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*Making the Switch: Do I Really Save Energy By Turning Off My Light?*

When any electrical device is turned on, there is an in-rush which uses extra electricity to generate the initial reaction - starting a motor, cranking a generator, or lighting a bulb. But once it's warmed up, the amount of electricity needed to keep it running drops and then levels out. So, I wanted to find out if it uses more or less electricity to turn a light bulb on and off every 10 seconds or to leave the light bulb on for the same period of time.

I built a circuit board that consisted of two circuits: one of which the electricity went to the switches and then straight to the bulbs and another that went to the switches and then through a relay switch and then to the bulbs. I ran four tests on each type of bulb, fluorescent and incandescent: 10 seconds on/10 seconds off, 6 hours on/6 hours off, always on and always off. I recorded data from a cumulative wattage meter every hour during the 12 hour tests.

The test on the fluorescent bulbs that consisted of 10 seconds on/10 seconds off used more electricity than that of the 6 hours on/6hours off, proving that the in-rushes did add up over time. However 10 seconds on /10 seconds off is a very big extreme and it is not at all realistic.

On the other hand, the results for the incandescent bulbs were exactly the opposite. The 6 hours on/6 hours off, actually used MORE electricity than turning it on frequently.