

The Facts of Light

Lighting accounts for a significant portion of the electricity used in the United States. In commercial buildings, about 28 percent of the total energy bill is for lighting, and in homes, about ten percent.

Most of the artificial light, especially in residences, is produced by incandescent light bulbs, using the same technology developed in 1879 by Thomas Edison. These bulbs are surprisingly inefficient, converting up to 90 percent of the electricity into heat instead of light.

If the country converted to the newest lighting technologies, the electricity consumed to produce light would be reduced by 70 percent. This would reduce carbon dioxide emissions equivalent to removing one-third of the nation's cars (43 million) from the highways. Reducing the electricity used for lighting by just one percent would eliminate the need for an average-sized power plant.

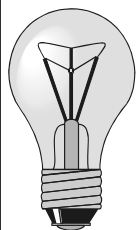
Recent developments have produced compact fluorescent lights (CFLs) that are four times as efficient as incandescent bulbs and last up to 13 times longer. Over the life of the bulbs, CFLs cost the the average consumer less than half the cost of traditional incandescent bulbs for the same amount of light. In addition, CFLs produce very little heat, reducing the need for air conditioning in warm weather.

Why doesn't everyone use CFLs? There are three reasons: lack of education about CFLs, the high initial cost (between \$10–20 per bulb), and consumer buying habits. Lots of people have never heard of CFLs, and few know that converting to CFLs can save so much money and electricity. Many people see the price tag and think they're getting a bargain when they buy 10–20 incandescents for the price of one CFL. They don't understand that they can reduce their electric bills by 25 to 50 percent by converting to CFLs.

Replacing one 100-watt incandescent with a CFL can:

- save 600 pounds of coal
- reduce carbon dioxide emissions by 1,020 pounds
- reduce sulfur dioxide emissions by four pounds
- reduce nitrous oxide emissions by three pounds
- reduce mercury emissions by 40%

Do CFLs really save money? **DO THE MATH**



Cost of Bulb	INCANDESCENT	CFL
Life of bulb (how long it will burn)	1,000 hours	10,000 hours
Number of bulbs to get 10,000 hrs	10 bulbs	1 bulb
x Price per bulb	\$0.50	\$10.00
= Cost of bulbs for 10,000 hrs of light	\$5.00	\$10.00
Cost of Electricity		
Total hours	10,000 hours	10,000 hours
x Wattage (divide by 1,000 to get kW)	100 watts = 0.10 kW	30 watts = 0.030 kW
= Total kWh consumption	1,000 kWh	300 kWh
x Cost of electricity per kWh	\$0.08	\$0.08
= Cost of electricity	\$80.00	\$24.00
Life Cycle Cost		
Cost of bulbs	\$ 5.00	\$10.00
+ Cost of electricity	\$80.00	\$24.00
= Life Cycle Cost	\$85.00	\$34.00

