



## **ENERGY-EFFICIENT LIGHTING – A Bright Idea**

Here's an amazing energy fact: Only about 10 percent of the energy used by a regular incandescent light bulb goes toward producing light. The rest of the power is wasted as heat! Energy-efficient lights, on the other hand, produce more light than heat with the electricity they use. As a result, they can provide the same amount of light as standard bulbs, using much less energy. And since lighting can account for up to 20 percent of home electricity use, it represents a big area for potential savings.

### **Compact Fluorescents**

Compact fluorescent lights offer the greatest potential for energy savings. Though you may not notice a resemblance at first, they use the same technology as the long, white tube lights you're used to seeing in offices and schools. Manufacturers developed ways to shrink the energy benefits of fluorescent lighting into products that fit into conventional light sockets—hence, the name compact fluorescents. These lights use about one-fourth as much electricity to produce the same amount of light as a standard bulb. That means you can select a bulb with a much smaller wattage requirement to get the light you need. They also last up to ten times longer than incandescent bulbs (10,000 hours compared to 1,000 hours). Compact fluorescents need a few minutes to reach full power after they're turned on, but once warmed up, the light they emit is now similar to the warm glow of incandescents. Manufacturers have also worked to eliminate the flickers and buzzes of fluorescents past. Models with electronic, rather than magnetic, ballasts are especially improved.

### **Compact Fluorescents- Do's and Don'ts**

Compact fluorescents are not appropriate for all home lighting needs. For example, some bulbs are sensitive to temperature and humidity and should not be used in some environments. Some fluorescents won't work below 0 ° F and others fail when it's only 40 degrees! Nor can they be used with dimmer or three-way switches. You should carefully read the characteristics of the bulb on its package. Compact fluorescents are commonly available for less than \$5.00 each. Although more expensive than "regular" light bulbs, they will save you money in the long run by reducing energy use and bulb replacement costs, especially if you follow these simple rules of thumb:

**DO** use compact fluorescents in light fixtures and lamps that are on for more than three hours at a time—in your living room at night, for example. **DON'T** use them in places that are only lit for an hour or so at a time. **DO** use them in hard-to-reach fixtures to save yourself some precarious trips up a ladder. **DON'T** use them in fixtures and lamps that are turned on and off frequently



### **Fluorescent Bulb Purchase and Disposal**

Compact fluorescent lights come in a variety of shapes and sizes. You may not find them at your local grocery store, but hardware and home improvement stores often carry them. Also check the Yellow Pages under “lighting” or call your electric utility. And though they are designed to screw into standard sockets, they don’t always fit into conventional fixtures and shades. Be sure to select models that will work with your light fixtures. These lights will last for years, but when they do finally wear out, don’t throw them away with your regular garbage, because they contain small amounts of mercury. Some communities sponsor household hazardous waste collection days to ensure the proper recycling or disposal of items like these. Contact your city’s public works department to find out about options in your area. If you accidentally break a fluorescent bulb, use a wet rag to collect the broken pieces and then place everything in a sealed container for disposal. Avoid inhaling the mercury during the clean-up process.

**Other Efficient Lighting Options** Halogen bulbs are another energy-efficient home lighting option. They are actually incandescent bulbs with halogen gas inside the glass. The added gas results in about 30 percent more light for the same amount of electricity, and the light quality is brighter and whiter. These bulbs last 2,000 to 4,000 hours. Be aware of safety concerns with halogen lamps. Tests conducted by the consumer Product Safety Commission showed that tubular halogen bulbs of 250 watts or greater installed in torchiere lamps can start a fire if they come in contact with or are too close to combustible materials. These bulbs can reach temperatures ranging from about 970oF for a 300 watt tubular halogen bulb to 1,200oF for a 500 watt tubular halogen bulb. In contrast, a 150 watt incandescent bulb operates at a temperature of about 340oF, and a 75 watt bulb operates at about 260oF. Other types of halogen bulbs operate at lower temperatures than the tubular halogen bulbs. “Reduced wattage” and “long-life” incandescents are widely available and promise to save you energy and money, but they are no more efficient than standard incandescent bulbs. The savings you’ll gain will be mainly due to reduced light output. To help make your light bulb purchasing decisions easier, new labels are now required on all products. Manufacturers must clearly show a bulb’s light output (measured in lumens), how much energy it requires (measured in watts), and how many hours it’s expected to last.

- A 13-16 watt compact fluorescent =
- a 60 watt incandescent in terms of
- light output (around 900 lumens)
- A 20 watt compact fluorescent =
- a 75 watt incandescent (about 1,100 lumens)
- A 23-28 watt compact fluorescent =
- a 100 watt incandescent (about 1,750 lumens)
- A 39 watt compact fluorescent =
- a 150 watt incandescent (about 2,800 lumens)



*Note: bulb light output per wattage varies somewhat from brand to brand.*

When shopping for an energy-saving fluorescent bulb, don't choose it by wattage, but instead look for bulbs with a high lumens/watts ratio. For example, a 75W incandescent bulb produces about 1,200 lumens, for a lumens/watts ratio of 16:1. You get nearly the same light output with an energy-saving 18W fluorescent bulb that has a lumens/watt ratio of 61:1. To calculate the ratio, divide the number of lumens, printed on the package, by the bulb's wattage.

### **Lighting Tips**

No matter what type of light bulbs you choose, you'll be guaranteed to save energy if you put into practice these common-sense tips:

- Turn lights off when you're not using them.
- Take advantage of natural light from windows whenever possible.
- Don't use more light than you need.
- Focus the light on where it is needed most.
- Regularly dust your light bulbs and fixtures to prevent dirt build-up.

### **For More Information**

For more information about energy-efficient lighting, contact your local utility, the Human Resources Development Council, the tribal weatherization office, or the MSU Extension office in your county. **For the HRDC or tribal weatherization office nearest you, call 1-800-332-2272.**