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### The Magic of Fluorescents

Now more than ever, the need to save energy is imperative. Saving energy means saving money as well as saving the environment. By using fluorescent light bulbs, both of these issues can be solved by average Americans. If each household in California changed one light bulb for a compact fluorescent one, 616 million kilowatt hours of energy would be saved in one year. That is equal to 690 days of light for all the households in Sacramento. That is almost two years! Exchanging one light bulb for a compact fluorescent one is not a big chore and everyone should take this course of action. This would also save 74.7 million dollars a year on energy costs in California. Each fluorescent light bulb saves thirty dollars in one year. Not only do compact fluorescent bulbs save energy, they also help protect the environment. One compact fluorescent bulb lasts ten times longer than a regular light bulb. That is ten light bulbs that are kept out of the trash and out of the land fills. Carbon dioxide is one of the major greenhouse gases that are destroying the ozone layer. A total of 450 pounds of carbon dioxide is saved per fluorescent bulb. They are so much more efficient than regular ones because this is the amount of pollution that is prevented from being made by power plants that make electricity (Illuminating). Fluorescent compact light bulbs are the rejoinders to inefficiency because they reduce pollution as well as cost by being much more effective than regular light bulbs.

What makes a fluorescent light bulb work is the secret to their efficiency. A fluorescent light is composed of a glass tube with mercury gas inside it at a very low temperature. The glass tube is coated on the inside with phosphorus and there are two metal filaments on either end of the tube. When a current and a voltage are passed through the tube, the electrons are sucked from one end of the tube to the other, attracted to the filaments. While they are speeding around the tube, they collide with the

mercury atoms and give off ultra-violet light. The ultraviolet light is of no use for lighting a room because it is indistinguishable to the human eye and is actually harmful. Therefore, the phosphorus coating absorbs some of the energy from the UV light and white light is emitted on the other side of the glass, lighting a room with visible light (Bodenshatz). In regular light bulbs, a current is passed through a long tungsten filament. As the electrons collide with the atoms of the tungsten, they give off energy to those atoms. The electrons in the atoms temporarily move to a higher energy level. When they go back down to their original energy level, energy is released in the form of a photon, or a packet of electromagnetic energy (Harris). It takes less energy for the electrons in the tube of mercury gas to move and hit atoms because it is a gas than it does for the electrons in the tungsten. They both produce the same amount of energy, but one is much more efficient and environmentally friendly.