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The ULS Report™

Helping people Use Less Stuff™ by conserving resources and reducing waste.

The Lite Side of Lighting

By Robert Lilienfeld, Editor

Brrr! It's February and it's cold and dark. To offset this situation, Americans spend two thirds of their home energy budgets on heating and lighting. Over the past few months, we've talked about ways to reduce heating bills. Let's talk about keeping things bright while keeping the energy budget and environmental footprint lite.

CFLs Get Better

By now, everyone knows that compact fluorescent bulbs, or CFLs, are very energy efficient and long lasting. But collectively, we still haven't taken to them for a variety of reasons including price, light quality, and convenience. I'm happy to say that things has changed radically in the last few years.

We found a 4 pack of CFL bulbs for $4.99 -- about $1.00 more than equivalent 60 watt incandescent bulbs. But because they are committed to helping reduce energy consumption, many energy companies are subsidizing the purchase of CFLs -- in this case by $4. So, the cost of these bulbs was only $0.99, or just 25 cents each!

Another issue people have with this type of bulb is the fact that it gives off a different colored light than traditional tungsten bulbs. But the new CFLs have been designed to give off similar light. Some even shine like sunlight! You can tell by looking at the output panels on the box.

Finally, CFLs used to be inflexible. In the past, you couldn't put them on a dimmer switch. Now, there are special dimmable bulbs: There is no longer any excuse for not using them in recessed lighting applications or other places where dimming is important.

Want to choose the right bulb at the right price? Head over to www.lightbulbfinder.net. Check out their iPhone and Android apps as well.

LEDs: Another Bright Idea

Given this year's spate of bad weather, it's a good idea to have some emergency lighting options on hand. We found that LED flashlights are very bright, last virtually forever, and use far less power than regular flashlights. We're using rechargeable batteries to keep used-up regular ones out of landfills.

In the past, we didn't recommend rechargeables for flashlights, because it was important to be sure that they would work in an emergency. But the technology has changed so much that this is generally not a problem: The batteries last much longer, and the LEDs last basically forever and use much less energy.

Saving Energy in a Flash

Here's another new use of LEDs – camera flashes. There are many advantages versus typical flash units. First, because they are on all the time, what you see before you shoot is what you get when you press the button. This makes good composition that much easier, especially for you amateur shutterbugs.

These lights are also really good if you use your digital cameras to shoot video, as you need a constant light source. In some cases, you can even adjust the brightness or size of the light.

Also, like other LEDs, these don't require much juice to operate and run very nicely on rechargeable batteries. That's great for your wallet, the environment and your peace of mind when out in the field.

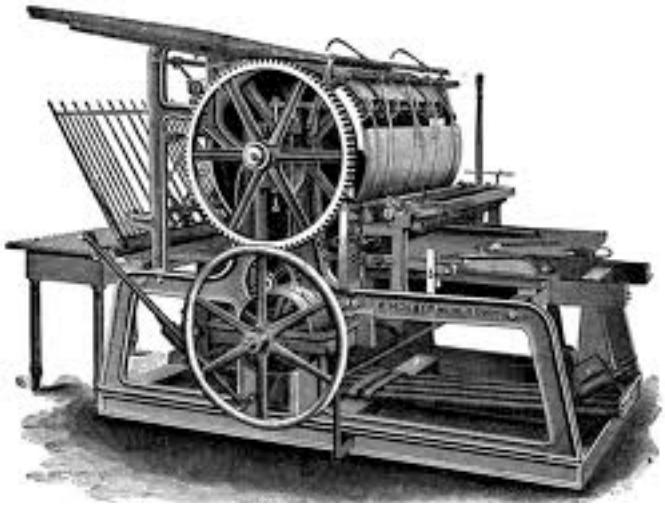
Let us know what tips you have to stay bright while using less light! ❧ ❧ ❧

Future Gazing

We're always looking for scientific and technological advances that can help reduce waste, increase efficiency, and reduce man's environmental impact. Here are a number of stories that give us hope for the future. (All are from recent issues of our favorite magazine, *The Economist*.)

The Power of the Press

Replacing clunky, expensive, delicate vacuum tubes with solid state, low cost, tiny silicon chips set off an electronics revolution. Now researchers believe another revolution can happen for rechargeable batteries.



The new technology is based upon old technology - printing lithium-ion batteries onto sheets of metal or plastic, similar to way newspapers have been printed for over 100 years. It's the work of Planar Energy of Orlando, FL, a 2007 spin-off from the United States National Renewable Energy Laboratory (NREL).

The batteries are printed, cut up into individual cells, and wired together into battery packs. Planar claims the cells will be more reliable than conventional lithium-ion cells, can store 2-3 times more energy, can last for tens of thousands of recharging cycles, and could be made for a third of the cost.

Liquid Radio

Naval warships contain over 100 large copper antennae that send and receive all types of signals. While the navy wants to put up even more, it would mean cramming them together, creating interference with each other's signals. Plus, new antennae would be so big that they would be recognizable on enemy radar.

A team of US Navy engineers has come up with a unique approach, based upon seawater. The sodium and chlorine ions in the water conduct electricity, so that a spout of seawater can replace metal.

An electrical coil the size of a big donut is attached to a radio's antenna jack. Salt water is squirted through the hole in the middle, and the signal is transferred to the water stream. Lengthening or shortening the spout, or thickening it, will change frequency and bandwidth, respectively. Such an antennae consumes less electricity than three incandescent desk lamps.

Turning Garbage Into Gas

Putting both household and toxic waste in landfills is both old fashioned and potentially polluting. Instead, an Atlanta, GA company called Geoplasma wants to use electricity to break it down into its basic atoms and turn it into fuel.

A pair of electrodes creates a current that turns the surrounding air into a plasma. Solid waste is chopped into pieces and fed into the plasma, which breaks it down into carbon and hydrogen atoms. These are recombined to produce carbon monoxide and diatomic hydrogen, which can be utilized as an energy plant fuel known as syngas.

Japan has been using this process to create fuel for over a decade, but the new concept promises to bring costs down to levels affordable in the United States. Geoplasma plans to start constructing a $120 million facility in St. Lucie County, FL.

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