

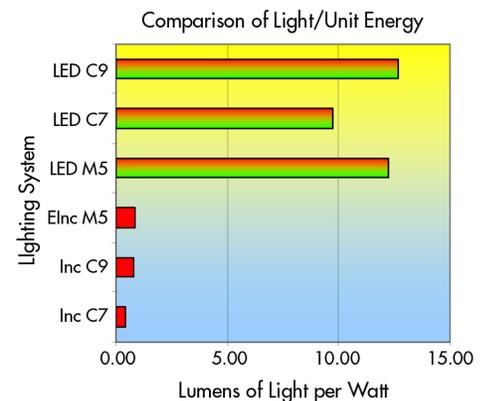


A Bright Idea: Energy Efficient Holiday Lighting



LED (light emitting diode) holiday lights are a shining example of the fruits of research and development efforts to increase electrical energy efficiency. Consider the advantages LEDs have over traditional incandescent lights:

- **Efficient** – LEDs save up to 98% of the electricity that is needed to power conventional painted or ceramic coated bulbs.
- **Environmentally friendly** – The low electricity use of LEDs means less carbon emissions, and manufacturing LEDs is more environmentally friendly as well. They require no glass or tungsten, since LEDs do not have a filament like incandescent bulbs; electron movement in semiconductor chips is what causes illumination.
- **Durable** – LEDs are encased in hard-to-break plastic versus the more fragile glass of incandescent lights. Because the LED is electronic, its lifetime is up to 10 years.
- **Practical** – LEDs come in standard packaging of 25- to 100-bulb strands that can be connected together to provide a seamless string. The long life of LEDs means that replacing bulbs will be rare, reducing maintenance.
- **Safe** – LEDs generate much less heat when they operate so they are cool to the touch, and are less likely to overload a circuit.
- **Attractive features and colors** – LEDs come in traditional shapes, sizes, and colors. LED strings with desired features such as blinking and flickering are also available.



Is it worth paying up to 100 times more for power for incandescent holiday lights? The lights shown on the left in each photo are efficient LEDs and those on the right are conventional incandescent lights.



M5 Minilight Bulbs



C7 Candle Flame Bulbs

LED holiday lights are typically a little more expensive to buy than their incandescent counterparts, but they virtually pay for themselves in the first year's electricity savings, and thereafter they are the gift that keeps on giving.

- Remember the “Christmas Vacation” movie character Clark Griswold, who lit his house with 25,000 bulbs? His electricity bill would drop from \$2,400 to \$50 if he used energy efficient C9 LED bulbs.
- But, everyone can save by using LEDs. The electricity cost to light a holiday tree with LEDs is 13 to 17 *cents* per season, compared to 6 to 10 *dollars* for incandescent lights. Those who put up seasonal outdoor lighting displays realize even greater savings.

Green holidays – the potential savings if all the seasonal minilights were to be switched to LEDs:

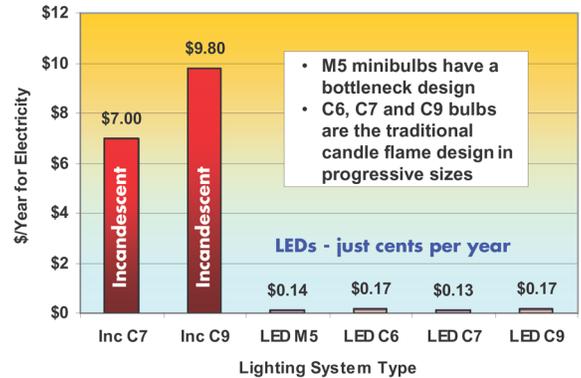
- Electricity costs savings would exceed \$250,000,000 – that’s a lot of toys, turkeys and ties.
- Carbon emissions would be reduced by 400,000 tons per year – that makes for a cleaner, greener holiday.

Many cities and organizations across North America are switching to LEDs for their holiday displays. Some municipalities and utilities provide incentives for residents to switch as well, making for happier holidays for bill payers and taxpayers alike. For example:

- Walt Disney World wired Cinderella’s Castle with over 200,000 LEDs, producing savings of thousands of dollars. With lighting decorations being used year round in many cases, switching to efficient LEDs becomes even more compelling.
- The Times Square ball that descends every year to ring in the New Year will be fully illuminated by LED lighting. Even though it’s twice as bright as the old ball, it will use about half the energy.
- The City of Boulder, Colorado is switching to LEDs for its Downtown Pearl Street Mall. Its citizens can go to a lighting exchange kiosk on the Mall to swap their traditional, working holiday lights for LEDs for \$5 each (about half price). The old lights will be recycled by the city.
- Anaheim’s municipal utility offers gift cards to Home Depot, Starbucks, or Borders to help rebate the cost of LEDs: \$10 cards for 25-150 lights, and \$20 cards for more than 150 lights.
- Efficiency Maine, a program of the Maine Public Utilities Commission, provides downloadable in-store coupons worth \$1.50 per LED string.
- Minnesota Power offers instant in-store rebates of \$3.00 for LED holiday lights.

EPRI hopes you enjoy the pleasures of a traditional holiday by using lighting that increases efficiency, saves money, and preserves our environment for future generations. Deck the halls with boughs of holly – and LED lighting.

Holiday Tree Electricity Lighting Cost



1 Navigant, 2003, March 2006.

2 Based on .39 pound carbon per kWh, America Solar Energy Society

3 Sources: USA Today, November 16, 2007, pg. 7D. WCBS News, <http://www.wcbs880.com/pages/1049103.php?>. Boulder Daily Camera, November 18, 2007, pg. 12B. City of Anaheim, <http://www.anaheim.net/section.asp?id=54>. Efficiency Maine, <http://www.efficiencymaine.com/>. Minnesota Power, http://www.mnpower.com/energystar/special_offers/index.htm