



## Net Environmental Benefit of CFLs

Many people are using screw-based compact fluorescent lamps (CFLs). They reduce energy use and last a long time, but CFLs also contain mercury. Is there a net environmental benefit?

The short answer is yes, there's a big environmental benefit to using CFLs. It's true that like all fluorescent lamps, CFLs contain some mercury, which is a hazardous substance. But a typical CFL contains only about 4 milligrams (mg) of mercury. The Natural Resources Defense Council (NRDC) contrasts that with the 25 mg found in a watch battery or the 2 grams found in some home thermostats.

However, that's only part of the mercury picture. A CFL also uses about one-third as much energy as an incandescent bulb that provides the same light output. Given that more than half the electricity generated in the U.S. comes from coal-fired power plants, which are a big source of mercury pollution, using CFLs instead of incandescent bulbs results in a net decrease of emissions of mercury into the environment. The NRDC estimates that in the 10,000-hour life of a CFL, the mercury within the bulb plus the mercury emitted by power plants supplying electricity to the bulb adds up to about 8.0 milligrams. In that same 10,000-hour span, the energy to drive incandescent lamps to provide the same light output might produce 17.6 milligrams of mercury, depending on the type of power plant producing the energy.

To minimize the impact of the mercury found in CFLs, it's important to recycle old lamps if possible or pack them in a plastic bag and dispose of them at a local hazardous household waste site. And if a CFL breaks, care should be taken in cleaning up afterward. Even though the amount of mercury involved is very small (a 4-mg ball of mercury would be barely visible), the U.S. Environmental Protection Agency (EPA) recommends that users take the following precautionary steps: open nearby windows to disperse any vapor that may escape, carefully sweep up the fragments (do *not* use your hands), and wipe the area with a disposable paper towel to remove all glass fragments. Do *not* use a vacuum. Finally, place all fragments in a sealed plastic bag and dispose of it at a hazardous household waste site. (For more details, see [www.nema.org/lamprecycle/epafactsheet-cfl.pdf](http://www.nema.org/lamprecycle/epafactsheet-cfl.pdf).)

CFLs provide other benefits beyond reducing overall mercury emissions. First, because they use less energy than incandescent lamps for the same light output, they reduce the quantity of greenhouse gases emitted by power plants producing the electricity to drive them. According to the EPA's Energy Star program, if every household in the U.S. replaced one incandescent bulb with an Energy Star-qualified CFL, it would be equivalent, in terms of pollution prevention, to removing one million cars from the road. Second, incandescent bulbs last only about 1,000 hours, so in the 10,000-hour typical life span of a CFL, you would have used 10 incandescent bulbs. That means less time spent changing bulbs and less solid waste being generated.