

Light wars

In a cold country, CFLs may not be that eco-friendly after all

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Are you one of those consumers finding that your new compact fluorescent light bulbs (CFLs) are a little less long-lived than you thought they'd be? Clerks at Home Depot say that CFLs are coming back in droves, because many don't last.

What? The new spiral bulb is supposed to be the lean, green Methuselah of light bulbs. Energy Star-qualified bulbs should use a quarter of the energy of standard incandescents and last 10 times longer, saving you \$30 or more in power costs over their lifetime. That's impressive, especially since the short-term math is not. A CFL retails for roughly six times as much as an incandescent of comparable luminosity.

Tests by Consumer Reports show that not all CFLs will last their claimed life. Margery Conner, a technical editor for the leading electronics trade journal EDN, says that some CFLs she's bought have lasted less than half as long as incandescents. A home test she did with a simple infrared thermometer suggested that "down" and enclosed CFLs (in track lights and globes, for instance) "are dropping like flies" because they cook themselves. Has CFL design overlooked the variety of uses to which the bulbs are put? "You can bet," she says, "the long-life ratings came from upright bulbs tested in table lamps."

Conner is not the only engineer tumbling to the faults of CFLs — and there are lots. Turning CFLs on and off kills them fast. They work haphazardly in cold. Both the radio frequency harmonics and the infrared light they emit can interfere with other electronics. (At home, watch out for your TV remote, your cellphone and your laptop — and maybe even your health, some experts suggest.) Because CFLs burn cooler, you may push up your thermostat — and that may be the least of the ways that they're not so eco-friendly after all.

A truly green product is one that stays green all its life, right through to disposal. But in Europe, CFLs are branded dangerous waste and banned from landfills because they contain mercury. In North America they carry no warnings or prohibitions, though Home Depot Canada will take back expired CFLs for recycling. Halifax citizens are advised by their city's recycling program that CFLs don't contain much mercury: "100 times less than the amount in the average home thermometer. No mercury is released when you use a CFL, and the amount of mercury vapor in the bulb actually decreases over time."

Feeling better? Don't — especially if you break one. In that case, Halifax's experts say to throw open windows immediately, sweep, not vacuum the shards, and use rubber gloves and plastic bags for

disposal.

China, where most CFLs are made, has lowered its pollution standards in order to produce more mercury to go into them. And however much energy CFLs do save when they work, overseas shipping inevitably increases their overall carbon footprint.

Electrical engineers Guy Olivier and Rachid Benhaddadi of Montreal's *École Polytechnique* write in the December 2007 issue of the Institute of Electrical and Electronic Engineers' *Canadian Review* that CFLs are only "greyish green," not "bright green": they're toxic, their energy savings largely disappear in cold climates, and they feed undesirable harmonics back to the power grid, muddying radio reception, for example. Power from solar panels destabilizes, too, as CFL numbers increase around them. Conventional power grids are less susceptible but not immune.

Olivier and Benhaddadi call on manufacturers and governments to take action, but here's what D.C. and Ottawa have done so far: the sale of incandescents will be banned by 2011 or 2012 in the U.S., and phased out by 2012 in Canada. Environment Minister John Baird announced last year that he'd done the math — at least some of it — and that the country stands to save \$3 billion to \$4 billion. Nunavut has banned incandescents already. Will poor-performing CFLs really replace them? Unlikely, says EDN's Conner. She thinks the problem is not that CFLs are bad but that manufacturers have oversold them as problem-free. Now that they're losing industry confidence, she expects high-brightness light emitting diodes (HB LEDs) to bump them from the market. But Paul Rako, also at EDN, says LEDs are making the same baseless claims as CFLs for efficiency, longevity and cost savings. They last up to four times as long as an "ideal" CFL, though. And while light fixtures made with LEDs are typically expensive, the HB is competing on price.

As usual, China has covered all bets. The city of Tianjin is the first city in the world with LED-lit streets.