Electrical Efficiency

Home electronic appliances consume almost 20% of all electricity used inside the average home (Rocky Mountain Institute). In Colorado, coal-fired power plants, by far the most toxic and polluting form of energy generation, provide 75% of our electricity needs. Colorado's electricity generation creates more than 35.6 million metric tons of greenhouse gases, 56,451 tons of SO2, and 60,934 tons of NOx each year. Reducing your electricity consumption can have a big impact on air quality and greenhouse gas emissions as well as your utility bill.

The Mechanics of Electricity

Electricity is measured in watts, and electrical use over time is measured as watt-hours. To determine how much energy you're using, consider the rated watts of a device along with the length of time it's being used. For example, a 100-watt light bulb left on for one hour, uses 100 watt-hours.

Most of us are more familiar with the term kilowatt-hour, since that is how electricity is measured and charged on our utility bills. A kilowatt-hour (kWh) is equal to 1,000 watt-hours. Thus a 100-watt light bulb left on for one hour uses 0.1 kWh, or left on for 10 hours uses 1 kWh.

The average Colorado home uses about 700 kWh of electricity per month. Most, but not all, Colorado homes use natural gas for heat and hot water, so electricity consumption depends mostly on the appliances and gadgets you use and how much you use them.

How Much Does elctricity Cost?

The cost of electricity depends on where you live, your electric utility provider and your rate category (e.g., residential, commercial, etc.). Residential customers are generally charged a base rate plus an electrical use charge for the quantity of kilowatt-hours used in a month plus an array of additional cost adjustments and fees. The average retail electrical rate for Colorado customers in 2008 was 10.36¢/kWh, up from 9.54¢/kWh in 2007 (EIA). The rate can sometimes vary by season or even by the time of day it's used.

Knowledge is Power

The best place to start on the path to electrical efficiency is to identify items with the greatest potential for energy savings. A **home energy audit** is a great investment; it's like having an efficiency doctor come to your home to diagnose where it's leaking energy. A home energy audit can cost anywhere from $100 to $450 and should give you a good idea of how to identify upgrades you can make yourself and prioritize energy efficiency investments. You can receive a discount on your energy audit through CRC's REAP program (http://www.conservationcenter.org/Energy_Audit_Program.htm).

If you're short on cash or a diehard do-it-yourselfer, you can do a reasonable energy audit on your own with the right resources. Start by looking carefully at your electric bills. There are several on-line energy audit tools and calculators that will walk you through a DIY energy audit and provide you with a semi-customized list of energy-efficiency measures to implement.

You can investigate the electricity use of individual appliances with a watt meter, such as a Kill-A-Watt. Simply plug the watt meter into the wall, and the device you want to measure into the meter. A digital display tells you how much electricity the devise is using at any given moment.

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Where to Start

Once you've investigated your home's electricity waste and have a priority list in hand, you're ready to take action. Some things may require an investment, and other things may only require a little maintenance or behavioral change. You can find an abundance of energy efficiency tips on-line on everything from heating to laundry. We address a few of the biggest household energy consumers here:

Air conditioning can account for 16% or more of household electricity use. The best way to reduce the A/C load is to do without. Using a ceiling fan, window shades and other low- and no-cost measures can help keep your home comfortable throughout most of the summer. If you do use A/C, use a programmable thermostat and keep it set at 85º or higher during the day. Turn it off completely and take advantage of the cool evening breeze when the sun goes down-open windows and use fans to circulate the air.

Home appliances can account for about 20% of household electricity consumption. High-efficiency appliances can reduce your energy costs, are generally more durable and deliver better performance over their lifetime. The initial cost may be slightly higher, but high-efficiency appliances more than make up for the added up-front cost in energy savings over their lifetime.

Miscellaneous electronics such as home office equipment and audio/video systems can consume almost 20% of household electricity. These are often the worst "phantom" consumers: clocks, memory, remote controls and other features that consume electricity 24/7 as long as they're plugged in. You can save more money by cutting off power to these devices when not in use than by purchasing new efficient ones. Simply plug electronic them into a power strip with an on/off switch and turn it off when you're not using them.

Lighting accounts for about one fourth of all electricity use in the U.S. and costs the average family between $50 and $150 annually. Incandescent lighting is one of the most inefficient electricity users in a home - more than 90% of its energy is given off as heat (which increases the A/C load in summer) and only 10% is converted into light. Well designed lighting coupled with high efficiency bulbs, such as CFLs or LEDs, can not only improve the lighting quality and illumination levels of a home, it can result in dramatic energy savings. Learn more about efficient lighting from the Skinny on "CFL Lighting."

A Note ABout Buying New Stuff

When you're shopping for appliances, envision two price tags. The first is the purchase price—think of it as a down payment. The second g is the energy cost to operate the appliance during its lifetime. You'll be paying on that price tag every month for the next 10 to 20 years. Carefully review the energy guide label, which estimates the annual energy cost to operate the appliance and helps you compare it to other models. Choose a model that's as efficient as possible and costs the least to operate.

Learn More

ENERGY STAR Appliances	http://www.energystar.gov/index.cfm?c=appliances.pr_appliances
Home Electronics	http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductCategory&pcw_code=HEF
ENERGY STAR Special Offers Finder	http://www.energystar.gov/index.cfm?fuseaction=rebate.rebate_locator Type in your ZIP code and find discount information near your home!
Xcel Energy-Electrical Energy Saving Tips	http://www.xcelenergy.com/SiteCollectionDocuments/docs/UsingElectricityAtHome.pdf
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