

STATE OF CALIFORNIA

Public Utilities Commission
San Francisco

M e m o r a n d u m

Date: May 16, 2007

To: The Commission
(Meeting of May 24, 2007)

From: Delaney Hunter, Director
Office of Governmental Affairs (OGA) — Sacramento

Subject: **AB 1109 (Huffman) Energy resources: lighting efficiency: hazardous waste.**
As amended: April 12, 2007

LEGISLATIVE SUBCOMMITTEE RECOMMENDATION: SUPPORT WITH AMENDMENTS

SUMMARY OF BILL: This bill, titled the California Lighting Efficiency and Toxics Reduction Act:

- (1) Requires the Department of Toxic Substances Control to prescribe schedules for the reduction of mercury and lead in general purpose lights sold or available in California;
- (2) Requires manufacturers of general purpose lights sold in California and containing hazardous materials to ensuring that a system is in place by July 1, 2009, for the collection and recycling of such lamps;
- (3) Requires the California Energy Commission (CEC) to by July 1, 2008, to determine the amount of statewide electrical energy consumed by lighting in the state in 2007 and approve a statewide electrical consumption limit for lighting by 2018 that is equivalent to a 50 percent reduction in consumption for indoor lighting and a 75 percent reduction in commercial lighting and outdoor lighting from 2007 levels;
- (4) Requires the CEC to develop a strategy for phasing out the use of energy inefficient lighting, reaching a 50 percent decrease in energy consumption for indoor residential lighting and a 25 percent decrease in energy consumption for indoor commercial and outdoor use lighting from 2007 levels by 2018;

(5) Requires the CEC to establish a schedule of minimum energy efficiency standards for all general purpose lights by December 31, 2008, and to establish programs and incentives to encourage the sale in California of general purpose lights that meet or exceed those standards; and

(6) Directs the state Department of General Services, in coordination with the CEC, to end the purchase of general purpose lights by state facilities that do not meet those standards within two years of the standards being adopted.

SUMMARY OF SUPPORTING ARGUMENTS FOR RECOMMENDATION:

Enactment of this bill will ultimately result in the replacement of current inefficient incandescent lighting with more efficient bulbs, such as compact fluorescent lights (CFLs), which the CPUC has consistently recognized as an important measure to achieve energy efficiency.

This bill is technology neutral, in that it does not ban a particular product, but rather seeks a reduction in energy consumption through the phase-out of inefficient lighting.

The bill contains provisions for the recycling of general purpose lights sold in California and containing hazardous materials. Fluorescent bulbs are regulated as hazardous waste in California because of their mercury content (approximately 5 milligrams/bulb), and opportunities for proper disposal are very limited under current law.

SUMMARY OF SUGGESTED AMENDMENTS:

It would be preferable if this bill shortened the timeline for reducing consumption of energy for lighting from 2018 to 2012. The 2012 date corresponds to incandescent bulb manufacturers estimated year of when they will be manufacturing an incandescent bulb with four times its current efficacy (on par with current CFLs).

DIVISION ANALYSIS (Energy Division):

- The CPUC has proposed the conversion of all general purpose and directional lighting in California to high efficiency light sources by 2017 as one of the “big, bold” strategies to be introduced in the 2009-2011 energy efficiency program period¹

¹ CPUC Staff Proposal for 2009-2011 Energy Efficiency Portfolio Development and Long-Term Efficiency Goals Update Process (February 16, 2007, available at <http://www.cpuc.ca.gov/EFIELD/NOTICE/64726.pdf>).

- AB 1109 would promote the CPUC's policy goals by establishing energy efficiency standards and a limit on lighting-related energy consumption within the time-frame contemplated in the PUC's big, bold strategy proposal. In addition, AB 1109 would require manufacturers of lighting products that contain hazardous materials, such as CFLs, to provide for the recycling of used bulbs. Currently, spent CFLs must be disposed of at a household hazardous waste disposal facility, a universal waste handler (e.g., storage facility or broker), or an authorized recycling facility [Title 22 California Code of Regulations, section 66273.8]. Under AB 1109, by July 1, 2008, manufacturers must submit plans to the Department of Toxic Substances that specify methods for collecting and managing end-of-life general purpose lights containing hazardous materials, including methods used to educate consumers about opportunities presented in the plan.
- Utilities have relied on CFL programs to a large extent in their energy efficiency portfolios. In 2006, CFL activity comprised nearly half of the collective IOU energy saving claims. If AB1109 becomes law, IOU energy efficiency programs may have to turn to other means of achieving efficiency goals. Because the CEC would be required to adopt lighting efficiency standards and to establish a limit on the amount of energy consumed by lighting in the state, inefficient incandescent bulbs would no longer be available for sale and consumers would generally be replacing burned out bulbs with CFLs or other more efficient lighting. This means that many consumers would be "free riders" under programs to replace incandescent bulbs. "Free riders" are customers who would have installed a program measure or equipment even without the financial incentive provided by the utility, and their actions cannot be counted toward the utilities' goals. Focusing the utilities' programs on other means of achieving efficiency savings could complement the PUC's "big, bold" approach to energy efficiency that will be commencing with the 2009 program year. Funds that would have been used to provide incentives for CFLs and other lighting measures would be diverted to other energy efficiency measures and programs.
- The bill would have an additional impact on current CPUC IOU energy efficiency programs in which lighting is a component. The bill would require the CEC to establish programs and incentives to encourage the sale in California of general purpose lights that meet or exceed efficiency standards. The effect of this mandate on CPUC programs would depend on whether the CEC's actions would complement, duplicate or replace the CPUC programs.

- The bill is attempting to address the problem of greenhouse gas (GHG) emissions by proposing a solution to help reduce GHG associated with the use of lighting devices. CFLs use approximately a quarter of the power of incandescent bulbs to produce the same amount of light. By imposing a limit on energy consumption related to lighting and requiring more stringent efficiency standards for lighting devices energy consumption will be reduced, less power will have to be generated and greenhouse gas emissions will be reduced as a result.
- According to the CEC, in California, an estimated 73 million incandescent bulbs and six million CFLs are sold per year. Nationwide, according to the Wall Street Journal, of the approximate 2 billion bulbs sold in 2006, 5 percent were CFLs--a jump of 4.6 percent from the 2000 number. The average Californian household has 40 bulbs, about 10 percent of which are CFLs. According to the CEC's "Lighting Energy Estimate of California Energy Demand forecast (2006-2016)," 21 percent of an average household's electricity consumption is for interior and exterior lighting combined; in the commercial sector it is nearly 40 percent for total commercial use; and it is approximately 9% for industrial. This total use roughly accounts for approximately 26 percent of the state's total electricity demand.² Interior CFLs can be found in 51 percent of all dwellings.³

PROGRAM BACKGROUND:

- In order to reduce per capita energy consumption, the CPUC adopted aggressive annual and cumulative energy savings goals for the service territories of the California investor-owned utilities (IOUs) from 2004 to 2013 [Decision 04-09-060]. These goals are subject to an updating process every three years. The IOUs have been mandated to design portfolios consisting of various programs that strive to achieve these goals. Lighting efficiency is a significant component of these programs, particularly the replacement of incandescent light bulbs with compact fluorescent bulbs (CFLs) and the installation of CFLs for any new lighting use. For example, one program establishes direct rebates to offset the cost difference between the price of a CFL and an incandescent bulb. CFL-related activity forms a significant part of the IOUs' programs and their claimed energy savings in the 2006-08 program cycle in 2006, CFL activity comprised nearly half of the collective IOU energy saving claims.

² Percentage extrapolated from CEC CED forecast (2006-2026) by totaling all sector's GWh and dividing by total percentage used for light for all sectors.

³ California Statewide Residential Appliance Saturation Study (RASS), prepared for the CEC by ITRON, KEMA-Xenergy, Roper ASW, June 2004, CEC 400-04-009.

- The following table indicates the IOU 2006 claimed and future year projections of installations of all energy efficient lighting measures in California (CFLs, LEDs, etc.)

IOU Summary Information ⁴							
Lighting Measures	Actual Units Installed	Projected Units Installations					
	2006	2007	2008	2009	2010	2011	2012
All Energy Saving Lighting Measures	24,241,529	82,172,679	131,070,582	136,234,179	140,485,776	130,988,650	137,798,403

- The CEC's Appliance Efficiency Regulations (Title 20) include standards for general service incandescent light bulbs. The standards apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment. The standards set forth specifications for average lighting efficacy (lumens per watt-LPW) effective 2006 (Tier 1), with stricter efficiency standards effective 2008 (Tier 2). The Tier 2 standards require significant design changes to the majority of incandescent bulbs sold in today's market that will mandate an increase in lumens per watt, but will still not be comparable to the efficacy of a CFL. The bill would require the CEC to establish a schedule of minimum energy efficiency standards for all general purpose lights by December 31, 2008.

LEGISLATIVE HISTORY:

- Although there are no comparable bills from past years, a similar bill has been introduced in the current legislative session. AB 722 (Levine) would amend section 25402.5 of the Public Resources Code to prohibit the sale of general service incandescent lamps (light bulbs) in the State of California, effective January 1, 2012. "General service incandescent lamp" is defined as a standard incandescent or halogen type light bulb that is intended for general service applications. AB 722 would exempt specific kinds of specialty incandescent lamps, including, but not limited to, traffic signal lamps and infrared lamps.

⁴ Data furnished from information data request from ED staff to IOUs in March 2007.

- **Pending Federal Law:** Federal legislation introduced on March 15, 2007, by Jane Harman (D, CA) (HR 1547), calls for significantly higher efficacy standards for bulbs and would prohibit the sale of lamps with an efficacy lower than 120 lumens/watt by 2020 (essentially banning the incandescent we have in the marketplace today). Prior to 2020, the bill requires the Dept. of Energy (DOE) to create regulations that would prohibit the sale of bulbs that fail to meet the following efficacy standards:
 - 60 lumens/W by 2012 (approximate current average of CFL)
 - 90 lumens/W by 2016

The bill does not single out incandescent bulbs, and thus is technology-neutral. Exemptions to the standard would be identified. These would most likely be specialty applications such as health and safety. Additionally, the bill calls on the DOE to submit a plan to Congress that would provide incentives and encourage consumers, including businesses, to use more energy efficient lamps. The bill has been referred to the Committee on Energy and Commerce.

- **DOE efforts:** The Energy Policy Act of 1992 instructed the DOE to initiate an incandescent lamp efficacy standard rulemaking between 2000-2002. The DOE did not make this deadline, but has now planned an evaluation of mandatory federal standards for these lamps. An advanced notice of proposed rulemaking is to be issued on November 2007 and a final rule will be issued by June 2009, to take effect by June 2012.
- **Other States:** In Connecticut, HB 6550 would authorize the state's Commissioner of Environmental Protection to study whether there are energy-efficient lamps available for consumers at competitive prices, to create a list of inefficient incandescent lamps, and to prohibit retailers and wholesalers from selling inefficient incandescent lamps not less than 180 days from the date such lamps are classified on the list. It also creates penalties for violation and a surcharge on the sale of incandescent lamps.
- A bill introduced in Rhode Island [SB 806] has provisions for a general service incandescent lamp ban in language similar to SB722. Bills that would require governmental buildings to switch to CFLs have been introduced in New Jersey [A 3983], South Carolina [SB 97], Illinois [HB 1460] and Hawaii [SCR 53 and SR 28]. A bill has been introduced in Minnesota that would authorize a tax on the sale or transfer of incandescent lamps by a wholesaler of \$0.25 per lamp [SB 1442].

FISCAL IMPACT:

None

STATUS:

The bill is presently in the Assembly Appropriations Committee and has not been scheduled for hearing.

SUPPORT/OPPOSITION: (5/11/07)

Support: Californians Against Waste (Sponsor)
American Federation of State, County and Municipal Employees
California Product Stewardship Council
California Public Interest Research Group
Environmental Defense
Friends of the Earth
Natural Resources Defense Council
North American Hazardous Materials Management Association
Redding Municipal Utilities
San Diego County
Sierra Club California
Sonoma County Waste Management Agency
Southern California Edison
The Utility Reform Network
One Individual

Opposition: California Chamber of Commerce

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Date: May 16, 2007

BILL LANGUAGE:

BILL NUMBER: AB 1109 AMENDED
BILL TEXT

AMENDED IN ASSEMBLY APRIL 12, 2007
AMENDED IN ASSEMBLY MARCH 29, 2007

INTRODUCED BY Assembly Member Huffman
 (Coauthors: Assembly Members Krekorian and Laird)
 (Coauthor: Senator Wiggins)

FEBRUARY 23, 2007

An act to add Article 10.02 (commencing with Section 25210.9) to Chapter 6.5 of Division 20 of the Health and Safety Code, and to add Sections 25402.5.4 and 25402.5.5 to the Public Resources Code, relating to energy resources.

LEGISLATIVE COUNSEL'S DIGEST

AB 1109, as amended, Huffman. Energy resources: lighting efficiency: hazardous waste.

(1) Existing law, administered by the Department of Toxic Substances Control, prohibits the management of hazardous waste, except in accordance with the hazardous waste laws or the regulations adopted by the department. A violation of the hazardous waste control law is a crime.

The State Energy Resources Conservation and Development Commission is required to prescribe, by regulation, standards for energy conservation and efficiency, including the adoption of efficiency standards for outdoor lighting.

This bill would enact the California Lighting Efficiency and Toxics Reduction Act and would require the department to prescribe, by regulation, schedules for reducing the maximum levels of mercury, per lumen hour, and lead in general purpose lights, as defined, sold or offered for sale in this state. Every manufacturer of general purpose lights sold in this state and containing hazardous materials would be required by July 1, 2009, to ensure that a system is in place for collection and recycling of end-of-life general purpose lights generated in this state, and submit to the department a collection, recycling, and management plan fulfilling certain requirements, by July 1, 2008.

Because a violation of this bill's requirements would be a crime, the bill would impose a state-mandated local program.

The commission would be required to take certain specified actions, including, but not limited to, determining the amount of statewide electrical energy consumption used for lighting in 2007, and approving a statewide electrical energy consumption limit for lighting, to be achieved by 2018, equivalent to 50% of 2007 use levels for indoor residential lighting and 75% of 2007 use levels for indoor commercial and outdoor use lighting, in order to reduce energy consumption for lighting in this state by 2018. *The*

Department of General Services in coordination with the commission would be required to end the purchase of general purpose lights in certain state facilities within 2 years of the adoption of the standards regarding energy consumption limits for all general purpose lights.

Certain defined specialty lighting and special needs lighting would be exempt from the requirements of this bill.

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Vote: majority. Appropriation: no. Fiscal committee: yes.
State-mandated local program: yes.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. This act shall be known and may be cited as the California Lighting Efficiency and Toxics Reduction Act.

SEC. 2. The Legislature finds and declares all of the following:

(a) This state has long been a national and international leader on energy conservation and environmental stewardship efforts, including the areas of air quality protections, energy efficiency requirements, renewable energy standards, natural resource conservation, toxic waste reduction, recycling, and greenhouse gas emission reduction.

(b) Energy consumption for lighting accounts for nearly 20 percent of the state's electricity demand. The energy efficiencies of existing lighting technologies vary significantly, and while California leads the nation in the use of energy efficient compact fluorescent lighting, more than 94 percent of current light bulb purchases are for less efficient incandescent bulbs.

(c) Transitioning to currently available higher efficiency lighting technologies will substantially reduce energy consumption and pollution, including reducing greenhouse gas emissions, while lowering costs to consumers.

(d) The goal of the United States Department of Energy's (DOE) Building Technologies Lighting Research and Development Program is to develop and demonstrate energy-efficient, high-quality, long-lasting lighting technologies by 2025 that have the technical capability of illuminating buildings using 50 percent less electricity compared to technologies in 2005.

(e) Many existing lighting choices contain toxic materials. Most fluorescent lighting products contain hazardous levels of mercury. Most incandescent lighting products contain hazardous levels of lead. California prohibits disposing of hazardous lighting products in the solid waste stream. The hazardous material in these products can be managed through recycling, but current recycling opportunities and levels are virtually nonexistent for most consumers.

(f) Fluorescent lighting products delivering the same level of light at the same level of efficiency can have widely varying levels of mercury. The California Department of General Services has adopted a procurement preference favoring Leadership in Energy and Environmental Design (LEED) compliant low mercury fluorescent lamps.

(g) Coal generated electricity in the United States accounts for

more than six million tons of mercury emissions annually, and while growth in the use of energy efficient fluorescent lighting without expanded recycling will result in increased disposal of mercury in the waste stream, the United States Environmental Protection Agency has concluded that shifting from incandescent lighting to more efficient compact fluorescent lighting will result in a net reduction in total United States mercury emissions due to the displacement of coal fired electricity generation.

(h) It is the intent of the Legislature that the State Energy Resources Conservation and Development Commission develop a strategy for substantially increasing the use of energy efficient lighting and phasing out the use of energy inefficient lighting over the next decade.

(i) It is the intent of the Legislature that the Department of Toxic Substances Control establish a schedule for the phase down in the use of toxic materials in all lighting products.

(j) It is the intent of the Legislature that the Department of Toxic Substances Control, in coordination with the Integrated Waste Management Board, establish a system for the recycling of hazardous lighting products that is free and convenient for end users.

SEC. 3. Article 10.02 (commencing with Section 25210.9) is added to Chapter 6.5 of Division 20 of the Health and Safety Code, to read:

Article 10.02. Lighting Toxics Reduction

25210.9. The department shall, after one or more public hearings, do all of the following, in order to reduce the use of toxic materials in general purpose lights sold in this state:

(a) Prescribe, by regulation, a schedule for reducing the maximum levels of mercury per lumen hour in general purpose lights sold or available for sale in this state.

(b) Prescribe, by regulation, a schedule for reducing the maximum levels of lead in general purpose lights sold or offered for sale in this state.

25210.10. (a) (1) For purposes of this article, "general purpose lights" means lamps, bulbs, tubes, or other devices that provide functional illumination for indoor residential, indoor commercial, and outdoor use.

(2) General purpose lights do not include any of the following specialty lighting: appliance, black light, bug, colored, infrared, left hand thread, marine, signal service, mine service, plant light, reflector, rough service, shatter resistant, sign service, silver bowl, showcase, three-way traffic signal, and vibration service or vibration resistant.

(3) General purpose lights do not include lights needed to provide special needs lighting for individuals with exceptional needs.

(b) For purposes of this article, "hazardous material" has the same meaning as defined in Section 25501.

25210.11. Every manufacturer of general purpose lights sold in this state and containing hazardous materials shall be responsible for all of the following:

(a) On and after July 1, 2009, ensuring that a system is in place to provide for the collection and recycling of any end-of-life general purpose lights generated in this state.

(b) On or before July 1, 2008, submitting a plan to the department

for the collection, recycling, and proper management of end-of-life general purpose lights generated in this state.

(c) The plan at a minimum shall include all of the following:

(1) The methods to be used by the manufacturer to collect and properly manage the devices generated in this state.

(2) The number and frequency of collection opportunities.

(3) The methods to be used to educate consumers about the opportunities presented in the plan.

(4) The funding mechanisms to be used by the manufacturer to accomplish the plan.

SEC. 4. Section 25402.5.4 is added to the Public Resources Code, to read:

25402.5.4. (a) On or before July 1, 2008, the commission, after one or more public workshops, with public notice and an opportunity for all interested parties to comment, shall determine the amount of statewide electrical energy consumption used for lighting in 2007, and shall approve, in a public hearing, a statewide electrical energy consumption limit for lighting, to be achieved by 2018, that is equivalent to 50 percent of 2007 use levels for indoor residential lighting and 75 percent of 2007 use levels for indoor commercial and outdoor use lighting.

(b) The statewide electrical energy consumption limit for lighting shall remain in effect unless otherwise amended or repealed.

(c) It is the intent of the Legislature that the statewide electrical energy consumption limit for lighting continue to operate and be used to maintain and continue reductions in energy consumption for lighting beyond 2018.

(d) The commission shall make recommendations to the Governor and the Legislature regarding how to continue reductions in electrical energy consumption for lighting beyond 2018.

SEC. 5. Section 25402.5.5 is added to the Public Resources Code, to read:

25402.5.5. (a) The commission shall, after one of more public hearings, do all of the following, in order to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy for lighting by 2018:

~~—(a)—~~

(1) Develop and implement a statewide strategy for reducing energy consumption for indoor residential lighting by 50 percent.

~~—(b)—~~

(2) Develop and implement a statewide strategy for reducing energy consumption for indoor commercial and outdoor use lighting by 25 percent.

~~—(c)—~~

(3) On or before December 31, 2008, establish a schedule of minimum energy efficiency standards for all general purpose lights.

~~(d) Coordinate with the Department of General Services to end the purchase of general purpose lights in state facilities that do not meet the standards set in subdivision (c), within two years of the standards being adopted.~~

~~—(e)—~~

(4) Establish programs and incentives to encourage the sale in this state of general purpose lights that meet or exceed the standards set in subdivision (c).

(b) The Department of General Services, in coordination with the

commission, shall end the purchase of general purpose lights in state facilities that do not meet the standards adopted pursuant to paragraph (3) of subdivision (a), within two years of the standards being adopted.

~~—(f)—~~

(c) For purposes of this section, "general purpose lights" means lamps, bulbs, tubes, or other devices that provide functional illumination for indoor residential, indoor commercial, and outdoor use.

(1) General purpose lights do not include any of the following specialty lighting: appliance, black light, bug, colored, infrared, left hand thread, marine, signal service, mine service, plant light, reflector, rough service, shatter resistant, sign service, silver bowl, showcase, three-way traffic signal, and vibration service or vibration resistant.

(2) General purpose lights do not include lights needed to provide special needs lighting for individuals with exceptional needs.

SEC. 6. The provisions of this act are severable. If any provision of this act or its application is held invalid, that invalidity shall not affect other provisions or applications that can be given effect without the invalid provision or application.

SEC. 7. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.