Roanoke Valley Cool Cities Coalition

Working together for smart, clean energy

Vampire Electric Loads
What You Need to Know

What is a vampire electric load?

A vampire (or phantom) load is the electric current consumed by an appliance when the appliance is switched to its labeled "off" position though it continues to draw electric current to perform functions other than its principal ones. The industry uses the term "stand-by" for this mode, although the appliance labels the mode as "off".

When an appliance is switched "off", doesn't that mean it is disconnected from the electric circuit?

Not these days. Most recently-manufactured appliances continue to draw current--usually at a substantially reduced level.

Why do appliances have vampire loads?

The vampires power convenience features, such as touch pads, remote controls, memory presets, instant-on function, and digital clocks as well as background functions of set top boxes that download program information.

Are the electrical requirements fixed by the nature of a particular convenience such as the remote off/on feature?

No. Some brands and models operate these features much more efficiently than others. Many appliance models are unjustifiably wasteful of the electricity they consume while switched to "off", due to engineering designs paying insufficient attention to energy consumption.

Are there differing kinds of standby?

Yes. For example, computers have a "sleep" mode and an "off" mode. Both draw smaller amounts of vampire current, with the "off" mode typically drawing the least. Computers in their "off" position, draw up to 9 watts. A few still include a true off like your old 486 PC did. Computers in "sleep" mode range between 1 and 83 watts, with 21 watts being typical.* Many other electronics also have three levels of power draw. For example, a printer may draw six watts when switched "off", twelve watts when switched on without operating, and twenty watts when printing.

Do vampires reside only in electronic equipment such as TV equipment and computers?

No. Until recently, major appliances had been fully automatic in that at the end of their cycles they shut themselves truly off by automatically disconnecting from the electric circuit. Recently-manufactured washers, dryers, and dishwashers, including the Energy Star rated models, have vampire loads ranging as high as 5 watts. There seems to be no contemporary model that truly shuts off at the end of its cycles, and many do not include a manual "off" switch, but some do.

Five watts seems so small, so why worry?

Liken it to a dripping faucet. Over the course of a full year, the Energy Star clothes washer model with the 5 watt vampire load uses less electricity when washing the family's laundry than it uses when idle but left plugged in.

Are there other paradigm shifts recently in addition to the one for major appliances?

Yes. Before the era of cordless phones and answering machines, the phone company paid the electricity costs for phone service under its centralized control over the electrical requirements for phone service. The burden is now shifting further to the consumer in forms where the consumer cannot control it. In our testing we found that Verizon FIOS, for example, will cost you approximately 11 vampire watts for each FIOS component installed in your home.

What's the scoop on those "wall warts", my plug-in transformers?

The most obvious vampires, plug-in transformers like those used to charge batteries or to operate a cordless telephone or an answering machine, are modest offenders. They usually draw less than one watt when not charging or operating the appliance. They are often visible and convenient to unplug when not in use.

Should I be concerned about the total amount of the vampire load in my home?

Yes. Studies show that standby consumption is 10-15% of total household electricity consumption. The newer the appliance, the better the chance it harbors a vampire load to operate its convenience features. The individual vampire loads range from a fraction of a watt to over 40 watts, so you are likely to find your appliances account for 10% of your total electric bill when switched to "off".

Are there types of appliances that are standout offenders?

Yes, the set top boxes (cable boxes) used by cable and satellite TV systems have large vampire loads. The loads range between 10 and 48 watts when switched to the "off" position. Mini audio systems average 8 watts and go up to 24, powered subwoofers average 10 and may include no "off" switch of any kind.

Do Set Top Boxes vary by type?

Yes. Digital units with recording capability draw the most, over 45 watts when switched to the "off" position. Non-digital boxes draw about 10 watts when turned "off".

What solution is there? Simply unplugging the set top box when I'm not watching TV means I must wait through a lengthy warm-up time when I plug it in again!

While that is likely the case, try using a plug-in timer to schedule the set top box to turn on before you normally begin viewing TV, and to turn off when you are normally asleep or at work. This approach would serve you somewhat like a programmable thermostat.

By how much does the large size of a single vampire load matter?

45 vampire watts feeding off your electric power bill for a year totals nearly 400 kilowatt hours--enough energy, according to DOE, to operate a new 21 cu. ft. Energy Star refrigerator for 10 months.

What should I do?

● Educate yourself about this subject and share what you learn.

● When your appliances will not be used for a period of time or the whole family will be away from home, unplug those you can.

● Use power strips for shutting off your computer and its peripherals, audio-visual equipment and other suspected groups of electronic equipment each evening and when not in use. ** (Caution: Some flat screen TVs contain a cooling fan which may remain on for a few minutes after the TV is switched to "off".)

● Assume any appliance with a remote control, a digital clock, a touch screen or soft-touch switches or controls has a vampire load, unless there is an additional mechanical switch on it.

● Always buy Energy Star appliances, and look for the occasional brand offering a true "off" switch, usually found on European brands.

● Try to live without the level of TV cable service that requires a TV cable set top box or acquire as few set top boxes as your family can live with. Unplug those rarely used.

● Obtain a watt meter to test your home appliances, such as P3 International's P4400 Kill-A Watt. These easy-to-use meters cost less than $30 and can be shared with friends and neighbors.

What other ways can I save electricity while reducing my carbon footprint?

● Purchase wind generated electricity.
(http://www.powerchoice.com/ProductsAndServices/ResidentialServices.aspx)

● Replace your refrigerator if it was built before 1994 and dispose of the old one.

● Dispose of the extra refrigerator in your basement or garage.

● Increase your reliance on CFLs (compact fluorescent lights).

* Source: Pier Final Project Report, Lawrence Berkeley National Lab., Dec., 2007

** The "Smart Power Strips" which became available earlier this year, detects when you turn off the primary appliance in a group and then electronically powers-off the associated peripherals.

Roanoke Valley Cool Cities Coalition
rvccc.org
(540.387.0930