



Energy-efficient home lighting

FACT SHEET



**ENERGY STAR
PRODUCTS**

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The familiar pear-shaped incandescent light bulb has been a staple in the lighting fixtures in most of our homes. Yet, the incandescent bulb is actually better at producing heat than light and uses a lot of electricity in the process. ENERGY STAR[®] qualified compact fluorescent lights (CFLs) save energy and money while providing quality light for your home.

USE COMPACT FLUORESCENT LIGHT BULBS IN HIGH-USE FIXTURES

Replace standard incandescent bulbs with CFLs in fixtures that are on for three or more hours per day. High-use lighting areas include kitchens, living rooms, recreation rooms and outdoor fixtures. By replacing the incandescent light bulbs in the five light fixtures you use the most frequently with ENERGY STAR qualified CFLs, you may save more than \$65 per year.

About CFLs

Today's CFLs incorporate the best features of fluorescents—high efficiency and long life—and produce steady, quiet, warm white light. The problems of poor color, flicker and hum that plagued the first bulbs that were introduced in the 1980s have been eliminated.

CFLs now come in a variety of shapes and sizes to fit different fixtures. Today there are CFLs that work with dimmer switches, 3-way lamps, in recessed cans and outdoor applications. CFLs also last up to ten times longer than incandescent bulbs so you don't have to replace bulbs as often. Not only do you buy fewer bulbs, you use less electricity.

Light Output

CFLs use far fewer watts than an incandescent bulbs to produce the same amount of light. Light output is measured in lumens at the light source. To determine if the light is bright enough, be sure that it produces sufficient lumens to meet your needs.



Color Temperature

Different light bulbs emit different colors of light. Lighting color ranges from cool to warm tones, and is known as color temperature. The color temperature of a light source indicates the color of the light emitted measured in degrees Kelvin. ENERGY STAR qualified bulbs offer a range of color temperature choices.

Warm: (2700° to 3000° Kelvin) A warm color temperature is preferred by people who like the color of light from incandescent bulbs. Lighting with warm color temperatures creates a welcoming atmosphere in bedrooms, dining rooms and living rooms.

Cool: (4100° Kelvin and up) Cooler color temperatures are sometimes preferred for clean, clear light in kitchens and in bathrooms.

SAVINGS FOR CFLS		
INCANDESCENT BULB	COMPACT FLUORESCENT BULB (approximate equivalent wattage)	LIFETIME SAVINGS
40 watt	9 – 11 watt	\$15 – \$25
60 watt	13 – 17 watt	\$25 – \$30
75 watt	18 – 20 watt	\$30 – \$35
100 watt	23 – 26 watt	\$40 – \$45

BASED ON 6,000-HOUR BULB LIFETIME
BURNING 3 HOURS/DAY AT 0.098 CENTS PER KWH

INCANDESCENT BULB	COMPACT FLUORESCENT BULB	LIGHT OUTPUT IN LUMENS
40 watt	9 – 11 watt	450
60 watt	13 – 17 watt	800
75 watt	18 – 20 watt	1,100
100 watt	23 – 26 watt	1,600



Shopping Tips

When shopping for a CFL, keep the following guidelines in mind:

- Look for the ENERGY STAR label for products that meet or exceed government energy efficiency standards.
- Check the size of your light fixture so you buy the correct bulb size. CFLs come in a range of shapes, sizes and wattages.
- Select dimmable bulbs for use with dimmer switches. Not all CFLs are suitable for use with dimmer switches.
- Choose a CFL that uses one-third the wattage of the incandescent bulb you're replacing. For example, replace a 75-watt incandescent with a 20-watt CFL. This will ensure adequate illumination.
- Protect CFLs installed in outdoor fixtures from moisture.

Compact Fluorescent Fixtures

When purchasing new lighting fixtures, (floor or table lamps, wall or ceiling-mounted fixtures, or outdoor fixtures) look for ENERGY STAR qualified models. These fixtures are available in many styles and sizes and use energy efficient fluorescent bulbs (CFLs or tubes).

Torchieres

Compact fluorescent torchiere floor lamps have been available since 1997. They use a CFL that delivers more lumens per watt than their halogen counterparts and operate more than 600°F cooler. Their higher purchase price is quickly offset by lower operating costs. A 65-watt compact fluorescent torchiere operating four hours a day uses 95 kWh per year, and at 8¢ per kWh, costs less than \$8 a year to operate.

In comparison, halogen torchiere floor lamps' low purchase price masquerade as a good deal, when in reality they are expensive to operate and dangerous to use. Most use 300-watt quartz halogen bulbs deliver as few as 15 lumens per watt and operate at temperatures in excess of 800° F. These lamps have caused fires when flammable materials such as curtains or drapes have come in contact with the bulb. They can pose a hazard for children or pets. They also use a lot of electricity. A 300-watt torchiere operating for four hours a day uses 438 kWh a year. At a rate of 8¢ per kWh, the operating cost is \$34 per year, more than the cost of the fixture itself.

CFL SAFETY AND DISPOSAL

CFLs use a very small amount of mercury - about the amount that would cover the tip of a ballpoint pen. No mercury is released when the bulbs are intact or in use. Following are some tips for safe use and proper disposal if a bulb breaks or it burns out:

- Always screw and unscrew the lamp by its base (not the glass), and never forcefully twist the CFL into a light socket.
- The Environmental Protection Agency (EPA) recommends that consumers take advantage of local recycling options for disposal of CFLs.

SOME DEFINITIONS

CFLs. Compact fluorescent light bulbs—low wattage, high lumen output lamp commonly replacing incandescent light bulbs today.

Fluorescent lighting. Method of producing light by sending electrical current through a tube of ionized gas.

Incandescent lighting. Method of producing light by heating a tungsten or halogen element.

Lumens. A measure of brightness of a light source. A 24W CFL and a 75W incandescent both provide about 1200 lumens of brightness.

Watts. A measure of electrical power.

kWh. A kilowatt hour is a measure of electricity used over time. For example, ten 100-watt light bulbs, left on for one hour, would use one kWh (or 1,000 watt hours) of electricity.

- If a CFL bulb should break, refer immediately to the "Compact Fluorescent Light Bulbs (CFLs) and Mercury" fact sheet on the ENERGY STAR Web site for safe handling. (<http://www.energystar.gov/cflsandmercury>)

MORE INFORMATION

www.duke-energy.com

For more information about smart energy choices and Duke Energy's Energy Efficiency programs.

energystar.gov

The ENERGY STAR site provides information on energy efficient products that meet ENERGY STAR standards. The lighting product information pages cover CFLs, fixtures and ceiling fans.