

Lighter, cheaper, LED light bulbs are starting to enter the marketplace

October 22 2009, By Troy Wolverton

Just when you were finally warming up to the idea of swapping out your old light bulbs with compact fluorescent ones, you may soon find a new alternative at your local hardware store.

Retailers are starting to carry bulbs built around light-emitting diodes, or LEDs. These bulbs promise to last longer and use less energy than even compact fluorescents (CFLs), which already are much longer-lived and power-efficient than standard incandescent bulbs.

But you may want to hold off for now: LED bulbs are much pricier than CFLs, and the technology still has a way to go before it reaches its potential.

"LED light bulbs are great," said Michael Kanellos, senior analyst at Greentech Media, a trade publication and research firm. But he adds, "No one's going to go to Home Depot and buy a bulb that costs as much as a BBQ."

About 20 percent of the average household's electricity bill goes toward lighting cost, the U.S. Department of Energy estimates, and CFLs and potentially LEDs can help reduce that energy usage. To produce the same amount of light as a 60-watt incandescent bulb, a CFL uses less than 25 percent of the electricity and an LED bulb potentially as little as 10 percent.

That can lead to real savings. The Energy Department estimates that

consumers can save \$6 per bulb per year by switching out an incandescent for a CFL, more than making up for the CFLs' greater upfront cost. Boosters expect consumers to see similar savings with LED bulbs.

LEDs have been around for years, initially showing up in the displays of the first electronic calculators and then gaining popularity as power or status indicator lights in products ranging from computers to alarm systems. In recent years, they've also started to crop up in many other products, including stoplights, flashlights, solar-powered walkway lamps and strings of Christmas tree lights.

The federal government, major lighting manufacturers, startup lighting companies and industry analysts believe the next big frontier for LEDs will be in replacing standard light bulbs. In order to reduce energy consumption, the United States, the European Union and Australia are all in the process of banning standard incandescent lights, which will open up a market for more efficient replacements. Although CFLs would appear to be a logical substitute, they've proved a tough sell with consumers, despite years of marketing efforts and subsidies to lower their costs.

Although prices have fallen dramatically in recent years, CFLs still cost significantly more than incandescents. Many consumers have also been turned off by the quality of light CFLs produce and by the fact that they contain mercury and therefore require special care when they burn out.

Boosters think that LED bulbs will prove an easier sell. They don't include mercury, and manufacturers are developing ways to tweak the light from them to better approximate light from standard bulbs.

While prices for LED bulbs are still high -- you can expect to spend \$40 or more for the equivalent of a 40-watt bulb -- they're falling rapidly,

boosters note.

"We know the costs will come down and the technology will improve," said Kevin Dowling, vice president of innovation at Philips Color Kinetics, the division of the lighting and electronics giant that focuses on LED lighting technologies.

The Energy Department is seeking to spur development of LED replacement bulbs with what it's dubbed the "L" prize, which will award up to \$20 million for the development of an LED light bulb that mimics the lighting quality of a 60-watt bulb while using a fraction of the electricity. Last month, Philips became the first company to enter the contest.

You can already find LED bulbs that can plug into standard lamps online and at specialty retailers, but they're expensive and haven't gotten great reviews. Dowling estimates that it may be a couple of years before the light Philips submitted for the L prize becomes a commercial product.

But other types of LED light bulbs are already starting to gain popularity -- and space on store shelves. Stores such as Lowe's and Orchard Supply Hardware are starting to carry LED reflector bulbs used in direct or recessed lighting. Such bulbs are starting to find a market in hotels and other businesses.

Although such lights can cost about four times more than incandescent or halogen ones, they last far longer and use far less [energy](#), cutting down on maintenance and [electricity](#) costs, analysts say.

"Depending on the application, (businesses) can see a payback in less than a year," said Zach Gibler, CEO of Lighting Sciences, a manufacturer of LED light bulbs. "Consequently, it's becoming a much more viable technology."

Still, Gibler and others think it will be years before consumers seriously consider replacing the standard incandescent bulbs in their living room lamps with LED ones. Even though the prices are falling, LEDs bulbs are likely to remain much higher priced than even CFLs for many years to come. And while LEDs promise much greater efficiency than CFLs, they're not exactly there yet.

"There are still a lot of fundamental flaws with LED lighting that are going to have to be overcome," said Chris Church, an industry analyst who covers the lighting industry for Freedonia, a market research firm.

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