A Green Light for CFLs?

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It was Saturday afternoon and Alessandro, Judy, and Carmela were at the MegaMart grocery store near campus. It was their turn to do the weekly shopping for the TreeHouse—the campus theme house occupied and run by students in the Environmental Studies program. As the students entered the store, they went their separate ways to get the different items on their list. Alessandro headed towards the bakery section, and on his way, he passed an extensive selection of light bulbs. Remembering that one of the lights in the living room was out, he stopped to peruse the display.

The array of choices was a bit overwhelming—incandescent and compact fluorescent bulbs in a range of shapes, sizes, and wattages, and even some other alternatives like LEDs. For a moment, Alessandro was confused by the assortment and didn't know what he should choose.

"I keep hearing about these CFLs," he thought. "They're supposed to be much more efficient. I think I even remember reading that the government is requiring that incandescent bulbs be phased out in favor of CFLs. If they're that much better for the environment, it seems like we should have them in the TreeHouse."

Alessandro picked out a compact fluorescent lamp that said it was equivalent to the 75-watt bulb they needed to replace in the living room. He scanned the packaging.

"Hmm…," he thought to himself. "Lasts ten times as long, uses less energy…. It's kind of pricey, but maybe it will be worth it in the long run. Looks kind of goofy, though. I wonder if it will fit in the lamp?"

Deciding to give it a try, Alessandro put the CFL in the cart and was ready to head for the bagels when Judy passed by on her way to find chips and salsa.

"Hey Judy!" said Alessandro. "Look what I got to replace that light in the living room that's out."

"Ugh!" said Judy. "A CFL? Haven't you learned anything from your Environmental Studies classes? Those things are just greenwashing—they claim to be better, but they're actually worse for the environment."

"No way!" proclaimed Alessandro. "Read the package: These bulbs use 75% less energy than those old incandescent bulbs. Most of the energy used to power those goes to heat instead of light."

"Here," said Judy, handing Alessandro an incandescent bulb, "compare the weight of these two. Incandescent bulbs are simple to make, while CFLs need complicated electronics in their bases to make them work. The manufacturing process for CFLs is complex and energy-intensive. When you add it all up, the process uses so much energy that it outweighs the benefits of using the stupid things. You'd be better off just sticking to regular old incandescent bulbs, and besides they're way cheaper."

Alessandro was stung. "Now wait a minute," he said. "CFLs may cost more but they last 10 times as long as regular bulbs. Not only will that save us replacement costs, but it will also save us money in the long run on our electric bill. Plus, if we're using less electricity, we're generating fewer greenhouse gases. That has to be better, right?"

"Only if the energy you save with CFLs is greater than the extra energy it takes to make them," said Judy, "and I just can't see how it could be. Feel how heavy that is. Besides, fluorescent lights are meant to be left on for long periods of time. Turning them on and off shortens their lifespan. So you either leave the light on all the time, which wastes energy, or you turn it on and off and it doesn't last as long. I say stick with the incandescents."

"Here comes Carmela." said Alessandro, "I know she'll agree with me on this one. Here Carmela, catch!" Alessandro tossed Carmela his great, green find.

"Ack! Alessandro! Don't toss those things around like that! What if it broke? What are you trying to do, give me mercury poisoning?" Carmela was clearly not impressed.

"What do you mean, mercury poisoning?" Asked Alessandro. "Do those things have mercury in them?"

"Yes," replied Carmela, "And that's something to worry about. Suppose it gets broken at home? Then people, including kids, and their pets are exposed to mercury. Most people don't know the proper way to clean it up. Also, when CFLs burn out they're supposed to be recycled, but that doesn't usually happen. Most people just toss them in the trash, where they break. Now the garbage workers are at risk, and when the bulb finally ends up in a landfill, it can break and leak mercury into the environment and even the ground water. Sure, they're more efficient. I'm just not sure they are the better choice."

"See, Alessandro," Judy chimed in, "CFLs are bad for the environment in all sorts of ways. They may say they're green but if you look at the big picture that's not really the case. Go trade it for an incandescent."

"But if CFLs are so bad," argued Alessandro, "why are governments all over the world, including our own, passing legislation phasing out incandescent bulbs? The EPA says that if everyone in the U.S. replaced just one bulb in their house with a CFL that would save enough energy to light more than 2.5 million homes for a year and prevent greenhouse gases equivalent to the emissions of nearly 800,000 cars. I think we should do our part. Now I still have to go get bagels."

He placed the CFL in the cart and the three students separated to continue their shopping. But they were all a bit unsettled about the decision. Carmela was worried about the mercury inside the CFL, but couldn't deny their efficiency. Judy was angry that Alessandro was wasting his money on the CFL. She was certain its manufacturing process canceled out its efficiency benefits, and the longer lifetime was questionable. Alessandro was happy he was going green with the purchase of a CFL, but was he really making the right decision? Judy and Carmela's arguments had put some doubt in his mind. He clearly needed more information.

Has Alessandro made the right decision in purchasing a CFL for the TreeHouse? How would you know?

References

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