



Minnesota
Pollution
Control
Agency

Compact Fluorescent Lights

Product stewardship profile

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Compact fluorescent lights (CFLs) offer a longer-lasting and more energy-efficient approach for lighting than traditional incandescent bulbs. Using less electricity for lighting means power plants do not need to burn more coal, which in turn controls release of mercury. However, CFLs must be managed properly (recycled) at the end of their useful lives due to their own mercury content. The MPCA provides information on fluorescent bulbs on its Web site:
www.pca.state.mn.us/waste/lightbulbs.html.

The increasing popularity of CFLs poses questions about what type of collection infrastructure should be available to manage waste CFLs, and who should be responsible for collecting and financing their proper management. Collection and recycling are costly for local government, retailers, and utilities.

Opportunities exist for “product stewardship,” where all parties involved in designing, manufacturing, selling and using a product take responsibility for environmental impacts at every stage of that product’s life.

Reason for concern: Mercury content

All fluorescent bulbs contain mercury, which makes their safe disposal an important issue for both public health and the environment.

In April 2007, members of the National Electrical Manufacturers Association committed to reducing the amount of mercury in CFLs.

Effective April 15, 2007, participating manufacturers agreed to these voluntary mercury limits:

- 5 milligrams (mg) per unit for CFLs smaller than 25 watts.
- 6 mg per unit for 25-40 watt CFLs.

State regulations

Disposal ban. Because of concerns about mercury, Minnesota law bans fluorescent lamps from disposal in the trash, and directs that they must be recycled. This applies to fluorescent lights of all shapes and sizes, including CFLs (Minn. Stat. § 115A.932).

Consumer education. Starting in June 2008, Minnesota law will require retailers that sell fluorescent lamps at retail to post this notice in a manner clearly visible to a consumer (Minn. Stat. § 325E.127).

- “Fluorescent bulbs save energy and reduce environmental pollution. Note: Fluorescent bulbs contain a small amount of mercury and must be recycled at the end of their use. Contact your county or utility for recycling options.”

Required utility program. Minnesota law also requires utilities with 200,000 or more customers to establish a system to collect spent fluorescent and high-intensity discharge lamps from households and from small businesses that generate an average of fewer than ten spent lamps per year. (Minn. Stat. § 216B.241) Currently, this law applies to one Minnesota utility (Xcel Energy).

Federal energy bill: 2007

Under the federal energy bill signed into law in December 2007, traditional incandescent light bulbs will be phased out over the next four to 12 years in favor of technologies that meet explicit energy efficiency standards: compact fluorescents, halogens, and light-emitting diodes (LEDs). This is expected to increase the sale and use of CFLs in the U.S.

Under the measure, all light bulbs must use 25 to 30 percent less energy than today's products by 2012 to 2014. The phase-in will start with 100-watt bulbs in January 2012 and end with 40-watt bulbs in January 2014. By 2020, bulbs must be 70 percent more efficient.

Manufacturer profile

Three manufacturers dominate the CFL market in the United States: General Electric, Osram Sylvania, and Philips Lighting. Most CFLs sold in the U.S. are assembled in China.

Sales and use of CFLs

Currently, CFLs represent about 20 percent of all light bulb sales, but that is expected to rise dramatically given the increased emphasis on energy efficiency.

- Est. 2007 Sales (U.S.): 200 million CFLs [National Electrical Manufacturers Association (NEMA)]
- Est. 2007 sales (Minnesota): 3.5 million CFLs [based on NEMA's U.S. sales and Minnesota's share of the national population. (1.75%)]

Potential use of CFLs in Minnesota suggests a substantial increase in their sale, use, and recycling.

- Average home in the U.S. has 45 light bulbs.
- Minnesota has 2,020,144 households (2005).

Current collection infrastructure

As sales of CFLs increase, concerns about their end-of-life management are growing as well. CFLs are collected at many county household hazardous waste programs in Minnesota. Some retailers also offer collection services, including many hardware stores.

Based on national estimates, by 2010, the annual disposal of CFLs in Minnesota may grow to between 1.4 million and 1.75 million units. In Minnesota, it is unlikely that county HHW programs will be able to

absorb the additional costs of collection and recycling without assistance from manufacturers.

Management costs

U.S. EPA estimates that the costs to manage CFLs are between \$0.50 and \$2.00 per unit.

In Minnesota, Hennepin County collected 8,195 CFLs in 2006, about 10 percent of the total of fluorescents. The reported recycling cost per CFL (\$0.21) does not include the costs for collection.

Product stewardship

Product stewardship means that all parties involved in designing, manufacturing, selling and using a product take responsibility for environmental impacts at every stage of that product's life.

The **European Union** enacted producer responsibility requirements for CFLs, among the many products subject to the Waste Electrical and Electronic Equipment Directive (WEEE) recycling scheme. Beginning in 2005, manufacturers, importers and retailers of electronic and electrical goods are required finance and implement systems that allow customers to recycle their obsolete devices free of charge.

In the **United States**, no manufacturers have implemented programs to collect and recycle CFLs.

A few jurisdictions have implemented programs asking manufacturers to participate in the end-of-life management of CFLs. Several states have considered legislation banning the sale of incandescents, as well as providing incentives for the use of CFLs.

- A bill introduced in the Washington state legislature would require manufacturers of lamps to establish recovery programs capable of reaching 80 percent of the lamps generated in the state.
- Several states, including North Carolina and California, are fulfilling legislative requirements to examine management options for CFLs and may recommend product stewardship as a strategy.

For examples and information on the MPCA's product stewardship program: www.pca.state.mn.us/stewardship