

Model Act for Establishing State Appliance and Equipment Energy and Water Efficiency Standards

Prepared by the
Appliance Standards Awareness Project, Boston, MA, and
American Council for an Energy-Efficient Economy, Washington, DC

Version for 2017 legislative sessions (updated January 2017)

This model act sets specific, up-to-date standards for selected commercial and residential products. These energy- and water-efficiency standards are based on various sources including ENERGY STAR specifications that have achieved high market shares, standards developed and adopted by the California Energy Commission, and other sources. If you have questions regarding this model act, contact Marianne DiMascio at the Appliance Standards Awareness Project at (339) 933-8140 or mdimascio@standardsASAP.org.

An Act Establishing Minimum Energy and Water Efficiency Standards for
Certain Products Sold in the State

1) Section 1. General Purpose.

- a) This Act establishes minimum efficiency standards for certain products sold or installed in the state.

2) Section 2. Findings.

- a) The legislature finds that:
 - i) Efficiency standards for certain products sold or installed in the state assure consumers and businesses that such products meet minimum efficiency performance levels, thus reducing energy and water waste and saving consumers and businesses money on utility bills.
 - ii) Such efficiency standards save energy and thus reduce pollution and other environmental impacts associated with the production, distribution, and use of electricity, natural gas, and other fuels.
 - iii) Such water efficiency standards save water and thus reduce the strain on the water supply. Furthermore, improved water efficiency can reduce or delay the need for water and sewer infrastructure improvements.
 - iv) Such efficiency standards can make electricity and natural gas systems more reliable by reducing the strain on systems during peak demand periods. Furthermore, improved efficiency can reduce or delay the need for new power plants, power transmission lines, and power distribution system upgrades as well as new and expanded gas pipelines.
 - v) Efficiency standards contribute to the economy of this state by helping to better balance supply and demand for both energy and water, thus reducing pressure that creates higher natural gas, electricity, and water prices. By saving consumers and businesses money on utility bills, efficiency standards help the state and local economy, since utility bill savings can be spent on local goods and services.

3) Section 3. Definitions.

- a) As used in the Act:
 - ii) “Commissioner” means the **[Commissioner of Energy Resources or the head of another appropriate implementing agency]**.

- iii) “Commercial hot-food holding cabinet” means a heated, fully enclosed compartment with one or more solid or transparent doors designed to maintain the temperature of hot food that has been cooked using a separate appliance. “Commercial hot-food holding cabinet” does not include heated glass merchandizing cabinets, drawer warmers, or cook-and-hold appliances.
- iv) “Compensation” means money or any other valuable thing, regardless of form, received or to be received by a person for services rendered.
- v) The following definitions refer to computers and computer monitors:
 - (1) “Computer” means a device that performs logical operations and processes data. A computer includes both stationary and portable units and includes a desktop computer, a portable all-in-one, a notebook computer, a mobile gaming system, a high-expandability computer, a small-scale server, a thin client, and a workstation. Although a computer is capable of using input devices and displays, such devices are not required to be included with the computer when the computer is shipped. A computer is composed of, at a minimum: 1) a central processing unit (CPU) to perform operations or, if no CPU is present, then the device must function as a client gateway to a server, and the server acts as a computational CPU; 2) ability to support user input devices such as a keyboard, mouse, or touch pad; and 3) an integrated display screen or the ability to support an external display screen to output information;
 - (2) “Computer monitor” means an analog or digital device of size greater than or equal to 17 inches and less than or equal to 61 inches, that has a pixel density of greater than 5,000 pixels per square inch, and that is designed primarily for the display of computer-generated signals for viewing by one person in a desk-based environment. A computer monitor is composed of a display screen and associated electronics. A computer monitor does not include: 1) displays with integrated or replaceable batteries designed to support primary operation without AC mains or external DC power (e.g., electronic readers, mobile phones, portable tablets, battery-powered digital picture frames); and 2) a television or signage display;
- vi) “Deep-dimming fluorescent lamp ballast” means a fluorescent ballast that is capable of operating lamps in dimmed operating modes at any number of levels at or below 50% of full output. The term shall only apply to lamp ballasts designed to operate one, two, three, or four T5 or T8 4-foot linear or U-shape fluorescent lamps.
- vii) “General service lamp” means (to be inserted upon DOE publication of an expected final rule).
- viii) The following definitions refer to high color rendering index (CRI) fluorescent lamps:
 - (1) “Fluorescent lamp” means a low-pressure mercury electric-discharge source in which a fluorescing coating transforms some of the ultraviolet energy generated by the mercury discharge into light, and includes only the following:
 - (a) Any straight-shaped lamp (commonly referred to as 4-foot medium bipin lamps) with medium bipin bases of nominal overall length of 48 inches and rated wattage of 25 or more.
 - (2) “Color rendering index” or “CRI” means the measure of the degree of color-shift objects undergo when illuminated by a light source as compared with the color of those same objects when illuminated by a reference source of comparable color temperature.
 - (3) “High color rendering index fluorescent lamp” means a fluorescent lamp with a color rendering index of 87 or greater.
- ix) “Plumbing fitting” means a device that controls and guides the flow of water in a supply system. The following definitions apply to plumbing fittings:
 - (1) “Faucet” means a lavatory faucet, kitchen faucet, metering faucet, or replacement aerator for a lavatory or kitchen faucet.
 - (2) “Flow rate” means the rate of water flow of a plumbing fitting.
 - (3) “Public lavatory faucet” means a fitting intended to be installed in nonresidential bathrooms that are exposed to walk-in traffic.
 - (4) “Replacement aerator” means an aerator sold as a replacement, separate from the faucet to which it is intended to be attached.

- (5) "Showerhead" means a device through which water is discharged for a shower bath and includes a body sprayer and handheld showerhead, but does not include a safety showerhead.
- (6) "Water use" means the quantity of water flowing through a showerhead or faucet, at point of use.
- x) "Plumbing fixture" means an exchangeable device, which connects to a plumbing system to deliver and drain away water and waste. The following definitions apply to plumbing fixtures:
 - (1) "Dual-flush effective flush volume" means the average flush volume of two reduced flushes and one full flush.
 - (2) "Trough-type urinal" means a urinal designed for simultaneous use by two or more persons.
 - (3) "Dual-flush water closet" means a water closet incorporating a feature that allows the user to flush the water closet with either a reduced or a full volume of water.
 - (4) "Urinal" means a plumbing fixture that receives only liquid body waste and conveys the waste through a trap into a drainage system.
 - (5) "Water closet" means a plumbing fixture having a water-containing receptor that receives liquid and solid body waste through an exposed integral trap into a drainage system.
 - (6) "Water use" means the quantity of water flowing through a water closet or urinal at point of use.
- xi) "Portable electric spa" means a factory-built portable electric spa or hot tub, supplied with equipment for heating and circulating water.
- xii) "Standby power" as applied to portable electric spas means the average power in standby mode, measured in Watts.
- xiii) "Small-diameter directional lamp" means a lamp that meets all of the following criteria:
 - (1) Capable of operation at 12 volts, 24 volts, or 120 volts;
 - (2) Has an ANSI ANSLG C81.61–2009 (R2014) compliant pin base or E26 base;
 - (3) Is a non-tubular directional lamp with a diameter of less than or equal to 2.25 inches;
 - (4) Has a lumen output of less than or equal to 850 lumens or has a wattage of 75 watts or less; and
 - (5) Has a rated life greater than 300 hours.
 - (6) Small-diameter directional lamp includes incandescent filament, LED, and any other lighting technology.
 - (7) Is not a "general service lamp."
- xiv) The following definitions refer to water coolers:
 - (1) "Water cooler" means a freestanding (i.e., not wall mounted, under sink, or otherwise building integrated) device that consumes energy to cool and/or heat potable water.
 - (a) "Cold only" units dispense cold water.
 - (b) "Hot and cold units" dispense both hot and cold water. Some units also offer room-temperature water.
 - (c) "Cook and cold units" dispense both cold and room-temperature water.
 - (2) "Storage-type" means thermally conditioned water is stored in a tank in the water cooler and is available instantaneously. Point of use, dry storage compartment, and bottled water coolers are included in this category.
 - (3) "On demand" means the water cooler heats water as it is requested, which typically takes a few minutes to deliver.
 - (4) "On mode with no water draw" means a test that records the 24-hour energy consumption of a water cooler with no water drawn during the test period.

4) Section 4. Scope.

- a) The provisions of this Act apply to:
 - i) Commercial hot-food holding cabinets;
 - ii) Computers and computer monitors;
 - iii) Deep-dimming fluorescent lamp ballasts;

- iv) Residential portable electric spas and residential exercise spas (also known as swim spas) and portions of combination spas/swim spas that are used for bathing and are operated by a private owner;
 - v) Plumbing fittings including lavatory faucets, kitchen faucets that are consumer products, and faucet aerators; public lavatory faucets and showerheads;
 - vi) Plumbing fixtures including urinals and water closets;
 - vii) Small-diameter directional lamps;
 - viii) Water coolers, including cold-only units, hot and cold units, and cook and cold units, but excluding—
 - (1) units that provide pressurized water and are not freestanding,
 - (2) air-source units, and
 - (3) units with a water source other than bottled or tap water;
 - ix) High CRI fluorescent lamps;
 - x) General service lamps; and
 - xi) Any other products as may be designated by the Commissioner in accordance with Section 7 or by operation of law under Section 8.
- b) The provisions of this Act do not apply to:
- i) New products manufactured in the state and sold outside the state;
 - ii) New products manufactured outside the state and sold at wholesale inside the state for final retail sale and installation outside the state;
 - iii) Products installed in mobile manufactured homes at the time of construction; or
 - iv) Products designed expressly for installation and use in recreational vehicles.

5) Section 5. Standards.

- a) Not later than one year after the date of enactment of this Act, the Commissioner, in consultation with **[heads of other appropriate agencies]**, shall adopt regulations, in accordance with the provisions of Chapter **[number of section in state law dealing with setting regulations]**, establishing minimum efficiency standards for the types of new products set forth in Section 4.
- b) The regulations shall provide for the following minimum efficiency standards:
- i) Commercial hot-food holding cabinets with an interior volume of 8 cubic feet or greater shall have a maximum idle energy rate of 40 watts per cubic foot of interior volume, as determined by the “idle energy rate-dry test” in ASTM Standard F2140-11, “Test Method for the Performance of Hot Food Holding Cabinets,” published by ASTM International. Interior volume shall be measured as prescribed in Version 2.0 of the ENERGY STAR program product specifications for commercial hot-food holding cabinets on which took effect on October 1, 2011.
 - ii) Computers and computer monitors shall meet the requirements of Section 1605.3 of Title 20 of the California Code of Regulations as adopted on December 14, 2016 as measured in accordance with test methods prescribed in Section 1604 of those regulations.
 - iii) Deep-dimming fluorescent lamp ballasts shall meet the requirements of Section 1605.3 of Title 20 of the California Code of Regulations as in effect on January 3, 2017 as measured in accordance with test methods prescribed in Section 1604 of those regulations.
 - iv) Portable electric spas shall meet the requirements of the “American National Standard for Portable Electric Spa Energy Efficiency” (ANSI/APSP/ICC-14 2014) as approved on September 12, 2014.
 - v) Plumbing fittings shall meet the following requirements:
 - (1) The flow rate of lavatory faucets, kitchen faucets, replacement aerators, and public lavatory faucets shall not be greater than the applicable values shown in Table 1 in accordance with the flow rate test procedure prescribed in Appendix S to Subpart B of Part 430 of Title 10 of the Code of Federal Regulations—“Uniform Test Method for Measuring the Water Consumption of Faucets and Showerheads” as in effect on January 3, 2017.

Table 1. Standards for faucets and aerators

Appliance	Maximum flow rate
Lavatory faucets and aerators	1.2 gpm at 60 pounds per square inch (psi) ^{1,2}
Kitchen faucets and aerators	1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
Public lavatory faucets and aerators	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]).	

(2) Showerheads shall meet:

- (a) The U.S. EPA WaterSense specifications for showerheads, Version 1.0, which took effect on February 9, 2010.
- (b) As measured in accordance with the test criteria prescribed in the WaterSense specifications for showerheads, Version 1.0 which took effect on February 9, 2010.

vi) Plumbing fixtures shall meet the following requirements:

- (1) The water consumption of urinals and water closets, other than those designed and marketed exclusively for use at prisons or mental health care facilities, shall be no greater than the values shown in items (1)(b)(i) through (1)(b)(iv) when tested in accordance with the:
 - (a) Water consumption test prescribed in Appendix T to Subpart B of Part 430 of Title 10 of the Code of Federal Regulations—“Uniform Test Method for Measuring the Water Consumption of Water Closets and Urinals”—as in effect on January 3, 2017.
 - (b) Waste extraction test for water closets (Section 7.10) of ASME A112.19.2/CSA B45.1-2013.
 - (i) Trough-type urinals shall have a maximum gallons per flush of:

$$\frac{\text{Trough length (in inches)}}{16}$$

- (ii) Wall-mounted urinals shall have a maximum flush volume of 0.125 gallons per flush. Other urinals shall have a maximum flush volume of 0.5 gallons per flush.
- (iii) Water closets, except for dual-flush tank-type water closets, shall have a maximum flush volume of 1.28 gallons per flush.
- (iv) Dual-flush tank-type water closets shall have a maximum effective flush volume of 1.28 gallons per flush.

vii) Small diameter directional lamps must have a rated life of 25,000 hours or greater and meet one of the following requirements:

- (1) have luminous efficacy of at least 80 lumens per watt.
- (2) have a minimum luminous efficacy of 70 lumens per watt or greater and a minimum compliance score of 165 or greater, where compliance is calculated as the sum of the luminous efficacy and CRI.

When tested in accordance with the test methods in Table K-1 of the California Code of Regulations, Section 1604 as in effect on January 3, 2017

viii) Water coolers shall have on mode with no water draw energy consumption less than or equal to:

- (1) 0.16 kilowatt-hours per day for cold-only and cook and cold units
- (2) 0.87 kilowatt-hours per day for hot and cold units—storage type; and
- (3) 0.18 kilowatt-hours per day for hot and cold units—on demand,

as measured in accordance with the test criteria prescribed in Version 2.0 of the ENERGY STAR program product specifications for water coolers which took effect on February 1, 2014.

- ix) High CRI fluorescent lamps shall meet or exceed the minimum lamp efficacy levels shown in Table 2, when tested in accordance with the test procedure prescribed in Appendix R to Subpart B of Part 430 of Title 10 of the Code of Federal Regulations—“Uniform Test Method for Measuring Average Lamp Efficacy (LE), Color Rendering Index (CRI), and Correlated Color Temperature (CCT) of Electric Lamps”—as in effect on January 3, 2017:

Table 2. Standards for high CRI lamps

Lamp type	Correlated color temperature	Minimum average lamp efficacy (lumens/watt)
4-foot medium bipin	≤ 4,500 K	92.4
	> 4,500 K and ≤ 7,000 K	88.7

- x) General service lamps shall meet or exceed a lamp efficacy of 45 lumens per watt, when tested in accordance with the applicable federal test methods for general service lamps, prescribed in Appendices R, W, BB, and DD to Subpart B of Part 430 of Title 10 of the Code of Federal Regulations as in effect on January 3, 2017.

6) Section 6. Implementation.

- a) On or after January 1, 2019, no commercial hot-food holding cabinet, desktop computer, thin client, mobile gaming system, portable all-in-one, notebook computer, deep-dimming fluorescent ballast, lavatory faucet, kitchen faucet, public lavatory faucet, portable electric spa, replacement aerator, showerhead, urinal, water closet, water cooler, or high CRI fluorescent lamp may be sold or offered for sale in the state unless the efficiency of the new product meets or exceeds the efficiency standards provided in Section 5.
- b) On or after July 1, 2019, no computer or computer monitor may be sold or offered for sale in the state unless the efficiency of the new product meets or exceeds the efficiency standards provided in Section 5.
- c) On or after January 1, 2020, no small-diameter directional lamp or general service lamp may be sold or offered for sale in the state unless the efficiency of the new product meets or exceeds the efficiency standards provided in Section 5.
- d) One year after the date upon which the sale or offering for sale of certain products becomes subject to the requirements of paragraph (a) or (b) or (c) of this section, no such products may be installed for compensation in the state unless the efficiency of the new product meets or exceeds the efficiency standards provided in Section 5.

7) Section 7. New and Revised Standards.

The Commissioner may adopt regulations, in accordance with the provisions of Chapter **[number of section in state law dealing with setting regulations]**, to establish increased efficiency standards for the products listed or incorporated in Section 4. The Commissioner may also establish standards for products not specifically listed in Section 4. In considering such new or amended standards, the Commissioner, in consultation with the **[heads of other appropriate departments]**, shall set efficiency standards upon a determination that increased efficiency standards would serve to promote energy or water conservation in the state and would be cost effective for consumers who purchase and use such new products, provided that no new or increased efficiency standards shall become effective within one year following the adoption of any amended regulations establishing such increased efficiency standards.

8) Section 8. Protection Against Repeal of Federal Standards

- a) If any of the energy or water conservation standards issued or approved for publication by the Office of the United States Secretary of Energy as of January 19, 2017 pursuant to the Energy Policy and Conservation Act (10 C.F.R. §§ 430-431) are withdrawn, repealed or otherwise voided, the minimum energy or water efficiency level permitted for products previously subject to federal energy or water conservation standards shall be the previously applicable federal standards and no such product may be sold or offered for sale in the state unless it meets or exceeds such standards.
- b) This section shall not apply to any federal energy or water conservation standard set aside by a court upon the petition of a person who will be adversely affected, as provided in 42 U.S.C. § 6306(b).

9) Section 9. Testing, Certification, Labeling, and Enforcement.

- a) The manufacturers of products covered by this Act shall test samples of their products in accordance with the test procedures adopted pursuant to this Act. The Commissioner may adopt updated test methods when new versions of test procedures become available.
- b) Manufacturers of new products covered by Section 4 of this Act shall certify to the Commissioner that such products are in compliance with the provisions of this Act. Such certifications shall be based on test results. The Commissioner shall promulgate regulations governing the certification of such products and shall coordinate with the certification programs of other states and federal agencies with similar standards.
- c) Manufacturers of new products covered by Section 4 of this Act shall identify each product offered for sale or installation in the state as in compliance with the provisions of this Act by means of a mark, label, or tag on the product and packaging at the time of sale or installation. The Commissioner shall promulgate regulations governing the identification of such products and packaging, which shall be coordinated to the greatest practical extent with the labeling programs of other states and federal agencies with equivalent efficiency standards. The Commissioner shall allow the use of existing marks, labels, or tags, which connote compliance with the efficiency requirements of this Act.
- d) The Commissioner may test products covered by Section 4. If products so tested are found not to be in compliance with the minimum efficiency standards established under Section 5, the Commissioner shall: (1) charge the manufacturer of such product for the cost of product purchase and testing, and (2) make information available to the Attorney General and the public on products found not to be in compliance with the standards.
- e) With prior notice and at reasonable and convenient hours, the Commissioner may cause periodic inspections to be made of distributors or retailers of new products covered by Section 4 in order to determine compliance with the provisions of this Act. The Commissioner shall also coordinate with the **[head of building code administration]** regarding inspections prior to occupancy of newly constructed buildings containing new products that are also covered by the **[State Building Code]**.
- f) The Commissioner shall investigate complaints received concerning violations of this Act and shall report the results of such investigations to the Attorney General. The Attorney General may institute proceedings to enforce the provisions of this Act. Any manufacturer, distributor, or retailer, or any person who installs a product covered by this Act for compensation, who violates any provision of this Act, shall be issued a warning by the Commissioner for any first violation and subject to a civil penalty of up to one hundred dollars for each offense. Repeat violations shall be subject to a civil penalty of not more than five hundred dollars for each offense. Each violation shall constitute a separate offense, and each day that such violation continues shall constitute a separate offense. Penalties assessed under this paragraph are in addition to costs assessed under paragraph (d) of this section.
- g) The Commissioner may adopt such further regulations as necessary to ensure the proper implementation and enforcement of the provisions of this Act.

10) Section 10. Severability of Provisions.

- b) The provisions of this Act shall be severable, and if the application of any clause, sentence, paragraph, subdivision, section, or part of this Act shall be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect, impair, or invalidate the application of any other clause, sentence, paragraph, subdivision, section, or part of this Act.