Resources and information about phantom loads and what you can do to reduce them in your home

Alliance to Save Energy (ASE)- www.ase.org

Environmental Protection Agency's Energy Star Program- www.energystar.gov/

Flex Your Power- www.flexyourpower.com/

International Energy Agency- www.iea.org/standby/index.htm

Lawrence Berkeley National Lab- www.eande.lbl.gov/EA/Buildings/ALAN/PUBLICATIONS

Humboldt Energy Task Force

The Humboldt Energy Task Force (HETF) is a coalition of local government agencies working together to provide energy conservation tools and solutions for Humboldt County. For more information please contact the City of Arcata's Energy Program Specialist at (707) 825-2168.

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Humboldt Energy Task Force mailing info

PHANTOM LOADS

Energy Brief # 5

Humboldt Energy Task Force

WHAT ARE PHANTOM LOADS?

Phantom loads are small constant loads in electronic devices that consume electricity, even when the device is turned "off" or not performing its principal function. Examples of phantom loads are the clocks in VCRs and microwave ovens, the small black wall cubes that adapt DC appliances to run on AC house current, and the instant-on features in televisions and home entertainment centers. These loads typically range from 1 to 10 Watts per appliance.

"Leaking electricity", "standby loads", "standby consumption" and "energy vampires" are other terms used to describe phantom loads. They contribute to significant amounts of energy consumption by drawing power out of sight and out of mind , 24 hours a day, 365 days a year. This constant power draw adds up.

HOW MUCH ENERGY IS BEING WASTED?

In California an average house constantly leaks between 50 and 100 Watts of energy, or 5% -23% of a home's total electricity consumption.

Examples of phantom load power consumption of common household electrical devices

Electrical device	*Phantom load (Watts)*
Microwave	2-6
Answering machine	2-3
Cordless phone	2-4
CD player	3-8
Television	0–12
VCR	1-15
Computer	0-2
Surge suppressor	0.2 - 0.4
Oven clock	3-4
Security system	6-22
Cable box	8-15
Battery charger	2-5

Nationally, we spend more than $3 billion a year to supply power to appliances we think we have turned off.

Average number of kilowatt-hours (kWh) used in a month while in "off" mode, and the cost per month using baseline prices.

Appliance	*kWh/mo.*	*$/mo. ($0.13 kWh)*
Computer off/sleep	1.3 / 22.3	$0.17 / $2.90
Monitor off/sleep	1.5 / 6.0	$0.20 / $0.78
Copier	3.8	$0.50
Rechargeable vacuum	1.6	$0.21
Range	2.0	$0.26
Rice Cooker	1.5	$0.20
Cordless phone	1.8	$0.23
DVD player	3.1	$0.40
VCR	4.4	$0.57
Video game console	0.7	$0.09
TV	3.3	$0.43
Air-conditioner	2.1	$0.27
Compact stereo	7.3	$0.95
Cable box digital/analog	16.6 / 7.8	$2.13 / $1.01
Satellite TV system	2.2	$1.60
Breadmaker	1.2	$0.16
Microwave	2.1	$0.27
Rechargeable screwdriver	1.5	$0.20
Ink-jet printer	3.7	$0.48
Answering machine	2.2	$0.29
Fax	1.1	$0.14
Portable stereo	1.3	$0.17
Total	76.2 / 92.9	$9.92 /$12.11

Sources: Alan Meier and Karen Rosen, Lawrence Berkeley National Lab; Leo Rainer, Davis Energy group

The U.S. consumption of phantom loads equals the electricity use of Greece, Peru and Vietnam combined.

The energy consumed to power appliances we aren't using requires 8 large power plants, which emit nearly 12 million tons of carbon into the atmosphere.

In the U.S., phantom loads of CD players consume enough energy every year to power the Las Vegas strip for six months.

BENEFITS OF REDUCING PHANTOM LOADS

Reducing the amount of energy phantom loads waste can help by:

- Saving money
- Decreasing pollution
- Lessening the risk of fire and shock hazards
- Ensuring and prolonging the proper performance of electrical devices

The following measures will reduce your household's phantom load demand

Unplug devices that are not in use.

Whenever possible place electrical devices where there is a manual on/off switch between the device plug and outlet, such as a power strip, extension cord with toggle switch or wall switch.

When buying new appliances, purchase those with the Energy Star label or similar low-watt off mode consumption standard.

Instead of plug in clocks purchase wind up or solar powered ones.

Unplug your answering machine when you're at home, or get voice messaging from the phone company.

Based on 67 Watts per household, Humboldt County's approximately 50,000 households have a total phantom load on the order of 3.4 MW, or nearly one and a half times the total output capacity of Matthews Dam hydroelectric plant at Ruth Lake.