

## DOCKETED

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<b>Project Title:</b>	Residential Lavatory Faucets and Showerheads
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<b>Document Title:</b>	Public Hearing Presentation on Proposed Negative Declaration and Express Terms - March 17, 2015
<b>Description:</b>	HVAC Air Filters, Fluorescent Dimming Ballasts, Heat Pump Water Chilling Packages, Toilets, Urinals, Faucets, and Federal Updates - Efficiency
<b>Filer:</b>	Patty Paul
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# HVAC Air Filters, Fluorescent Dimming Ballasts, Heat Pump Water Chilling Packages, Toilets, Urinals, Faucets, and Federal Updates

Public Hearing on Proposed Negative Declaration and  
Express Terms  
First Floor, Art Rosenfeld Hearing Room

March 17, 2015

Harinder Singh, Ken Rider, and Tuan Ngo  
Appliances and Existing Buildings Office  
Efficiency Division



# Agenda

- ☐ Opening Remarks.
- ☐ Background and Overview.
- ☐ Staff presentation:
  1. Proposed Negative Declaration.
  2. HVAC Air Filters.
  3. Fluorescent Dimming Ballasts.
  4. Heat Pump Water Chilling Packages.
  5. Toilets, Urinals, Faucets.
  6. Federal Updates.
- ☐ Stakeholder Comments.
- ☐ Closing Remarks/Next Steps.



# Background and Overview

1. The Energy Commission is state's primary energy policy and planning agency, created by the Legislature in 1974.
2. The Energy Commission's appliance and building energy efficiency standards have saved Californians more than \$74 billion in reduced electricity bills since 1975.



# Appliance Efficiency – A Statutory Mandate

1. Warren-Alquist State Energy Resources Conservation and Development Act Public Resources Code Section 25402(c).
2. Requires the Energy Commission to adopt minimum levels of operating efficiency, and other cost-effective Energy Commission to promote the use of energy and water efficient appliances whose use requires a significant amount of energy or water on a statewide basis.



## Rulemaking Activities

- ❑ Scoping Workshop: August 31, 2011
- ❑ Order Instituting Rulemaking: March 14, 2012
- ❑ Staff Workshop: May 6, 2014
- ❑ Standardized Review Impact Assessment: December 3, 2014
- ❑ 45-Day Language: February 13, 2015
- ❑ 45-Day Language Public Hearing: March 17, 2015
- ❑ Adoption Hearing: May 13, 2015



# Purpose of Public Hearing

- ❑ Staff will clarify the scope of the proposed Negative Declaration and Regulations for HVAC Air Filters, Fluorescent Dimming Ballasts, Heat Pump Water Chilling Packages, Toilets, Urinals, Faucets, and Federal Updates Regulations.
- ❑ Allow Commissioner to receive comments on the proposed Negative Declaration and Regulations.



# Document Availability

- ❑ Proposed Negative Declaration and regulations for HVAC Air Filters, Fluorescent Dimming Ballasts, Heat Pump Water Chilling Packages, Toilets, Urinals, Faucets, and Federal Updates are available on the Energy Commission's website:  
<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=15-AAER-01> .
- ❑ Copies of rulemaking documents can also be obtained by contacting staff.

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# Comment Period

- ❑ Comment period for the proposed regulations 45-Day Language started on February 13 and will end on April 15.
- ❑ Comment period for negative declaration ends March 30, 2015.
- ❑ Oral and written comments will also be accepted at the Energy Commission adoption hearing scheduled for May 13.



# Next Steps and Adoption Hearing

- ❑ Staff will evaluate all oral and written comments received and make recommendations to the Energy Commission for the next step.
- ❑ Staff will respond to all oral or written comments in the Final Statement of Reasons (FSOR).
- ❑ At the adoption hearing the Energy Commission will consider whether to adopt the proposed regulations.
- ❑ The Energy Commission may also decide to issue changes to the proposed language, which will require an additional comment period.



# Public Assistance

If you need assistance commenting, please contact the  
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# Negative Declaration and Labeling Standards for HVAC Air Filter

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# Proposed Negative Declaration



# Initial Study/Proposed Negative Declaration

- ❑ The proposed negative declaration discusses the environmental impacts of adopting the proposed standards for HVAC Air Filters, Fluorescent Dimming Ballasts, Heat Pump Water Chilling Packages, Toilets, Urinals, Faucets, and Federal Updates.
- ❑ The study shows no adverse environmental impacts.



# Initial Study/Proposed Negative Declaration: Timeline

- ❑ Comment period for negative declaration ends March 30, 2015.
- ❑ Adoption hearing for proposed negative declaration is scheduled for May 13, 2015.



# Why Air Filter Labeling?

- ❑ Identify appropriate filter for HVAC equipment and system design
- ❑ Create a repository of air filter performance information
- ❑ Balance filter air flow resistance with HVAC equipment size, ductwork and other device losses
- ❑ Increase compliance with Title 24 regulations
- ❑ Level playing field for comparing air filter models
- ❑ Provide consumers information so they can purchase the appropriate air filter for their HVAC system.





# Title 24 Air Filter Requirements

- ❑ Efficiency shall be equal to or greater than MERV 6 (ASHRAE Standard 52.2), or a PSE rating equal to or greater than 50% in 3.0–10  $\mu\text{m}$  range (AHRI Standard 680). Section 150.0(m)12B
- ❑ Pressure drop shall conform to the max allowable clean-filter pressure drop determined according to Section 150.0(m)12Aii, as rated using AHRI Standard 680, for the applicable design airflow rate(s) for the system air filter device(s).



## Staff Proposal: Scope 1601 (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 residential buildings for use in forced-air heating or cooling equipment.



# Staff Proposal – Definitions 1602(c)

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

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

“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.

“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.

“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.



# Staff Proposal – Definitions 1602(c)

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

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

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

“Particle size” means the polystyrene latex (PSL) light-scattering equivalent size of particulate matter as expressed as a diameter in micrometers ( $\mu\text{m}$ ).

“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 ( $\mu\text{m}$ ). Particle size efficiency ratings are abbreviated as “PSE” in the required labels for air filters.

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



# Staff Proposal – Test Method 1604(c)

To measure 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

- ☐ Manufacturers are allowed to test one filter size and use scaling off from that for other sizes of the same grade.



# Proposed Requirements Section 1607

- ☐ Air filters reporting information determined in accordance with AHRI Standard 680-2009 shall be marked with the following information:
  1. Particle size efficiency (PSE) of the unit in three particle size ranges: 0.3-1.0, 1.0-3.0, 3.0-10 micrometers ( $\mu\text{m}$ ).
  2. Initial resistance for the range of airflow rates as published by the manufacturer, including the maximum rated airflow rate. The selected airflow rates shall be in multiples of 400 cfm. If the maximum rated airflow rate is not a multiple of 400 cfm, then report initial resistance at multiples of 400 cfm, and any fraction thereof, to include the maximum rated airflow rate.
  3. Mark the non-reported MERV information field as “N/A.”



# Proposed Requirements Section 1607

- ❑ Air filters reporting information determined in accordance with ASHRAE Standard 52.2-2012 shall be marked with the following information:
  1. Particle size efficiency (PSE) of the unit in three particle size ranges: 0.3-1.0, 1.0-3.0, 3.0-10 micrometers ( $\mu\text{m}$ ).
  2. Initial resistance for the range of airflow rates as published by the manufacturer, including the maximum rated airflow rate. The airflow rate values shall be 50%, 75%, 100% and 125% of the test airflow rate value determined in accordance with ASHRAE 52.2-2012.
  3. Minimum Efficiency Reporting Value (MERV).



# Proposed Label Requirements

Consumers and retailers can compare an existing filter with a new replacement filter.

Table Z

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

- ☐ Label format is provided above.
- ☐ Print or place label on air filter frame or pleat pack.
- ☐ If packaging obscures label, then also printed on packaging.





## Staff Proposal – Costs and savings

- ❑ Assuming two filter changes per year and an average of 1.25 filters per residential HVAC system, a consumer's annual incremental cost per air filter for labeling is \$0.08.
- ❑ The average energy benefit to a consumer for selecting the appropriate filter for his or her HVAC system is 3.78 kWh and 0.7 therms per year. This amounts to \$1.32 in annual monetary savings. The net benefit to the household is \$1.24 per year.



# Contact information

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15-AAER-01](https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=15-AAER-01)



# Deep-Dimming Fluorescent Ballasts and Heat Pump Water Chilling Packages

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# Description of dimming ballasts

- ❑ Dimming ballasts are designed to dim fluorescent lamps to less than full output.
- ❑ Products that are not capable of dimming to 50% or less are already covered by the US DOE.
- ❑ Ballasts can dim continuously, in discrete steps, or by switching a certain number of connected lamps off.
- ❑ To set a dimming level a ballast can be controlled by several industry standardized dimming signals including: low voltage DC, phase chopping, and digital communications.



# A Changing Dimming Ballast Landscape

- ❑ Historically dimming ballasts have represented a small fraction of all ballast shipments.
- ❑ California's Title 24 building efficiency regulations will cause a market shift towards a greater number of dimming ballasts.
- ❑ Dimming ballasts represent an energy saving opportunity through light "tuning," daylight adjustments, and other dimming opportunities where full output light would have been used.
- ❑ Currently dimming ballasts also represent energy consumption increase at higher outputs with lower ballast efficiency than required for fixed output ballasts, and in cases where dimmed light is used instead of no light.



# Title 24 Regulations

Figure 5: Table 130.1-A of Title 24

Luminaire Type	Minimum Required Control Steps (percent of full rated power)				Uniform level of illuminance shall be achieved by:
Linear fluorescent and U-bent fluorescent > 13 watts	Minimum one step in each range:				Stepped dimming; or continuous dimming; or switching alternate lamps in each luminaire, having a minimum of 4 lamps per luminaire, illuminating the same area and in the same manner
	20-40%	50-70%	80-85%	100%	

Source: Cal. Code Regs., tit. 24, pt. 6, § 130.1 and Table 130.1-A

Note: the 80-85% range is under revision to 75-85% in the proposed changes to Title 24 for the 2016 code.

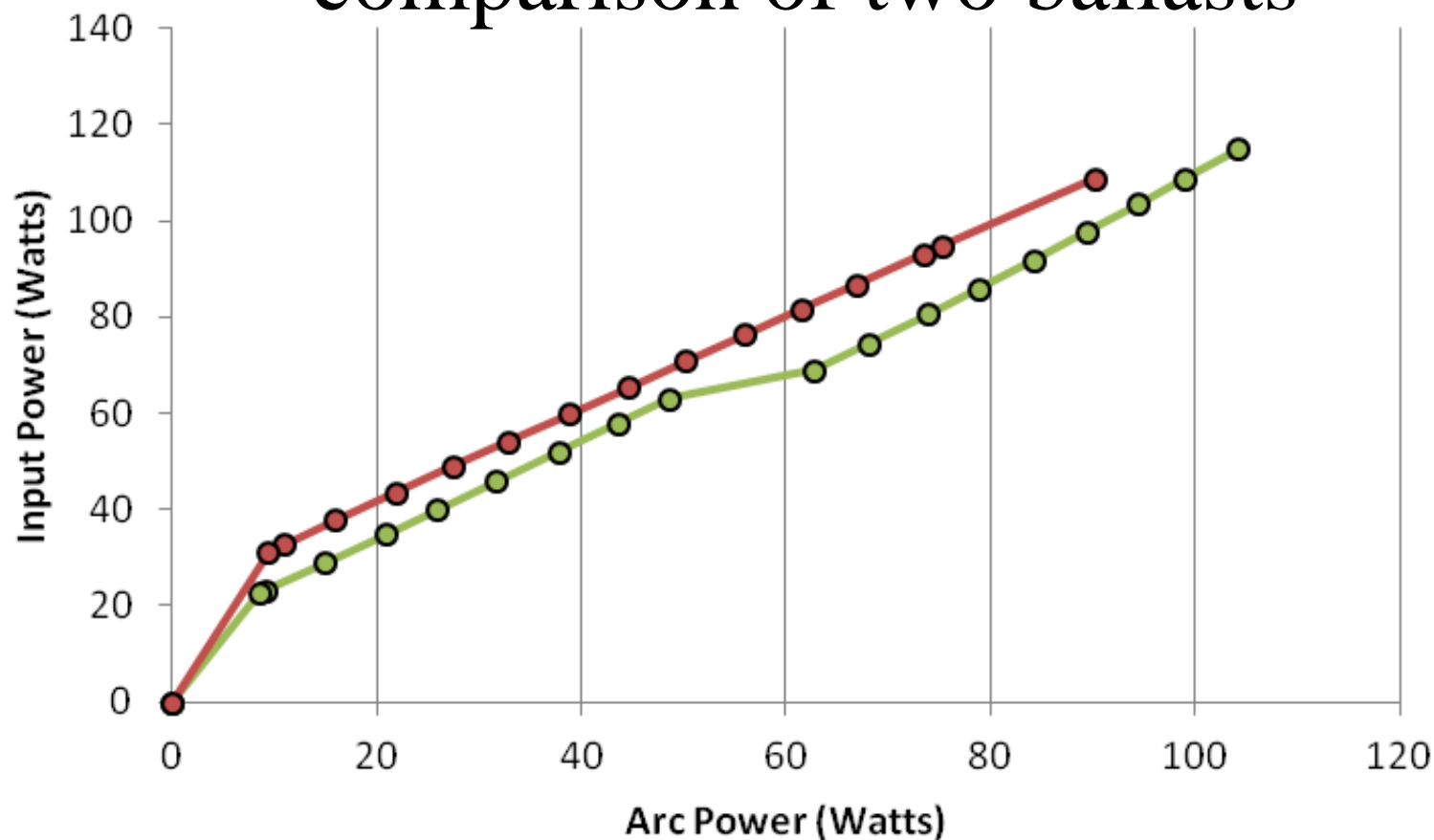


# Efficiency Testing

- ❑ The IOUs shared test data for 32 T8 and 7 T5 continuous dimming ballasts.
- ❑ Tests were conducted across the dimming range, at 5% increments of input power.
- ❑ Data revealed significant efficiency variation and opportunities.
- ❑ Dimming ballasts can be as much as 10% less efficient than comparable fixed-output are required to be by DOE.



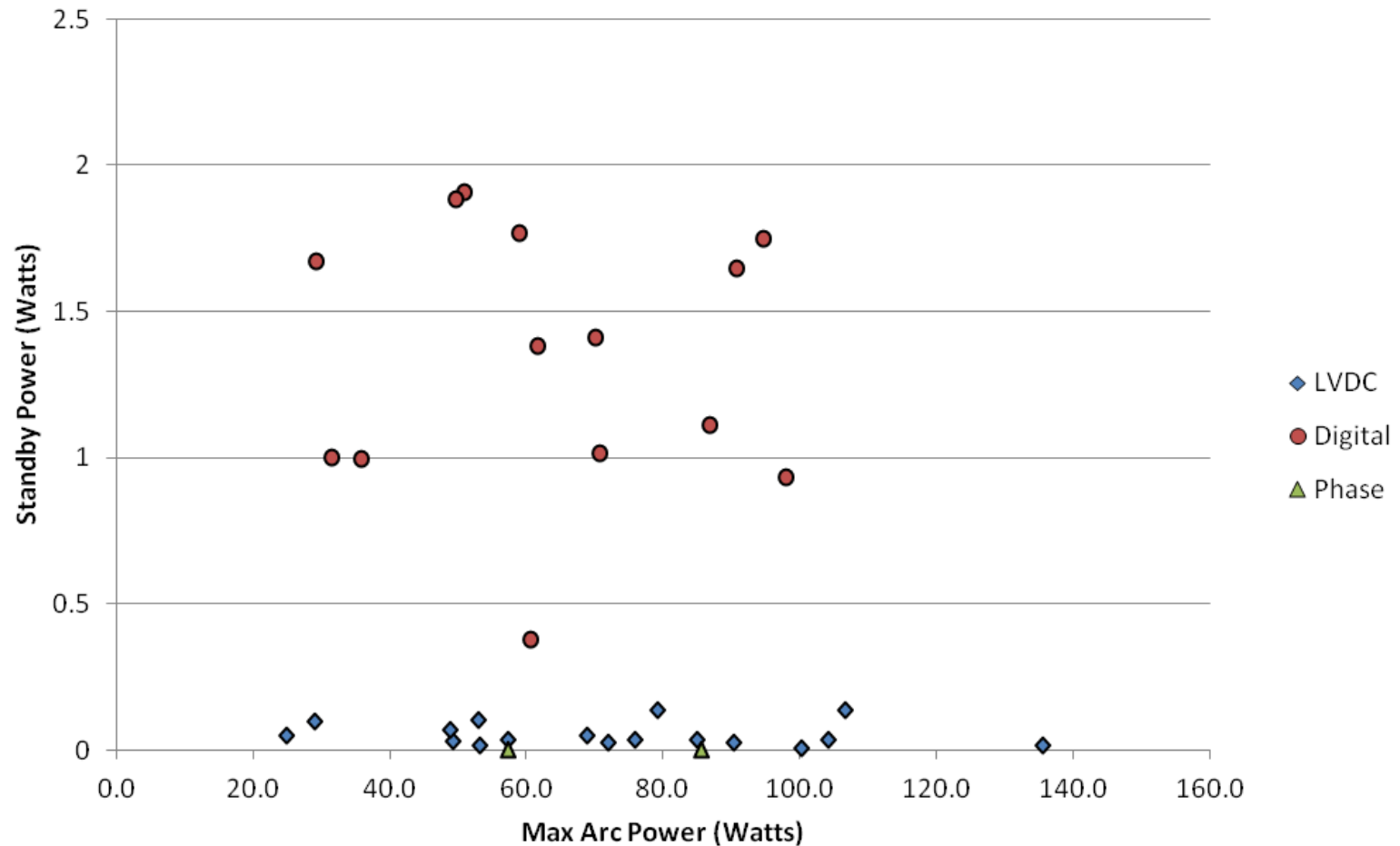
## Efficiency Opportunity – comparison of two ballasts





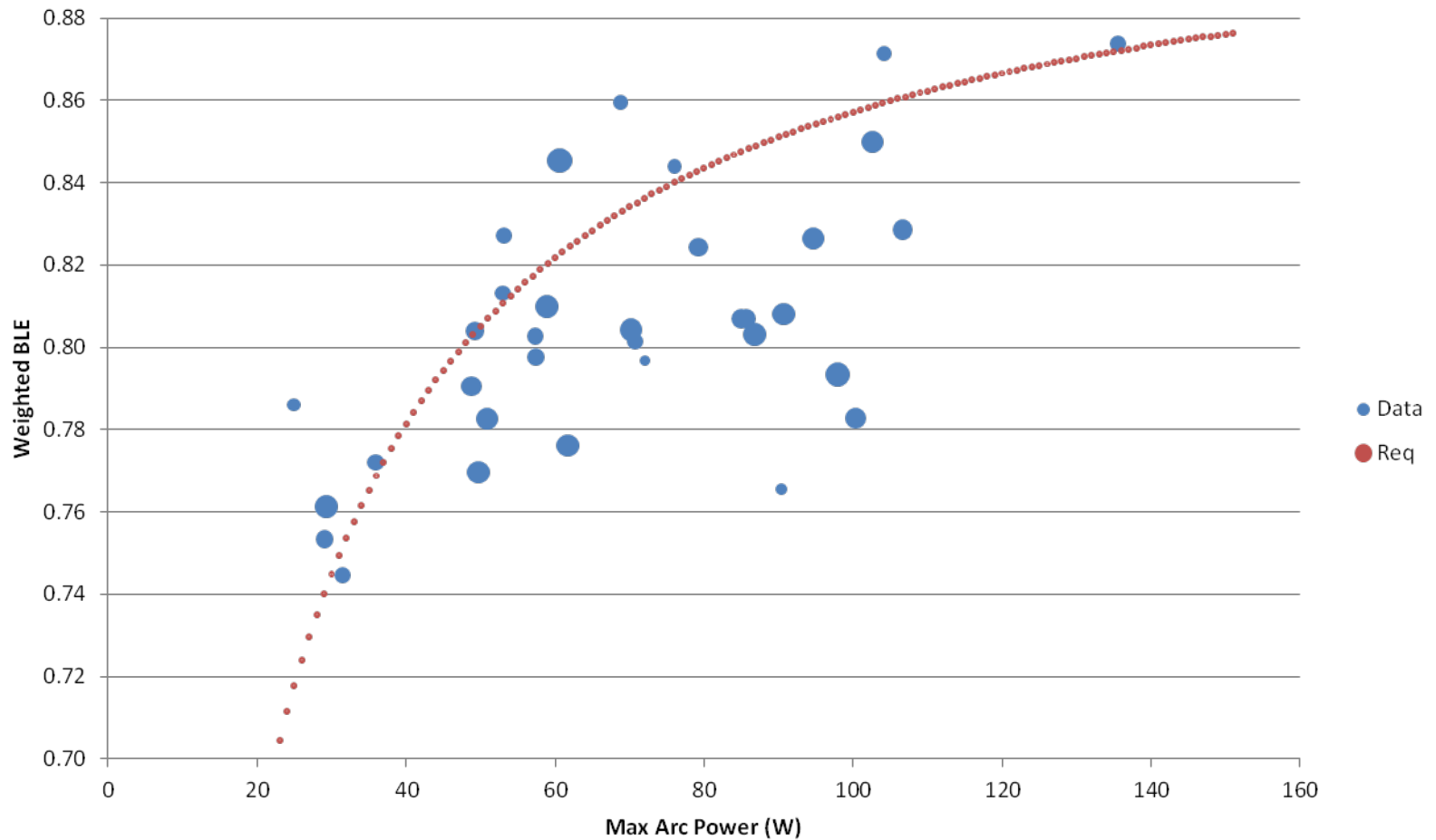


# Standby Opportunity





# Energy Use and Price





# Summary of Opportunities

- ❑ Improved BLE
  - Better components.
- ❑ Cathode Cut-out.
- ❑ Low Standby power.
  - Sleep modes.
  - Enhanced software protocols.



# Regulatory Approaches

- ❑ Expanding the DOE standard to cover additional dimming ballasts
  - BLE requirement at full output.
- ❑ IOU proposal
  - BLE requirement at 100, 80, and 50 percent output, standby mode power limit, requirements to minimize flicker.
- ❑ Design standard
  - Would require implementation of cathode cut-out.
- ❑ Annual Energy Use Performance Standard
  - Aggregates 100, 80, and 50 percent dimming points with standby power.



# Staff Proposal – Scope and Standard

- ❑ T8 and T5 fluorescent dimming ballasts that dim to 50% or below would be covered under the proposal.
- ❑ Staff proposes a standard for deep-dimming fluorescent ballasts that requires a minimum weighted BLE, a maximum standby power, and a minimum power factor.
- ❑ Regulated products would need to certify compliance with the standards in order to be sold or offered for sale in the state.



## Staff Proposal – Definitions 1602(j)

- ❑ Definitions for arc power, deep-dimming fluorescent ballast, input power, maximum arc power, and weighted ballast luminous efficacy are added to the Express Terms.
- ❑ A Deep-dimming fluorescent ballast is a fluorescent ballast capable of dimming below 50 percent output.
- ❑ Weighted ballast luminous efficacy is weighted average of ballast luminous efficacy measurements taken at 50, 80, and 100 percent outputs.



## Staff Proposal – Test Method 1604(j)

- ❑ Staff proposes to use the DOE test procedure for fluorescent ballasts:  
10 C.F.R. Section 430.23(q) (Appendix Q1 to Subpart B of part 430)
- ❑ Staff proposes some modifications
  - Describes the measurement of “max arc power.”
  - Sets specific selection rules for lighting controls.
  - Includes a methodology for measuring at dimmed states.
  - Defines measurement point for power factor at 100 percent output.



# Staff Proposal – Selection of Controls

- ❑ The proposed test procedure creates the following preference for lighting controls (from most preferred to least):
  - A lighting control from the same manufacturer.
  - A lighting control recommended by the manufacturer.
  - A lighting control selected by the lab technician.
- ❑ Further the lighting control with the minimum of additional functionality shall be selected.





# Staff Proposal – Testing in Dimmed States

- ❑ Testing at dimmed states is required using similar methodology as used to measure the full output state for fixed ballasts.
- ❑ The output is tuned based on arc power, and measurements are taken at 80% and 50% of maximum arc power using associated controls.
- ❑ For dimming ballasts that cannot be tuned to those levels the procedure requires the next closest level within a tolerance. If there is no such level, then that dimming level shall not be measured.
- ❑ For 80% dimming the range is 65%-90%, for 50% dimming the range is 35%-65%.



# Staff Proposal – Testing Standby Mode

- ❑ The staff proposal adds detail to standby mode testing.
- ❑ Describes the control setting that corresponds with standby mode.
- ❑ Requires a 90-minute waiting period before measuring standby mode
- ❑ Sets minimum sampling rate and test period to determine the average standby mode power.



# Staff Proposal – Calculating Weighted BLE

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

$$\begin{aligned} &\text{Weighted ballast luminous efficacy} \\ &= P_{100} \times w_{100} + P_{80} \times w_{80} + P_{50} \times w_{50} \end{aligned}$$

Time Variable	Measurements taken			
	P <sub>80</sub> , P <sub>50</sub>	P <sub>80</sub> , no P <sub>50</sub>	No P <sub>80</sub> , P <sub>50</sub>	No P <sub>80</sub> , No P <sub>50</sub>
w <sub>100</sub>	0.2	0.35	0.45	1
w <sub>80</sub>	0.5	0.65	0	0
w <sub>50</sub>	0.3	0	0.55	0



# Staff Proposal – Required Performance 1605.3(j)

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:

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

\*P100 is shorthand for maximum arc power



# Staff Proposal – Data Reporting

## Section 1606, “Table X”

- ☐ All dimming ballasts within the scope would be required to report:
  - ☐ Ballast Voltage.
  - ☐ Number of lamps it can power.
  - ☐ Lamp types it is compatible with.
  - ☐ Dimming type.
  - ☐ Control type.
  - ☐ Start type.
  - ☐ Input power at 100%, 80%, and 50% arc power.
  - ☐ Arc power at 100%, 80%, and 50% arc power.
  - ☐ Calculated weighted BLE.
  - ☐ Power factor at full output.



## Staff Proposal – Costs

- ❑ Test results of 32 dimming ballasts did not show any correlation between cost and efficiency.
- ❑ The DOE analyzed the cost of cathode-cutout and improving efficiency in their research on fixed output ballasts. Using that data staff estimates incremental costs to be:

Number of lamps	Incremental Cost
1	\$0.79
2	\$0.89
3	\$0.99
4	\$1.09



# Staff Proposal – Lifecycle analysis

<b>Number of Lamps</b>	<b>Design Life (years)</b>	<b>Annual Energy Savings (kWh/yr)</b>	<b>Annual Dollar Savings (\$)</b>	<b>Lifetime Dollar Savings (\$)</b>
1	13	4.6	\$0.67	\$8.71
2	13	9.3	\$1.36	\$17.68
3	13	13.4	\$1.96	\$25.48
4	13	18.2	\$2.66	\$34.58



## Staff Proposal – Statewide Savings

Number Of Lamps	Average Energy Consumption Baseline (kWh/yr)	Average Energy Consumption Standard (kWh/yr)	Annual Shipments 2016 (Thousand)	One year of shipment savings (GWh/yr)	Savings in the year 2029 (GWh/yr)
1	98.3	95.6	240	0.7	13
2	177.2	171.0	1,233	7.7	146
3	263.3	252.5	407	4.4	83
4	317.3	303.7	558	7.6	146
<b>TOTAL</b>	-	-	2,438	<b>20.4</b>	<b>388</b>





# Heat-Pump Water-Chilling Packages



# Purpose

- ❑ Builders, designers, inspectors, and standards development professionals in the state require repeatable and reliable information about product performance in order to meet energy design goals.
- ❑ Heat-pump water chilling packages did not have readily verifiable performance data. The Energy Commission's building regulations added testing and verification to table 110.2-D and certification through the buildings program.
- ❑ Energy Commission staff proposes to move these requirements into the Title 20 appliance standards, requiring all equipment be certified to the more robust appliance efficiency database before being sold, offered for sale, or installed after July 1, 2016.



## Scope and Test Procedure

- ❑ Staff proposes using ANSI/AHRI 550-590 (I-P) 2011 for equipment testing. The proposed test procedure is located in section 1604(c)(5)
- ❑ All equipment currently covered by table 110.2-D would be covered and any other product that meets the following definition (found in section 1602(c) of the proposed regulations):

*“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.”*



## Reported Data

- ❑ The full list of required report data is available in the proposed language in section 1606, “Table X” on page 38 of the express terms and includes performance data such as:
  - ❑ Heating and Cooling capacity.
  - ❑ Energy Efficiency Ratio (EER) for cooling.
  - ❑ Integrated Part Load Value (IPLV).
  - ❑ Coefficient of Performance (COP) for heating.
  - ❑ COPR of heat reclaiming.



# Contact Information

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etnumber=15-AAER-01](https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?dock<br/>etnumber=15-AAER-01)



# Water Efficiency Standards for Toilets, Urinals, and Faucets

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# Necessity of Proposed Standards

- ❑ We are in a serious drought.
- ❑ Current standards in place since 1992.
- ❑ AB 715 (Laird) Water conservation: low-flush water closets and urinals.
- ❑ Reducing water consumption of toilets, urinals, and faucets can save water and energy.



# Proposed Water Efficiency Standards

By July 1, 2016

- ❑ Toilets: 1.28 gpf and a minimum.  
MaP score of 350 grams or greater.
- ❑ Urinals: 0.125 gpf.
- \*Blowout toilets and urinals from prisons and mental health facilities are exempt.
- ❑ Residential lavatory faucets max flow: 1.5 gpm at 60 psi.  
min flow: 0.8 gpm at 20 psi.
- ❑ Residential kitchen faucets max flow: 1.8 gpm.  
Optional temporary max flow: 2.2 gpm.
- ❑ Public lavatory faucets max flow: 0.5 gpm.





## Staff Proposal – Section 1602 (h)

### Definitions:

“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.

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



## Staff Proposal – Section 1602 (i)

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

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

“MaP” means maximum flushing performance.

“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.



## Staff Proposal – Section 1604 (i)

Test Methods:

(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.



## Staff Proposal – Section 1605.3 (h)

### Regulations:

#### (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, replacement accessories, 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).



# Staff Proposal – 1605.3 (h)

**Table H-3: Standards for Plumbing Fittings**

<u>Appliance</u>	<u>Maximum Flow Rate</u>	
	<u>Manufactured prior to July 1, 2016</u>	<u>Manufactured on or after July 1, 2016</u>
<u>Lavatory faucets</u>	<u>2.2 gpm at 60 psi<sup>1,2</sup></u>	<u>1.5 gpm at 60 psi<sup>1,2</sup> and no less than 0.8 gpm at 20 psi</u>
<u>Kitchen faucets</u>	<u>2.2 gpm at 60 psi</u>	<u>1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi</u>
<u>Public lavatory faucets</u>	<u>2.2 gpm at 60 psi</u>	<u>0.5 gpm at 60 psi</u>
<p><sup>1</sup> <u>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.</u></p> <p><sup>2</sup> <u>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)).</u></p>		



## Staff Proposal – 1605.3 (i)

(i) (1) The water consumption of water closets, and urinals, 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 Table I-2.

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

Appliance	Maximum Gallons per Flush or Average Flush for Dual Flush	
	Manufactured on or after January 1, 2014	Manufactured on or after July 1, 2016
<u>All water closets</u>	<u>1.28</u>	<u>1.28</u>
<u>Trough-type urinals</u>	<u>Trough length (inches)</u> <u>16</u>	<u>Trough length (inches)</u> <u>16</u>
<u>Wall mounted urinals</u>	<u>0.5</u>	<u>0.125</u>
<u>Floor mounted urinals</u>	<u>0.5</u>	<u>0.5</u>

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



# Staff Proposal – Data Reporting

## Section 1606, “Table X”

Table X – Data Submittal Requirements

	Appliance	Required Information	Permissible
H	Plumbing Fittings	*Type	Showerhead, lavatory faucet (independent or collective), <u>public lavatory faucet</u> , kitchen faucet, metering faucet (independent or collective), lavatory replacement aerator, kitchen 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



# Staff Proposal – Data Reporting

## Section 1606, “Table X”

Table X – Data Submittal Requirements

	Appliance	Required Information	Permissible
I	Plumbing Fixtures	*Type	Blowout water closet, gravity tank type water closet, <u>dual-flush water closet</u> , 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 ( <u>dual-flush effective flush volume for dual-flush water closet</u> )	
		MaP Score ( <u>for water closet only</u> )	
		Trough Length ( <u>trough-type urinals only</u> )	





# Current Usage

## Baseline Annual Water, Electricity, and Natural Gas Consumption

	Water (Mgal)	Embedded Electricity (GWh)	Hot Water Electricity (GWh)	Hot Water Natural Gas (MTherms)
<b>Residential toilets</b>	100,577	1,010	N/A	N/A
<b>Commercial toilets</b>	10,000	100	N/A	N/A
<b>Urinals</b>	4,213	42.3	N/A	N/A
<b>Residential lavatory faucets</b>	105,780	1,063	1,606	347
<b>Kitchen faucets</b>	201,073	2,020	3,052	660
<b>Public lavatory faucets</b>	22,118	222	N/A	72.6
<b>Total</b>	<b>443,800</b>	<b>4,450</b>	<b>4,660</b>	<b>1,080</b>



# Proposed Standards' Cost-Effectiveness

- ❑ Cost of efficient toilets, urinals, and faucets is no different than the older, less efficient units.
- ❑ Consumers and businesses can reap the savings immediately after installation.



# Proposed Standards' Feasibility

- ❑ Toilets and Urinals.
  - Better Gravity-Flush Tank-Type Toilets.
  - Redesigned Flush Valve.
  - Pressure-Assisted Flushometer Tank.
  - Flapperless Gravity Flush.
  - Vacuum-Assisted Toilet.
  - Dual-Flush Toilets.
  - Maximum performance testing.
- ❑ Faucets.
  - Smaller hole gaskets.



# Proposed Standards' Feasibility

Compliant products from the Energy Commission database:

- ☐ Toilets: 49% tank type  
26% flush-o-meter  
11% dual flush
- ☐ Urinals: 17%
- ☐ Residential lavatory faucets: 53%
- ☐ Residential kitchen faucets: 33%
- ☐ Public lavatory faucets: 100%

Numerous compliant models are available for sale, indicating that qualifying products are technically feasible and readily available in California.



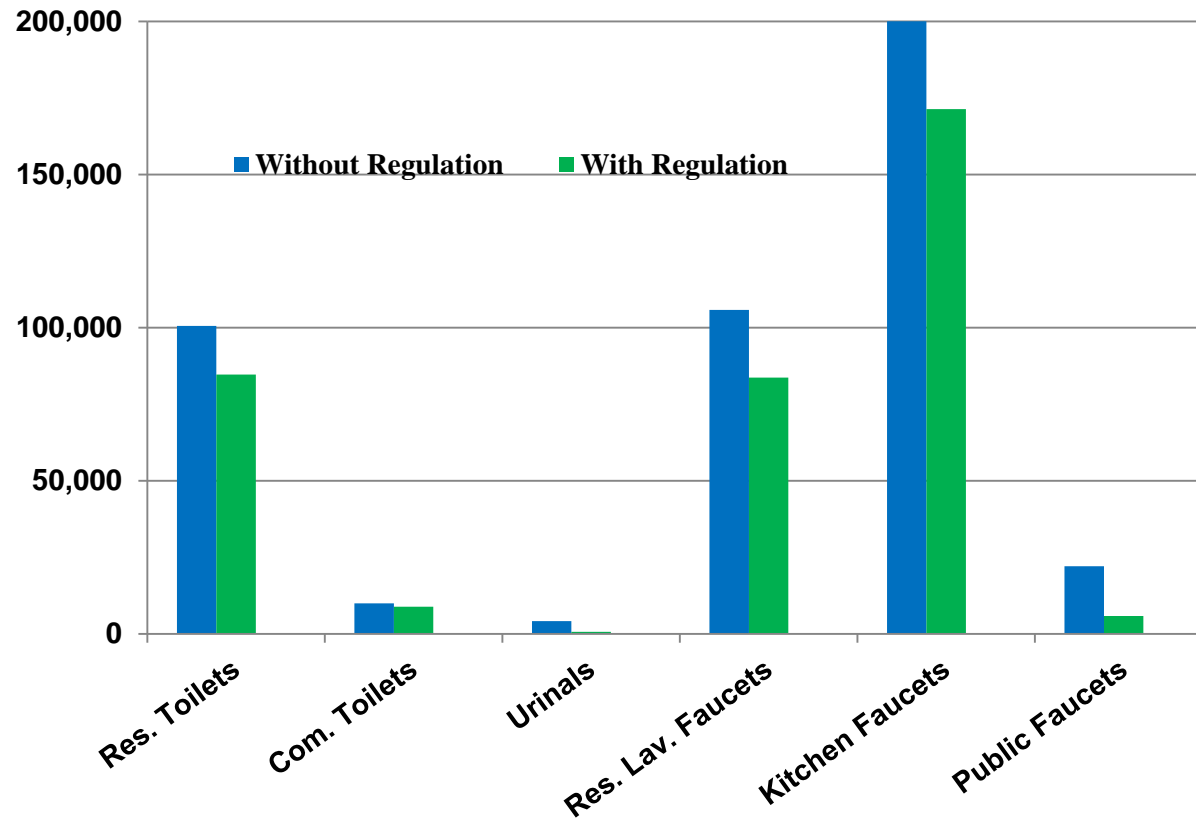
# Benefits

1. Reduce water demand.
2. Avoid costly construction of large water projects.
3. Save energy.
4. Reduce utilities' operating costs.
5. Reduce criteria air contaminants.
6. Reduce green house gases.



# Water Savings

Water  
Consumption  
in million  
gallons





# Contact Information

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Submit comments at:

<https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=15-AAER-01>



# Federal Updates

Express terms proposes changes to:

Section 1602: Definitions

Section 1604: Test Method for Specific Appliances

Section 1605.1: Federal and State Standards for Federally-Regulated Appliances

Section 1606: Table X





# Comment Process

- ❑ Comments due April 15, 2015
- ❑ Submit comments electronically to:  
<https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=15-AAER-01>

or

- ❑ Send a hard copy to  
California Energy Commission

Dockets Office, MS-4

Re: Docket No. 15-AAER-1

1516 Ninth Street

Sacramento, CA 95814-5512

- ❑ AND send a digital copy to:  
[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

Please include Docket No. 15-AAER-1 in the subject line.