes heating coefficient of performance (COP) and cooling energy efficiency ratio (EER).

V Incorporation of Federal Updates

To provide manufacturers, retailers, and consumers of appliances with a clear and comprehensive set of requirements, in a single location, the Appliance Efficiency Regulations contain the efficiency standards and test procedures for both federally-regulated and state-regulated appliances. Some of the proposed express terms update the federal portion of the Appliance Efficiency Regulations.

Under federal law no state regulation, or revision thereof, concerning the energy efficiency, energy use, or water use of a covered product shall be effective with respect to such covered product, (*See* 42 U.S.C. § 6297(a)-(c) and 10 C.F.R. § 430.33(a).)

Because the Appliance Efficiency Regulations include the federal appliance efficiency requirements, when federal law changes, it is necessary to update the Appliance Efficiency Regulations to correctly reflect these changes. Otherwise, the recitation of federal regulations contained in Title 20 is out of date and not reflective of current federal law.

Specific changes described in this statement of reasons reflect currently effective federal requirements. Because these federal regulations are already effective by operation of preemption in California, and because regulated parties must comply with them regardless of California's regulations, these changes

do not materially alter any requirement, right, responsibility, condition, prescription or other regulatory element of any California Code of Regulations.

B. The Specific Purpose, Rationale, and Necessity of Each Section of the Proposed Amendments (Gov Code section 11346.2(b)(1) and section 11349(a))

Section 1601. Scope.

(c) Central air conditioners, which are electrically-powered unitary air conditioners and electrically-powered unitary heat pumps, except those designed to operate without a fan; and gas-fired air conditioners and gas-fired heat pumps, air filters for use in forced-air heating or cooling equipment, and heat pump water-chilling packages.

Purpose and Rationale: The scope of the regulations is being expanded to cover labeling of air filters and submission of data for Heat Pump Water-Chilling Packages. Air filters ensure the proper operation of heating, ventilation, and air-conditioning (HVAC) equipment by keeping internal components clean and free of particulates that build up and lower equipment efficiency by preventing the effective transfer of heat. The proposed air filter labeling measure is to empower consumers and HVAC designers with the information they need to make energy-efficient decisions. Heat pump water-chilling packages are being added for data collection to support possible inclusion of these packages into Title 24 building efficiency standards.

Necessity: Because the air filter labeling and heat pump water-chilling packages are new concepts in Title 20, including it in the scope is necessary to set parameters of the regulatory coverage.

(d) Spot air conditioners, evaporative coolers, residential furnace fans, ceiling fans, ceiling fan light kits, whole house fans, residential exhaust fans, and dehumidifiers.

Purpose and Rationale: This change reflects the current federal scope, which has added standards for residential furnace fans into 10 C.F.R. § 430.32(y).

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(h) Plumbing fittings, which are showerheads, lavatory faucets, kitchen faucets, metering faucets, replacement aerators, wash fountains, tub spout diverters, public lavatory faucets, and commercial pre-rinse spray valves.

Purpose and Rationale: A new term is being added to the definitions covering public lavatory faucets so the scope needs to be expanded to include the term.

Necessity: The addition of faucet replacement accessory corresponds to a new definition.

(j) Fluorescent Lamp Ballasts and deep-dimming fluorescent ballast that are designed to:

Purpose and Rationale: The scope of the regulations is being expanded to cover replacement fluorescent lamp ballasts.

Necessity: Because replacement fluorescent lamp ballasts are a new concept in Title 20, including it in the scope is necessary to set parameters of the regulatory coverage.

Section 1602. Definitions.

(a) General.

"Basic model" of a federally regulated residential furnace fan, as defined in 10 C.F.R. section 430.2, means all units of a given type of residential furnace fan (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency; and that are marketed and/or designed to be installed in the same type of installation.

Purpose and Rationale: This change reflects the current federal definition for "basic model", which has added specific requirements for residential furnace fans into 10 C.F.R. § 430.2.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(b) Refrigerators, Refrigerators-Freezers, and Freezers

"Closed solid" means commercial refrigeration equipment with doors, and in which more than 75 percent of the outer surface area of all doors on a unit are not transparent.

"Closed transparent" means commercial refrigeration equipment with doors, and in which 25 percent or more of the outer surface area of all doors on the unit are transparent.

"Commercial hybrid refrigerator, freezer, and refrigerator-freezer" means a commercial refrigerator, freezer, or refrigerator-freezer that ~~has~~ consists of two or more thermally separated refrigeration ~~chilled and/or frozen~~ compartments ~~that are~~:

(1) that are in two or more different equipment families;
(2) ~~contained in one cabinet; and~~
~~(3)~~ and that is sold as a single unit

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.62

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

"Display door" means a door that:

(1) Is designed for product display; or
(2) Has 75 percent or more of its surface area composed of glass or another transparent material.

"Door" means a movable panel that separates the interior volume of a unit of commercial refrigeration equipment from the ambient environment and is designed to facilitate access to the refrigerated space for the purpose of loading and unloading product. This includes hinged doors, sliding doors, and drawers. This does not include night curtains.

"Freight door" means a door that is not a display door and is equal to or larger than 4 feet wide and 8 feet tall.

"Ice-cream freezer" means a commercial freezer that is designed to operate at or below −5°F (±2 °F) (−21 °C ± 1.1 °C) ~~5°F (21°C)~~ and that the manufacturer designs, markets, or intends for the storing, displaying, or dispensing of ice cream.

"Operating temperature" means the range of integrated average temperatures at which a self-contained commercial refrigeration unit or remote-condensing commercial refrigeration unit with a thermostat is capable of operating or, in the case of a remote-condensing commercial refrigeration unit without a thermostat, the range of integrated average temperatures at which the unit is marketed, designed, or intended to operate.

"Passage door" means a door that is not a freight or display door.

"Rating temperature" means the integrated average temperature a unit must maintain during testing (i.e., either as listed in tables A-4, A-5, or A-6 of this Article or the lowest application product temperature).

"Service over counter" means equipment that has sliding or hinged doors in the back intended for use by sales personnel, with glass or other transparent material in the front for displaying merchandise, and that has a height not greater than 66 inches and is intended to serve as a counter for transactions between sales personnel and customers. "Service over the counter, self-contained, medium temperature

commercial refrigerator", also defined in this section, is one specific equipment class within the service over counter equipment family.)

"Service over the counter, self-contained, medium temperature commercial refrigerator" means a commercial refrigerator—

(1) That operates at temperatures at or above 32 °F;
(2) With a self-contained condensing unit;
(3) Equipped with sliding or hinged doors in the back intended for use by sales personnel, and with glass or other transparent material in the front for displaying merchandise; and
(4) That has a height not greater than 66 inches and is intended to serve as a counter for transactions between sales personnel and customers.

"Transparent" means greater than or equal to 45 percent light transmittance, as determined in accordance with the ASTM Standard E 1084-86 (Reapproved 2009), at normal incidence and in the intended direction of viewing.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.62 and 431.302.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(c) Air Conditioners, Air Filters and Heat Pump Water-Chilling Packages.

"Air filter" means an air-cleaning device installed in forced-air heating or cooling equipment and used for removing particulate matter from the air.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The air filter definitions ensure clarity within the regulations.

"Air filter media" means the part of the air filter that conducts the actual removal of particulates.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The air filter media definitions ensure clarity within the regulations.

"Airflow rate" means the actual volume of air passing through the device per unit of time, expressed in cubic-feet-per-minute, to three significant figures.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The airflow rate definitions ensure clarity within the regulations.

"Dust holding capacity" means the total amount of dust captured on the air filter. Dust holding capacity shall be established at the maximum rated airflow rate, as published by the manufacturer.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Final resistance" means the resistance of the air filter operating at its maximum rated airflow rate at which the test is terminated and results determined.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Heat-pump water-chilling package" means a factory-made package of one or more compressors, condensers, and evaporators designed for the purpose of heating water. Where such equipment is provided in one or more than one assembly, the separate assemblies are designed to be used together. The package is specifically designed to make use of the refrigerant cycle to remove heat from an air or water source and to reject the heat to water for heating use. This unit may include valves to allow for reverse-cycle (cooling) operation.

Purpose and Rationale: The definition establishes what combination of products are considered heat-pump water chilling packages for purposes of these regulations.

Necessity: Because heat-pump water chilling packages are a new concept in title 20 the definition is necessary to set the parameters of the product.

"Initial resistance" means the resistance of the air filter operating at its rated airflow rate, as published by the manufacturer, with no dust load.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Maximum rated airflow rate" means the highest airflow rate at which the air filter is operated, as published by the manufacturer.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Minimum efficiency reporting value (MERV)" means the composite particle efficiency metric defined in ASHRAE 52.2-2012.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Particle size" means the polystyrene latex (PSL) light-scattering equivalent size of particulate matter as expressed as a diameter in micrometers (μm).

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Particle size efficiency" means the fraction (percentage) of particles that are captured on the air filter. Particle size efficiency is measured in three particle size ranges: 0.3-1.0, 1.0-3.0, 3.0-10 micrometers (μm). Particle size efficiency ratings are abbreviated as "PSER" in the required labels for air filters.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Pressure drop" means the drop in static pressure versus air flow rate across air filter media in the forced-air heating or cooling equipment.

Purpose and Rationale: This definition is being added to the regulations to support the new air filter labeling requirements.

Necessity: The new definitions ensure clarity within the regulations.

(h) Plumbing fitting

"Plumbing fitting" means a device that controls and guides the flow of water in a supply system. Examples include showerhead, lavatory faucet, kitchen faucet, metering faucet, lavatory-replacement

aerator, kitchen replacement aerator, wash fountain, commercial pre-rinse spray valves, or tub spout diverter.

Purpose and Rationale: This definition is being amended to support the new faucet flow rate requirements.

Necessity: The new definitions ensure clarity within the regulations.

"Public lavatory faucet" means a faucet intended to be installed in non-residential bathrooms that are exposed to walk-in traffic.

Purpose and Rationale: This definition is being amended to support the new faucet flow rate requirements.

Necessity: The new definitions ensure clarity within the regulations.

(i) Plumbing Fixtures.

"Dual-flush effective flush volume" means the average of two reduced flushes and one full flush.

Purpose and Rationale: This definition is being amended to support water use requirements for toilets and urinals.

Necessity: The new definitions ensure clarity within the regulations.

"Dual-flush water closet" is a water closet that allows a user to flush with either a reduced or a full volume of water.

Purpose and Rationale: This definition is being amended to support water use requirements for toilets and urinals.

Necessity: The new definitions ensure clarity within the regulations.

"MaP" means maximum flushing performance.

Purpose and Rationale: Definitions are being added to the regulations to address new terms that have been incorporated into the regulatory language. In particular the term "MaP" Maximum Flushing Performance, which is a standardized flushing performance test, is a feature of the proposed regulations and needs to be explained.

Necessity: The new definitions ensure clarity within the regulations.

"Plumbing fixture" means an exchangeable device, which connects to a plumbing system to deliver and drain away water and/or waste. A plumbing fixture includes a water closet or a urinal.

Purpose and Rationale: Definitions are being added to the regulations to address new terms that have been incorporated into the regulatory language. Other additional clarifications are added to maintain consistency with industry wide nomenclature.

Necessity: The new definitions ensure clarity within the regulations.

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Ballasts.

"Arc power" means the entire output power of the ballast and delivered to all attached lamps.

Purpose and Rationale: The scope of the regulations is being expanded to cover certain types of dimming ballasts. In order to implement this coverage, new definitions are being added to ensure clarity as to the types of products covered and how efficiency is to be determined.

Necessity: New definitions are needed to implement efficiency standards for a new class of products.

"Deep-dimming fluorescent ballast" means a fluorescent ballast that is capable of operating lamps in dimmed operating modes at any number of levels at or below 50 percent of full output. The term shall only apply ballasts designed to operate one, two, three, or four T5 or T8 four-foot linear or u-shape fluorescent lamps.

Purpose and Rationale: The scope of the regulations is being expanded to cover certain types of dimming ballasts. In order to implement this coverage, new definitions are being added to ensure clarity as to the types of products covered and how efficiency is to be determined.

Necessity: New definitions are needed to implement efficiency standards for a new class of products

"Input power" means the power provided to the ballast, typically line alternating-current power as determined by section 2.5.1.6 of amended Appendix Q.

Purpose and Rationale: The scope of the regulations is being expanded to cover certain types of dimming ballasts. In order to implement this coverage, new definitions are being added to ensure clarity as to the types of products covered and how efficiency is to be determined.

Necessity: New definitions are needed to implement efficiency standards for a new class of products.

"Maximum arc power" means the maximum amount of power a dimming ballast will provide to lamps under normal operating conditions. It is the same power as the measured power at 100 percent arc power.

Purpose and Rationale: The scope of the regulations is being expanded to cover certain types of dimming ballasts. In order to implement this coverage, new definitions are being added to ensure clarity as to the types of products covered and how efficiency is to be determined.

Necessity: New definitions are needed to implement efficiency standards for a new class of products.

"Weighted Ballast Luminous Efficacy" means the weighted average ballast luminous efficacy as calculated in section 1604(j)(3)(D)

Purpose and Rationale: The scope of the regulations is being expanded to cover certain types of dimming ballasts. In order to implement this coverage, new definitions are being added to ensure clarity as to the types of products covered and how efficiency is to be determined.

Necessity: New definitions are needed to implement efficiency standards for a new class of products.

(k) Lamps.

"R20 short lamp" means a lamp that is an R20 incandescent reflector lamp that has a rated wattage of 100 watts; has a maximum overall length of 3 and 5/8, or 3.625, inches; and is designed, labeled, and marketed specifically for pool and spa applications.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 430.2.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(n) Luminaires and Torchieres.

Nonpulse-start electronic ballast means an electronic ballast with a starting method other than pulse-start.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.322.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(s) Electric Motors.

"Accreditation" means recognition by an accreditation body that a laboratory is competent to test the efficiency of electric motors according to the scope and procedures given in Test Method B of IEEE Std 112–2004 and CSA C390–10.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.12.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(t) Distribution Transformers.

"Mining distribution transformer" means a medium-voltage dry-type distribution transformer that is built only for installation in an underground mine or surface mine, inside equipment for use in an underground mine or surface mine, on-board equipment for use in an underground mine or surface mine, or for equipment used for digging, drilling, or tunneling underground or above ground, and that has a nameplate which identifies the transformer as being for this use only.

~~"Underground mining distribution transformer" means a medium-voltage dry-type distribution transformer that is built only for installation in an underground mine or inside equipment for use in an underground mine, and that has a nameplate which identifies the transformer as being for this use only.~~

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.192.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with

subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(u) Power Supplies.

"Low-voltage external power supply" means an external power supply with a nameplate output voltage less than 6 volts and nameplate output current greater than or equal to 550 milliamps.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 430.2.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Section 1604. Test Methods for Specific Appliances

(c) Central Air Conditioners, Air Filters and Heat Pump Water-Chilling Packages.

(4) The test methods for air filters are shown in Table C-2

Table C-2: Air Filter Test Methods

Appliance	Appliance Performance Criteria	Test Method
Air Filters	Air Filter Pressure Drop	AHRI 680-2009
	Air Filter Particle Size Efficiency and MERV	AHRI 680-2009 or ASHRAE 52.2-2012
	Dust Holding Capacity	AHRI 680-2009 or ASHRAE 52.2-2012

Purpose and Rationale: In order for a product to demonstrate compliance with efficiency standards a standardized test method must be identified. The proposed language sets forth the test method to be used in testing performance of a product.

Necessity: The proposed language is necessary for implementation of the proposed regulations.

(5) Heat-pump water-chilling packages shall be tested using ANSI/AHRI 550-590 (I-P) 2011. The heating capacity tests shall be conducted at ambient temperature of each 47°F and 17°F and a leaving water temperature of 120°F. If the package is capable of cooling, it shall be tested at an ambient temperature of 95°F and a leaving water temperature of 44°F.

Purpose and Rationale: In order for a heat pump water chilling package to demonstrate its energy usage a standardized test method must be identified. The proposed language sets forth the test method to be used in testing performance of a product.

Necessity: The proposed language is necessary for implementation of the proposed regulations and to obtain data which will help determine how heat pump water chilling packages can be utilized in the energy efficiency provisions of Title 24.

(d) Spot Air Conditioners, Evaporative Coolers, Ceiling Fans, Ceiling Fan Light Kits, Whole House Fans, Residential Exhaust Fans, and Dehumidifiers.

Table D-1
Spot Air Conditioner, Ceiling Fan, Ceiling Fan Light Kit, Evaporative Cooler, Whole House Fan, Residential Exhaust Fan, and Dehumidifier Test Methods

Appliance	*Test Method*
Spot Air Conditioners	ANSI/ASHRAE 128-2001
Ceiling Fans, Except Low-Profile Ceiling Fans	10 C.F.R. section 430.23(w) (Appendix U to Subpart B of part 430)
Ceiling Fan Light Kits	10 C.F.R. section 430.23(x) (Appendix V to Subpart B of part 430)
Evaporative Coolers	ANSI/ASHRAE 133-2008 for packaged direct evaporative coolers and packaged indirect/direct evaporative coolers; ANSI/ASHRAE 143-2007 for

	packaged indirect evaporative coolers
Whole House Fans	HVI-916, tested with manufacturer-provided louvers in place (2009)
Dehumidifiers	10 C.F.R. section 430.23(z) (Appendix X to Subpart B of part 430) ~~OR 10 C.F.R. section 430.23(z) (Appendix X1 to Subpart B of part 430) (at manufacturer's discretion) for models manufactured before April 29, 2013~~ ~~10 C.F.R. section 430.23(z) (Appendix X1 to Subpart B of part 430) for models manufactured on or after April 29, 2013~~
Residential Exhaust Fans	HVI-916 (2009)
Residential Furnace Fans	10 C.F.R. section 430.23(cc) (Appendix AA to Subpart B of part 430)

Purpose and Rationale: These changes reflect the current federal test methods as found in 10 C.F.R. § 430.23.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(i) Plumbing Fixtures.

The test methods for plumbing fixtures ~~is~~ are:

(1) 10 C.F.R. section 430.23(t) (Appendix T to Subpart B of part 430).

(2) MaP Testing Toilet Fixture Performance Testing Protocol Version 5-March 2013.

Purpose and Rationale: In order for products to show compliance with standards there must be identified test methods. The purpose of these proposed additions is to identify the relevant test methods.

Necessity: Identifying the appropriate test methods eliminates any ambiguity as to how products need to be tested.

(j) Fluorescent Lamp Ballasts and Replacement Fluorescent Lamp Ballasts.

(3) Deep-dimming fluorescent ballasts shall be tested using 10 C.F.R. Section 430.23(q) (Appendix Q1 to Subpart B of part 430) (referred to as the "federal test method" in the following subsections), modified as follows:

(A) The control signal to the ballast shall indicate full output. The arc power of all connected lamps shall be measured and then added together. This result will be referred to as "maximum arc power." An appropriate lighting control shall be selected to achieve the control signal used to determine the maximum arc power and to tune the ballast to the appropriate dimming levels. The controls shall be selected by using the following methodology:

(i) If the ballast manufacturer also manufactures a lighting control designed to be operated with the ballast, the test shall be conducted using the ballast manufacturer's lighting control. Or;

(ii) If the manufacturer does not manufacture a compatible lighting control, but recommends the use of specific manufacturer and/or model of lighting control, such as in its product documentation, the test shall be conducted using a lighting control from the list of manufacturer recommended lighting controls. Or;

(iii) If the manufacturer does not manufacture a compatible lighting control, and does not recommend any specific lighting controls, the lab technician shall select a lighting control that sufficiently controls the ballast to complete the test.

(iv) If multiple control options are available, use the lighting control that is capable of using all of the features of a ballast and with the minimum amount of other features. The lighting control manufacturer and model number shall appear on the test report.

(B) Three sets of input power and arc power shall be measured using the federal test procedure with the total arc power tuned to 100, 80, and 50 percent of the measured maximum arc power. If a step dimming ballast or a ballast that can only turn connected lamps on or off has dimming steps other than 80 and 50 percent, then the closest step that is between 90 and including 65 percent shall be used for 80 percent testing, and the closest step that is between 65 and including 35 percent shall be used for 50 percent testing. If no step exists in the above prescribed ranges, then no result shall be recorded for that percentage dimming test. The resulting input powers shall be recorded and referred to as P_{100}, P_{80}, and P_{50}. The measurement of power factor shall be taken during the measurement of maximum arc power and reported.

(C) Standby mode test: the ballast shall also be tested with a control input set to the lowest dimming state possible up to and including no light output. The input power to the ballast shall be measured and recorded as P_0. The measurement must be taken 90 minutes after entering this state. P_0 shall be recorded as the mean value of measurements taken at 5 second intervals over a 5-minute period.

(D) The weighted ballast luminous efficacy shall be calculated using the following formula and table:

$$Weighted\ ballast\ luminous\ efficacy = P_{100} \times w_{100} + P_{80} \times w_{80} + P_{50} \times w_{50}$$

Where power is in watts and time values (w_{100}, w_{80}, w_{50}, w_0) are taken from the appropriate tables below:

Percentage Time of Operation Table

Time Variable	Measurements taken			
	P_{80}, P_{50}	P_{80}, no P_{50}	No P_{80}, P_{50}	No P_{80}, No P_{50}
w_{100}	0.2	0.35	0.45	1
w_{80}	0.5	0.65	0	0
w_{50}	0.3	0	0.55	0

Purpose and Rationale: In order for products to show compliance with standards there must be identified test methods. The purpose of these proposed additions is to identify the relevant test methods which are based on existing federal standards.

Necessity: Identifying the appropriate test methods eliminates any ambiguity as to how products need to be tested.

The following documents are incorporated by reference in Section 1604.

AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE (AHRI)

AHRI 680-2009 2009 Standard for Performance Rating of Residential Air Filter Equipment

Copies available from: Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
2111 Wilson Blvd, Suite 500
Arlington, VA 22201
Phone: (703) 524-8800
FAX: (703) 562-1942
http://www.ahrinet.org/

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 52.2-2012 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

…

GAULEY ASSOCIATES, LTD. KOELLER & COMPANY

Maximum performance (map) testing: MaP Testing Toilet Fixture Performance Testing Protocol Version 5 (March 2013)

Copies available from: Koeller and Company

5962 Sandra Drive,
Yorba Linda, Calif., 92886-5337 U.S.A.
Tel (714) 777-2744 Mobile (714) 757-0679
www.map-testing.com

Purpose and Rationale: In order for a product to demonstrate compliance with efficiency standards a standardized test method must be identified. The proposed language sets forth the industry sources for test related information.

Necessity: The proposed language is necessary for consistency with industry test protocol.

Section 1605.1 Federal and State Standards for Federally-Regulated Appliances

(a) Refrigerators, Refrigerator-Freezers, and Freezers.

(2) Commercial Refrigerators, Commercial Refrigerator-Freezers, and Commercial Freezers.

The daily energy consumption (in kilowatt hours per day) of each commercial refrigerator-freezer with solid doors and a self-contained condensing unit, manufactured on or after January 1, 2010 and before March 27, 2017, shall be not greater than the greater of ((0.27 × adjusted volume) – 0.71) or 0.70 kWh

Purpose and Rationale: These changes reflect the current federal standards as found in 10 C.F.R. § 431.66(b)(1).

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table A-3 [change is to footnote]

[1]AV = adjusted total volume, expressed in ft^3, as determined in 10 C.F.R., part 430, Appendices A1 and B1 of Subpart B~~, which is:~~
~~[1.44 x freezer volume (ft3)] + refrigerator volume (ft3) for refrigerators;~~
~~[1.63 x freezer volume (ft3)] + refrigerator volume (ft3) for refrigerator-freezers;~~
~~[1.73 x freezer volume (ft3)] for freezers~~.

Table A-4.

Table A-4
Standards for Commercial Refrigerators and Freezers
with a Self-Contained Condensing Unit That are Not Commercial Hybrid Units

Equipment Category and Effective Date	*Condensing Unit Configuration*	*Equipment Family*	*Rating Temperature (°F)*	*Operating Temperature (°F)*	*Equipment Class Designation**	*Maximum Daily Energy Consumption (kWh)*

Refrigerators and Freezers Effective January 1, 2010 [1]Effective January 1, 2012	Self Contained (SC)	Vertical Closed Transparent (VCT)	38 (M) 0 (L)	≥ 32 < 32	VCT, SC, M VCT, SC, L	0.12 × V + 3.34 0.75 × V + 4.10
		Horizontal Closed Transparent (HCT)	38 (M) 0 (L)	≥ 32 < 32	HCT, SC, M HCT, SC, L	0.12 × V + 3.34 0.75 × V + 4.10
		Vertical Closed Solid (VCS)	38 (M) 0 (L)	≥ 32 < 32	VCS, SC, M VCS, SC, L	0.10 × V + 2.04 0.40 × V + 1.38
		Horizontal Closed Solid (HCS)	38 (M) 0 (L)	≥ 32 < 32	HCS, SC, M HCS, SC, L	0.10 × V + 2.04 0.40 × V + 1.38
		Service Over Counter (SOC)	38 (M) 0 (L)	≥ 32 < 32	SOC, SC, M SOC, SC, L	0.12 × V + 3.34 0.6 × TDA + 1.0[1] 0.75 × V + 4.10

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.66(b)(2)

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(4) Walk-In Coolers and Walk-In Freezers.

1. A walk-in cooler or walk-in freezer component if the component manufacturer has demonstrated to the satisfaction of the Secretary in a manner consistent with applicable requirements that the component reduces energy consumption at least as much as if such insulation requirements of Section 1605.1(a)(4)(C) of this Article were to apply.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.306(a)(3)(ii)

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(b) Room Air Conditioners, Room Air-Conditioning Heat Pumps, Packaged Terminal Air Conditioners, and Packaged Terminal Heat Pumps.

(2) Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps.

~~(A) The EER and COP, as applicable, of non-standard size packaged terminal air conditioners and non-standard size packaged terminal heat pumps manufactured before October 7, 2010 and standard size packaged terminal air conditioners and standard size packaged terminal heat pumps manufactured before October 8, 2012 shall be not less than the applicable values shown in Table B-4.~~

~~Table B-4~~
~~Standards for Non-Standard Size Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps Manufactured Before October 7, 2010 and Standard Size Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps Manufactured Before October 8, 2012~~

~~*Appliance*~~	~~*Mode*~~	~~*Cooling Capacity (Btu/hr)*~~	~~*Minimum EER or COP*~~
~~Packaged terminal air conditioners and packaged terminal heat pumps~~	~~Cooling~~	~~≤ 7,000~~	~~8.88 EER~~
		~~> 7,000 and < 15,000~~	~~10.0 – (0.00016 x Cap.) EER~~
		~~≥ 15,000~~	~~7.6 EER~~
~~Packaged terminal heat pumps~~	~~Heating~~	~~≤ 7,000~~	~~2.72~~
		~~> 7,000 and < 15,000~~	~~1.3 + [0.16 (10.0 – 0.00016 x Cap.)] COP~~
		~~≥ 15,000~~	~~2.52~~
~~Cap. = cooling capacity (Btu/hr)~~			

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.96.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

~~(B)~~(A) The EER and COP, as applicable, of non-standard size packaged terminal air conditioners and non-standard size packaged terminal heat pumps manufactured on or after October 7, 2010, and of standard size packaged terminal air conditioners and standard size packaged terminal heat pumps manufactured on or after October 8, 2012 shall be not less than the applicable values shown in Tables ~~B-5 and B-6~~ B-4 and B-5.

~~Table B-5~~ Table B-4
~~Table B-6~~ Table B-5

Purpose and Rationale: These changes reflect the necessary renumbering of tables due to the removal of the original table B-4.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(c) **Central Air Conditioners**.

(1) **Central Air Conditioners.** The EER, SEER, COP, HSPF, and SCOP, as applicable, of all central air conditioners, including computer room air conditioners, shall be not less than the applicable values shown in Tables C-2, C-3, C-4, C-5, ~~and~~ C-6, and C-7.

Purpose and Rationale: These changes reflect the necessary renumbering of tables to add the current federal standards shown in Table C-7, below.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with

subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table C-7

Table C-7
Standards for VARIABLE Refrigerant Flow Multi-Split Air Conditioners and Heat Pumps

Equipment type	*Cooling capacity*	*Heating type*[1]	*Efficiency level*	*Compliance date: Products manufactured on and after . . .*
VRF Multi-Split Air Conditioners (Air-Cooled)	<65,000 Btu/h ≥65,000 Btu/h and <135,000 Btu/h	All No Heating or Electric Resistance Heating	13.0 SEER 11.2 EER	June 16, 2008 January 1, 2010
		All Other Types of Heating	11.0 EER	January 1, 2010
	≥135,000 Btu/h and <240,000 Btu/h	No Heating or Electric Resistance Heating	11.0 EER	January 1, 2010
		All Other Types of Heating	10.8 EER	January 1, 2010
	≥240,000 Btu/h and <760,000 Btu/h	No Heating or Electric Resistance Heating	10.0 EER	January 1, 2010
		All Other Types of Heating	9.8 EER	January 1, 2010
VRF Multi-Split Heat Pumps (Air-Cooled)	<65,000 Btu/h	All	13.0 SEER 7.7 HSPF	June 16, 2008
	≥65,000 Btu/h and <135,000 Btu/h	No Heating or Electric Resistance Heating	11.0 EER 3.3 COP	January 1, 2010
		All Other Types of Heating	10.8 EER 3.3 COP	January 1, 2010
	≥135,000 Btu/h and <240,000 Btu/h	No Heating or Electric Resistance Heating	10.6 EER 3.2 COP	January 1, 2010
		All Other Types of Heating	10.4 EER 3.2 COP	January 1, 2010
	≥240,000 Btu/h	No Heating or Electric	9.5 EER	January 1, 2010

	and <760,000 Btu/h	Resistance Heating	3.2 COP	
		All Other Types of Heating	9.3 EER 3.2 COP	January 1, 2010
VRF Multi-Split Heat Pumps (Water-Source)	<17,000 Btu/h	Without heat recovery	12.0 EER 4.2 COP	October 29, 2012 October 29, 2003
		With heat recovery	11.8 EER 4.2 COP	October 29, 2012 October 29, 2003
	≥17,000 Btu/h and <65,000 Btu/h	All	12.0 EER 4.2 COP	October 29, 2003
	≥65,000 Btu/h and <135,000 Btu/h	All	12.0 EER 4.2 COP	October 29, 2003
	≥135,000 Btu/h and <760,000 Btu/h	Without heat recovery	10.0 EER 3.9 COP	October 29, 2013
		With heat recovery	9.8 EER 3.9 COP	October 29, 2013
[1]VRF Multi-Split Heat Pumps (Air-Cooled) with heat recovery fall under the category of "All Other Types of Heating" unless they also have electric resistance heating, in which case it falls under the category for "No Heating or Electric Resistance Heating."				

Purpose and Rationale: These changes reflect the current federal standards as found in 10 C.F.R. § 431.97 Table 8.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(c) (4) **Heat Pump Water Chilling Packages.** There is no energy efficiency standard or energy design standard for heat-pump, water-chilling packages

Purpose and Rationale: This provision clarifies that there are no current federal or state energy efficiency regulations related to heat pump water chilling packages.

Necessity: This provision provides clarity regarding any existing efficiency regulations for a certain class of products.

(e) Gas and Oil Space Heaters and Electric Residential Boilers.

Table E-6
Standards for Gas- and Oil-Fired Central Furnaces Less Than 225,000 Btu/hour Input And Residential Electric Furnaces

~~*Appliance*~~	~~*Fuel*~~	~~*Type*~~	~~*Minimum AFUE*~~	~~*Effective Date*~~
~~Mobile Home Furnace~~	~~Gas, Oil~~	~~—~~	~~75~~	~~September 1, 1990~~
	~~Gas~~	~~Weatherized~~	~~80~~	~~January 1, 2015~~
		~~Non-Weatherized~~		~~May 1, 2013~~
	~~Oil~~	~~Weatherized~~	~~75~~	~~January 1, 2015~~
		~~Non-Weatherized~~		~~May 1, 2013~~
~~Non Mobile Home Furnace~~	~~Gas, Oil~~	~~—~~	~~78~~	~~January 1, 1992~~
	~~Gas~~	~~Weatherized~~	~~81~~	~~January 1, 2015~~
		~~Non-Weatherized~~	~~80~~	~~May 1, 2013~~
	~~Oil~~	~~Weatherized~~	~~78~~	~~January 1, 2015~~
		~~Non-Weatherized~~	~~83~~	~~May 1, 2013~~
~~Residential Furnace~~	~~Electricity~~	~~Weatherized~~	~~78~~	~~January 1, 2015~~
		~~Non-Weatherized~~	~~78~~	~~May 1, 2013~~

Product class	**AFUE (percent)**	**Compliance date**

(A) Non-weatherized gas furnaces (not including mobile home furnaces)	80	November 19, 2015.
(B) Mobile Home gas furnaces	80	November 19, 2015.
(C) Non-weatherized oil-fired furnaces (not including mobile home furnaces)	83	May 1, 2013.
(D) Mobile Home oil-fired furnaces	75	September 1, 1990.
(E) Weatherized gas furnaces	81	January 1, 2015.
(F) Weatherized oil-fired furnaces	78	January 1, 1992.
(G) Electric furnaces	78	January 1, 1992.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 431.32(e)(ii)

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(h) Plumbing Fittings.

(1) **Showerheads, Faucets, Aerators, and Wash Fountains.** The flow rate of showerheads, ~~lavatory faucets, kitchen faucets, lavatory replacement aerators, kitchen replacement aerators,~~ wash fountains, and metering faucets shall be not greater than the applicable values shown in Table H-1. Showerheads shall also meet the requirements of ASME/ANSI Standard A112.18.1M-1996, 7.4.4(a).

Table H-1 Standards for Plumbing Fittings

Appliance	*Maximum Flow Rate*
Showerheads	2.5 gpm at 80 psi
~~Lavatory faucets~~	~~2.2 gpm at 60 psi[1,2]~~

~~Kitchen faucets~~	~~2.2 gpm at 60 psi~~
Replacement aerators	2.2 gpm at 60 psi
Wash fountains	$2.2 \times \frac{\text{rim space (inches)}}{20}$ gpm at 60 psi
Metering faucets	0.25 gallons/cycle [3.4]
Metering faucets for wash fountains	$0.25 \times \frac{\text{rim space (inches)}}{20}$ gpm at 60 psi [3.4]

~~[1] **Sprayheads with independently-controlled orifices and manual controls.** The maximum flow rate of each orifice that manually turns on or off shall not exceed the maximum flow rate for a lavatory faucet.~~

~~[2] **Sprayheads with collectively controlled orifices and manual controls.** The maximum flow rate of a sprayhead that manually turns on or off shall be the product of (a) the maximum flow rate for a lavatory faucet and (b) the number of component lavatories (rim space of the lavatory in inches (millimeters) divided by 20 inches (508 millimeters)).~~

[1][3] **Sprayheads with independently controlled orifices and metered controls.** The maximum flow rate of each orifice that delivers a pre-set volume of water before gradually shutting itself off shall not exceed the maximum flow rate for a metering faucet.

[2][4] **Sprayheads with collectively-controlled orifices and metered controls.** The maximum flow rate of a sprayhead that delivers a pre-set volume of water before gradually shutting itself off shall be the product of (a) the maximum flow rate for a metering faucet and (b) the number of component lavatories (rim space of the lavatory in inches (millimeters) divided by 20 inches (508 millimeters)).

Purpose and Rationale: Because there are existing federal standard covering a number of pluming fittings, the language and related table needs to be updated to reflect those products that will now fall under the state's more water restrictive standards. Therefore the federal standards for some of the products are being removed.

Necessity: This standard is necessary to ensure clarity as to which fittings are under federal standards and which are under state.

(5) **Lavatory faucets, kitchen faucets and replacement accessories, and public lavatory faucets.** See Section 1605.3 (h)(2) for standards for all lavatory faucets and replacement accessories, kitchen faucets and replacement accessories, and public lavatory faucets sold or offered for sale in California.

Purpose and Rationale: Because there are existing federal standards covering a number of pluming fittings, the language and related table needs to be updated to reflect those products that will now fall under the state's more water restrictive standards. Therefore the federal standards for some of the products are being removed and a citation to the state standards has been added.

Necessity: This standard is necessary to ensure clarity as to which fittings are under federal standards and which are under state.

(i) Plumbing Fixtures.

~~The water consumption of water closets and urinals shall be not greater than the values shown in Table I.~~

~~**Table I-1 Standards for Plumbing Fixtures**~~

Appliance	*Maximum Gallons per Flush*
~~Gravity tank-type water closets~~	~~1.6~~
~~Flushometer tank water closets~~	~~1.6~~
~~Electromechanical hydraulic water closets~~	~~1.6~~
~~Blowout water closets~~	~~3.5~~
~~Trough-type urinals~~	$\frac{\text{trough length (inches)}}{16}$
~~Other urinals~~	~~1.0~~

Water closets and urinals. See Section 1605.3(i) for standards for all water closets and urinals sold or offered for sale in California.

Purpose and Rationale: Because there new state standards covering toilets and urinals, the language and related table needs to be updated to reflect those products that will now fall under the state's more water restrictive standards. Therefore the federal standards for these products are being removed.

Necessity: This standard is necessary to ensure clarity that the new state water consumption rates are controlling.

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Ballasts.

Purpose and Rationale: Because there new state standards covering deep-dimming fluorescent ballast, the section header of 1605.1 is changed to conform to the new heading in other sections.

Necessity: This standard is necessary to ensure clarity and consistency.

(k) Lamps.

(2) Federally-Regulated Incandescent Reflector Lamps.

2. The standards specified in Table K-3 shall not apply to the following types of incandescent reflector lamps:

a. Lamps rated at 50 watts or less that are ER30, BR30, BR40, or ER40;
b. Lamps rated at 65 watts that are BR30, BR40, or ER40 lamps; and
c. R20 incandescent reflector lamps rated 45 watts or less;
d. R20 short lamps.

Purpose and Rationale: These changes reflect the current federal definitions as found in 10 C.F.R. § 430.32(n)(6)(ii)(C)

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

(n) Luminaires and Torchieres.

(2) ~~**Metal Halide Lamp Fixtures.** Metal halide lamp fixtures designed to be operated with lamps rated greater than or equal to 150 watts but less than or equal to 500 watts, manufactured on or after January 1, 2009, shall contain:~~

~~(A) A pulse-start metal halide ballast with a minimum ballast efficiency of 88 percent;~~
~~(B) A magnetic probe-start ballast with a minimum ballast efficiency of 94 percent; or~~
~~(C) A nonpulse-start electronic ballast with either:~~
~~1. a minimum ballast efficiency of 92 percent for wattages greater than 250 watts; or~~
~~2. a minimum ballast efficiency of 90 percent for wattages less than or equal to 250 watts.~~
~~(D) This subsection does not apply to any metal halide lamp fixture:~~

~~1. with regulated lag ballasts;~~
~~2. that uses electronic ballasts that operate at 480 volts; or~~
~~3. that (i) are rated only for 150 watt lamps; (ii) are rated for use in wet locations, as specified by the National Electrical Code 2002, Section 410.4(A): and (iii) contain a ballast that is rated to operate at ambient air temperatures above 50°C., as specified by UL 1029-2001.~~

~~(3)~~ See Section 1605.3(n) for energy efficiency standards and energy design standards for luminaires, including standards for metal halide luminaires sold or offered for sale in California that are manufactured~~:~~

~~(A) prior to January 1, 2009, or~~
~~(B)~~ on or after January 1, 2010.

(2) Each metal halide lamp fixture, designed to be operated with lamps less than 150 W and greater than 500 W, manufactured on or after February 10, 2017, must contain a metal halide ballast with an efficiency not less than the value determined from the appropriate equation in the following table:

Table N-1

Designed to be operated with lamps of the following rated lamp wattage	Tested input voltage‡‡	Minimum standard equation‡‡ percent
≥50 W and ≤100 W	Tested at 480	(1/(1+1.24×P^(−0.351))) − 0.020‡‡;

	V	
≥50 W and ≤100 W	All others	1/(1+1.24×P^(−0.351))
>100 W and <150‡; W	Tested at 480 V	(1/(1+1.24×P^(−0.351))) − 0.020
>100 W and <150‡; W	All others	1/(1+1.24×P^(−0.351))
>500 W and ≤1000 W	Tested at 480 V	For >500 W and ≤750 W: 0.900
		For >750 W and ≤1000 W: 0.000104×P+0.822
		For >500 W and ≤1000 W: may not utilize a probe-start ballast
>500 W and ≤1000 W	All others	For >500 W and ≤750 W: 0.910
		For >750 W and ≤1000 W: 0.000104×P+0.832
		For >500 W and ≤1000 W: may not utilize a probe-start ballast

‡; Includes 150 W fixtures specified in paragraph (b)(3) of this section, that are fixtures rated only for 150 W lamps; rated for use in wet locations, as specified by the NFPA 70 (incorporated by reference, see §431.323), section 410.4(A); and containing a ballast that is rated to operate at ambient air temperatures above 50 °C, as specified by UL 1029 (incorporated by reference, see §431.323).

‡;Excludes 150 W fixtures specified in paragraph (b)(3) of this section, that are fixtures rated only for 150 W lamps; rated for use in wet locations, as specified by the NFPA 70, section 410.4(A); and containing a ballast that is rated to operate at ambient air temperatures above 50 °C, as specified by UL 1029.

‡‡; P is defined as the rated wattage of the lamp the fixture is designed to operate.

‡‡,Tested input voltage is specified in 10 CFR 431.324.

(d) Except as provided in paragraph (e) of this section, metal halide lamp fixtures manufactured on or after February 10, 2017, that operate lamps with rated wattage >500 W to ≤1000 W must not contain a probe-start metal halide ballast.

(e) The standards described in paragraphs (c) and (d) of this section do not apply to—

(1) Metal halide lamp fixtures with regulated-lag ballasts;

(2) Metal halide lamp fixtures that use electronic ballasts that operate at 480 volts; and

(3) Metal halide lamp fixtures that use high-frequency electronic ballasts.

Purpose and Rationale: Metal Halide lamps are covered by both federal and state standards. The language ensures the correct range of wattages covered by state and federal standards are properly articulated in the regulations and in the correct sections with cross references, (1605.1 and 1605.3. The federal language represents corresponds to 10 C.F.R. § 431.326.

Necessity: In order to ensure clarity as to the wattages covered by state and federal standards, language changes are necessary.

(r) Cooking Products and Food Service Equipment.

(r)(2) Microwave-only ovens, countertop convection microwave ovens, built-in microwave ovens, and over-the-range convection microwave ovens manufactured on or after June 17, 2016 shall ~~be~~ not exceed ~~less than~~ the ~~maximum~~ average standby power rating (watts) shown in Table R-2.

Purpose and Rationale: These changes accurately reflect the current federal standards as found in 10 C.F.R. § 430.32(j)(3).

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Section 1605.3 State Standards for Non-Federally-Regulated Appliances.

(c) Central Air Conditioners, Air Filters and Heat Pump Water-Chilling Packages.

(1) **Energy Efficiency Standards for Ground Water-Source Heat Pumps and Ground-Source Heat Pumps.** The EER and COP for ground water-source heat pumps and ground-source heat pumps manufactured on or after October 29, 2003, shall be not less than the applicable values shown in Table C-~~7~~8.

Table C-~~7~~8

Standards for Ground Water-Source and Ground-Source Heat Pumps

(2) **Energy Efficiency Standards for Computer Room Air Conditioners.** The EER of evaporatively-cooled computer room air conditioners manufactured on or after the effective dates shown, shall be not less than the applicable values shown in Table C-~~8~~9.

Table C-~~8~~9

Standards for Evaporatively Cooled Computer Room Air Conditioners

Purpose and Rationale: These changes to existing table numbers are needed to maintain table numbering consistency due to the insertion of Table C-7 into Section 1605.1(c).

Necessity: Provides numbering consistency necessary for identifying the Table references.

(5) **Heat Pump Water Chilling Packages.** There is no energy efficiency standard or energy design standard for heat pump water-chilling packages. The performance of each model shall be reported per the requirements of section 1606 for equipment manufactured on or after May 1, 2016.

Purpose and Rationale: This language explains that there are currently no efficiency or energy design standards covering heat pump water-chilling packages.

Necessity: Provides clarity as to the current status of heat pump water-chilling packages.

(h) Plumbing Fittings.

(1) **Tub Spout Diverters and Showerhead Tub Spout Diverter Combinations.** The leakage rate of tub spout diverters manufactured on or after March 1, 2003 shall be not greater than the applicable values shown in Table H-2. Showerhead-tub spout diverter combinations shall meet both the standard for showerheads and the standard for tub spout diverters.

~~(2) Showerhead-Tub Spout Diverter Combinations. Showerhead-tub spout diverter combinations shall meet both the standard for shower heads and the standard for tub spout diverters.~~

(2) **Showerheads, Faucets, Aerators, and Wash Fountains.** The flow rate of showerheads, lavatory faucets, kitchen faucets, lavatory replacement aerators, kitchen replacement aerators, wash fountains, and metering faucets shall be not greater than the applicable values shown in Table H-3. Showerheads shall also meet the requirements of ASME/ANSI Standard A112.18.1M-1996, 7.4.4(a).

Table H-3: Standards for Plumbing Fittings

Appliance	*Maximum Flow Rate*	
	Manufactured prior to May 1, 2016	*Manufactured on or after May 1, 2016*
Lavatory faucets	2.2 gpm at 60 psi [1,2]	1.5 gpm at 60 psi [1, 2] and no less than 0.8 gpm at 20 psi
Kitchen faucets	2.2 gpm at 60 psi	1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
Public lavatory faucets	2.2 gpm at 60 psi	0.5 gpm at 60 psi

[1] **Sprayheads with independently-controlled orifices and manual controls.** The maximum flow rate of each orifice that manually turns on or off shall not exceed the maximum flow rate for a lavatory faucet.

[2] **Sprayheads with collectively controlled orifices and manual controls.** The maximum flow rate of a sprayhead that manually turns on or off shall be the product of (a) the maximum flow rate for a lavatory faucet and (b) the number of component lavatories (rim space of the lavatory in inches (millimeters) divided by 20 inches (508 millimeters)).

Purpose and Rationale: Because state standards are being added to cover water efficiency for lavatory and kitchen faucets, new language is needed to adequately incorporate the state with existing federal standards which will continue to cover these products until the 2016 effective date.

Necessity: The language is necessary to properly incorporate the state standards within existing federal water efficiency standards.

(i) Plumbing Fixtures.

(1) The water consumption of water closets, and urinals, other than those designed and marketed exclusively for use at prisons or mental care facilities, shall be no greater than the values shown in Table I-2.

~~See Section 1605.1(i) for water efficiency standards for plumbing fixtures that are federally-regulated consumer products.~~

Table I-2 Standards for Plumbing Fixtures

Appliance	*Maximum Gallons per Flush or Average Flush for Dual Flush*	
	Manufactured on or after January 1, 2014	*Manufactured on or after May 1, 2016*
All water closets	1.28	1.28
Trough-type urinals	$\frac{\text{trough length (inches)}}{16}$	$\frac{\text{trough length (inches)}}{16}$
Wall mounted urinals	0.5	0.125
Floor mounted urinals	0.5	0.5

(2) Water closets manufactured on or after May 1, 2016 shall achieve a MaP score of no less than 350 grams.

Purpose and Rationale: To ensure product performance meets customer expectation and to enhance the effectiveness of the gallons per flush standard by reducing multiple flushing, a MaP score is being incorporated into the standards. Because AB 715 already requires water efficiency for toilets and urinals, new language is needed to adequately incorporate the statutory standards with the proposed regulatory standards with the 2016 effective date.

Necessity: The language is necessary to identify the effective dates of the new proposed standards in comparison to the current effective date of AB 715.

(j) Fluorescent Lamp Ballasts and Replacement Fluorescent Lamp Ballasts.

(1) **Deep-Dimming Fluorescent Ballasts.** Deep-dimming fluorescent ballasts manufactured on or after May 1, 2016 shall meet the following energy conservation standards:

(i) Shall not consume more than 1 watt in standby mode;
(ii) Shall have a power factor of 0.9 or greater; and
(iii) Shall have a weighted ballast luminous efficacy greater than or equal to the threshold described in the following equation:

$$Weighted\ Ballast\ Luminous\ Efficacy \geq \frac{P_{100}\ *}{P_{100}\ \times 1.091 + 7.55}$$

*P_{100} is shorthand for maximum arc power as defined in section 1602 and discussed in section 1604.

(2) See Section 1605.1(j) for energy efficiency standards for fluorescent lamp ballasts that are federally regulated consumer products.

Purpose and Rationale: The scope of the regulations is being expanded to cover certain types of dimming ballasts. This language implements the actual efficiency requirements.

Necessity: New definitions are needed to implement efficiency standards for a new class of products.

(n) Luminaires and Torchieres.

(1) **Energy Efficiency Standard for Metal Halide Luminaires.** Metal halide luminaires rated at least partially within the range of 150 to 500 watts shall not have probe-start ballasts and shall comply with Section 1605.3(n)(1)(A) as applicable:

(C) See section 1605.1(n) for energy efficiency standards for metal halide luminaires rated under 150 W and above 500 W.

Purpose and Rationale: This subsection is missing the "(1)" subsection number and needs to be corrected as there are following subsections numbers 2-5. The "(1)" was accurately reflected in the documentation submitted under Energy Commission Docket # 13-AAER-1 but was left out of the final publication. In addition, metal halide lamps are covered by both federal and state standards. The language ensures the correct range of wattages covered by state and federal standards are properly articulated in the regulations.

Necessity: In order to ensure clarity as to the wattages covered by state and federal standards, language changes are necessary.

Section 1606. Filing by Manufacturers; Listing of Appliances in Database.

Table X Data Submittal Requirements

	Appliance	*Required Information*	*Permissible Answers*
	All Appliances	* Manufacturer's Name	
		* Brand Name	
		* Model Number	
		Date model to be displayed	
		Regulatory Status	Federally-regulated consumer product, federally-regulated commercial and industrial equipment, non-federally-regulated

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

Table X Continued - Data Submittal Requirements

	Appliance	*Required Information*	*Permissible Answers*
A	Self-contained Commercial Refrigerators with or without doors, Self-contained Commercial Refrigerator-Freezers with doors, Self-contained Commercial Freezers with or without doors, Self-contained Commercial Refrigerators specifically designed for display and sale of bottled or canned beverages without doors, Remote Condensing Commercial Refrigerators, Remote Condensing Commercial Freezers, Commercial Ice Cream Freezers Certification of Self-contained Commercial Refrigerators without doors, Self-contained Commercial Freezers without doors, Remote Condensing Commercial Refrigerators, Remote Condensing Commercial Freezers, and Commercial Ice Cream Freezers, including all Energy	**Cabinet Style*	Ice cream cabinet; milk or beverage cabinet; milk, beverage, or ice cream cabinet; undercounter cabinet; other reach-in cabinet; pass-through cabinet; roll-in or roll-through cabinet; preparation table; buffet table; wedge case; work top table; wine chiller
		~~*~~Defrost System	Automatic, manual, partial-automatic
		*Type	Ice-cream application, low-temperature application, medium-temperature application, pull-down application
		~~*Door Style (for units manufactured before January 1, 2012 only~~) Total Compartments (for hybrid models and refrigerator-freezers)	~~Solid hinged, solid sliding, transparent hinged, transparent sliding, none.~~
		Equipment Family ~~(for those units manufactured on or after January 1, 2012 only)~~	Vertical open, semivertical open, horizontal open, vertical closed transparent, horizontal closed transparent, vertical closed solid, horizontal closed solid, service over counter
		Condensing Unit Configuration ~~(for those units manufactured on or after January 1, 2012 only)~~	Remote, self-contained
		Multiple compartments number ~~(for those units manufactured on or after January 1, 2012 only)~~	~~Yes, no~~
		Total Display Area (TDA)	
		~~Refrigerator Volume (for those units manufactured before January 1, 2012 only)~~	
		~~Freezer Volume (for those units manufactured before January 1, 2012 only)~~	
		Total Volume	
		Height	
		Width	

	Consumption values except Daily Energy Consumption, is not required for models manufactured before January 1, 2012 (Note: units with multiple compartments must certify data for each compartment)	Depth	
		Anti-condensate Energy Consumption (AEC) (for hybrid models and refrigerator-freezers)	
		Condensate Evaporator Pan Energy Consumption (PEC) (for hybrid models and refrigerator-freezers)	
		Defrost Energy Consumption (DEC) (for hybrid models and refrigerator-freezers)	
		Fan Energy Consumption (FEC) (for hybrid models and refrigerator-freezers)	
		Compressor Energy Consumption (CEC) (for hybrid models and refrigerator-freezers)	
		Lighting Energy Consumption (LEC) (for hybrid models and refrigerator-freezers)	
		Other Energy Consumption (OEC) (for hybrid models and refrigerator-freezers)	
		Daily Energy Consumption	
		Calculated Daily Energy Consumption (CDEC)	
		Total Daily Energy Consumption (TDEC)	
		Refrigerant Type	Ozone-depleting, non-ozone-depleting
		Insulation Type	Ozone-depleting, non-ozone-depleting

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally-regulated appliances
2 = Voluntary for state-regulated appliances

Purpose and Rationale: These changes reflect the current federal data reporting requirements as found in 10 C.F.R. § 431.61 to 431.66.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X Continued - Data Submittal Requirements

	Appliance	*Required Information*	*Permissible Answers*
B	Room Air Conditioners and Room Air-Conditioning Heat Pumps	*Voltage	
		*Electrical Phase	1, 3
		*Type	Room air conditioner, room air conditioning heat pump, casement-only room air conditioner, casement-slider room air conditioner.
		*Louvered Sides	Yes, no
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		~~Energy Efficiency Ratio (EER) at 95°F~~	
		Combined Energy Efficiency Ratio at 95°F ~~(required for models manufactured on or after June 1, 2014 only)~~	
		Standby and Off Mode Annual Energy Consumption	
		Heating Capability	Heat pump, electric resistance heating, heat pump and electric resistance heating, no heating capability
		~~Heating Capacity (for heat pumps only)~~	
		~~Electrical Input (for heat pumps only)~~	
		~~Coefficient of Performance (for heat pumps only)~~	
		~~Heating Capacity (for models with electric resistance heating only)~~	
		~~Electrical Input (for those with electric resistance heating)~~	
		Refrigerant Type[1]	Ozone-depleting, non-ozone-depleting
	Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps	*Voltage	
		*Electrical Phase	1, 3
		*Type	PTAC, PTHP
		Size	Standard, non-standard
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	

		Heating Capability	Heat pump, electric resistance heating, heat pump and electric resistance heating, no heating capability
		Heating Capacity (for models with heating capability only)	
		Electrical Input (for models with heating capability only)	
		Coefficient of Performance (for models with heating capability only)	
		Refrigerant Type[1]	Ozone-depleting, non-ozone-depleting
		~~Indoor Fan Nominal Horsepower~~[1]	
		~~Indoor Fan Motor Type~~[1]	~~Premium, standard~~
		~~Outdoor Fan Nominal Horsepower~~[1]	
		~~Outdoor Fan Motor Type~~[1]	~~Premium, standard~~
		Compressor Power[1]	

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally-regulated appliances
2 = Voluntary for state-regulated appliances
Purpose and Rationale: These changes reflect the current federal data reporting requirements as found in 10 C.F.R. § 431.91 to 431.97.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X:
Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Air Filters	MERV	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
		Particle Size Efficiency for 0.3 to 1.0 µm particle size	
		Particle Size Efficiency for 1.0 to 3.0 µm particle size	
		Particle Size Efficiency for 3.0 to 10.0 µm particle size	
		Test Procedure used to determine air filter efficiency performance	AHRI 680-2009, or ASHRAE 52.2-2012
		Maximum Rated Airflow Rate	Test results in cubic-feet-per-minute, in multiples of 1
		Initial Resistance at 400 cubic-feet-per-minute (cfm)	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 800 cubic-feet-per-minute (cfm)	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 1,200 cubic-feet-per-minute (cfm) unless maximum rated airflow rate (as published by the manufacturer) is less than 1,200 cfm	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 1,600 cubic-feet-per-minute (cfm) unless maximum rated airflow rate (as published by the manufacturer) is less than 1,600 cfm	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 2,000 cubic-feet-per-minute (cfm) or the maximum rated airflow rate as published by the manufacturer	Test results to one-hundredths of an Inch of Water Column
		Final Resistance at 2,000 cubic-feet-per-minute (cfm) or the maximum rated airflow rate as published by the manufacturer	Test results to one-hundredths of an Inch of Water Column
		Dust Holding Capacity	Test results in multiples of one gram.
		Test Procedure used to determine air filter dust holding capacity	AHRI 680-2009, or ASHRAE 52.2-2012

Purpose and Rationale: Table X has been updated to reflect the new air filter requirements. Table X contains data submittal requirements that allow the Commission staff to access compliance with the required standards.

Necessity: Without data provisions, the Commission could not properly implement its appliance efficiency programs and ensure that all manufactures are complying with efficiency requirements.

Table X Continued - Data Submittal Requirements

	Appliance	*Required Information*	*Permissible Answers*
C	All Central Air Conditioners and Central Air-Conditioning Heat Pumps	*Coil Model Number with which Compressor was Tested (for split systems only)	
		*Type	Air conditioner, heat pump (heating and cooling), heat pump (heating only), heat pump (cooling only)
		*Energy Source for Cooling	Electricity, natural gas
		*Energy Source for Heating	Gas, oil, electric heat pump, electric resistance, heat pump and electric resistance, none
		*ARI Classification	
		*Voltage	
		*Electrical Phase	1, 3
		Variable Refrigerant Flow	Yes, no
		Heat Recovery (for Variable Refrigerant Flow models only)	Yes, no
		Vertical Air Conditioner (for single package models only) (required on or after January 1, 2010)	Yes, no
		Refrigerant Type[1, 2]	Ozone-depleting, non-ozone-depleting
		Thermostatic Expansion Valve (for air-source or air-cooled models only)	Yes, no
		~~Thermostatic Expansion Valve (for air-source or air-cooled models only)[1, 2]~~	~~Exception 1, Exception 2, Exception 3 [See Section 1605.2(c)(1)(B)], no exception~~
		Compressor Motor Design	Single-speed, dual-speed, multiple-speed, variable-speed
		~~Compressor Motor Horsepower[1, 2]~~	
		~~Compressor Motor Type[1, 2]~~	~~Premium, standard~~
		~~Outdoor Fan Motor Design[1, 2]~~	~~Single-speed, dual-speed, multiple-speed, variable-speed~~
		~~Outdoor Fan Motor Nominal Horsepower[1, 2]~~	
		~~Outdoor Fan Motor Type[1, 2]~~	~~Premium, standard~~

	Appliance	*Required Information*	*Permissible Answers*
		~~Outdoor Fan Motor Power Factor (for models with variable speed motors only)~~[1, 2]	
		~~Indoor Fan Motor Design~~[1, 2]	~~Single-speed, dual-speed, multiple-speed, variable-speed~~
		~~Indoor Fan Motor Nominal Horsepower~~[1, 2]	
		~~Indoor Fan Motor Type~~[1, 2]	~~Premium, standard~~
		~~Indoor Fan Motor Power Factor (for variable speed motors only)~~[1, 2]	

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally-regulated appliances
2 = Voluntary for state-regulated appliances

Purpose and Rationale: These changes reflect the current federal data reporting requirements as found in 10 C.F.R. § 430.32(c).

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X Continued - Data Submittal Requirements

	Appliance	*Required Information*	*Permissible Answers*
C	Air-Cooled, Single Package CAC < 65,000 Btu/hour and Air-Cooled, Split System CAC < 65,000 Btu/hour	Seasonal Energy Efficiency Ratio (SEER)[3]	
		Cooling Capacity at 82°F[3]	
		Electrical Input at 82°F[3]	
		Degradation Coefficient at 82°F[3]	
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Average Off Mode Power Consumption (Watts) (for models manufactured on or after January 1, 2015 only)	
		Space-constrained Product	Space-constrained; ~~through-the-wall~~ variable-speed mini-split; small duct, high velocity; not space-constrained
	Air-Source, Single Package Heat Pumps < 65,000 Btu/hour and Air-Source Split System Heat Pumps < 65,000 Btu/hour	Seasonal Energy Efficiency Ratio (SEER)	
		Cooling Capacity at 82°F[3]	
		Electrical Input at 82°F[3]	
		Degradation Coefficient at 82°F[3]	
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Average Off Mode Power Consumption (Watts))	
		Heating Seasonal Performance Factor (HSPF) [3]	
		Heating Capacity	
		Electrical Input	
		Coefficient of Performance (COP) at 47°F (single package vertical heat pumps only)	
		Space-constrained Product	Space-constrained~~; through-the-wall~~ variable-speed mini-split; small duct, high velocity; not space-constrained
	Air-Cooled, Single Package CAC ≥ 65,000 and < 760,000 Btu/hour Air-Cooled, Split System CAC ≥ 65,000 and < 760,000 Btu/hour	Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Integrated Part Load Value (IPLV) If Applicable	
		Heating System Type[1, 2]	Gas, oil, electric resistance, none

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

3 = Voluntary for single package vertical air conditioners and single package vertical heat pumps only.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Air-Source, Single Package Heat Pumps ≥ 65,000 Btu/hour and < 760,000 Btu/hour; and Air-Source, Split-System Heat Pumps ≥ 65,000 and < 760,000 Btu/hour	Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Integrated Part Load Value (IPLV) If Applicable	
		Heating Capacity at 47°F	
		Electrical Input at 47°F	
		Coefficient of Performance (COP) at 47°F	
		Heating Capacity at 17°F	
		Electrical Input at 17°F	
		Coefficient of Performance (COP) at 17°F	
	Evaporatively-Cooled Single Package CAC < 760,000 Btu/hour and Evaporatively-Cooled Split System CAC < 760,000 Btu/hour	Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Integrated Part Load Value (IPLV) If Applicable	
		Heating System Type[1, 2]	Gas, oil, electric resistance, none
	Water-Cooled Single-Package CAC < 760,000 Btu/hour and Water-Cooled, Split System CAC < 760,000 Btu/hour	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 85°F Entering Water Temperature	
		Electrical Input at 85°F Entering Water Temperature	
		Energy Efficiency Ratio (EER) at 85°F Entering Water Temperature	
		Low Temperature EER at 70°F Entering Water Temperature (for models < 65,000 Btu/hour only)	
		Heating System Type[1]	Gas, oil electric resistance, none
	Water-Source, Single Package Heat Pumps < 760,000 Btu/hour and Water-Source Split System Heat Pumps < 760,000 Btu/hour	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 86°F Entering Water Temperature	

		Electrical Input at 86°F Entering Water Temperature	
		Energy Efficiency Ratio (EER) at 86°F Entering Water Temperature	
		Heating Capacity at 68°F Entering Water Temperature	
		Electrical Input at 68°F Entering Water Temperature	
		Coefficient of Performance (COP) at 68°F Entering Water Temperature	

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally-regulated appliances
2 = Voluntary for state-regulated appliances
3 = Report both fields for split systems; either indoor or outdoor fan electrical input (not both) for single package models.

Purpose and Rationale: These changes reflect the current federal data reporting requirements as found in 10 C.F.R. § 430.32(c).

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Ground Water-Source, Single Package Heat Pumps and Ground Water-Source Split System Heat Pumps	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 59°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Electrical Input at 59°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Energy Efficiency Ratio (EER) at 59°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Heating Capacity at 50°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Electrical Input at 50°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Coefficient of Performance (COP) at 50°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
	Ground-Source, Closed-Loop, Single Package Heat Pumps and Ground-Source, Closed-Loop, Split System Heat Pumps	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 77°F Entering Brine Temperature	

		Electrical Input at 77°F Entering Brine Temperature	
		Energy Efficiency Ratio (EER) at 77°F Entering Brine Temperature	
		Heating Capacity at 32°F Entering Brine Temperature	
		Electrical Input at 32°F Entering Brine Temperature	
		Coefficient of Performance (COP) at 32°F Entering Brine Temperature	

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally-regulated appliances
2 = Voluntary for state-regulated appliances
3 = Report both fields for split systems; either indoor or outdoor fan electrical input (not both) for single package models.

Purpose and Rationale: Reporting requirements for these state-regulated appliances have consistently mirrored current federal data reporting requirements as found in 10 C.F.R. § 430.32(c). These changes are being made for similar federally regulated appliances, and are thus being incorporated for these similar state-regulated appliances also.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Gas-Fired Air Conditioners and Gas-Fired Heat Pumps	Cooling Capacity – (cooling bin summary)	
		Gas Input While Cooling – (cooling bin summary)	
		Electric Input While Cooling – (cooling bin summary)	
		Cooling COP – Gas	
		Cooling COP – Electric	
		Heating Output – (heating bin summary)	
		Gas Input While Heating – (heating bin summary)	
		Electric Input While Heating – (heating bin summary)	
		Heating COP – Gas	
		Heating COP – Electric	
	Computer Room Air Conditioners	Equipment Type	Air-cooled, water-cooled, water-cooled with a fluid economizer, glycol-cooled, glycol-cooled with a fluid economizer, evaporatively cooled; chilled-water-cooled
		Net Sensible Cooling Capacity (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Downflow Unit Power Input (watts) (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Downflow Unit SCOP (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Upflow Unit Power Input (watts) (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Upflow Unit SCOP (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	

Purpose and Rationale: These changes reflect the current federal data reporting requirements as found in 10 C.F.R. § 431.91 to 431.97.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X – Data Submittal Requirements

	Appliance	*Required Information*	*Permissible Answers*
C	Heat pump water-chilling package	Voltage*	
		Phase*	1, 3
		Refrigerant Type*	Ozone-depleting, non-ozone-depleting
		Compressor Motor Design*	Single-speed, dual-speed, multiple-speed, variable-speed
		OD Fan Motor Design*	Single-speed, dual-speed, multiple-speed, variable-speed
		Model number includes all components?	Yes, no
		Is the model designed for space cooling?	Yes, no
		Cooling Capacity (BTU per hour) if applicable	
		Cooling power input (watts) if applicable	
		Energy Efficiency Ratio (EER) if applicable	
		Integrated part load value (IPLV)	
		Heating Capacity (BTU per hour) at 47°F	
		Heating power input (watts) at 47°F	
		Coefficient of Performance (COP) at 47°F	
		Heating Capacity (BTU per hour) at 17°F	
		Heating power input (watts) at 17°F	
		Coefficient of Performance (COP) at 17°F	
		Heat Capacity (BTU per hour) of heat reclaim[2]	
		COPR of heat reclaim[2]	

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally regulated appliances
2 = Voluntary for state-regulated appliance

Purpose and Rationale: Table X has been updated to reflect the new heat pump water-chilling package requirements. Table X contains data submittal requirements that allow the Commission staff to access compliance with the required standards.

Necessity: Without data provisions, the Commission could not properly implement its appliance efficiency programs and ensure that all manufactures are complying with efficiency requirements.

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Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
D	Dehumidifiers		
		Product capacity (pints per day)	
		Energy Factor	
	Residential Furnace Fans	Furnace Fan Type	Non-weatherized, non-condensing gas (NWG-NC); Non-weatherized, condensing gas (NWG-C); Weatherized non-condensing gas (WG-NC); Non-weatherized, non-condensing oil (NWO-NC); Non-weatherized electric furnace/ modular blower fan (NWEF/NWMB); Mobile home non-weatherized, non-condensing gas (MH-NWG-NC); Mobile home non-weatherized, condensing gas (MH-NWG-C); Mobile home electric furnace/modular blower fan (MH-EF/MB); Mobile home non-weatherized oil (MG-NOW); Mobile home weatherized gas
		Wattage	
		Airflow at the maximum airflow-control setting (in cfm)	
		Fan Energy Rating (FER)	

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
G	Other Pool Heaters	Energy Source	Natural gas, LPG, oil, electric resistance
		~~Readily-accessible on-off switch~~	~~Yes, no~~
		Constant Burning Pilot Light (for gas models)	Yes, no
		Input	
		Thermal Efficiency	

Purpose and Rationale: These changes remove collection of a field formerly required when these appliances were exclusively state-regulated. This is not part of the federal reporting requirements.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
G	Residential Pool Pump and Motor Combinations and Replacement Residential Pool Pump Motors	Motor Construction	PSC, Capacitor Start-Capacitor Run, ECM, Capacitor Start-induction run, split-phase
		Motor Design	Single-speed, dual-speed, multi-speed, variable-speed
		Frame	
		Speed (in RPM)	
		Motor has Capability of Operating at Two or More Speeds with the Low Speed having a Rotation Rate that is No More than One-Half of the Motor's Maximum Rotation Rate	Yes, no
		Unit Type	Residential Pool Pump and Motor Combination, Replacement Residential Pool Pump Motor
		Pool Pump Motor Capacity	
		Motor Service Factor	
		Motor Efficiency (percent)	
		Nameplate Horsepower	
		Pump Control Speed (compliance with Section 1605.3(g)(5)(B)~~3~~2	Yes, no
		Flow for Curve 'A' (in gpm)	
		Power for Curve 'A' (in watts)	
		Energy Factor for Curve 'A' (in gallons per watt-hour)	
		Flow for Curve 'B' (in gpm)	
		Power for Curve 'B' (in watts)	
		Energy Factor for Curve 'B' (in gallons per watt-hour)	
		Flow for Curve 'C' (in gpm)	
		Power for Curve 'C' (in watts)	
		Energy Factor for Curve 'C' (in gallons per watt-hour)	

Purpose and Rationale: Energy Commission Docket # 13-AAER-1 removed Section 1605.3(g)(5)(B)1, and renumbered what had been Sections 1605.3(g)(5)(B)2 and 3, respectively, to current sections 1605.3(g)(5)(B)1 and 2. This data collection parameter was overlooked as part of that Rulemaking and this correction intended to address that oversight by changing the reference to what was Section 1605.3(g)(5)(B)3 and is now Section 1605.3(g)(5)(B)2.

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Table X Continued – Data Submittal Requirements

	Appliance	Required Information	Permissible
H	Plumbing Fittings	*Type	Showerhead, lavatory faucet (independent or collective), public lavatory faucet, kitchen faucet, metering faucet (independent or collective), lavatory faucet replacement accessory replacement aerator, kitchen faucet replacement accessory, replacement aerator, wash fountain, lift-type tub spout diverter, turn-type tub spout diverter, pull-type tub spout diverter, push-type tub spout diverter
		Flow Rate	
		Pulsating (for showerheads only)	Yes, no
		Rim Space (for wash fountains only)	
		Tub Spout Leakage Rate When New	
		Tub Spout Leakage Rate After 15,000 Cycles	
	Commercial Prerinse Spray Valves	Flow Rate (gpm)	
		Cleaning ability test	Pass, fail
I	Plumbing Fixtures	*Type	Blowout water closet, gravity tank type water closet, dual-flush water closet, electromechanical hydraulic water closet, flushometer tank water closet, urinal, prison-type urinal, prison-type water closet, flushometer valve water closet, trough-type urinal, waterless urinal, vacuum type urinal, vacuum type water closet
		Water Consumption (dual-flush effective flush volume for dual-flush water closet)	
		MaP Score (for water closet only)	
		Trough Length (trough-type urinals only)	

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Purpose and Rationale: Table X has been updated to reflect the new plumbing fittings and fixture standards. Table X contains data submittal requirements that allow the Commission staff to access compliance with the required standards.

Necessity: Without data provisions the Commission could not properly implement its appliance efficiency programs and ensure that all manufactures are complying with efficiency requirements.

Table X Continued – Data Submittal Requirements

	Appliance	Required Information	Permissible
J	Deep-Dimming Fluorescent Ballasts	*Ballast Input Voltage	120, 277, other (specify)
		*Number of Lamps	
		*Lamp type	T5, T8, other (specify)
		*Dimming Type	Continuous, stepped, individual lamp control, other (specify)
		*Control Type	3-wire, 0-10 volts, digital communication, phase, other (specify)
		*Start Type	Instant start, rapid start, program start, other (specify)
		P_{100}	
		Arc Power 100	
		P_{80}	(answer NA if not applicable)
		Arc Power 80	(answer NA if not applicable)
		P_{50}	(answer NA if not applicable)
		Arc Power 50	(answer NA if not applicable)
		P_0 (standby mode power)	
		Integrated Ballast Luminous Efficacy	
		Power Factor	

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally regulated appliances
2 = Voluntary for state-regulated appliances

Purpose and Rationale: Table X has been updated to reflect the new deep-dimming fluorescent ballast standards. Table X contains data submittal requirements that allow the Commission staff to access compliance with the required standards.

Necessity: Without data provisions the Commission could not properly implement its appliance efficiency programs and ensure that all manufactures are complying with efficiency requirements.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
Q	Clothes Dryers	*Energy Source	Gas, electric
		*Drum Capacity	
		*Voltage	120, 240, other (specify)
		Combination Washer/Dryer[1]	Yes, no
		~~Automatic Termination Control~~[1] Venting	~~Yes, no~~ Vented, ventless
		~~Energy Factor (through December 31, 2014)~~	
		Combined Energy Factor ~~(required only on and after January 1, 2015)~~	
		Constant Burning Pilot Light (Gas models only)	Yes, no

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally-regulated appliances
2 = Voluntary for state-regulated appliances.

Purpose and Rationale: These changes reflect the current federal data reporting requirements and both current and new federal standards as found in 10 C.F.R. § 430.32(h).

Necessity: These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations. In addition under Government Code section 11346.2(c).

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed.

Because a federally mandated regulation is being proposed, the Commission's obligation to provide a rationale for these changes as required under Government Code section 11346.2(b) is deemed met.

Section 1607. Marking of Appliances

(d) Energy Performance Information.

(12) Air Filters.

Each unit of air filters manufactured on or after May 1, 2016 shall be marked, permanently and legibly, on an accessible and conspicuous place on the edge of the filter itself, in characters of font size 12, with the following information, as applicable to the air filter model: the MERV or particle size efficiency rating of the unit and initial resistance at 400 cfm, 800 cfm, 1200 cfm, 1600 cfm, and either 2000 cfm or maximum rated airflow rate, as published by the manufacturer. The particle size efficiency rating used for this label shall be the particle size efficiency of 3.0 to 10.0 micron particles. Manufacturers may include both the MERV and particle size efficiency rating. If either MERV or particle size efficiency ratings have not been reported, mark the non-reported rating as "N/A."

The information shall be disclosed in the format in Table Z.

Table Z

MERV	PSER (um)	Airflow Rate (CFM)	400	800	1200	1600	2000*	*Max Rated Airflow
[value]	[value]	Initial Resistance (IWC)	[value]	[value]	[value]	[value]	[value]	

If the marking on the air filter is not legible through its retail packaging, then the packaging shall also be labeled with the same information and in the same format as Table Z. The requirements of this section shall not preclude manufacturers from providing additional information.

Purpose and Rationale: The purpose of the air filter program is to require proper labeling on replacement filters to ensure a correct match between filter and HVAC equipment. This will maximize energy savings for the home or building owner and reduce the risk of damaging the HVAC equipment.

Necessity: These labeling standards are necessary to ensure replacement filters with the correct specifications are utilized by home and building owners.

C. Economic Impact Analysis/Assessment or Standardized Regulatory Impact Analysis (11346.3(C)):

Toilets, Urinals, Faucets, Deep-Dimming Ballasts, Air Filter Labeling, Heat-Pump Water-Chilling Packages

The following summarizes the contents of the Standardized Regulatory Impact Analysis which contains a detailed assessment of the aggregate economic impacts from the proposed regulations and alternatives.

(A) The creation or elimination of jobs within the state.

Energy Commission staff evaluated the impact on jobs from implementation of proposed standards between 2016 and 2025. The number of jobs created in 2025 is an indicator of the "steady state" or long-term job change in the California economy from the proposed regulations. The 2016 to 2025 impact to employment over the first 10 years following hypothetical adoption of the proposed regulation is summarized in Table 2.

Table 2: Regulatory Impacts to Jobs

	Proposed Regulations
Job-years in 2025	621
Total job-years 2016-2025	5668

Results from the economic modeling with reallocation of water show that the proposed standards have positive jobs results.

Utility sector jobs are expected to decrease from lower water, natural gas, and electricity retail sales. However, increases in personal disposable income and reduction in commercial operating costs of business more than offset this loss and yield the positive job growth numbers described in Table 2.

In terms of the full California economy, jobs impacts of the proposed and alternative standards are small. The net changes in jobs shown above in Table 2 represent less than one hundredth of one percent change from baseline employment levels.

(B) The creation of new businesses or the elimination of existing businesses within the state.

The proposed regulations will reduce costs to California businesses by lowering monthly utility bills for water, electricity, and natural gas due to installation of more efficient appliances. The incremental cost to produce these more efficient appliances is small compared to the lifetime water and energy savings gained from use of the appliances.

Staff estimates commercial businesses will save $12.7 million on water bills in 2016, the first year of standards implementation. By the year 2025, California commercial businesses will be saving $117 million annually on their water utility bills. In 2016 commercial businesses are estimated to save $2.8 million and $5.4 million, respectively, on electricity and natural gas bills. By the year 2025 these figures increase to $30.6 million and $50.2 million.

The REMI PI+ model (version 1.6.7) was used to estimate macroeconomic impacts of the proposed and alternative regulations. An important factor to consider with impacts to businesses is the effect regulations will have on prices. REMI model analysis of proposed and alternative regulations show that prices will change very little compared to a baseline with no change in appliance efficiency standards. In 2016 overall prices (PCE index variable) are estimated to decline by a factor of -0.001. The price index shows a decline in 2025 of an estimated -0.011 factor. These levels of price decline constitute less than one one-hundredth of one percent change in overall prices within the California economy.

The overall impact to California businesses will be positive: reduced water and energy utility bills and a very small reduction in overall prices throughout the economy.

(C) The competitive advantages or disadvantages for businesses currently doing business within the state.

The proposed regulations have advantages and disadvantages to retailers, manufacturers, and utilities in the state. The regulations would give an advantage to manufacturers who make and distribute more efficient appliances in California and a disadvantage to those that do not. Energy utilities will see a decrease in demand for electricity and natural gas relative to a baseline forecast. Because their revenues are decoupled from sales, these utilities will see a business advantage to the proposed regulations. Water utilities will neither be at an advantage nor disadvantage as the demand for water in California far exceeds the supply. The saved water will be redirected to other uses. Therefore, the Energy Commission expects that water utilities sales will not change.

The proposed regulations will, by design, give an advantage to manufacturers that manufacture more efficient products. The proposed performance standards are not based on any one patent or technology and therefore it gives a broad advantage rather than a direct specific advantage. The distribution of products that are compliant are spread fairly evenly amongst manufacturers.

The very small overall decrease in prices estimated with the macroeconomic model would create a small competitive advantage for current businesses in California.

(D) The increase or decrease of investment in the state.

Staff estimates of water savings were combined with estimates of direct energy savings (electricity, natural gas) and indirect electricity savings (embedded energy in water supply) to model the macroeconomic impacts of proposed and alternative appliance efficiency standards to the overall California economy. The impacts were modeled over a ten-year period (2016-2025), although Energy Commission staff anticipates future appliance efficiency regulations will supersede the proposed

standards well before 2025. If new standards are proposed in less than ten years, then resulting economic impacts would be less than those analyzed and reported within this SRIA.

The macroeconomic model used was REMI PI+ (version 1.6.7) for California as a single statewide region. The overall macroeconomic impacts of the proposed standards are very small in comparison to the size of California's economy. The staff prepared inputs to the model including reduced sales of water, natural gas, and electricity, as well as expected costs of implementing the new standards. The overall result of conserving water and energy with the proposed set of appliances is a small reduction in gross state product (GSP) and private domestic fixed investment. As noted earlier, the total jobs impact is a net increase due to residential and commercial savings on utility costs being reallocated to other spending categories. In addition, real disposable personal income increases from $9 million in 2016 to $56 million in 2025.

The proposed regulations are estimated to reduce GSP by $10 million in 2016 and $181 million in 2025 with reallocation of water savings. This modeled reduction in GSP is the result of lower annual utility sales of water, electricity, and natural gas. The REMI model does not take into account the fact that conserved water will be used in other economically productive activities within California. In addition, California imports approximately 90 percent of its natural gas and 30 percent of its electricity.

With these important caveats in mind regarding model limitations with respect to conservation of water and energy, staff estimates that gross private domestic fixed investment declines by $26 million in 2016 and by $446 million in 2025. These levels of reduced investment are very small in comparison to the whole California economy and represent a 0.01 percent decline in 2016 and a 0.12 percent decline by 2025. In other words, the proposed regulations reduced domestic private investment by less than two tens of one percent over the ten-year analysis period. Given the important caveats above regarding limitations of the REMI model to account for productive economic uses of conserved water and energy, staff finds the overall impact of the regulations to investment in California to be small compared to expected benefits of increased jobs, personal income, conservation of water, conservation of energy, improved air quality, and reduced greenhouse gas emissions.

(E) The incentives for innovation in products, materials, or processes.

Innovations in the products proposed to be regulated can be organized into three types: Innovations that would decrease water or energy use, innovations that are neutral to water or energy use, and innovations that increase water or energy use. The proposed standards clearly incentivize technologies and innovations that can reduce the water and energy use of proposed covered products. The proposed regulations put pressure on commoditized products to adjust from status quo designs that would have a difficult time meeting the performance standards. These changes lead to increased industry investment in technology that forms the core of innovation. This investment also generates expertise and fuels secondary innovation. In the case of heat-pump water-chilling packages, innovation is directly enhanced because the regulations are removing a barrier to the market for this product. These products do not have well accepted efficiencies or a way to demonstrate efficiency in a consistent manner that can be used by building designers and inspectors. Therefore, implementation of the

technology is unnecessarily hindered. The proposed standards would provide a platform to remedy this issue.

In some cases, innovation does not come with any change in water or energy use. For example a toilet bowl's shape may be adjusted to better handle waste. Generally, these types of innovations are neither incentivized nor hindered by energy and water usage performance standards. However, in the case of toilets, urinals, and faucets, there may be aspects of lower water using products that current consumers perceive to be less than desirable. Many of these aspects form the barrier to natural market adoption and form the basis why a regulation is necessary to gain additional water savings. In this case, the proposed regulations form an incentive for innovation, as the demand for improved performance in lower water using products will be increased.

Some innovations incorporate features that would require additional water or energy consumption in regulated products. The regulations create pressure to lower water and energy consumption thereby discouraging innovations that would increase the consumption in general. The net result of the innovation can be positive, neutral, or negative. The proposed regulations have a neutral impact on more consumptive innovations where the addition of those innovations would increase the consumption of the product, but not to the point of exceeding the performance standard. The proposed regulations would have a negative impact where the innovation would cause the consumption to exceed the performance standard causing manufacturers to either limit the level the innovation is integrated into the new product design or avoid the innovation altogether. However, if the more consumptive innovation is very desirable it could lead to a paired innovation that decreases consumption. In this case the proposed standard would again enhance and incentivize additional innovation.

The economic analysis of the proposed regulations shows an increase in personal disposable income. This type of income is the feedstock of innovation because it is disposable income that is used to buy products that are "new" and beyond what consumers would consider baseline. Further, the utility bills of businesses in California would decrease from the proposed cost-effective regulations. That frees additional capital for those companies to spend on R&D and other forms of innovation.

(F) The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency.

The proposed and alternative regulations provide a wide range of benefits to California households and commercial businesses. The benefits that were quantified for this Standardized Regulatory Impact Assessment (SRIA) include: water, electricity, and natural gas conservation, utility bill savings, jobs impact, changes in personal income, reduced air pollution, and reduced greenhouse gas emissions.

Water Savings

The proposed and alternative standards will have significant impact on water consumption in California. Proposed standards over the next ten years will conserve about 460 billion gallons of water.

As California enters a fourth year of drought, every sector of the economy benefits from the conservation of water.

Staff estimates the water utility bill savings from implementation of the proposed standards to total $903 million for households over ten years. Commercial businesses would save approximately $661 million between 2016 and 2025. The residential sector water bill savings ramps up over time as more efficient faucets and toilets are installed in homes. The residential water bill savings are estimated to equal $17.4 million in 2016 and increases to $159 million by the year 2025. Commercial businesses will save $12.7 million in 2016 and $117 million by 2025.

Electricity Savings

Both the proposed and alternative standards would yield significant electricity savings within California. Electricity is conserved directly through reduced electric hot water heating load and installation of more energy efficient dimming ballasts. Electricity is saved indirectly due to embedded energy savings throughout water supply and wastewater management processes. Total electricity savings are estimated to be 136 GWhs in 2016, and rises to 1,156 GWhs by 2025. The value of residential electricity bill savings is estimated to be $18.3 million in 2016 and up to $119 million in 2025. Commercial sector electricity bill savings over the same period go from $2.8 million to $30.6 million. Staff estimate the air quality and greenhouse gas (GHG) benefits of conserving this amount of electricity (see below), but did not attempt to estimate a wider range of benefits to California such as those associated with improved grid reliability or avoided power plant or transmission line construction costs.

Natural Gas Savings

Natural gas savings from reduced hot water heating total 30 million therms in 2016, and increase to 252 million therms in 2025 under the proposed standards. Cumulative natural gas savings for the ten-year time period equals 1410 million therms.

Utility bill benefits to residential households totals $23.7 million in 2016, and increases to $176 million in 2025. Total residential sector natural gas utility bill savings is $1.0 billion between 2016 and 2025. Commercial businesses are estimated to save $5.4 million in 2016, and $50.2 million by 2025. Businesses will save a total of $281 million on natural gas bills over the ten years.

Jobs Impacts

Job impacts of the proposed and alternative standards we estimated using the REMI PI+ model for California as a single region (version 1.6.7). The net jobs impact is positive under the proposed standards. The reduced spending by households and businesses on utility bills is reallocated to spending on other goods and services. The reallocation of spending more than offsets reduced economic activity within the utilities sector of the California economy.

Total job-years over the decade will increase by 5668 under the proposed standards. Estimated job-years increase from a rise of 279 in 2016 to a increase of 621 by the year 2025. These levels of jobs

impacts are very small in comparison to the full California economy. The jobs impacts represent less than one hundredth of one percent change in California's employment level.

Personal Income

Proposed standards will increase real disposable personal income by $9 million in 2016 and $56 million in 2025. The cumulative increase in personal income with the proposed standards is $375 million, which is a beneficial outcome for the California economy. The increase in personal income results from consumers and commercial businesses saving money on utilities and spending it on other goods and services that leads to a small gain in employment levels.

Air Quality

Air quality benefits of the proposed regulations are significant as a result of avoided electricity generation. Proposed regulations over the next ten years will reduce PM 2.5 emissions by about 193 tons, NOx emissions by 4,446 tons, and SOx emissions by about 64 tons. Benefits of reducing these criteria emissions were estimated using the US EPA's COBRA Model. Additional benefits of reducing carbon monoxide and volatile organic compounds (VOCs) were not estimated.

The COBRA Model provides a high and low estimate of avoided public health impacts due to reductions in criteria emissions. The proposed standards are estimated to avoid between $1.1 million and $2.4 million in health impacts the first year of implementation in 2016. By the year 2025 the range of avoided public health benefits increases to $8.1 million to $20.5 million. The ten-year cumulative estimated air quality benefit of proposed regulations is between $36 million and $90 million.

Greenhouse Gas Emissions

The proposed regulations are estimated to avoid 0.26 million tons of carbon dioxide (CO_2) in 2016 and 2.3 million tons in 2025. The cumulative benefit of CO_2 reductions for the proposed standards is 12.6 million tons. The higher alternative standard increases this value to 16.9 million tons, while the lower alternative cuts the CO_2 benefit to 11.9 million tons.

Two types of benefits were estimated for the carbon dioxide emissions reductions. The first is an estimate of avoided global damages using a federal social cost of carbon value of $43 per ton. Total avoided damages for the ten-year period under proposed standards equals $542 million. A second value estimated is the avoided cost of purchasing CO_2 allowances for California's Cap-and-Trade Program. The value for CO_2 allowance savings was estimated to be $151 million, based upon an assumed allowance value of $12 per ton.

Summary of Economic Impacts and Benefits

Staff finds that the proposed standards for toilets, urinals, faucets, dimming ballasts, air-filters, heat-pump water-chilling packages are technically feasible, cost-effective and would not result in any added total cost to consumers. Therefore the standards meet the requirements of Public Resources Code

section 25402(c)(1) by reducing wasteful, uneconomic, inefficient, and unnecessary consumption of energy and water.

Specifically, over the 10 year period from the effective date the proposed standards save about 460 billion gallons of water and $1.5 billion to consumers. The proposed standards would reduce electricity consumption by about 6371 GWh and provide consumer savings of $0.8 billion. Implementation of the proposed standards would save about 1,410 million therms of natural gas and save consumers $1.2 billion. Combined dollar savings from the proposed regulations will be about $ 3.7 billion.

Total job-years over the decade will increase by 5668 under the proposed standards. Proposed standards will also increase real disposable personal income by $9 million in 2016 and $56 million in 2025. The cumulative increase in personal income with the proposed standards is $375 million. The proposed regulations are estimated to avoid .26 million tons of carbon dioxide in 2016 and 2.3 million tons in 2025.

Incorporation of Federal Updates

Updating of the federal standards contained in the Energy Commission's appliance regulations would not impact businesses and/or employees, impose reporting requirements, impact small businesses, impose prescriptive instead of performance requirements, impact jobs or occupations, impact individuals or impact California competitiveness because manufactures and retailers are already obligated to follow the federal standards related to appliance efficiency and data reporting.

Methods and details by which the agency sought public input regarding alternatives? (1 CCR 2001(d))

Energy Commission Staff sought input on alternatives though public workshops and meetings with stake holders and by discussing alternative standards in the staff reports and Standardized Regulatory Impact Analysis. Specifically, staff compared the cost and benefits of the proposed water efficiency standards to the cost and benefits of less efficient and more efficient standards. Staff also considered phasing of standards and whether a combination of standards and other incentives would result in the State achieving all feasible energy and water savings.

Based on the information presented by stakeholders and staff's independent research staff puts forth the proposed standards as the most effective way for the California to maximize energy and water savings goals and for the people of California to save money through the reduction in energy and water consumption.

D. Technical, Theoretical, and Empirical Studies, Reports, and Similar Documents Relied Upon (Gov Code 11346.2(B)(3))

Toilets, Urinals and Faucets

Singh, Harinder, Ken Rider, Tuan Ngo, and Kristen Driskell. February 2015. *Staff*

Analysis of Water Efficiency Standards for Toilets, Urinals, and Faucets. California Energy Commission. Publication Number: CEC-400-2015-008.
CASE Report, *Toilets & Urinals Water Efficiency* (July 29, 2013)
TN 73583 08-12-14 Energy Solutions Lavatory Faucets - CA IOUs Response to Consumer Satisfaction Impacts of Delivery Time-V1
TN 73584 08-12-14 Energy Solutions Urinals - CA IOUs Response to Drainline Clogging and Plumbing Retrofit-V1
TN 73585 08-12-14 Energy Solutions Seattle PUC - How High Efficiency Restroom Fixtures Really Perform 3
TN 73586 08-12-14 Department of General Services-no Issues Reported on 0 125 gpf Urinals.pdf
TN 73587 08-12-14 Zurn Energy Solutions Zeg Series Automatic Operated Battery Powered Flusmeter Spec FV454
TN 73588 08-12-14 TOTO - Energy Solutions Installation Manual

Dimming Fluorescent Ballasts, Air Filters and Heat Pump Water Chilling Packages

Singh, Harinder, Ken Rider, Jared Babula. February 2015. *Staff Analysis of HVAC Air Filters, Dimming Fluorescent Ballasts, and Heat Pump Water Chilling Packages.* California Energy Commission. Publication Number: CEC-400-2015-007.
CASE Report *Dimming Fluorescent Ballasts Codes and Standards Enhancement Initiative, (*August 5, 2013)

Incorporation of Federal Updates

The updated federal appliance efficiency standards reflected in the state regulations can be found at 10 CFR 430, 10 CFR 431, 16 CFR 305, and the Energy Independence and Security Act of 2007 (EISA), beginning at 42 U.S.C. 6291. No reports or studies were relied on in incorporating the federal updated standards.

E. Consideration of Reasonable Alternatives, Including Those That Would Lessen Any Adverse Impact on Small Business (Gov Code Sections 11346.2(B)(5)(A-B))

Toilets, Urinals and Faucets

The Energy Commission is proposing new minimum efficiency standards and amendments to the existing Appliance Efficiency Regulations. Before it adopts the proposed regulations, the Energy Commission must determine that no reasonable alternative it considered, or that has otherwise been identified and brought to its attention, would be more effective in carrying out the purpose for which the amendments are proposed or would be as effective as and less burdensome to affected private persons than the proposed amendments.

To date, the Energy Commission has found no alternatives to the proposed action that would be more effective, or as effective and less burdensome. Commission staff closely considered various flow rates for faucets and gallons per flush for urinals suggested by stakeholders. Because stakeholder offered different numbers, staff had to ultimately choose a level of efficiency that, based on the best available information, was feasible and maximized energy and water savings while minimizing costs.

Under AB 715, the maximum gallons per flush for toilets and urinals are set at 1.28 and .5. The proposed standards therefore could not allow for greater water use as directed by statute.

Based on the information available to staff and identified by stakeholders, staff concluded that any standards less than what is proposed would not achieve all feasible and cost effective energy efficiency savings as mandated under the Public Resources Code Section 25402 (c)(1).

Dimming Fluorescent Ballasts

The Energy Commission is proposing new minimum efficiency standards and amendments to the existing Appliance Efficiency Regulations. Before it adopts the proposed regulations, the Energy Commission must determine that no reasonable alternative it considered, or that has otherwise been identified and brought to its attention, would be more effective in carrying out the purpose for which the amendments are proposed or would be as effective as and less burdensome to affected private persons than the proposed amendments.

To date, the Energy Commission has found no alternatives to the proposed action that would be more effective, or as effective and less burdensome. Commission staff considered alternative language suggested by some stakeholder but found that any standard less than what is proposed would not achieve all feasible and cost effective energy efficiency savings as mandated under the Public Resources Code Section 25402 (c)(1).

Air Filters

The Energy Commission is proposing new minimum efficiency standards and amendments to the existing Appliance Efficiency Regulations. Before it adopts the proposed regulations, the

Energy Commission must determine that no reasonable alternative it considered, or that has otherwise been identified and brought to its attention, would be more effective in carrying out the purpose for which the amendments are proposed or would be as effective as and less burdensome to affected private persons than the proposed amendments.

To date, the Energy Commission has found no alternatives to the proposed action that would be more effective, or as effective and less burdensome. The Energy Commission considered other means which would allow purchasers of replacement air filters to correctly match the air filter with their HVAC equipment specifications. Staff concluded that a label on the product was the least costly and most effective way of transmitting filter specifications to ensure a correct match with the HVAC equipment installed.

Any standard less than what is proposed would not achieve all feasible and cost effective energy efficiency savings as mandated under the Public Resources Code Section 25402 (c)(1).

Heat Pump Water Chilling Packages

The proposed language does not require specific energy efficiency metrics. Heat-pump water chilling packages are not regulated for energy efficiency but represent an opportunity for efficiency that is hard to quantify due to a lack of available, credible, and verifiable data. These products are among key equipment that can contribute to reaching cost effective, zero-net-energy buildings.

Staff proposes data gathering through a test and list requirement for heat-pump, water-chilling packages. The definition for this product and test method is based on ANSI/AHRI 550-590 (I-P) -2011. The data collected from testing the equipment are the minimum necessary for modeling in building efficiency software. Additional data requirements related to power draw and capacity are collected to distinguish whether units are likely to be used in residential buildings versus commercial buildings. The reporting requirements are harmonized with the certification requirements in existence through the Energy Commission's Building Energy Efficiency Program. The collected data includes heating coefficient of performance (COP) and cooling energy efficiency ratio (EER).

To date, the Energy Commission has found no alternatives to the proposed action that would be more effective, or as effective and less burdensome in providing Commission staff with adequate data to understand the energy efficiency benefits of heat pump water chilling packages.

Incorporation of Federal Updates

Because these are federal standards there is no discretion to have an alternative to the regulation.

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed. (Government Code section 11346.2(c))

F. Mandate of Specific Technology (Gov Code Sections 11340.1(A); 11346.2(B)(5)

Toilets, Urinals and Faucets

The proposed standards do not mandate a specific technology but set performance requirements related to toilets, urinals and facets. With regards to toilets, the performance standard of 1.28 gallons per flush and .5 gallons per flush is already state law and not a new requirement.

Dimming Fluorescent Ballasts

The proposed standards do not mandate a specific technology but set performance requirements.

Air Filters

The proposed standards do not mandate a specific technology but set labeling requirements to inform the consumer so to ensure the correct replacement air filter is installed.

Heat Pump Water Chilling Packages

The proposed standards do not mandate a specific technology but require equipment data reporting so products can qualify under building code efficiency standards.

Incorporation of Federal Updates

The proposed federal standards do not mandate a specific technology but provide a recitation of federal appliance standards.

G. Facts, Evidence, Documents, Testimony, or Other Evidence of No Significant Adverse Impact on Business (Gov Code Section 11346.2(B)(5))

Toilets, Urinals and Faucets

The Energy Commission determined that the proposed regulation action will not have a significant adverse economic impact on business and the basis for this determination is supported by the findings in the documents titled: Singh, Harinder, Ken Rider, Tuan Ngo, Josh Butzbaugh, and Kristen Driskell. 2014. *Staff Analysis of Toilets, Urinals, and Faucets.* California Energy Commission. Publication Number: CEC-400-2014-007-SD.
CASE Report, *Toilets & Urinals Water Efficiency* (July 29, 2013)

Dimming Fluorescent Ballasts

The Energy Commission determined that the proposed regulation action will not have a significant adverse economic impact on business and the basis for this determination is supported by the findings in the documents titled: Singh, Harinder, Ken Rider, Tuan Ngo, Josh Butzbaugh, and Kristen Driskell. 2014. *Staff Analysis of HVAC Air Filters, Dimming Fluorescent Ballasts, and Heat Pump Water Chilling Packages.* California Energy Commission. Publication Number: CEC-400-2014-006-SD.
CASE Report *Dimming Fluorescent Ballasts Codes and Standards Enhancement Initiative, (*August 5, 2013)

Air Filters

The Energy Commission determined that the proposed regulation action will not have a significant adverse economic impact on business and the basis for this determination is supported by the findings in the document titled: Singh, Harinder, Ken Rider, Tuan Ngo, Josh Butzbaugh, and Kristen Driskell. 2014. *Staff Analysis of HVAC Air Filters, Dimming Fluorescent Ballasts, and Heat Pump Water Chilling Packages.* California Energy Commission. Publication Number: CEC-400-2014-006-SD

Heat Pump Water Chilling Packages

The Energy Commission determined that the proposed regulation action will not have a significant adverse economic impact on business and the basis for this determination is supported by the findings in the documents titled: Singh, Harinder, Ken Rider, Tuan Ngo, Josh Butzbaugh, and Kristen Driskell. 2014. *Staff Analysis of HVAC Air Filters, Dimming Fluorescent Ballasts, and Heat Pump Water Chilling Packages.* California Energy Commission. Publication Number: CEC-400-2014-006-SD.

Incorporation of Federal Updates

Updating the federal standards contained in state regulation would have no impact on business because manufacturers are already obligated to follow the new standards under federal law.

A state agency that adopts or amends a regulation mandated by federal law or regulations, the provisions of which are identical to a previously adopted or amended federal regulation, shall be deemed to have complied with subdivision (b) if a statement to the effect that a federally mandated regulation or amendment to a regulation is being proposed. (Government Code section 11346.2(c))

H. Duplication or Conflicts With Federal Regulations (Gov Code Section 11346.2(B)(6)

Toilets, Urinals and Faucets

The proposed changes to the state regulations do not duplicate or conflict with federal regulations.

Dimming Fluorescent Ballasts

The proposed changes to the state regulations do not duplicate or conflict with federal regulations.

Air Filters

The proposed changes to the state regulations do not duplicate or conflict with federal regulations.

Heat Pump Water Chilling Packages

The proposed changes to the state regulations do not duplicate or conflict with federal regulations.

Incorporation of Federal Updates

The state regulations contain outdated federal standards which conflict with current federal standards. The purpose of these amendments is to ensure consistency with updated federal standards.