

DOCKETED

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Project Title:	Sprinkler Spray Bodies
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Description:	By Sean Steffensen, for the March 14, 2018 staff workshop for proposed appliance efficiency regulations on spray sprinkler bodies
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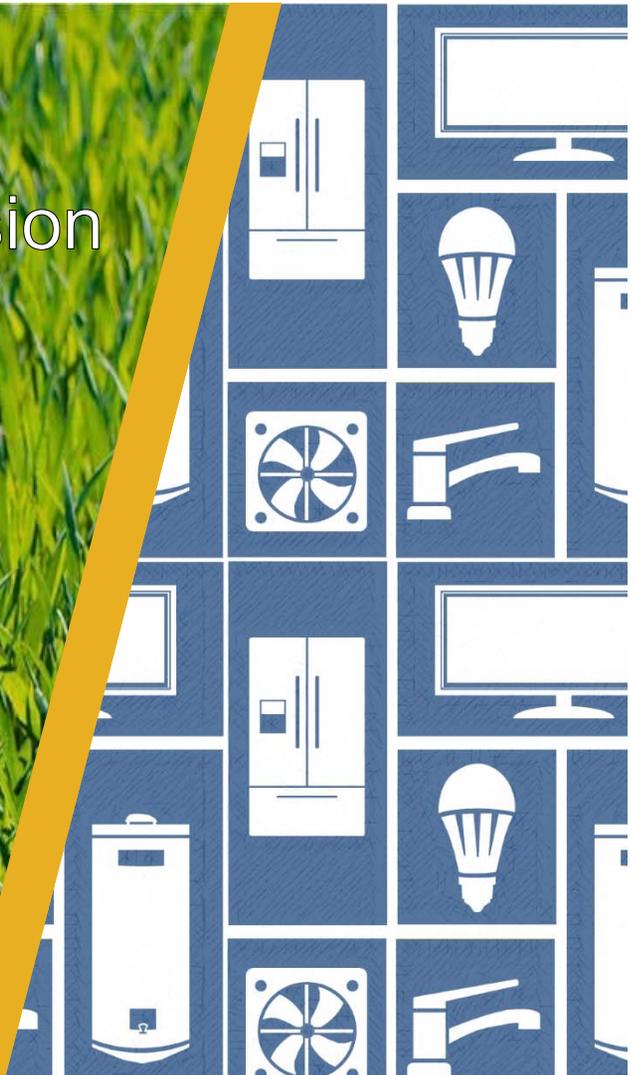


California Energy Commission

Public Meeting for Spray Sprinkler Body Standards

Phase II: Appliance Efficiency Pre-Rulemaking
Appliances and Outreach & Education Office
Efficiency Division

Sean Steffensen, PE
Rosenfeld Hearing Room
March 14, 2018





Presentation Agenda

Introduction
Staff Proposal
Technical Feasibility
Savings Methodology
Cost Effectiveness
Statewide Energy Savings
Discussion Items
Comments

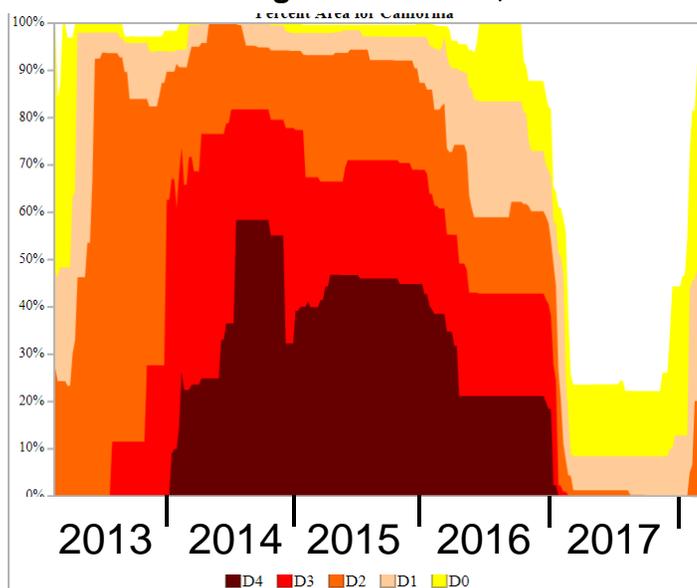




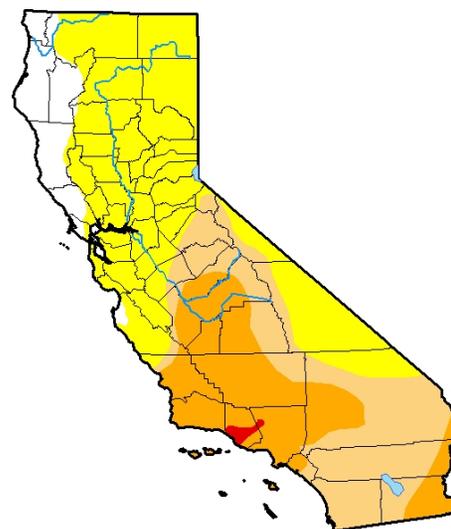
Making Water Conservation a California Way of Life

Widespread, careful use of water will help us cope no matter how conditions change.

California Drought Conditions, 2013-2018



U.S. Drought Monitor, March 8, 2018



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

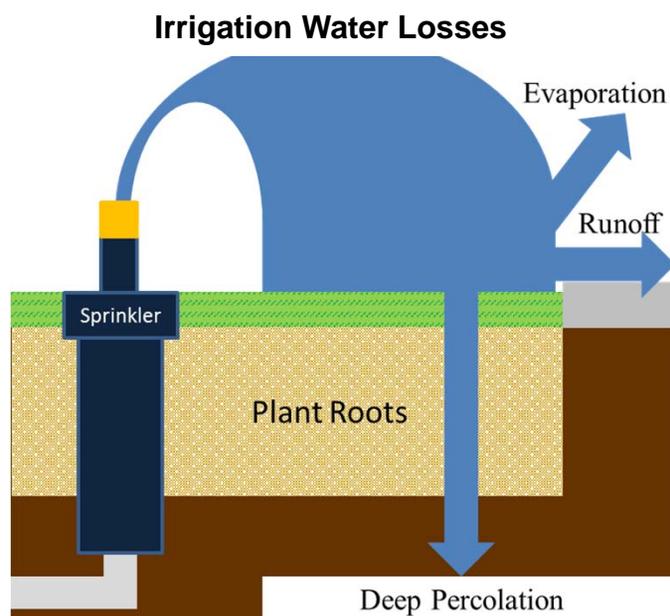


<http://droughtmonitor.unl.edu/>



Making Water Conservation a California Way of Life

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Staff Proposal

Set SSB minimum performance standard and test method to the EPA *WaterSense Specification for Spray Sprinkler Bodies, V1.0*.

Establish SSB certification and marking requirements.

Set a SSB standard complementary to the WaterSense specification.





Staff Proposal

The draft staff report contains proposal details

http://docketpublic.energy.ca.gov/PublicDocuments/17-AAER-08/TN222562_20180214T154205_Draft_Staff_Report_Staff_Analysis_of_Water_Efficiency_Standard.pdf

Staff seeks public comments on the proposal



Scope

All spray sprinkler bodies and spray sprinkler bodies within spray sprinklers

IN



Spray Sprinklers

OUT



Rotor Sprinklers

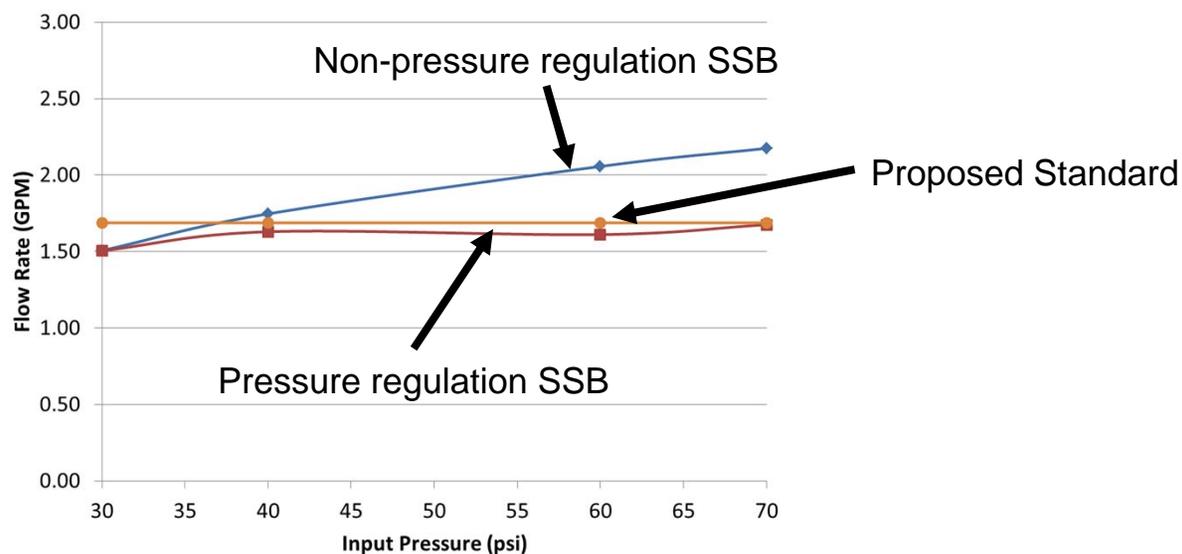
Valve-in-head Sprinklers

Detachable Sprinklers



Proposed Performance Metrics

SSB output flow rate at various input pressures as compared to initial calibration flow rate

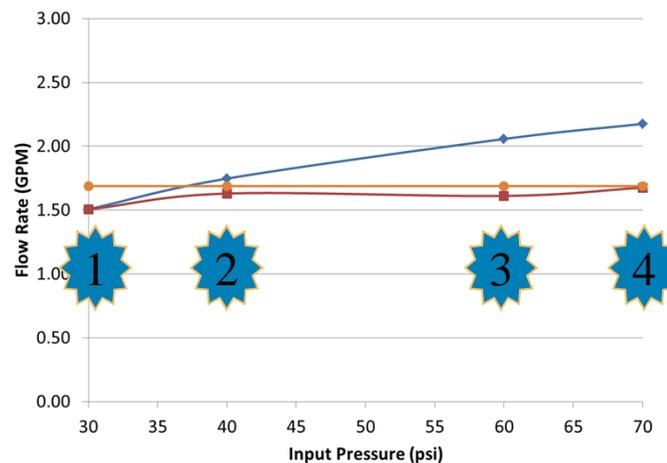




Proposed Test Points

Measure performance per WaterSense Specification

- ▶ 4 pressure at 2 flow rates
 - ▶ 1.5 gpm flow rate to verify performance to standard
 - ▶ 0.75 gpm flow rate to report performance (no standard)





Proposed SSB Standard

3 Performance Requirements

- ▶ The maximum flow rate at any tested pressure level shall not exceed +/- 12.0 percent.
- ▶ The average flow rate across all tested pressure levels shall not exceed +/- 10.0 percent.
- ▶ The average outlet pressure at the initial calibration point shall not be less than 67 percent of the regulation pressure.

The performance requirements are identical to WaterSense



Certification and Marking Requirements

Manufacturers would be required to certify each model of spray sprinkler body to the Energy Commission's appliance efficiency database.

Manufacturers would be required to mark each SSB with:

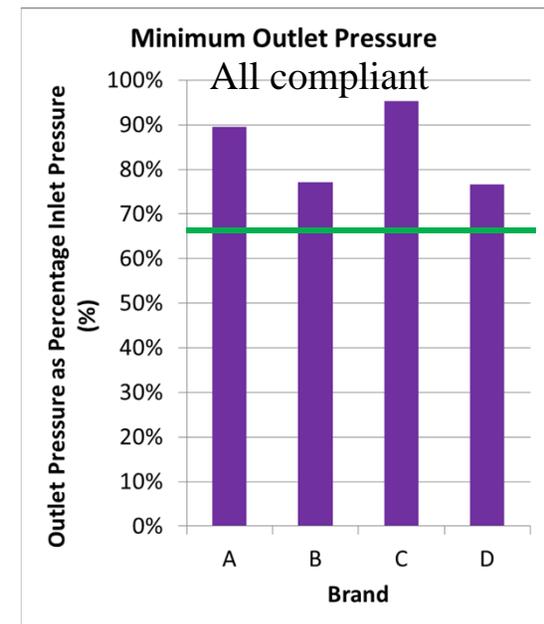
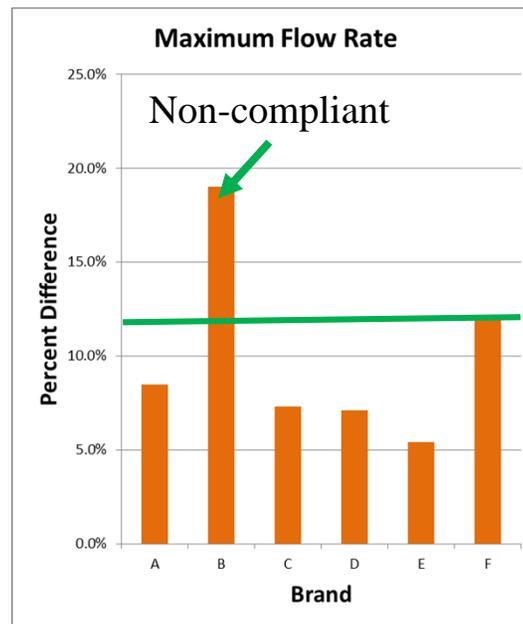
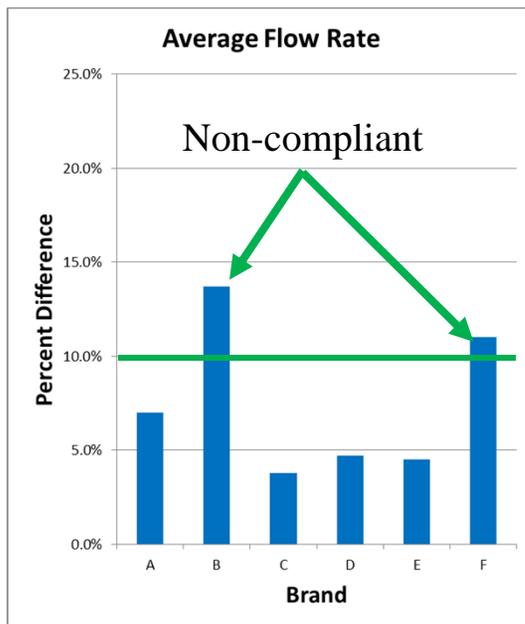
- ▶ Manufacturer name
- ▶ Brand name or trademark
- ▶ Model number
- ▶ Date of manufacture
- ▶ Regulation pressure and the maximum operating pressure
- ▶ Marking may be on unit, or unit packaging

The presence of integral pressure regulation shall be marked on a spray sprinkler body in a location visible after installation.



Technical Feasibility

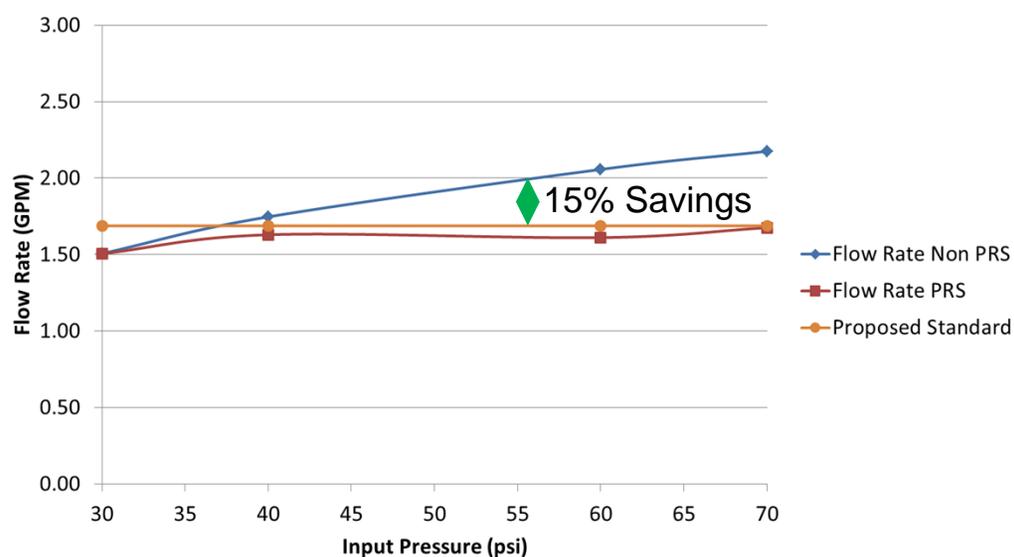
Proposed standards can be met with existing technology





Savings Methodology

The water savings are calculated by comparing non-compliant products to the proposed standard.





Cost Effectiveness

Proposed standards are cost effective.

Product	Design Life (years)	Water Savings (gal/yr)	Embedded Electricity Savings (kWh/yr)	Incremental Costs (\$)	Average Annual Savings (\$/yr)	Lifecycle Benefit (\$)
Spray Sprinkler Bodies	10	442	1.6	\$4.68	\$2.69	\$18.26

Lifecycle benefit includes savings discounted at 3%

▶ $\$18.26 = 10 \text{ yrs} \times \$2.69/\text{yr} - \$4.68(\text{inc cost}) - \$3.96 \text{ (discounted savings)}$



Statewide Water and Monetary Savings

Water Savings

Product Type	Statewide 1st Year (MM gal/yr)	Embedded Electricity 1st Year (GWh/yr)	Statewide Stock (MM gal/yr)	Embedded Electricity Stock (GWh/yr)
Spray Sprinkler Bodies	8,353	30	83,526	298

Monetary Savings

Product Type	First Year			Stock Savings		
	Water Delivery (M\$/yr)	Embedded Electricity (M\$/yr)	Total (M\$/yr)	Water Delivery (M\$/yr)	Embedded Electricity (M\$/yr)	Total (M\$/yr)
Spray Sprinkler Bodies	\$50.8	\$4.3	\$55.0	\$507.8	\$42.6	\$550.4



Comparison to Previous Water Standards

Stock Turnover Savings



Showerheads
38 Bgal/yr



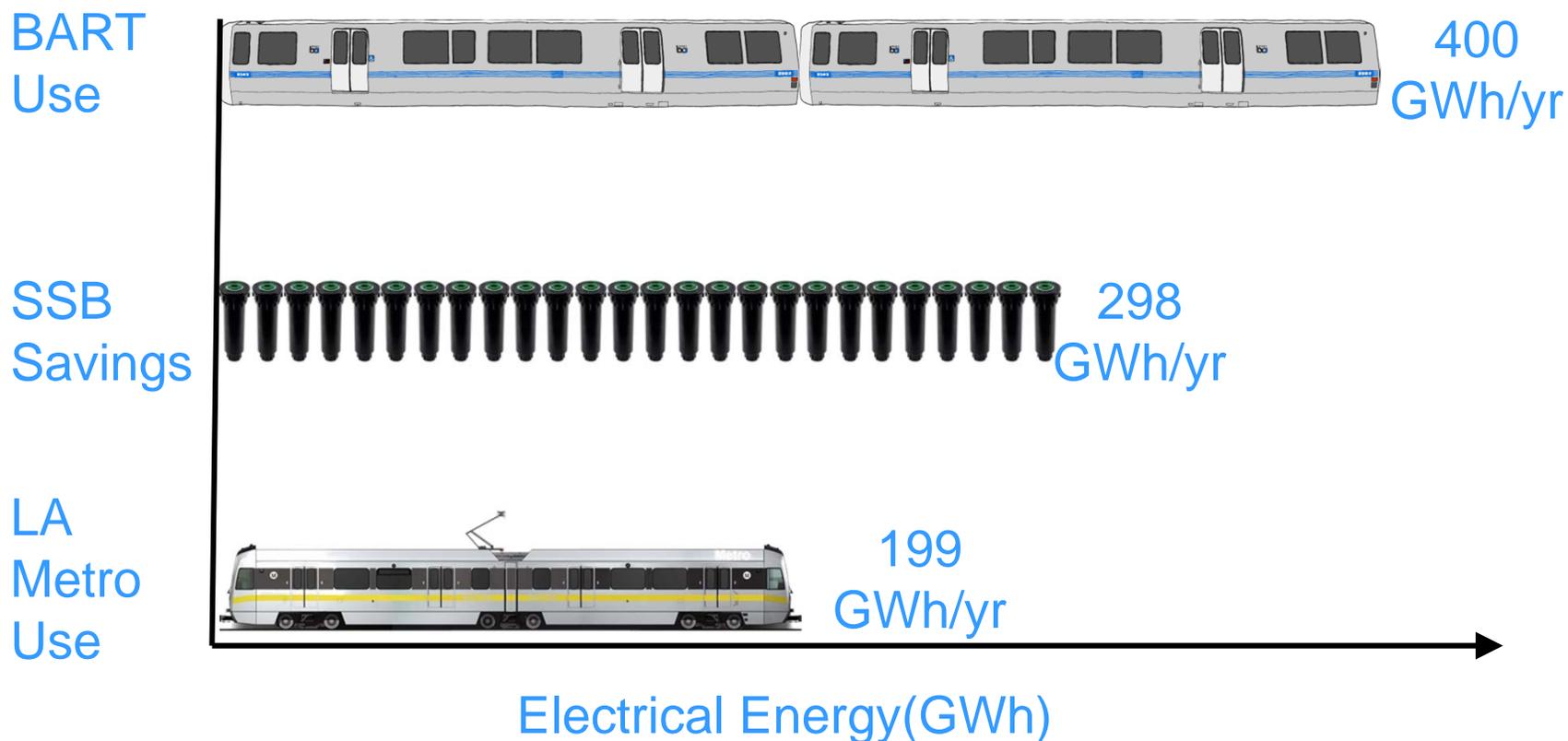
Spray Sprinkler
Bodies
84 Bgal/yr



Toilets,
Faucets,
and Urinals
87 Bgal/yr



Comparison of Energy Savings





Discussion Items

Comments on the scope?

- ▶ What should be included or excluded?
- ▶ What other landscape watering devices should be considered?
- ▶ If so should they be in or out of scope?

What comments are there on the product definitions?

Should the Commission consider other definitions?



Discussion Items

Test procedure flow rate

- ▶ Comments on the 1.5 GPM test flow rate?
- ▶ Comments on the 0.75 GPM test flow rate?

Comments on test burden, industry acceptance, accuracy and repeatability, and ability to rank order performance



Discussion Items

Comments on pressure regulation standard levels and product availability?

How does the staff proposal compare to other state or federal regulations?

Comments on product marking and certification requirements?



Discussion Items

Comments on estimated statewide water savings?

Comments on incremental cost to meet staff proposal?

Comments on cost effectiveness of staff proposal?



Discussion Items

Does the product lifetime vary between pressure regulating and non-pressure regulating SSBs?

Does the maintenance or repair cost vary between pressure regulating and non-pressure regulating SSBs?



Discussion Items

Comments on impacts to small businesses or businesses located within California

Are sales of SSBs likely to change due to the proposed regulation?

Are factories or businesses within California likely to expand due to this regulation?



Discussion Items

Will pressure regulating SSBs change user watering behavior?

What happens if one pressure regulating SSB is added to an irrigation system with non-pressure regulation SSB?

What other approaches should staff consider for water savings?



Written Comments

Comments due by 5:00 p.m. on April 2, 2018.

To submit electronically:

- ▶ <http://www.energy.ca.gov/appliances/2017-AAER-08/rulemaking/>
- ▶ Click on “Submit eComment”

To send a hard copy:

California Energy Commission
Dockets Office, MS-4
Re: Docket No. [17-AAER-08]
1516 Ninth Street
Sacramento, CA 95814-5512

To send a digital copy: docket@energy.ca.gov , include docket number 17-AAER-08 and indicate the appliance type in the subject line



Thank You!

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Q&A?