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Lighting

Energy Knowledge Positively Correlates with Key Energy-Saving Activities

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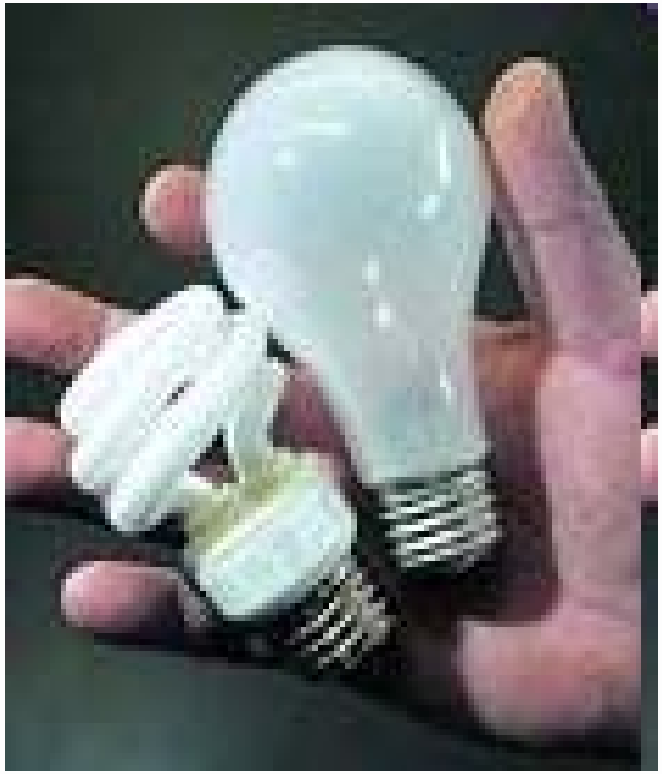
Incandescent vs. Compact Fluorescent (CFL)



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The least efficient are incandescents because almost 90% of the energy is converted to heat instead of light.

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A more efficient light bulb is the CFL. It uses 75% less energy and can last up to 10 times longer than an incandescent.

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Fact

If every American home changed out just one light bulb each family would save up to $20 in energy costs per bulb.

-Energy Star

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Fact

Your home can cause more greenhouse gas emissions than your car. When you use less energy at home, you reduce greenhouse gas emissions from power plants and help protect our environment from the risks of global climate change.

-U.S. EPA

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Fact

If every American replaced just one light bulb in their home with an Energy Star qualified bulb, we would save enough energy to light more than three million homes for a year, more than $600 million in annual energy costs, and prevent green house gases equivalent to the emissions of more that 800,000 cars.

-U. S. EPA

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1-year savings per family using six CFL's

(based on 3 hours daily use per light)

- Energy Saved: 300 KWH
- Coal Saved: 300 lbs.
- CO_2 Reduced: 660 lbs.
- SO_2 Reduced: 3.6 lbs.
- NO_x Reduced: 2.5 lbs.
- Money Saved: $24.00

(based on 8¢ per KWH)

references: Energy Information Administration
Rocky Mountain Power

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1-year savings for a city using one CFL per resident - Population: 45,000

(based on 3 hours daily use per light)

- Energy Saved: 2,250,000 KWH
- Coal Saved: 2,250,000 lbs.
- CO_2 Reduced: 4,950,000 lbs.
- SO_2 Reduced: 27,000 lbs.
- NO_x Reduced: 18,450 lbs.
- Money Saved: $180,000

(based on 8¢ per KWH)

references: Energy Information Administration
Rocky Mountain Power

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1-year savings for USA using one CFL per resident -Population: 296 million

(based on 3 hours daily use per light)

- Energy Saved: 14.8 **billion** KWH
- Coal Saved: 14.8 **billion** lbs.
- CO_2 Reduced: 32.6 **billion** lbs.
- SO_2 Reduced: 178 **million** lbs.
- NO_x Reduced: 121 **million** lbs.
- Money Saved: $1.184 **billion**

(based on 8¢ per KWH)

references: Energy Information Administration
Rocky Mountain Power

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Fact

Turning lights off in unoccupied rooms can save $10 per year for each office area, $5 per year for each restroom or storage room.

What can you do…?

Make certain storage and restroom lights are off when not in use. Turn off lights in unoccupied offices and post reminders on light switches.

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LED Lighting

LED lights are usually designed in colors as opposed to translucent lights.

Energy efficient and safe!

Uses include:

- Christmas lights
- Exit signs
- Traffic lights
- Flashlights
- Toys
- Elevator push buttons
- Movement sensors
- Glow lights
- Lightweight displays
- Brake lights
- Remote control lights

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Changing starts with simple actions. When you replace light bulbs or entire light fixtures in your home and at your workplace with ones that are more energy efficient, you help preserve energy resources and contribute to a cleaner environment while saving money at home and at work.

"Watt's" It All About?

Is a light bulb worth $4.00? That's approximately how much a 20-watt compact fluorescent bulb costs. It may seem like a lot when a 75-watt incandescent bulb with the same light output only costs $0.25, but the answer isn't as easy as it seems.

The cost of purchasing a light bulb, or any other electrical appliance, is only a fraction of its lifecycle cost. The life-cycle cost includes the cost of purchasing the appliance plus the cost of operating it for as long as it lasts. Although the cost of purchasing an energy-efficient appliance or light bulb may be more than buying other appliances, when you figure in life-cycle costs, they may be much less expensive.

Compare the 20-watt compact fluorescent bulb with the 75-watt incandescent bulb. Most of the information you need to make this comparison should be printed on the light bulb package.

	Compact Fluorescent	**Incandescent**
Bulb wattage	20-watts	75-watts
Light output (lumens)	1,200	1,200
Life expectancy (hours)	10,000	1,000
Energy cost per kWh	$0.08	$0.08
Total energy cost	$16.00	$6.00
Cost of new bulb	$4.00	$0.25
Life-cycle cost	$20.00	$6.25
Number of bulbs to equal longer life bulb	1	10
Life-cycle cost comparison	$20.00	$62.50

Take Action!

1. Total energy cost: To figure total energy cost, start by converting the wattage of the bulb to kWh by dividing by 1,000.

A) 20-watts ÷1000 = .020 kW

To figure the total energy usage, multiply the kW by the life expectancy.

B) .020 kW x 10,000 h = 200 kWh

Then figure the total energy cost by multiplying energy usage by the utility cost.

C) 200 kWh x $.08/kWh = $16

2. Cost of the new bulb: The price of purchasing the bulb.

3. Life-cycle cost: This is the cost of the bulb, together with the total energy cost.

4. Number of bulbs to equal longer life bulb: To get this, divide the life expectancy of the shorter life bulb into the life expectancy of the longer life bulb.

10,000 hrs ÷ 1,000 hrs. = 10

5. Life-cycle cost comparison: The 20-watt bulb lasts for 10,000 hours and has a life-cycle cost of $20.00. To light a room with a 75-watt incandescent bulb, the life-cycle cost would be the life-cycle cost ($6.25) multiplied by the number of bulbs (10) needed to last 10,000 hours.

$6.25 x 10 = $62.50

	Compact Fluorescent	**Incandescent**
Bulb wattage	-watts	-watts
Light output (lumens)	_____	_____
Life expectancy (hours)	_____	_____
Energy cost per kWh	$0.08	$0.08
Total energy cost	$_____	$_____
Cost of new bulb	$_____	$_____
Life-cycle cost	$_____	$_____
Number of bulbs to equal longer life bulb	_____	_____
Life-cycle cost comparison	$_____	$_____