

Dim Bulb or Energy Smart Choice?

By Mark Pierce

One of the most effective actions consumers can take to reduce our nation's reliance on fossil fuels, reduce the production of greenhouse gasses and put money back in their pockets is also one of the easiest. What is this simple action? Change the five most used incandescent light bulbs in your home to compact fluorescent lights (CFL).

Yet, twenty years after the introduction of compact fluorescent lights, only about 6% of American households have switched to CFLs. This is a surprisingly low percentage given the years of educational campaigns conducted by lighting manufacturers, public utilities and government agencies touting the economic and environmental benefits of replacing incandescent bulbs with compact fluorescents. It is especially shocking if you consider that compact fluorescent lights use 66% *less* electricity than incandescent bulbs. A CFL produces 450 pounds fewer greenhouse gases over its lifetime compared to an incandescent bulb. Since 72% of our electricity in the United States comes from burning fossil fuels, using less electricity would also slow down the depletion of fossil fuels.

Why then is there still resistance to these remarkable lights? It is likely a combination of reasons. Older consumers may be resistant to switching because the first generation of CFLs, introduced to the market place over a decade ago, took several seconds to light after they were turned on. Some were prone to a slight humming and flicker. These problems were associated with the magnetic ballasts used in earlier CFLs. Today's lights use electronic ballasts. The light comes on in less than a second and there is no hum or flicker.

Mercury & CFLs

All fluorescent lights, including CFLs, contain a very small amount of mercury sealed within the glass tubing. Mercury is an essential, irreplaceable element in CFLs and is what allows the bulb to be an efficient light source. A CFL contains about 5 milligrams of mercury. That is about the size of the period at the end of this sentence. By comparison, older home thermometers contain 500 milligrams of mercury and many heating system thermostats contain up to 3,000 milligrams. It would take between 100 and 600 CFLs to equal those amounts.

CFLs are safe to use in your home. No mercury is released when the bulbs are in use and they pose no danger to you or your family when used properly. However, CFLs are made of glass tubing and can break if dropped. Even if you do break a CFL, research has shown that there is no health risk to you and your family if you clean up properly.

Follow these steps for proper clean-up:

- Sweep up all glass fragments and particles. Don't use a vacuum.
- Wipe the area with a damp paper towel to pick up any small shards of glass or fine particles. Sticky sided tape, duct tape for example, can be used to pick up very small pieces of glass on carpet.
- Place broken pieces, paper towel and tape in a sealed plastic bag and take to household hazardous waste collection facility.

It is best not to throw burned out or broken CFLs into your household garbage. The mercury contained in these bulbs can be recycled and reused. Take burned out or broken CFLs to a household hazardous waste collection facility or event in your community. To see a list of all household hazardous waste collection programs in New York State go to: <http://www.dec.state.ny.us/website/dshm/redrecy/hhwsun.htm>

CFLs Produce High Quality Light

In fact, on all three measures of lighting quality, efficacy, color temperature and color rendition, the current generation of compact fluorescent lights easily measure up to and surpass the more popular incandescent bulb.

Efficacy is the term lighting experts use to describe the efficiency of artificial lighting. Lumens are a measure of light and the more lumens a bulb produces, the brighter it is. Incandescent bulbs produce about 15 lumens of light per watt of electricity compared to the CFL's 60 lumens of light per watt of electricity. No contest.

Color temperature is what most of us refer to as the color of the light. Yellow-red colors are considered warm and blue-green colors are considered cool. Consumers generally prefer the warmer yellow-red colors. Since early CFLs were only available in just a few colors, they tended to be unpopular. However, today's CFLs come in several color temperatures including the popular yellow-reds, making them identical in color to incandescent bulbs.

Color rendition refers to how colors appear when illuminated by the light source. The Color Rendition Index (CRI) is a 1-100 scale that measures a light's ability to render colors the same way sunlight does. While incandescent bulbs have near perfect color rendering properties, compact fluorescents are not far behind. A typical compact fluorescent scores between 82 and 84 on the CRI scale. A light with a CRI of 80 or higher is considered acceptable for most indoor residential applications. If a higher CRI is desired, a triphosphor fluorescent light can be purchased.

Higher Initial Cost of CFLs is a Worthwhile Investment

Perhaps the most likely reason for the low percentage of use is the significantly higher initial purchase price for compact fluorescents-\$6.00 compared to less than \$1.00 for incandescent bulbs. However, the higher price tag is an investment that can save consumers as much as \$100.00 over the life of the bulb. CFLs last up to 10 times longer, so they don't have to be replaced as frequently and they save on electricity costs. They are also an investment toward reducing green-house gases and foster more sustainable use of the world's energy resources.

So, if you want an immediate reduction in your electricity bills and long term environmental benefits for your children and grandchildren, replace the five most used incandescent bulbs in your home with compact fluorescent lights.

Cornell Cooperative Extension of Steuben County has a Fact Sheet available on *Energy-Efficient Lighting* if you would like further information. You can also learn more about energy efficient lighting and other home related energy costs by visiting the New York Energy Smart website at <http://www.getenergysmart.org/>