Home Electricity

How Much Electricity Do You Use?

Monitoring your home power usage can be an important step in saving electricity. Hope Power Monitoring begins with an understanding of the amount of electricity used by household devices.

Survival Appliances
Rated Watts
Surge Watts

Incandescent light bulbs

75 each
75 each

Refrigerator (1/4 HP)
500
2000

Freezer (1/4 HP)
600
1200

Sump Pump
800
2000

Water Pump (1 HP)
1900
5700

Water Pump (2 HP)
2500
7500

Heating

Furnace Fan (1/2 HP)*

875
2300

Electric Blanket
400
400

Space Heater
1800
1800

Heat Pump*
4700
12000

Cooling

Dehumidifier
650
800

Attic Fan*
300
900

Table Fan
800
2000

Window Air Conditioner
1200
4800

Central Air (10k BTU)*
1500
6000

Central Air (24k BTU)*
3800
15000

Central Air (40k BTU)*
6000
24000

Family Room

Computer System: CPU, Monitor, Laser Printer
1500
1500

UPS System
2000
2500

CD Player
100
100

VCR
100
100

Radio
100
100

Television
300
300

Receiver
420
420

Kitchen
Rated Watts
Surge Watts

Microwave
800
800

Blender
300
900

Coffee Maker
1500
1500

Electric Range (1 element)
1500
1500

Toaster (2-slice)
1000
1600

Dishwasher (Hot Dry)
1500
3000

Electric Oven
3410
3410

Laundry Room

Iron
1200
1200

Washing Machine
1150
3400

Gas Clothes Dryer
700
2500

Electric Clothes Dryer
5400
6750

Power Tools

Hand Drill (1/4 inch)
350
350

Hand Drill (1/2 inch)
600
600

Skill Saw (7.25 inch)
1800
2600

Band Saw (14 inch)
1100
1400

Circular Saw (6.5 inch)
800
1400

Sawzall
750
1400

Drills (3/8 inch)
440
600

Contractor Tools

Air Compressor (1 HP)
1500
4500

High-Pressure Washer (1 HP)
1200
3600

Submersible Pump (400 gph)
200
400

Electric Chainsaw (1/2 HP)
900
900

Electric Motors

1/6 HP Motor
300
850

1/4 HP Motor
400
1150

1/3 HP Motor
475
1325

1/2 HP Motor
650
1800

3/4 HP Motor
900
2500

1 HP Motor
1000
2800

1-1/2 HP Motor
1700
4800

2 HP Motor
2000

5900

3 HP Motor
3200
9000

5 HP Motor
5000
13750

Other Important Items

Security System*
500
500

Deep Freezer
500
1000

Hair Dryer
1200
1200

Garage Door Opener (1/3 HP)
750
750

Electric Water Heater*
4000
4000

Saving Energy in the Home

Our parents taught us that the best way to save energy in the home was to shut off the lights when we left the room (“…do we have stock in the power company now!”). But as life has gotten a bit more complicated and electric rates have skyrocketed, we’re always on the lookout for less

obvious ways to save energy. These tips are designed for homes that have already reduced their consumption in obvious ways like compact fluorescent bulbs and energy star appliances.

Watch your Humidity.

A hygrometer (Price: $10-50) to monitor humidity can save energy and make your home more comfortable and healthier. High humidity in the winter can make 68°F feel more like 76°F.(1) Too much humidity, though can cause condensation on the windows and mold.

The
relative humidity in the home in winter should be between 20% - 35%. As the outside temperature falls, lower the percentage to prevent condensation from forming on windows.

Outside Temperature/Target Humidity

-10 F and below, 20%

0 F, 25%

10 F, 30%

20 F, 35%

30 F and up , 35%

In
the summer, control humidity with air conditioners, dehumidifiers, and keeping doors and windows closed. Humidity above 35% promotes allergies, rot, mold, and more.

Install a Programmable Thermostat.

Avoid heating and cooling your house when nobody's home. A programmable thermostat can automatically lower and raise your home’s air temperature when you're at work or in bed. By turning your thermostat back from 72°F down to 65°F for eight hours a day, you can save as much as 10% on your annual heating and cooling costs.

Use the Free Solar Energy Generators already installed your home.

They’re called ‘windows’ and, with proper use can dramatically impact the energy profile of your home. On cold winter days, raise south and west facing window shades. Close them at night. Reverse this in summer. Single-pane windows waste dramatic amounts of energy. If you can’t replace them with double-pane glass, seal them or cover them with plastic to reduce drafts.

Does your home breathe well?

The efficiency of the heating and air condition systems in your home is based on the movement of air. If air does not circulate well then you may be heating unused attic areas, the underside of pieces of furniture, and even the furnace itself.

Check
your ductwork in unused areas like basements and attics. All heating system air ducts leak to some degree and some leak to a large degree. Leaky ducts not only blow expensive heated or cooled air into

unnecessary places, but leaks in the intake portion of your ductwork suck dust and dirt into the system. Use duct tape to seal any holes or gaps in the ducts themselves and the insulation around them. There are professional services available that clean then seal ductwork.

Check
the air vents in your home. The intake vents have no dampers on them and need to be clean and completely clear at all times. Heating (and cooling vents) often have dampers on them, allowing you to reduce airflow in unused areas. Close unneeded vents or seal them with cardboard and duct tape. Vents underneath furniture need to be sealed or fitted with a plastic vent-redirector or extensions.

If
you need to turn the thermostat to 76 to get the bedroom up to 73 then your system is unbalanced. If the imbalance is cased by leaky or clogged ducts then cleaning and repairs are needed. If, though, this is caused by poor heating system design, the problem can be often be solved by closing off vents in other rooms or installing a vent fan to suck heated air from the system into the underheated room.

Replace Filters

Clogged filters, or the wrong type of filters in air conditioning and heating systems can waste as much as 10% of your energy. Replace at least every three months or more often during pollen season. Use the right filters for your system. Some high performance ‘hepa’ filters advertise relief from allergies but block so much airflow as to cause problems with some heating systems. Check the specifications for the system.

Hot Water Heater.

If you’ve already added insulation to your water heater, insulate at least the first six feet of pipe as it exits your water heater.

Understand Time-Of-Use (TOU) pricing, if available.

Your utility may be offering a Time-Of-Use pricing option. If you are willing to learn about these options and make lifestyle changes, there is a significant savings potential. Electricity costs more to generate during ‘peak’ times (late afternoon) and is less expensive at night and on weekends. More utilities are offering homes the opportunity to pay higher rates for energy used during peak times and very low rates for off-peak usage. If you can control when you use electricity with timers and lifestyle changes, you can be eligible for dramatic savings.

Cover Your Window Air Conditioning Unit

Typically, air conditioners are not well insulated. In the winter, cover your air conditioner or remove it from the window.

Close the Damper in your fireplace when not in use.

Consider installing glass doors on your fireplace. In an open fireplace, much of the heat is sucked up the chimney. Glass doors prevent this and allow the fireplace to produce efficient, radiant heat.

Use a switched outlet for TV’s, computers, and other electronic equipment.

Your TV doesn’t shut off when you press the power button, it goes on ‘standby’, consuming, in some cases, 10% of the power used when it is on. Plug televisions and monitors into a switched surge protector or a wall outlet that is controlled by a switch. Unplug phone chargers when not in use. Arthur H. Rosenfeld, Ph.D. Commissioner of the California Energy Commission (and responsible for huge advances in global efficiency) calls these zillions of little black boxes “…energy vampires, sucking the life out of our grid one watt at a time.”

Energy
Star rated TV’s use about 30% less electricity than standard televisions and use less than 3 watts when in the ‘standby’ mode. (2)

Consider Solar Electric (photovoltaic or PV) or Solar Thermal panels.

If your home and your lifestyle is already highly energy efficient, you may want to consider generating some energy on your own.

A solar electric system provides the most power during peak electricity usage times. This is ideal for time of use pricing. In most areas, if you produce more than you use, you can sell the power back to the utility. There are federal and state rebates available to help pay for them.

Solar Thermal panels are used to preheat water before it goes into your hot water heater, or heat air to supplement your heating system. In areas where winters are long, these can generate greater savings than photovoltaic panels and be cheaper to install.

Become Carbon-Neutral, Buy Renewable Energy Credits (or Greentags).

If you can’t install a solar system of your own, you can still power your house with solar electricity by contributing to some else’s solar system. This can often be done through your utility or through one of several certified clearing houses. This is similar to buying ‘carbon credits’ only better because it is specifically geared to solar energy.

Buying renewable energy credits can be compared to sponsoring an NPR radio program. Your sponsorship helps cover the cost and does entitle you to claim that you are responsible for the presentation of the show. When you ‘sponsor’ someone’s solar system, you are legally and morally entitled to claim that you are responsible for the production of that solar energy.

If your state has required that your utility get 5% of its power from solar energy, your utility can either install solar panels themselves, or ‘sponsor’ solar panels installed elsewhere. The increasing number of states that require utilities to do this drive up the costs of these ‘greentags’ and make more money available, through sponsorships’ to people who want to install panels on their homes and businesses.

Some of these tips will save huge amounts of energy; a drafty window can be as bad as leaving the outside door open in the winter (“Were you raised in a barn?”) Others, like shutting TV’s completely off only save a small amount of energy, but with virtually no inconvenience and significant national impact when multiplied by 20 million homes.

… and don’t forget to turn off the lights when you leave the room.

Footnotes:

(1) NOAA Heat Index Calculator: http://www.crh.noaa.gov/jkl/?n=heat_index_calculator

(2)
Energy Star Ratings for Televisions and other Electronics:
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductCategory&pcw_code=HEF

US Department of Energy Home Energy Efficiency: http://www1.eere.energy.gov/consumer/tips/index.html

Purchase Greentags at http://www.GreenTagUSA.org

Vent Air Flow Re-directors at: http://www.improvementscatalog.com/home/diy/air-deflector

Note: These figures are based on an electric price of 8.14¢ per kWh

Household	Cost/Period
Auto engine heater (500 watt)	4.7¢ / hour
Aquarium 30 gallon	$4.17 / month

Clock
18¢ / month

Curling Iron
1.5¢ / hour

Battery Charger (car)
5.1¢ / hour

Bug Zapper
$7.57 / month

Computer w/Monitor, Printer
88.2¢ / week

Electric Blanket (125 watt)
9.2¢ / 8 hours

Garage Door Opener
2.8¢ / month

Hair Dryer (hand held)
11.3¢ / hour

Heat Lamp
2.4¢ / hour

Jacuzzi (maintain temperature)
$1.20 / day

Lighting (incandescent) 75 watt
7.0¢ / 10 hours

Lighting (compact fluorescent) 18 watt
1.6¢ / 10 hours

Lighting (fluorescent) 4’40 watt
3.8¢ / 10 hours

Lighting (outdoor flood) 125 watt
11.6¢ / 10 hours

Motor (1 HP)
9.20¢ / hour

Power Tools (circular saw)
16.7¢ / hour

Radio
12.5¢ / 10 hours

Satellite Dish (incl. receiver)
$6.09 / month

Stereo
18.9¢ / 10 hours

Television (color, solid state)
26.0¢ / 10 hours

DVD/VCR
2.6¢ / hour

Waterbed Heater (300 watt)
$10.00 / month

Laundry
Cost/Period

Clothes Dryer
47¢ / load

Clothes Washer (cold/cold)
2.8¢ / load

Clothes Washer (warm/cold)
12.8¢ / load

Clothes Washer (hot/warm)
34.2¢ / load

Iron
9.2¢ / hour

Space Conditioning
Space/Period

Air Conditioner (12,000 BTU, window) 8 SEER
$28.25 / month

Air Conditioner (36,000 BTU, central) 13 SEER
$51.25 / month

AC Dehumidifier (20 pints, summer)
$14.99 / month

Heater (portable) 1500 watt
14.0¢ / hour

Heating System (blower)
$8.32 / month

Heat tape (30 ft., 6 watts per foot)
$11.93 / month

Humidifier (winter)
$2.66 / month

Fan (attic)
$2.64 / month

Fan (ceiling, lights off)
9.2¢ / 10 hours

Kitchen
Cost/Period

Bread Machine
7.2¢ / loaf

Coffee Maker (auto drip)
2.6¢ / brew

Convection Oven
9.2¢ / hour

Dishwasher
22.8¢ / load

Freezer (man. defrost, 15 cu. ft.) 1975
$5.55 / month

Freezer (man. defrost, 15 cu. ft.) 2003
$2.75 / month

Fry Pan
10.0¢ / hour

Microwave Oven
14.3¢ / hour

Range (oven)
12.8¢ / hours

Range (self cleaning cycle)
57¢ / cleaning

Refrigerator (frost-free, 21.5 cu. ft.) 1975
$13.86 / month

Refrigerator (frost-free, 21.5 cu. ft.) 2006
$3.55 / month

*''Energy Savers'' book from the Department of Energy (DOE)