



CALIFORNIA ENERGY COMMISSION

**2008 RULEMAKING on
APPLIANCE EFFICIENCY REGULATIONS
Efficiency Committee Workshop
January 15, 2008**

Staff Overview

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Appliance Efficiency Regulations

Appliance Efficiency Regulations (Title 20) govern appliances *sold or offered for sale* in California.

- Energy/water efficiency standards (minimum performance or design criteria)
- Test method specification
- Appliance marking or labeling requirements
- Manufacturer compliance certification (data submittal) and test laboratory approval requirements



Regulated Appliances

- Refrigeration equipment
- Air Conditioners and Heat Pumps
- Ceiling fans, whole house fans, residential exhaust fans
- Heaters; Water Heaters
- Pool Heaters, Pool Pumps, Spas
- Plumbing fittings and fixtures
- Lamps, ballasts, exit signs, luminaires, traffic signals
- Clothes washers, clothes dryers, dishwashers, cooking equipment
- Electric motors
- Distribution transformers
- External Power Supplies
- Consumer audio and video equipment



Appliance Efficiency Program

Title 20 Implementation:

- Standards Development and Adoption
- Compliance Certification and Database
- Compliance Outreach
- Testing and Enforcement

<http://www.energy.ca.gov/appliances/index.html>



Order Instituting Rulemaking

Scope of this rulemaking to focus initially on:

- General purpose lighting to help meet the requirements of AB 1109 – indoor residential, indoor commercial and outdoor lighting
- Battery chargers
- Updates and clarification
- Other priority matters

Rulemaking may be divided into phases.



Initial Rulemaking Schedule: General Purpose Lighting Only

Committee Establish Scope	late January, 2008
Publish Draft Standards/Amendments	mid-April
Staff Workshop	early May
Committee Workshop (If Needed).	June/July
Release Proposed Standards (45-Day Language)/CEQA Analysis	early September
Committee Hearing	early October
Release Revised Proposed Standards If Needed (15-Day Language)	early November
Commission Adoption Hearing	December 3, 2008
Effective Date	January 1, 2011



Assembly Bill 1109

Assembly Bill 1109 (Huffman), Chapter 534, statutes of 2007 (AB 1109) - The Lighting Efficiency and Toxic Reduction Act

- On or before December 31, 2008, the Energy Commission shall adopt minimum energy efficiency standards for all general purpose lights on a schedule specified in the regulations.
- The regulations combined with other programs shall:
 - Reduce average indoor residential lighting energy by not less than 50%, relative to 2007 levels.
 - Reduce average indoor commercial lighting and outdoor lighting energy by not less than 25%, relative to 2007 levels.



AB 1109 Implementation

- Adopt regulations for general purpose lighting in 2008.
- To achieve the lighting energy reduction requirements, do all of the following:
 - Evaluate statewide residential and commercial lighting electrical usage data and establish 2007 baseline lighting electrical energy use.
 - Evaluate expected growth in electrical lighting demand
 - Evaluate and prioritize other programs and activities outside of the rulemaking on general purpose lighting standards that may include:
 - Building Energy Efficiency Standards (such as measures to require lighting controls or install efficient equipment)
 - Outreach and Education (manufacturer, distributor and consumer)
 - Rebates and Incentives



Current State-Regulated Lighting

- General Service Incandescent Lamps
- Incandescent Reflector-lamps
- Emergency Lights
- Traffic Signal Modules
- Metal Halide Luminaries
- Under Cabinet Luminaries





State-Regulated General Incandescent Lamps

Traditional Wattage	Maximum Wattage 1/1/2008	Wattage Reduction 1/1/2008
40	38	5%
60	57	5%
75	71	5%
100	95	5%



New Federal Lighting Standards (H.R.6) General Service Incandescent Lamps

Maximum Wattage	Tier I Rated Lumens	Effective Date	Wattage Reduction	Tier II Required Lumens/watt
72	1490-2600	1/1/2012	28%	45
53	1050-1489	1/1/2013	12%	45
43	750-1049	1/1/2014	19%	45
29	310-749	1/1/2014	27.5%	45



Preemption Issues:

What Can California Do Under Federal Energy Bill H.R. 6		
Standards	Federal Effective Dates	California's Options
Tier I	Different wattage bins January 1, 2012 through January 1, 2014	California may put into effect the federal standard 12 months prior to federal effective dates.
Tier II	Minimum 45 lumens per watt by January 1, 2020	California may adopt the Tier II federal standards effective on or after Jan 1, 2018. Can California adopt a different standard than Tier II standards?



Other Lighting Issues/Opportunities

- Indoor commercial lighting
 - Commercial
 - Industrial
 - Common Areas High Rise Residential
 - Common Areas Hotel/Motel
- Outdoor lighting considered as in Title 24
 - All Nonresidential
 - Outdoor House lights High Rise Residential
 - Outdoor House Lights Hotel/Motel
 - Outdoor House Lights Multi-Family
 - Residential Parking Greater than 8 Spaces per Site



Battery Chargers





Battery Chargers

- Over 600 million products that contain battery chargers (e.g., cordless products including power tools, small household appliances, personal care products like electric shavers, and high-power battery-operated forklifts). The amount of energy consumed by battery chargers is being researched.
- System efficiencies of battery chargers are very low – often 30% or less - significant savings can be achieved by improving efficiency.
- Battery chargers in inactive mode can draw as much as 5 to 20 times more energy than is actually stored in the battery.



Battery Chargers (cont.)

Power Consumed by Battery Charger in Different Modes:

Power Mode	Power Consumed	Charging Time	Equipment State
Active	Large	Medium	When battery is being charged.
Maintenance	Medium	Large	Fully charged battery installed, and charger attached to wall plug.
Standby	Small	Large	Battery not installed, but charger attached to wall plug.



Battery Chargers (cont.)

- Advanced designs for battery chargers are available that can improve energy consumption by more than 35%.
- Significant energy savings can be achieved with the use of efficient battery chargers, in millions of (kWh) per year.
- Electric energy savings generated by use of efficient battery chargers would result in preventing the release of millions of tons of greenhouse gas emissions.



Battery Chargers (cont.)

- DOE adopted a test method in July 2006.
 - Test method measures power consumption for maintenance mode and standby mode.
- California Energy Commission's Public Interest Energy Research Program (PIER) funded Ecos Consulting to develop a comprehensive test method.
- Ecos published test method on September 21, 2007. Ecos test method covers:
 - All types of residential and commercial battery charger systems
 - Testing in active mode, maintenance mode, and standby mode



Battery Chargers (cont.)

2007 EPAct requires the U.S. Department of Energy (DOE) to:

- Determine that no energy conservation standard are technically feasible and economically justifiable for battery chargers by July 1, 2011,
or
Prescribe standards for battery chargers by July 1, 2011.
- Prescribe a test procedure for battery chargers no later than December 31, 2008.
- Energy Commission will consider adopting test method developed by Ecos and prescribing standards for battery chargers.



2008 Rulemaking: Updates /Clarifications and Other Priority Matters

- Updates to clarify standards and make consistent with federal legislation (e.g., Table V)
- Consumer electronics – Televisions, set-top boxes, labeling of home entertainment systems (SB 332)



Questions?

Template available for detailed proposals.

<http://www.energy.ca.gov/appliances/index.html>