

Green Irene Energy Efficient Lighting Calculator



Directions:

1. Choose the number of lightbulbs you will consider replacing and enter the values into the yellow boxes.
2. Enter your own values in the green boxes or use the default value for electricity cost and hours per day each bulb is turned on.
3. Check out your results generated from EPA data in the bottom area (Dollar savings, Environment savings)



Electricity Rate (\$/kWh) **\$ 0.240**

Get this from your Electric Bill or see avg rates on "Electricity Rates" Tab. Include Supply, Delivery AND Taxes/Fee for a total cost per kWh. The higher the rate, the higher the savings from using our bulbs. Range should be between .10 and .35 depending on where you live in the USA

Green Irene Energy Efficient Bulbs offered thru our Eco-Consultants

| Shape | # bulbs | Hours/day | |
|------------|---------|-----------|--|
| Spiral | 1 | 3 | Mini Spiral 9w (40w) |
| Spiral | 2 | 3 | Spiral 15w (60w) DIMMABLE |
| Spiral | 2 | 3 | A Lamp Covered 14w (60w) |
| Spiral | 1 | 8 | A Lamp Covered 14 w (60w) Yellow Bug |
| Spiral | 3 | 3 | Mini Spiral 14w (60w) |
| Spiral | 0 | 3 | Premium Mini Spiral T2 15w (60w) |
| Spiral | 4 | 3 | Mini Spiral 19w (75w) |
| Spiral | 0 | 3 | Premium Mini Spiral T2 20w (75w) |
| Spiral | 1 | 3 | Spiral 23w (100w) DIMMABLE |
| Spiral | 2 | 3 | Mini Spiral 23w (100w) |
| Spiral | 0 | 3 | Premium Mini Spiral T2 23w (100w) |
| Spiral | 1 | 3 | 3 Way Spiral 12w/22w/33w (50w/100w/150w) |
| Reflector | 0 | 6 | R20 Cold Cathode Indoor Floodlight 5w (30w) DIMMABLE |
| Reflector | 8 | 6 | R20 Indoor Reflector 14w (50w) |
| Reflector | 0 | 6 | R30 Indoor Reflector 16w (60w) DIMMABLE |
| Reflector | 0 | 6 | R40 Indoor Reflector DIMMABLE 19w (75w) |
| Reflector | 8 | 6 | R30 Indoor Reflector 16w (75w) |
| Reflector | 1 | 8 | PAR 38 Outdoor Floodlight 23w (100w) |
| Reflector | 4 | 6 | R40 Indoor Reflector 23w (120w) |
| Flame Tip | 8 | 3 | Flame Tip Cold Cathode 5w (30w) DIMMABLE |
| Torpedo | 3 | 3 | Torpedo 9w (40w) |
| Globe | 0 | 3 | G25 Globe Cold Cathode 5w (30w) DIMMABLE |
| Globe | 4 | 3 | G25 Globe 9w (40w) |
| Nightlight | 4 | 8 | LED Directional Nightlight 360 Swivel |



Spiral



A Lamp Covered



3 Way Spiral



R20



R30



R40



PAR 38 Floodlight



Flame Tip



Torpedo



Globe

Dollar Savings Summary

| | |
|---|--|
| Number of wasteful incandescents replaced with energy efficient bulbs in your home | 57 |
| Cost of 1 set of energy efficient bulbs (excluding tax and shipping) | \$536 |
| Cost of 1 set of wasteful incandescents (excluding tax and shipping) | \$178 |
| Initial additional cost of energy efficient bulbs over wasteful incandescents | \$358 |
| \$ Savings over life of energy eff bulbs (energy sav + avoided cost of replacing shorter lived incandescents) | \$6,735 |
| \$ Savings over the life of energy efficient bulbs less additional cost to buy energy efficient bulbs | ***** \$6,377 \$\$\$ SAVINGS ! |
| Total savings as a percent of your initial investment in energy efficient bulbs with Green Irene | 1191% Return on Investment |
| Cost of energy used over the lifetime of our energy efficient bulbs | \$2,500 |
| Cost of energy used over the same time period by the incandescent bulbs generating the same amount of light | \$8,918 |
| ANNUAL energy savings (included as the MAIN SOURCE OF \$ SAVINGS) | \$1,111 |
| Your investment in energy efficient lighting is paid back from savings in x years | 0.3 year(s) |

Environment Savings Summary

| | |
|--|-------------------------------|
| Energy saved over the life of energy efficient bulbs (kWh) | 26,743 kWh |
| Powerplant Greenhouse Gas emissions reduced over the life of your energy efficient bulbs (lbs of CO ₂) | 41,051 lbs of CO ₂ |
| Reducing CO ₂ by this amount is equivalent to removing this number of cars from the road for a year | 3.6 cars |
| Reducing CO ₂ by this amount is equivalent to the CO ₂ removed by this number of acres of forest in a yr | 5.1 acres of trees |



Representative Savings by Type of Homes

| | Bare Minimum Low Electric Rate | Small Home Med Electric Rate | Medium Home Medium Electric Rate | Large Home High Electric Rate |
|---|---|---|---|---|
| Energy Rate/kWh | \$ 0.120 | \$ 0.150 | \$ 0.150 | \$ 0.240 |
| Number of Bulbs | 14 | 31 | 44 | 57 |
| Retail cost from Green Irene when you buy these bulbs | \$ 93 | \$ 261 | \$ 457 | \$ 536 |
| Types of bulbs bought | Just some Spirals and nightlights No Dimmables | More spirals, R30 Torpedos, outdoor Few Dimmables | Lots of spirals, R40s Dimmables, R20s and outside | Lots of spirals, R20s, R40s Chandelier and torpedos and nightlights and outside |
| \$ Savings over the life of energy eff bulbs less addl cost to buy energy eff bulbs | \$ 1,144 | \$ 2,446 | \$ 3,526 | \$ 6,377 |
| ANNUAL energy savings (included as the MAIN SOURCE OF \$ SAVINGS) | \$ 109 | \$ 352 | \$ 460 | \$ 1,111 |
| Cost of energy used over the lifetime of our energy efficient bulbs | \$ 254 | \$ 620 | \$ 874 | \$ 2,500 |
| Cost of energy used over the same time period by the incandescent bulbs | \$ 1,332 | \$ 3,008 | \$ 4,496 | \$ 8,918 |
| Years (or part of year) to Pay Back the Investment in Green Irene energy efficient bulbs | 0.7 | 0.5 | 0.8 | 0.3 |
| CO ₂ reduction from this change is equivalent to removing this number of cars from the road for a year | 1.2 | 2.1 | 3.2 | 3.6 |



Green Irene Bulb Buyers Guide

Green Irene has selected the best available bulbs for each shape and wattage. There is a big difference between the cheapest CFLs and the high quality CFLs and Cold Cathodes which Green Irene sells.

Our philosophy has been to select the best bulbs available to reduce the chance of early burn out and make them come to full brightness quicker and have the best possible color. The savings over using wasteful incandescents is so significant that we think our clients want the better bulbs which still saving an incredible amount of energy and money and CO2 emissions (from electric power plants).

Ask for your free four page "Green Irene Guide to Energy Efficient Lighting" to learn more and search AskGreenIrene.com where much more information on energy efficient lighting is available. Access to our comprehensive Greenbase and team of human researchers is included FREE with a Green Home Makeover.

Green Irene Personalized Energy Efficient Lighting Calculator

Your local Eco-Consultant can prepare a summary showing how much money you will save by switching the bulbs in your home. Enclosed with a sample scenario where four different homes have been switched to CFLs, ranging from 14 to 57 bulbs with a net savings of \$1144 to \$7145 depending on variables like the local price of electricity. In addition to being one of the best FINANCIAL INVESTMENTS you can make (often repaid from savings in 3-4 months), there is a significant reduction in CO2 generated equivalent to taking several cars off the road for a year. The results are EYE OPENING!

To generate these estimated savings we assume that spirals and chandelier lights are on 3 hours a day, while reflectors used in the kitchen and family room are on 6 hours a day while outdoor lights and nightlights are on 8 hours a day. (You can change these assumptions). You input your actual electricity rate or you can use state by state estimated we provide.

Save Significant Money on Electricity Costs

Save over 75% on energy costs compared to similar light output from wasteful incandescent bulbs. With rising costs of electricity, this is significant will be even more significant.

Long Life = Savings

Green Irene's preferred CFLs last 10-13 times as long as wasteful incandescent. Green Irene's preferred Cold Cathodes last 25 times as long as wasteful incandescent. Not only that but Green Irene selects the best CFLs, which may last 8,000-12,000 hours while "cheap" CFLs with poor base electronics only last 2,500 hours.

Because you replace these bulbs much less often, you save time and money in shopping for and replacing bulbs (and getting out that ladder for hard to reach places). By using only ONE CFL rather than 12 incandescents or ONE COLD CATHODE rather than 25 incandescents, you save significant money and put much less waste in the landfill. Additionally there are free recycling programs for CFLs while none exist for incandescents.

Faster to Full Brightness

Green Irene's selected bulbs have Quick Start technology and are much faster to full brightness than cheap CFLs and are flicker free when used in the correct fixture. (Never use a regular CFL in a dimming switch!)

Dimmable where needed

Green Irene selects the best bulbs for use in a dimming fixture. Only use dimmable CFLs in a dimming switch or use a cold cathode if they provide enough light (for example in a chandelier). Green Irene dimmables dim from 100% to 10%, which is a much wider range than other less expensive dimmable CFLs.

Many inexpensive brands of dimmable CFLs do not come to full brightness quickly and do not work in many dimming switches. Green Irene dimmable CFLs (and our Cold Cathodes) work in most all dimmers, and you can try them at home with your Eco-Consultant before you buy!

Energy Star Rated

Green Irene selects EPA Energy Star rated bulbs when the EPA rates a certain shape and wattage (not all sizes are eligible for Energy Star certification). All Green Irene bulbs are UL listed (Underwriters Laboratory)

Green Irene Offers a Wide Range of Shapes, base types and covers

Green Irene carries not just the standard spiral, but covered spirals, globes, flame time (for chandeliers'), torpedo, reflectors and even a CFL bug light. We have the standard Edison (E26) base or candelabra base and can offer you the popular 2700k soft white or the 4100k temperatures for reading lights.

Green Offers Lower Mercury Options

Want the lowest possible mercury in your CFL? Consider paying little bit extra for our Premium spiral CFLs which have just 1 milligram of mercury (a 75% reduction from the industry standard 3-4 milligrams) making the premium CFLS safer for the environment when disposed of at the end of their life. They have less because the smaller T2 tubing puts out the same light with less internal coating needed.

The amount of mercury in a CFL bulb is about equal to the tip of a ballpoint pen. There is far less mercury in a CFL (1 to 4 mg) than in an old thermometer (500 mg) which your mother stuck under your tongue!

Keep in mind that if you stay with wasteful incandescents the extra generation of electricity from coal fired power plants releases five times more mercury INTO THE AIR and generates "greenhouse gasses" that are the root cause of global warming. Always recycle your CFLs and do not put them in the landfill as the mercury is reclaimed from recycled CFLs and re used!

Green Irene Guide to Energy Efficient Lighting



About a year ago I carted an armload of new light bulbs home. My intentions were good and I was excited to be doing my environmental part. My excitement slowly waned as each bulb I tried presented a different problem – some didn't fit my lamp sockets or under the shades, some had a cold light reminiscent of a hospital, some had to warm up before annoyingly clicking on. I returned them all and ended up in the lighting aisle once again. As I studied the packaging, my toddler pulled toward the toy department and ice cream in my cart began to melt. I gave up, grabbed a sleeve of familiar 100W bulbs, and headed home.

I hope that Green Irene has saved you from this labyrinth of lighting issues! By choosing to swap your old light bulbs for CFLs (Compact Fluorescent Light Bulbs) you have taken one of the easiest and most effective steps toward going green. If only all conservation were this easy! As you learn more about CFLs, you will be amazed to realize the impact small choices have on our planet.

Lighting Hasn't Changed in 100 Years... Until Now

Since Edison's model in the 1870s, the light bulb has changed very little. His incandescent bulb turns electrical energy into heat. This heat causes the tiny wire filaments inside to glow white. This "white" is light. The problem with this model is that since heat isn't light, and the sole purpose of the bulb is light, all the energy spent creating heat is wasted. Only ten percent of the standard incandescent bulbs electricity turns into actual light. The electricity powering these bulbs comes into our homes from power plants. To create energy, power plants use the combustion of fossil fuels, such as coal and oil. When fossil fuels are burned they emit gases, like carbon dioxide (CO₂), into the atmosphere. Naturally occurring "greenhouse gases" (GHGs) insulate the planet and allow life to flourish on Earth. The excess GHGs we contribute to the atmosphere, however, is creating global

climate change. That is the connection between your light bulb and disappearing glaciers.

If there were only a way to decrease the heat production of a bulb, while increasing its light output, less energy would be need and less CO₂ produced. Enter the Compact Fluorescent Light Bulb. The word "fluorescent" congers up bad images that none of us want to bring into our homes. We think of office buildings, long drab hallways and flickering headache producing light. With Green Irene's help, your energy efficient lighting will have none of these characteristics.

How CFLs Work

CFLs produce light in a completely different way than the incandescent bulb. When a CFL is turned on, an electrical current causes a chemical reaction which produces light with much less heat. A CFL bulb uses only one quarter of the energy of an incandescent to produce the same amount

of light. When you choose to replace one incandescent bulb with a CFL, 500 fewer pounds of coal will be used over the life of that bulb. The life of that CFL, by the way, is up to ten times longer than your old bulb. If every American household replaced just one incandescent bulb with a CFL, the greenhouse gases that would NOT be released are equal to the annual emissions of nearly 800,000 cars. There is no question that CFLs are the green way to go.

What it the Downside?

I know you are thinking that there has to be a downside, or everyone would be making this switch. The biggest consumer concern about CFLs is that their initial price is higher than incandescents. "Initial" is the operative word. If you calculate the dramatic decrease in energy use and increase in life of the bulbs, you will SAVE \$30-\$50 for each CFL used and more if you live in areas where electricity is particularly expensive. As CFLs can last up to ten times longer than an incandescent, you will also be saving your time in shopping not to mention time spent up on a ladder! Corporate America is quickly realizing the savings as well. Wal-Mart saw the potential economic impact to their bottom line. They calculated that swapping the light bulbs in their stores' ceiling fan displays alone would save \$6 million annually in energy costs. Think of the impact if each of Wal-Mart's 100 million regular customers swapped just one bulb to a CFL.

CFLs are at their maximum efficiency when used in lights that remain on for periods of time longer than 15 minutes. In our home, and I am guessing in yours, the high usage lights are the ceiling lights in our kitchen, the table and floor lamps in our living room and those in our family room. These are the perfect lights to replace with CFLs. Another target area would be lights that are extremely difficult to access, such as in vaulted ceilings. There is great benefit in not having to get up there very often! Closets and crawlspaces, where the lights are on for brief periods of time, are areas where CFLs will have less impact.

Green Irene Only Sells Energy Star Certified Bulbs

As in other areas of home environmental issues, the EPA and Department of Energy has applied Energy Star labels to lighting. Energy Star CFLs, like those carried by Green Irene, must meet very strict standards. One component of a CFL bulb is the ballast within the metallic screw base. These can be either magnetic or electronic. Those with magnetic ballasts may be cheaper upon price comparison. They will, however, take a few seconds to "plink" on and may take more time to reach their full light output. Green Irene's Energy Star CFLs have high quality electronic ballasts that will prevent any annoying flicker or hum.

The time may come when you are looking to do more than merely replace bulbs in existing fixtures. If you are thinking of building, or remodeling, consider buying light fixtures that carry the Energy Star seal. These fixtures have been designed to use one quarter of the energy of their traditional counterparts.

Shapes, Size and Colors

Energy Star CFLs are available in various sizes, colors, and can fit in many different fixtures. The trick is matching the bulb to the task. Generally, spiral fluorescent bulbs are ideal in fixtures allowing airflow such as lamps, pendants, and wall sconces. For recessed fixtures, flood CFLs cast light evenly on your task area. Globes can be used in vanity strips found over bathroom sinks, or in hanging pendant lamps. If your lamp is designed to reveal part of the bulb, you may want to consider CFLs covered to look like a standard incandescent. Green Irene offers CFLs designed to replace a three way incandescent switch. Some CFL styles will have a base larger than the incandescent it replaces. Green Irene carries any necessary socket and harp adapters. Dimmable switches cannot be adapted to standard CFLs. Green Irene offers special dimmable CFL bulbs. CFLs can be used outdoors but must be protected from the elements.



Aline



Flood Light



Globe



Candelabra Torpedo

CFLs do not function well at extremely low temperatures. An enclosed fixture may help keep the bulb warmer and functioning properly. Green Irene sells cold starting CFLs for situations where temperatures will drop below 14 degrees F.

The light produced by CFLs falls in a range of colors. The relative warmth to the human eye is expressed on the bulb package in terms of "K". 2,600 K light is relatively warm and yellowish described by the labels "soft white", or "warm white". This light will bring out natural color tones and is ideal for kitchens, bathrooms and home offices. 4,000 K light is considered cold white, or bluish. This light may be labeled "bright white" and produces a clean light good for garages and basements. A light greater than 5,000K will be called "daylight", or "natural", and works well for commercial spaces such as galleries, stores and restaurants.

Stay Tuned For More on LEDs

The next hot topic in lighting, no pun intended, will be LEDs (Light Emitting Diodes). These bulbs have been around for awhile (think Christmas tree lights) but are just entering into the general home lighting market. They are semiconductor devices that turn electricity directly into light with very little generation of heat. They are high efficiency, are extremely shatterproof and have a practically unlimited life. They last ten times as long as a CFL and 133 times longer than incandescents. Currently, they are also expensive. Your local Green Irene has a selection of LED bulbs which will enable you to save the most energy and generate the least waste. There are niche decorative applications for LEDs. They produce a very direct "spot" of light and work best when aimed directly at your target. You may like them in recessed downlights, pendants, wall sconces and task lighting. LEDs produce a very white light that feels cold to some and dramatic to others. We expect this area of energy efficient lighting to develop rapidly and Green Irene will keep you posted.

A Word About Mercury

Do not panic when I tell you that CFLs contain a small amount of mercury. It is important to be aware of this, but also to keep it in perspective. A single CFL bulb contains about 5mg of mercury. In comparison, the thermometers our mothers all stuck under our tongues contained 500mg of mercury. When a CFL is in use and intact, no mercury is released. The EPA does recommend taking advantage of local recycling options for disposal of used or broken CFLs. Many communities, unfortunately, still lack any type of hazardous waste disposal. Your local Green Irene Eco Consultant will recycle your used CFL bulbs as part of your Ask Green Irene Membership.

Keep in mind that coal fueled power plants are the largest man-made source of mercury emissions in this country. Mercury, which exists naturally in coal, is released into the air when coal is burned to make electricity. A power plant

emits 10mg of mercury producing the electricity to run an incandescent bulb compared to only 2.4mg of mercury to run a CFL for an equivalent time. There is a net benefit to the environment of using the more energy efficient light. If you do break a CFL bulb, sweep up like you would with any other light bulb disaster. Put the pieces in a plastic bag and throw it away. Just to be safe, wash your hands well.

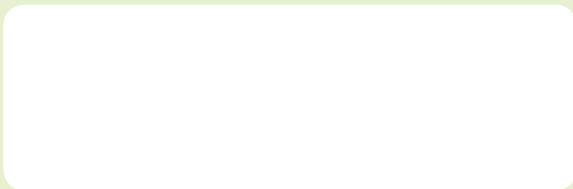
Be Prepared to Practice What You Preach

As you are congratulating yourself on your decision to go green with your lighting, don't forget to train your little ones to flip the switch. If your children are like mine, they will quickly become the family environmental watchdogs. Nothing will delight them more than catching you forgetting to turn off a light.

Let Green Irene save you from the labyrinth of green lighting issues! By letting us swap your old light bulbs for CFLs (Compact Fluorescent Light Bulbs) you have taken one of the easiest and most effective steps toward going green. If only all conservation were this easy!

Featuring our Green Home Makeovers, EZ Bulb Swap Outs, GO GREEN Parties and over 100 of the best Green Home products available. Your local Green Irene will be there to be that Green Friend you wish you had and can give you the advice you need to move your family towards a more healthy, green, low impact lifestyle.

Your Local Green Irene Eco-Consultant



Green Irene eco-consulting services and Green Irene-recommended green home products are provided by independent authorized Green Irene Eco-Consultants

