

ENERGY INDEPENDENCE AND SECURITY ACT OF 2007 (EISA)

FREQUENTLY ASKED QUESTIONS

What is this “light bulb” law?

The Energy Independence and Security Act of 2007 (the “Energy Bill”), signed by President George W. Bush on December 18, 2007 is an energy policy intended to make better use of our resources and help the United States become energy independent. The law provides important benefits to consumers, industry, our country and our environment.

Part of the law sets energy efficiency standards for light bulbs; the first phase goes into effect January 2012. This document addresses frequent questions and some common misconceptions about the law.

What does the law require?

Under the new law, screw-based light bulbs will use fewer watts for a similar lumen output. The standards are technology neutral, which means any type of bulb can be sold as long as it meets the efficiency requirements. Common household light bulbs that traditionally use between 40 and 100 watts will use at least 27% less energy by 2014. The law applies to the manufacturer date and will begin affecting 100-watt bulbs in January 2012 and end with 40-watt bulbs in January 2014. California began the transition one year earlier.

The law is being phased in over the next three years:

Today's Bulbs	After the Standard	Standard Effective Date
100 watt	≤ 72 watts	January 1, 2012
75 watt	≤ 53 watts	January 1, 2013
60 watt	≤ 43 watts	January 1, 2014
40 watt	≤ 29 watts	January 1, 2014

Efficiency is measured by the number of lumens per watt a bulb provides. **Lumens** tell us how bright a light bulb is. **Watts** tell us how much energy the light bulb uses.

How do light bulbs compare?

- The standard 60 watt incandescent light bulb provides 13 to 14 lumens per watt.
- An equivalent CFL provides between 55 and 70 lumens per watt.
- An equivalent LED can range between 60 and 100 lumens per watt.

The second part of the law requires that most light bulbs be 60-70% more efficient than the standard incandescent today; this will go into effect in 2020. Many compact fluorescent light bulbs (CFLs) and many Light Emitting Diodes (LEDs) can meet this requirement today, shaving energy usage compared to standard incandescents by 75%.

Why is this law needed and how does it benefit consumers?

EISA is eliminating unnecessarily wasteful products from the market. There are 4 billion light bulb sockets in the U.S. and more than 3 billion of them still use the standard incandescent technology that hasn't changed much in 125 years. A standard incandescent is only 10% efficient – the other 90% of the electricity it uses is lost as heat.

Another benefit of using more efficient light bulbs includes reductions of harmful emissions from coal-fired power plants (mercury, arsenic, chromium, nickel, acid gases and greenhouse gases¹). This helps to protect the health of our citizens, wildlife and environment, and it's an easy, achievable step toward reducing our carbon footprint.

Additionally, efficient products mean cost savings. The new standards mean U.S. households collectively could save nearly \$6 billion in 2015 alone, as estimated by U.S. Department of Energy.

Do the manufacturers of light bulbs support the Federal standards?

Yes. Through the trade association, National Electrical Manufacturers Association or NEMA, all the leading lighting manufacturers have publicly expressed their support. A patchwork of state laws is burdensome for business and this law will minimize confusion by ensuring consumers in every state have the same choices available to them. NEMA also states that the standards are spurring U.S. competitiveness and leadership in innovation, creating new opportunities for our economy.

Will this change the way I shop for light bulbs?

Yes, it will shift your focus from watts to lumens when shopping for light bulbs. Lumens tell you how much light a bulb will provide, watts only tell you how much power it uses. *Watts are a better predictor of how hot a light bulb will be than how bright it is.* Overall, for dimmer lighting, aim for fewer lumens; for brighter light, look for a greater number of lumens.

- If you used to buy 100 watt bulbs, look for a bulb with 1600 lumens.
- If you used to buy 75 watt bulbs, look for a bulb with 1100 lumens.
- If you used to buy 60 watt bulbs, look for a bulb with 800 lumens.
- If you used to buy 40 watt bulbs, look for a bulb with 450 lumens.

HOW MUCH LIGHT DO I NEED?		
INCANDESCENT BULBS (WATTS)	MINIMUM LIGHT OUTPUT (LUMENS)	COMMON ENERGY STAR QUALIFIED BULBS (WATTS)
25	250	4 to 9
40	450	9 to 13
60	800	13 to 15
75	1,100	18 to 25
100	1,600	23 to 30
125	2,000	22 to 40
150	2,600	40 to 45

¹ Toxins found in coal-fired power plant emissions. EPA Press Release: EPA Proposes First National Standard for Mercury Pollution from Power Plants / Mercury and air toxics standards represent one of strongest health protections from air pollution since passage of Clean Air Act, March 16, 2011. Available at: <http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceac8525735900400c27/55615df6595fbfa3852578550050942f!OpenDocument>

To make it easier to compare light bulbs, the Federal Trade Commission has designed a new label, which you'll see at the beginning of 2012. The label will provide information about lumens (brightness), estimated annual operating cost, how long the bulb should last, and light appearance. The latter will help you find the color of light you find more pleasing (warm yellowish to cool white).

The label example below on the left is for a CFL; the label in the middle is for a standard incandescent. Note the difference between the yearly energy costs. The label example below on the far right is what you'll expect to see on the front of the light bulb packaging; it shows lumens (brightness) and estimated energy cost per year.

Lighting Facts Per Bulb	
Brightness	870 lumens
Estimated Yearly Energy Cost	\$1.57
Based on 3 hrs/day, 11¢/kWh Cost depends on rates and use	
Life	5.5 years
Based on 3 hrs/day	
Light Appearance	
Warm Cool	
2700 K	
Energy Used	13 watts
Contains Mercury	
For more on clean up and safe disposal, visit epa.gov/cfl .	

Label on back or side of package

Lighting Facts Per Bulb	
Brightness	820 lumens
Estimated Yearly Energy Cost	\$7.23
Based on 3 hrs/day, 11¢/kWh Cost depends on rates and use	
Life	1.4 years
Based on 3 hrs/day	
Light Appearance	
Warm Cool	
2700 K	
Energy Used	60 watts

Brightness
820 lumens
Estimated Energy Cost
\$7.23 per year

Label on front of package

It is also important to look for the ENERGY STAR on light bulb packaging, which means that they meet strict criteria set by EPA for both energy efficiency and quality. Other bulbs may be cheaper, but the tests that ENERGY STAR requires are important, and necessary for consumers to get the performance they expect.

MYTHS AND MISCONCEPTIONS

Below is information on common myths and misconceptions.

Myth #1: The Government is banning incandescent light bulbs and forcing you to buy CFLs.

There is no ban on any technology and incandescent light bulbs are not going away. Consumers will have a range of better bulb choices in a variety of colors, bulb types, and light levels including improved incandescents, CFLs, and LEDs. Most major lighting manufacturers now produce 2012 EISA-Compliant incandescent light bulbs (and sell them at major retailers including Home Depot, Walmart, and Amazon). These bulbs look, feel and operate just like regular incandescent bulbs; they just do it more efficiently. And efficient halogens – a type of incandescent – that already meet the standard are in stores for purchase now. Additionally, many types of bulbs are exempt from the law, including specialty bulbs, globes and three-way bulbs.

Despite reports of some individuals hoarding the old light bulbs, there is evidence that most Americans like CFLs: A recent poll by USA Today found that 71 percent of U.S. adults had tried CFLs and 84 percent were "satisfied" or "very satisfied" with them.

Myth #2: You'll lose money with the new light bulbs.

Energy efficient bulbs cost less to operate so you will save money on utility bills. Because lighting accounts for approximately 12% of the average household's energy bill, more efficient options will help consumers save money on their utility bills. Overall, the new law will provide substantial cost savings.

CFLs represent the best value for consumers today. They use about 75 percent less energy than standard incandescent bulbs and last up to 10 times longer. A CFL that has earned the ENERGY STAR can save more than \$40 in electricity costs over its lifetime.

LED light bulbs have the potential to last up to 22 years and save 75% or more in energy costs; however, currently, their upfront cost is steeper than other alternatives. LEDs are still new to market with only a few 40 and 60 watt replacements currently available, but every year they get brighter, cheaper, more energy efficient, and more numerous. LEDs are expected to increase in performance and drop in cost over the next few years.

Myth #3: The U.S. will lose manufacturing jobs.

New jobs are being created. Lighting standards are driving innovation in the United States and creating manufacturing jobs when we most need them.

- Sylvania has retooled a plant in Pennsylvania to make the new, efficient incandescents.
- Philips in California, Cree in North Carolina, and Lighting Science Group in Florida are creating jobs to produce LEDs and components.
- Though GE did close a plant in Virginia last year, it also announced a \$60 million expansion of a linear fluorescent lighting factory in Ohio.
- TCP is planning to build a new factory in Ohio to meet the increased demand for CFLs.

Myth #4: Mercury levels will increase with CFLs.

Overall mercury levels will decrease. Using more energy with less efficient products means more mercury enters our environment because energy production from coal (51%) is the main emitter of mercury in the U.S. The more energy you use, the more mercury that enters our environment. Even though CFLs contain small amounts of mercury, you actually prevent more mercury through the energy savings by using CFLs. Even if you don't consider the mercury benefits from reduced energy use, CFLs are still just a tiny fraction of human-caused mercury emissions – about 0.1%.

EPA recommends recycling CFLs where it's available. Major retailers such as Home Depot and Lowe's recycle CFLs for free. More information on mercury and CFLs can be found at epa.gov/cfl.

Myth #5: The mercury in CFLs dangerous in your home.

CFLs are safe to use. EPA estimates that CFLs in the U.S. contain an average of 4 milligrams or less. For perspective, it would take 125 or more CFLs to equal the amount of mercury in a single old-fashioned fever thermometer. No mercury is released when the light bulb is intact or in use. Light bulbs are fragile and can break if dropped or roughly handled.

EPA provides cleanup guidance for CFL breakage to ensure minimal opportunity for human exposure to mercury vapor. There is no evidence that the brief exposure to the mercury in a broken bulb presents a health risk to you or

your family², but any mercury – no matter how big or small – should be handled carefully. Airing out and removing the bulb pieces from the room will quickly dissipate any mercury vapor released. If you are still concerned, remember there are other lighting options to choose from.

CFL cleanup instructions can be found at epa.gov/cfl.

LIGHTING FAST FACTS

ENERGY STAR qualified CFLs

- General
 - Save more than \$40 in electricity costs over its lifetime
 - Use about 75% less energy than standard incandescent bulbs and last up to 10 times longer
 - Produce about 75% less heat, so it's safer to operate and can cut energy costs associated with home cooling
- Mercury
 - CFLs represent a very small contribution to human-caused mercury emissions – about one-tenth of one percent (0.12%). Coal-fired power generation account for more than half (51%) of all human-caused emissions. Reducing energy through efficient products and practices, such as lighting use, means reducing mercury releases into the air.

ENERGY STAR qualified LED bulbs

- Use at least 75 percent less energy and lasts at least 15 times longer than an incandescent bulb.
- Have efficiency as good as or better than fluorescent lighting.
- Turn on instantly – there is no warm-up time.
- Allow for precise placement of light due to the directional nature of LEDs.
- Produce far less heat than an incandescent, which can reduce air-conditioning needs.
- Are durable – perform well outdoors and in cold temperatures.

Additional Information

- U.S. Department of Energy Lighting Facts - <http://lightingfacts.com>
- Federal Trade Commission - New Labels for Light Bulb Packaging - <http://www.ftc.gov/opa/2010/06/lightbulbs.shtm> and Shopping for Light Bulbs <http://www.ftc.gov/bcp/edu/pubs/consumer/green/grn01.shtm>

² The European Commission's Scientific Committee on Health and Environmental Risks (SCHER) released *Opinion on Mercury in Certain Energy-saving Light Bulbs* May 2010. Available online: http://ec.europa.eu/health/scientific_committees/environmental_risks/docs/scher_o_124.pdf. SCHER was tasked with evaluating the human health risk from elemental mercury vapor exposure that can be expected from a broken CFL and found a health risk for adults is not expected. It stated information was incomplete for children and an opinion couldn't currently be made. It is also SCHER's opinion that mercury vapor inhalation by pregnant women after a CFL breakage is not translated into a sharp peak exposure of the fetus.

Additionally, the Agency for Toxic Substances and Disease Registry and Center for Disease Control and Prevention Mercury Workgroup released *Children's Exposure to Elemental Mercury: A National Review of Exposure Events* in 2009. Available online: <http://www.atsdr.cdc.gov/mercury/docs/MercuryRTCFinal2013345.pdf>. The report reviewed the sources of reported elemental mercury exposure in children between the early 2000s and 2007. None were related to fluorescent lamps and all incidences involved significant mercury spills and/or extended exposure over time.