



Responsible Purchasing Guide Fluorescent Lighting

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Overview

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Social and Environmental

Impacts

Energy, PBTs, solid waste, workers' rights

- ▶ **22%** of all US electricity is used for lighting, yielding **553 million** tons of CO2 emissions
- ▶ **3 times** as much mercury is released running an incandescent for 5 years versus a CFL for the same period
- ▶ **630,000** babies are born with unsafe blood mercury levels
- ▶ **420 million** fluorescent lamps used by government agencies are not recycled
- ▶ **75%** of CFL production takes place in China



Best Practices

Best Practices

Form a dedicated team to:

- ▶ **Gather data** on consumption and impacts
- ▶ **Set goals** for reducing carbon emissions, energy use, mercury, and lead
- ▶ **Adopt a policy** for lighting or energy efficiency
- ▶ **Evaluate available standards**
- ▶ **Draft bid specifications**
- ▶ **Improve current practices**



Best Practices

Improve Practices

To conserve energy:

- ▶ Turn off the lights and use natural lighting
- ▶ Automate lighting systems and switch to electronic ballasts
- ▶ Use pin-based CFLs
- ▶ Upgrade exit signs to LEDs





Best Practices

Improve Practices



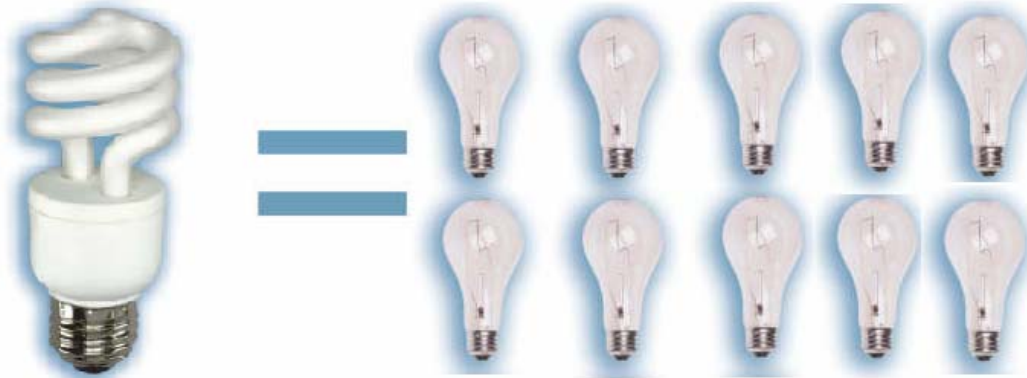
To reduce mercury and lead:

- ▶ **Encourage** vendors to take back spent lamps
- ▶ **Negotiate** a recycling contract
- ▶ **Create** a lamp collection program
- ▶ **Train** employees on disposal and clean-up



Cost, Quality & Supply

Cost



Purchase price = \$6.00 = 10x 60¢

- ▶ Equal purchase costs
- ▶ Electricity cost savings and rebates
- ▶ Average payback is 5 months



Cost, Quality & Supply

Quality

- ▶ **Lamp Life** – ENERGY STAR 6000 hrs minimum, most are 8000+ hrs
- ▶ **Smooth Light Output** – ENERGY STAR min CRI of 80
- ▶ **Noise** – Buzzing eliminated
- ▶ **Interference with electrical equipment** – Rare
- ▶ **Mercury content** – much lower with same light quality



Cost, Quality & Supply

Quality

Special Applications

- ▶ Size and shape
- ▶ Dimmable
- ▶ Enclosed fixtures
- ▶ Cold temperatures

Quality Comparisons

- ▶ Pin-based vs Self-ballasted
- ▶ CFLs vs Linears
- ▶ CFLs vs LEDs









Cost, Quality & Supply

Supply

Over 2000 ENERGY STAR qualified CFL models available, including

- ▶ 50 Three-way bulbs, 40 Dimmables

Bare Products		Covered Products			Reflector Products
Mini-Spiral or Twist	Tube or Universal	Incandescent/ A-line	Globe G25, G30, G40	Candelabra, Post or Bullet Shape	Indoor and Outdoor
					

Policies and Specs



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Lighting: Policies

State and local governments, educational facilities, and businesses have adopted responsible lighting policies addressing procurement, use, and recycling. These policies outline principles for minimizing the environmental, social, and economic impacts associated with lighting equipment, describing the importance of buying products that are energy-efficient, long-lasting, low-toxicity and made according to socially responsible guidelines; and establishing recycling requirements for spent mercury-added lamps.

Model Policy

Drawing on current policies adopted by the City of New York, San Francisco and the State of Washington, we have developed a model policy that emphasizes setting organizational goals to improve lighting programs by cutting electricity use and reducing toxics. It is designed to align institutional purchasing practices with climate protection, green building, toxics reduction and zero waste goals. It may be appropriate to make explicit exceptions in the policy for specialty lighting needs. See below for further sample policies.

RPN and Green Purchasing Institute Model Lighting Procurement Policy

More Sample Policies

Federal
White House, Executive Order 13423 on Environment, Energy and Transportation, 2007
European Union, RoHS Directive, 2003

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Standards and Products

Standards

Under
revision



No certified products





Standards and Products

Products

▶ 7 easy steps on how to choose a CFL

▶ ~2000 products

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Lighting: Products
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Before searching the RPN product database, review these seven steps on how to choose suitable, high-performance, and environmentally preferable compact fluorescent lamps to replace incandescents.

[How to Choose a CFL, RPN and Green Purchasing Institute, 2007](#)

Browse by Type:
[Select One] [Go]

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Type	Manufacturer	Product/Model	Standards
Compact Fluorescent - Other	Aero-Tech Light Bulb Company	Evolution AE4B-11W	Energy Star
Compact Fluorescent - Other	Aero-Tech Light Bulb Company	Evolution AE4B-14W	Energy Star
Compact Fluorescent - Other	Aero-Tech Light Bulb Company	Evolution AE4B-20W	Energy Star
Compact Fluorescent - Other	Aero-Tech Light Bulb Company	Evolution AE4B-25W	Energy Star
Compact Fluorescent - Other	Aero-Tech Light Bulb Company	Evolution FS4B-14W	Energy Star
Compact Fluorescent - Bare-spiral	AM Conservation Group, Inc.	AM Conservation Group 330501	Energy Star

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Calculators

Calculators and Tools

Measure your impacts with easy-to-use calculators and tracking tools.

- ▶ Lifecycle Cost Estimate (ENERGY STAR)
- ▶ LEED Mercury Calculators (Sylvania, Philips)
- ▶ Lighting Equipment Audit form (Green Purchasing Institute)



Conclusions

Conclusions

- ▶ Lighting is an energy hog and source of toxics
- ▶ Best practices can reduce impacts and save money
- ▶ Preferable lamps are cost-competitive, high quality, and widely available
- ▶ Exemplary policies and specs are available
- ▶ Tools help calculate your impacts

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