What are phantom loads?

When you're finished using an electronic device you turn it off and you're done. The power is off and the device is no longer using electricity, right? Wrong. A large majority of electronics, even when powered off, are still drawing a phantom load that is costing you money. While this small amount of power may seem insignificant when looking at a single device, which could use as little as 0-1 Watts, if you take a step back and look at everything you have plugged in, the energy usage and cost becomes more substantial. According to the Associated Press, 2007 estimates show that phantom loads accounted for about five percent of household energy bills in the United States.

The average Fairbanks household uses roughly 760 kWh per month. Five percent of the average amount comes to around 38 kWh used to power phantom loads. At today's GVEA rates with the included fuel adjustment, that's $7.70 a month or almost $100 per year to power electronics that aren't in use.

Causes of Phantom Loads

Phantom loads are commonly caused by but not limited to the following:

- Black box power adapters without on/off switches
- Devices with LED lights/displays that are constantly on (oven timers, microwave clocks etc.)
- Electronics that idle in standby mode, especially if the device has a light indicating it is on standby.
- Power supplies/cords that generate heat when plugged in – if it feels warm when powered off, it's creating a phantom load.

The list goes on, but below are some steps to lower phantom loads.

What Can You Do?

First, do your homework:
Your best defense against phantom loads is to be informed; knowing which electronics have higher phantom loads is a good start. Using a energy usage monitor, you can calculate the rough cost to power a device as well as know just how much power your devices are using when they're turned off.

1. Get an energy usage monitor. These relatively inexpensive devices are a great way to know where the problems are. GVEA loans energy usage monitors to members – call for more information.

2. Test your devices. Using the energy usage monitor, write down the Watts used while the device is on and again while the device is off.

3. Calculate the cost. Visit the CCHRC website http://cchrc.org/energycalc.html for a simple energy calculator that will show you how much it costs to power the device. Enter the watts used while the device power is off and how many hours per day the device is left plugged in but not on and you'll get a rundown of how much the phantom loads cost per day, week, month, year, and even how much they cost if plugged in 24 hours a day. (The mathematical formulas for the calculations are also available on the CCHRC website if you prefer to do things by hand.)

4. Check your bill. With your power bill in hand, the calculator can also tell you what percentage of your bill is caused by the load of each device you test. The numbers may be small, but add up how many devices you have and things could get significant.

Second, make some changes:

There are several options, some at little to no cost to you, that can help reduce your energy costs.

1. Unplug electronics when not in use. No plug, no power.

2. Use a surge protector. For a more practical solution to unplugging everything, you can plug your electronics into a surge protector and switch it off when the electronics are not in use.

3. Use a "smart" power strip. Smart power strips can detect when a device is powered on and off, when the device is off the power is automatically shut off. Similar devices can be obtained that turn off the power to idle devices based on the length of idle time the user specifies.

4. Buy Energy Star rated electronics. Electronics with an Energy Star rating use less energy and are typically more efficient than non-Energy Star rated devices saving power and money. For more information on Energy Star rated electronics, visit the Energy Star website at http://www.energystar.gov.

5. Buy products with low standby power. If you must leave things plugged in, buy devices that use less power. For more information, visit the U.S. Department of Energy webpage: http://www1.eere.energy.gov/femp/procurement/eep_standby_power.html. If you are interested in knowing if your electronics meet Federal
Energy Management low standby efficiency recommendations, which vary from less than one watt to three watts depending on the type of device, visit the FEMP Standby Power Data Center website at http://oahu.lbl.gov/.

In terms of energy conservation and savings, every little bit helps. Taking even the smallest steps, checking your house for electronics that draw phantom loads, and working to eliminate them will save you money.

Ask a Builder articles promote awareness of cold climate home-related issues. If you have a question, contact the Cold Climate Housing Research Center at info@cchrc.org or 907.457.3454.