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# Guidelines for Selecting, Distributing and Recycling Environmentally-Preferable Light Bulbs During Mass Giveaways

Many chapters and groups of the Sierra Club plan to or have engaged in community-based programs to distribute energy-efficient compact fluorescent lamps (CFLs). These efforts help educate consumers about easy and important ways to reduce energy consumption. Three times more efficient than standard incandescent light bulbs, CFLs significantly reduce mercury, greenhouse gases and other toxic emissions coming from coal-fired power plants. At the same time, concerns have been raised because all CFLs contain mercury and some models contain lead. The vast majority of CFLs ends up in landfills or trash incinerators where these hazardous substances can get released into the environment.

These Guidelines seek to balance and advance the Sierra Club's goals of climate protection, toxics reduction and zero waste. The primary purpose of these Guidelines is to help Sierra Club chapters and groups optimize environmental benefits of energy-efficient lamp distribution programs in their communities. The intention is to design distribution programs that pressure corporations to provide less-toxic lamps, and create producer-funded retail recycling opportunities that make it as easy for customers to recycle CFLs as it is to buy them. These guidelines advocate some actions that go beyond the capacity of individual consumers; however, recommendations have

been included that will help individuals select the best lamps when making their purchases at retail stores.

## Summary Checklist: Specifying CFLs for Distribution Programs

- Require ENERGY STAR-qualified CFLs ([www.energystar.gov](http://www.energystar.gov)) with a minimum rated life of 10,000 hours, and with the highest efficiency (lumens per watt). Look for the Energy Star logo on the packaging.

- Require companies to disclose mercury content (in milligrams - mg) and any lead in solder and/or glass.

- Specify lamps with 5 mg of mercury or less and favor ones with less than 3 mg.

- Choose lead-free whenever available (usually labeled as such).

- Choose manufacturers and distributors offering private-sector-financed collection and recycling programs.

- Include local recycling information with lamps. Encourage consumers to use local retail and other private collection systems when available. Publicly-funded collection should be promoted as transitional to the creation of private collection opportunities.

- Prepare consumer-friendly fact sheets and other materials that respect local tra-



ditions, culture and language.

- Include instructions about what to do (and not do) if a CFL breaks (see below).

- Distribute in cooperation with community leadership, consistent with Environmental Justice protocols.

## Recommendations for Individuals Purchasing CFLs

- Whenever available, choose CFLs in an ENERGY STAR-labeled package. This will help ensure you buy a more energy efficient and higher performing product.

- Choose the CFL that meets your needs and has the longest rated life. Look for products that last at least 10,000 hours. This information is almost always printed on the package.

- Choose the most energy-efficient model with the fewest watts to give you the light output you need. (CFLs tend to

fade over their life; so pick one slightly brighter than the incandescent lamp you are replacing.)

- Choose lamps made by companies pledging to keep mercury content below 5-6 mg by going to [www.nema.org/gov/ehs/committees/lamps/cfl-mercury.cfm](http://www.nema.org/gov/ehs/committees/lamps/cfl-mercury.cfm).

- Choose CFLs that manufacturers advertise as lead-free.

- Choose retailers that offer to collect spent CFLs (and other fluorescent lamps). While Ikea is the only U.S. retailer that recycles burned-out CFLs consumers bring back to stores, a retailer-financed lamp “take-back” program has been established in Europe. Encourage manufacturers/retailers in your community to set up on-going recycling programs for their customers.

## Background and Rationale

1. Use energy efficient, long-lasting bulbs

**Sierra Club commits to distributing only ENERGY STAR-qualified lighting products, including CFLs and Solid State Lighting (SSLs-including light-emitting diodes (LEDs)).**

The ENERGY STAR program, which is jointly run by the US Department of Energy and the US Environmental Protection Agency (EPA), qualifies CFLs, SSLs and other energy-efficient lighting products that meet minimum performance standards for efficacy, lamp life, and light quality. Qualified lighting products are listed on the ENERGY STAR website at [www.energystar.gov](http://www.energystar.gov). CFLs chosen for mass distribution programs should offer the highest efficiency, which is measured in lumens per watt. CFLs tend to fade over time, so it is important to specify models that emit about 20-30 percent more initial lumens than the incandescent it is replacing.

The ENERGY STAR program has set a minimum rated life of 6,000 hours for all qualified CFLs but the program’s website indicates that nearly 1,000 models have a rated life of 10,000 hours or more. The ENERGY STAR criteria for LEDs was released in September 2007. As LEDs become more available and affordable, the Sierra Club should include them in their distribution programs since they are longer-lasting and mercury-free. ENERGY STAR-qualified LED lights must have a rated life of at least 25,000 hours.

The specification and distribution of long-lasting CFLs and LEDs minimizes environmental impacts by reducing the number of light bulbs that need to be manufactured, transported, and ultimately recycled, as well as the number that may end up in the trash. It also drives innovation by supporting companies that have invested in high-performance technology.

2. Use least-toxic bulbs

**Sierra Club commits to distributing light bulbs that have the least mercury and lead.**

While all CFLs currently contain mercury, the amount they contain can vary from 1-30 milligrams (mg), depending on manufacturer and model. Several major manufacturers (including some members of the National Electrical Manufacturers Association, [www.nema.org/gov/ehs/committees/lamps/cfl-mercury.cfm](http://www.nema.org/gov/ehs/committees/lamps/cfl-mercury.cfm).) have agreed to cap mercury at 5 mg in most models, but some CFLs are available with as little as 1 mg of mercury. Sierra Club distribution programs should specify CFLs with a maximum of 5 mg of mercury and give preference to CFLs with less than 3 mg of mercury.

Similarly, many CFLs (and other light bulbs with screw-in bases) are made with lead in the solder and glass. Lead-free

CFLs are becoming increasingly available in the marketplace as lead solder is being banned from other electronic and electrical applications in Europe and elsewhere. Sierra Club encourages its members to distribute lead-free CFLs whenever they are available and meet other performance and environmental criteria. In addition, LEDs (which are mercury-free but may contain some other heavy metals) should be evaluated for toxicity and considered for inclusion in Sierra Club’s distribution programs when they are determined to be efficient, environmentally preferable and cost-effective for specific applications.

The specification of low-mercury, mercury-free, and lead-free lamps protects workers manufacturing these products, consumers (especially if the light bulbs accidentally break), and the environment. Workers are further protected whenever fluorescent lamps are manufactured with encapsulated mercury dosing technologies—such as pellets, pills or amalgam – rather than traditional liquid-mercury dosing methods. Mercury is a toxic heavy metal that persists in the environment, concentrates in the food chain, and causes nerve and brain damage, heart disease and cancer. Lead, like mercury, is a persistent, bioaccumulative and toxic chemical known to cause serious, long-term health damage, particularly to children’s brains.

Sierra Club encourages manufacturers to label their lamps and packaging with information on mercury and lead content for each model. Mercury content should be labeled as a maximum per lamp, not an average or range. In addition, Sierra Club should consider distributing CFLs/LEDs with separate ballast/transformers, when available, just as in fluorescent tube lamps. This will decrease the amount of materials in CFLs and LED lamps requiring disposal, help retain longer-lived components during their entire useful life (like solid-state circuit

boards and transformers), and decrease purchase, recycling and disposal costs for manufacturers and consumers alike.

These actions are consistent with toxics use reduction, right-to-know and pollution prevention/zero waste principles in Sierra Club's Environmental Justice Policy as well as in its Environmentally Hazardous Substances Policy, which discourages use of hazardous substances that persist in the environment and tend to become concentrated in living organisms.

3. Promote recycling take-back by retailers, vendors and producers.

**Sierra Club commits to promoting effective recycling programs and assisting local governments by supporting recycling take-back by retailers, vendors and producers.**

When the Sierra Club engages in CFL distribution programs, we have a responsibility to inform consumers of the mercury in fluorescents and potential lead in both incandescents and fluorescents, and the consequent urgency to recycle them at end of life. However, public collection infrastructure (household hazardous waste collection centers and events) are not equipped to sustainably address this problem. Only about 2% of household fluorescent lamps are recycled in the U.S. (Association of Lighting and Mercury Recyclers, 2004). Local governments currently pay exorbitant sums to collect a small portion of all retired lamps. Where local government collection is the only option, simply telling consumers "Please Recycle" is both misleading to consumers and frustrating to underfunded and ineffective public sector programs.

Ultimately, it should be as easy to recycle CFLs as it is to purchase them. This requires development of convenient private sector collection and recycling opportunities. Sierra Club chapters and groups should aggressively support local government efforts to develop retail and

vendor take-back programs for mercury-and/or lead-containing lamps, preferably through producer-funded programs. Distribution programs should give preference to using wholesalers or retailers who provide take-back services. Recycling information provided during distribution should direct consumers to use local retail and other private sector collection sites and methods, in preference to taxpayer-funded collection programs. The Sierra Club supports and will work towards enforceable producer responsibility standards for collecting and recycling hazardous lighting products (see model criteria below).

All Sierra Club CFL distribution programs must include instructions for recipients about what to do, and not do, if a CFL breaks—such as ventilating the room but not vacuuming. A US EPA fact sheet available at [www.energystar.gov/ia/partners/promotions/change\\_light/downloads/Fact\\_Sheet\\_Mercury.pdf](http://www.energystar.gov/ia/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf). It should be given to all volunteers working on the distribution program so that they know what to tell people if they ask that question. In addition, the Club calls upon EPA to carefully evaluate its cleanup methods to determine their effectiveness on all surfaces including carpets.

4. Serve low-income communities

Sierra Club volunteers involved in energy-efficient lighting distribution programs should make a good faith effort to build bridges with low-income communities where appropriate, in line with Environmental Justice principles and protocols. The Sierra Club should provide versions of materials that respect local traditions and language. Working with community leadership will make distribution efforts more welcome. Reaching out to low-income populations will increase the use of energy-efficient products in neighborhoods where residents may be the least likely to afford them on their own.

## **Model Policy Language for Producer Responsibility as it Relates to Hazardous Material Recovery from Consumer Lighting**

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

(a) On and after [date], 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 [date], submitting a plan (the plan) to the [State department] for the collection, recycling, and proper management of end-of-life general purpose lights generated in this state.

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

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

(2) The number and frequency of collection(s).

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

(4) The funding mechanism(s) to accomplish the plan originate from the manufacturer(s).