

Appliance Efficiency Standards: An Update on State and Federal Actions

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Outline

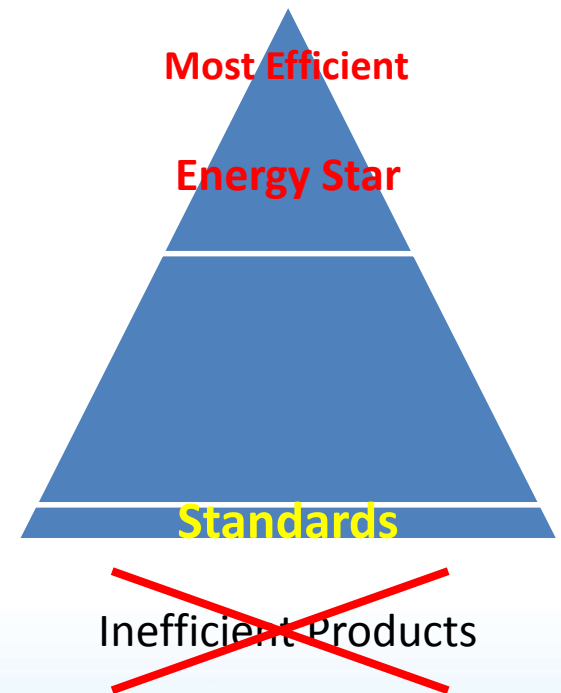
- Appliance efficiency standards overview
- Update on federal standards
- Update on state standards
- Opportunities for states with 111d

Appliance Standards Awareness Project

- [ASAP](#) is dedicated to advancing cost-effective efficiency standards for appliances and equipment at both the state and national level
- Steering committee includes consumer groups, utilities, state government, environmental groups, and energy-efficiency groups
- Founded in 1999

The Basics

- Standards set minimum energy- and water-efficiency levels for:
 - Appliances
 - Equipment
 - Lighting
- Standards remove the most inefficient products from the market while retaining a broad array of consumer choice



Federal and State Standards

- At the national level, standards apply to the manufacture and import of products
- At the state level, to their sale or installation

Federal/State Interplay

- National
 - Congress establishes initial national standard
 - Department of Energy updates them
- State
 - In most states, the legislature sets state standards; some states have regulatory boards e.g. California Energy Commission
- Interplay
 - State standards have historically led to strong national standards

Energy Savings = Total U.S. Energy Consumption for Two Years

ENERGY SAVINGS

Existing Standards *SAVE 200 QUADS*
of Energy by 2035

That's enough to meet
the total U.S. energy needs
for **two years!**



Consumers Save

National standards are already saving the average household \$500 annually in reduced utility bills



As new standards are adopted, household savings will continue to grow

Recent Federal Activity

New National Standards	Effective Date	Energy Savings over 30 years	CO2 reductions over 30 years
External Power Supplies	Feb 2016	.94 quads*	47 MMT
Electric Motors	May 2016	7.0 quads	395 MMT
Metal Halide Light Fixtures	Feb 2017	.44 quads	25 MMT
Commercial Refrigeration	Mar 2017**	2.9 quads	142 MMT
Walk-in Coolers and Freezers	June 2017**	3.2 quads	159 MMT
Furnace Fans	July 2019	4.0 quads	180 MMT

*quadrillion Btu; total U.S. energy consumption in 2012 was 95.02 quads

**Lawsuits filed; may delay effective date

Upcoming standards

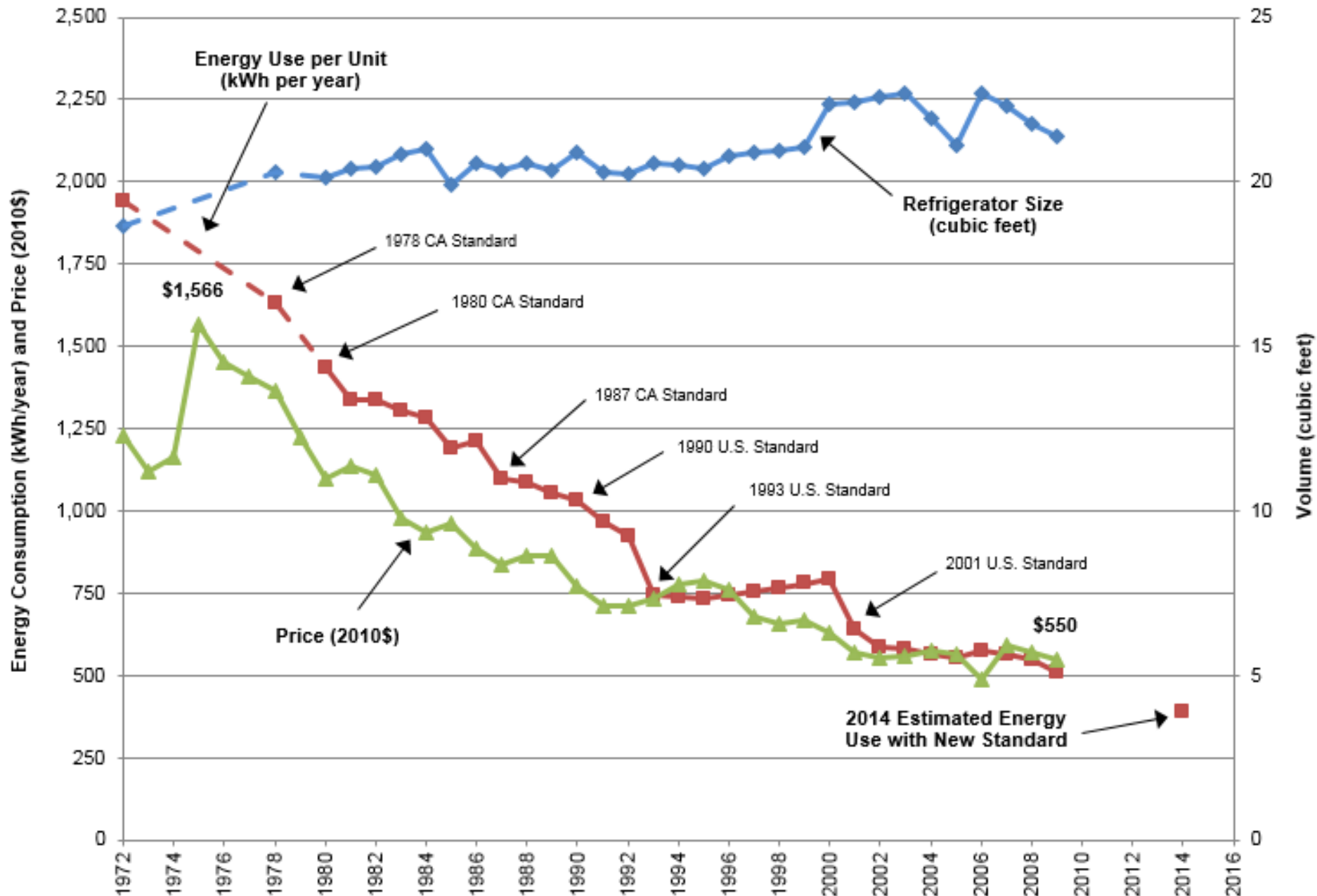
Product	Date Final Rule Due
General Service Fluorescent Lamps	November 2014
Incandescent Reflector Lamps	November 2014
Automatic Icemakers	January 2015
Commercial Clothes Washers	January 2015
HID Lamps	April 2015 (proposed rule overdue)
Commercial A/C (rooftop units)	July 2015 (proposed rule overdue)
Residential Furnaces	December 2015 (proposed rule due Nov 2014)

For more details see schedule [by date](#) and [by product](#) on the ASAP website

Other Federal Items of Note

- Refrigerator standards go into effect September 15th
 - 20-25% efficiency improvement
- Gas furnace rulemaking
 - Prior standards were vacated following lawsuit and DOE settlement
 - Proposed rule due in November; final rule December 2015
- Enforcement for regional air conditioning standards
 - Appliance standards advisory committee (ASRAC) meeting this fall
 - Diverse group of stakeholders
 - Opportunity to comment

Average Household Refrigerator Energy Use, Volume, and Price Over Time



State Standards Activity

- **Oregon:** Battery chargers, televisions, double-ended quartz halogen lamps (2013)
- **California:** battery chargers (2012)
- **Connecticut:** Televisions, compact audio and DVD (2012)
- **2007-2009:** 10-12 states passed standards based on CA standards

State with Standards in Effect



Standards Preempted
MA, NJ, NH, VT

Preemption

- In general, federal standards preempt state standards
 - At time of federal enactment, for states without standards
 - At time of federal implementation, for states with standards
- HOWEVER, no state standard has EVER been preempted by a weaker federal standard
- For some products, preemption sunsets if DOE fails to improve standards over time (e.g. toilets, faucets, urinals)

ASAP Model Bill

- 2015 products
 - Battery Chargers
 - Bottle-type water dispensers
 - Commercial dishwashers
 - Commercial hot-food holding cabinets
 - Double-ended quartz halogen lamps
 - Plumbing products: residential lavatory faucets, toilets and urinals
 - Portable electric spas
 - Room air cleaners
- ASAP provides [state savings analysis](http://www.appliance-standards.org/sites/default/files/fedappl_ga.pdf)
 - http://www.appliance-standards.org/sites/default/files/fedappl_ga.pdf

Sample MA Savings Table

Massachusetts

Products	Annual Savings per Unit		Incremental Cost per Unit	Annual Savings in 2025					Annual Savings in 2035					Economics			Cumulative Energy Savings Through 2035
	Amount	Unit		Electricity	Natural Gas	Water	CO ₂ Emissions	Value of Bill Savings	Electricity	Natural Gas	Water	CO ₂ Emissions	Value of Bill Savings	Pay Back Period	Benefit/Cost Ratio	Net Present Value	
			\$	GWh	BBtu	Million Gallons	1000 MT	Million 2012\$	GWh	BBtu	Million Gallons	1000 MT	Million 2012\$	Years		Million 2012\$	
Battery Chargers	-	-	-	256.8	-	-	81.6	38.2	261.2	-	-	82.4	39.0	-	-	298.4	47.1
<i>Small Consumer Chargers</i>	10	kWh	\$1.53	247.0	-	-	78.5	36.8	247.0	-	-	77.9	36.8	1.0	3.5	284.0	45.2
<i>Small Non-Consumer Chargers</i>	9	kWh	\$2.93	3.2	-	-	1.0	0.4	3.8	-	-	1.2	0.5	2.4	3.3	3.2	0.5
<i>Large Chargers</i>	3,294	kWh	\$343	6.6	-	-	2.1	0.9	10.5	-	-	3.3	1.4	0.8	14.1	11.3	1.3
Commercial Dishwashers	-	-	\$357	10.2	51.1	113.8	6.0	2.9	14.2	70.8	157.7	8.2	4.0	0.4	24.0	33.8	2.9
<i>electricity</i>	3,109	kWh	-	10.2	-	-	3.2	1.4	14.2	-	-	4.5	2.0	-	-	-	1.9
<i>natural gas</i>	156	therms	-	-	51.1	-	2.7	0.6	-	70.8	-	3.8	0.8	-	-	-	1.0
<i>water</i>	34,643	gallons	-	-	-	113.8	-	0.9	-	-	157.7	-	1.2	-	-	-	-
Double-Ended Quartz Halogen Lamps	329	kWh	\$32	96.5	-	-	30.7	13.4	96.5	-	-	30.4	13.4	0.7	2.5	90.7	18.7
Faucets (lavatory)	-	-	\$0	23.8	163.9	470.4	16.3	9.5	25.1	172.6	495.1	17.1	10.0	no cost	no cost	94.1	6.4
<i>electricity</i>	14	kWh	-	23.8	-	-	7.6	3.6	25.1	-	-	7.9	3.7	-	-	-	3.8
<i>natural gas</i>	1	therms	-	-	163.9	-	8.7	2.3	-	172.6	-	9.2	2.4	-	-	-	2.6
<i>water</i>	285	gallons	-	-	-	470.4	-	3.7	-	-	495.1	-	3.9	-	-	-	-
Hot Food Holding Cabinets	2,197	kWh	\$609	6.2	-	-	2.0	0.9	7.9	-	-	2.5	1.1	2.0	4.5	7.6	1.1
Portable Electric Spas	661	kWh	\$346	1.8	-	-	0.6	0.3	1.9	-	-	0.6	0.3	3.5	2.0	1.3	0.3
Room Air Cleaners	340	kWh	\$0	121.7	-	-	38.7	18.2	121.7	-	-	38.4	18.2	no cost	no cost	174.4	19.1
Toilets	794	gallons	\$0	-	-	1,215.6	-	9.6	-	-	2,495.2	-	19.7	no cost	no cost	150.7	-
Urinals	2,340	gallons	\$0	-	-	272.3	-	2.1	-	-	358.2	-	2.8	no cost	no cost	25.1	-
Water Dispensers	236	kWh	\$12	61.5	-	-	19.5	8.5	64.7	-	-	20.4	9.0	0.4	22.3	80.4	9.8
Total	-	-	-	579	215	2,072	195	104	593	243	3,506	200	117	-	-	957	105

Sample Savings Analysis for a 2014 Bill in MA Legislature

Annual Savings in 2025 (one-year savings)

- Electricity: 579 (GWh)
- Gas: 215 (billion Btu)
- Water: 2,072 (million gallons)
- CO₂: 195 (1000 MT)
- Bill Savings: \$104 million (2012\$)

Cumulative savings through 2035

- 105 trillion Btu
- \$957 million net present value savings

California Energy Commission (CEC) Rulemaking

- Products under consideration now in Phase 1
 - LED lamps – includes performance standards
 - Multi-faceted reflector lamps
 - Faucets, toilets, urinals
 - Dimming ballasts
 - Air filters
- Staff reports completed; waiting for draft language.
- Webinars are open to public; see [CEC website](#)
- When CEC rulemaking is completed, states can consider adopting CA standards

CEC Rulemaking (cont.)

Other products in Phase 1:

- Beginning in 2014:
 - Pool pump motors
 - Portable electric spas
 - Computers, monitors, and displays
- Beginning in 2015:
 - Network equipment
 - Game consoles
 - Commercial clothes dryers

EPA's Power Plant Rule - 111d

ACEEE Report: *How States Can Harness Energy Efficiency to Strengthen the Economy and Reduce Pollution*

- Lists standards as a possible path to compliance
- Provides savings data for five products
 - double-ended quartz halogen lamps
 - residential lavatory faucets
 - commercial hot-food holding cabinets
 - portable electric spas
 - bottle-type water dispensers
- Modest savings but expect larger savings once CEC has adopted standards for additional products

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Link to ASAP webpage:
<http://www.appliance-standards.org>