

Do New Bulbs Save Energy if They Don't Work?



Nathaniel Brooks for The New York Times

A compact fluorescent light bulb is placed in a large spherical testing device at Rensselaer Polytechnic Institute in Troy, N.Y.

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SAN FRANCISCO — It sounds like such a simple thing to do: buy some new light bulbs, screw them in, save the planet.

But a lot of people these days are finding the new [compact fluorescent bulbs](#) anything but simple. Consumers who are trying them say they sometimes fail to work, or wear out early. At best, people discover that using the bulbs requires learning a long list of dos and don'ts.

Take the case of Karen Zuercher and her husband, in San Francisco. Inspired by watching the movie "An Inconvenient Truth," they decided to swap out nearly every incandescent bulb in their home for energy-saving compact fluorescents. Instead of having a satisfying green moment, however, they wound up coping with a mess.

"Here's my sad collection of bulbs that didn't work," Ms. Zuercher said the other day as she pulled a cardboard box containing defunct bulbs from her laundry shelf.

One of the 16 Feit Electric bulbs the Zuerchers bought at Costco did not work at all, they said, and three others died within hours. The bulbs were supposed to burn for 10,000 hours, meaning they should have lasted for years in normal use. "It's irritating," Ms. Zuercher said.

Irritation seems to be rising as more consumers try compact fluorescent bulbs, which now occupy 11 percent of the nation's eligible sockets, with 330 million bulbs sold every year. Consumers are posting vociferous complaints on the Internet after trying the bulbs and finding them lacking.

Bulb makers and promoters say the overall quality of today's compact fluorescents is high. But they also concede that it is difficult to prevent some problem bulbs from slipping through.

Experts say the quality problems are compounded by poor package instructions. Using the bulbs incorrectly, such as by screwing low-end bulbs into fixtures where heat is prone to build up, can greatly shorten their lives.

Some experts who study the issue blame the government for the quality problems, saying an intensive federal push to lower the price essentially backfired by encouraging manufacturers to use cheap components.

"In the pursuit of the holy grail, we stepped on the consumer," said Michael Siminovitch, director of a lighting center at the University of California, Davis.

Compact fluorescents once cost as much as \$30 apiece. Now they go for as little as \$1 — still more than regular bulbs, but each compact fluorescent is supposed to last 10 times longer, save as much as \$5.40 a bulb each year in electricity, and reduce emissions of carbon dioxide from burning [coal](#) in power plants.

Much of the credit for that sharp cost decline goes to the Energy Department. The agency asked manufacturers in 1998 to create cheaper models and then helped find large-volume buyers, like universities and utilities, to buy them. That jump-started a mass market and eventually led to sales of discounted bulbs at retailers like Costco, [Wal-Mart Stores](#) and [Home Depot](#).

Consumers are supposed to be able to protect themselves by buying bulbs certified under the government's Energy Star program. But experts and some environmental groups complain that Energy Star standards are weak, permitting low-quality bulbs with too high a level of mercury, a toxic metal contained in all compact fluorescents.

"The standard essentially establishes a floor, which sorts out the junk, with the expectation that the rest is good," Mr. Siminovitch said. "It's not."

The government, which will begin enforcing tighter specifications this year, says it must seek a balance between quality and affordability to achieve its goal of getting millions of additional consumers to install the bulbs.

"Something that is perfect but not affordable wouldn't serve the broad interests," said Peter Banwell, the Energy Department's manager of product marketing for Energy Star. Alan Feit, vice president of Feit Electric, says he does not think the problems experienced by the Zuerchers indicate an overall quality problem with his bulbs. But he acknowledged the difficulty of keeping tight quality control on a cheap, mass-market item. "There are 40 to 50 components that go into these things," Mr. Feit said. "While manufacturers try to inspect all incoming materials, one little mistake may cause a performance problem."

Victor Roberts, an independent expert in Burnt Hills, N.Y., who conducts failure analysis testing on compact fluorescents, suspects that some suppliers — many of them in China — are using substandard components.

"Somebody decides to save a little money somewhere," he said, "and suddenly we have hundreds of thousands of failures."

The Program for the Evaluation and Analysis of Residential Lighting at [Rensselaer Polytechnic Institute](#) in Troy, N.Y., tests Energy Star-certified bulbs to see if they still meet requirements.

In the 2007-8 tests, five of 29 models failed to meet specifications for such categories as lifespan, luminosity and on-off cycling and were removed from Energy Star's list of

qualified products. Because of performance concerns, the government is expanding the watchdog program, vowing to test samples of 20 percent of the thousands of certified bulb models each year.

In California, where bulbs have been heavily encouraged, utilities have concluded that they will not be able to persuade a majority of consumers to switch until compact fluorescents get better. That is prompting them to develop specifications for a better bulb. The effort aims to address the most consumer complaints: poor dimming, slow warm-up times, shortened bulb life because of high temperatures inside enclosed fixtures, and dissatisfaction with the color of the light.

“Because of the aggressive goals in California, we have to be pushing the envelope at all times,” said Roland Risser, director of customer efficiency at Pacific Gas and Electric. Experts and bulb manufacturers say that consumers need to play a role in solving the problems by learning more about the limitations of compact fluorescent bulbs. The Federal Trade Commission has begun to study whether it should force improvements in the labels of the bulbs.

Better labels might have helped the Zuerchers, the San Francisco couple. Initially, they put regular compact fluorescents in virtually every socket in their home, including enclosed ceiling lamps, dimmable fixtures and areas where lights are turned on and off frequently.

But some of those applications require specialized, more expensive bulbs, something the Zuerchers say was not made clear on the label of their Feit bulbs or on any sign they saw posted at Costco.

“We’re both college-educated and pay attention to labels we read,” Ms. Zuercher said. “It feels like someone forgot to put a place to find the information.”