



# CHECK OUT ENERGY SAVINGS

BROUGHT TO YOU BY  
ENERGY TRUST OF OREGON

# CONGRATULATIONS!

Checking out a Kill A Watt® monitor starts you on the path to energy savings. By finding out how much energy your electronics and appliances are using and then making adjustments, you can take charge of your electricity use and decrease your utility bills.

By saving energy, you're helping to lower energy costs and protect the environment.

## What should you measure?

The Kill A Watt monitor can tell you the amount of electricity used by small- to medium-sized electronics and appliances in your home. It will also help you discover items that still draw power even when turned off—adding to your energy bill.

The Kill A Watt **can** be used on most small household appliances that operate between 110 volts and 120V, such as these:

- |  |  |
|--|--|
| <input type="checkbox"/> Cable box                   | <input type="checkbox"/> Phone charger     |
| <input type="checkbox"/> Computer                    | <input type="checkbox"/> Power strip       |
| <input type="checkbox"/> Coffee maker                | <input type="checkbox"/> Printer           |
| <input type="checkbox"/> DVD/VCR player              | <input type="checkbox"/> Refrigerator      |
| <input type="checkbox"/> Freezer                     | <input type="checkbox"/> Space heater      |
| <input type="checkbox"/> Hair dryer                  | <input type="checkbox"/> Stereo equipment  |
| <input type="checkbox"/> Lamp with CFL               | <input type="checkbox"/> Television        |
| <input type="checkbox"/> Lamp with incandescent bulb | <input type="checkbox"/> Toaster           |
| <input type="checkbox"/> Lamp with LED               | <input type="checkbox"/> Video game system |
| <input type="checkbox"/> Microwave oven              | <input type="checkbox"/> Window A/C unit   |
| <input type="checkbox"/> Modem                       | <input type="checkbox"/> Wireless router   |

The Kill A Watt **cannot** be used on larger, energy-intense appliances, like ovens and clothes dryers, which operate at 220V or 240V. These appliances can be recognized by the different plug and wall outlet they use.



## USING THE KILL A WATT MONITOR

- 1 Plug the Kill A Watt** into an electrical socket or power strip, and then plug the device you want to measure into the Kill A Watt. If the outlet is hard to reach, use an extension cord. If the outlet is not grounded (only has two prongs instead of three), you can purchase an adapter at a local hardware store.

Turn on the device. The voltage will appear on the display first, and should be between 110V and 120V. The Kill A Watt cannot be used to measure 220V or 240V appliances.
- 2 Push the “Watt/VA” button** for an instant reading of the power, in watts, that the device is drawing. If the monitor shows “VA” to the right of the number, press the Watt/VA button again to toggle the display. Write down the watts drawn by the device.
- 3 Leave the device plugged in** for at least one hour to get a good average reading. Not all appliances use the same amount of energy at all times. For example, a printer turned on but not printing will continue to draw energy. Some appliances, such as refrigerators and coffee makers, cycle on and off; these appliances use varying amounts of energy throughout the day. Other appliances are always on, such as cable boxes. Leaving the Kill A Watt plugged into a given appliance for 24 hours will provide a more accurate picture of its average energy use. Once you plug a device into the Kill A Watt, the monitor will continuously measure the power used.
- 4 Push the “KWH/Hour” button** once to see how many kilowatt hours were consumed since the device was connected to the monitor. Push it again to see the time, in hours, since the device was plugged into the Kill A Watt. Write down the number of kWh used and the number of hours the device has been plugged in.
- 5 Remove the Kill A Watt** from the outlet to reset it before measuring a different device.

**Energy-saving tip:** Check several devices and compare electricity use to help prioritize which devices to unplug when not in use, or to determine when to upgrade products or appliances to energy-efficient models.

For example, a lamp with a 60W incandescent light bulb uses 1.44 kWh if turned on for 24 hours while an equivalent CFL uses only 0.36 kWh and an equivalent LED would only use 0.22 kWh.

## HOW MUCH ARE YOU SPENDING?

Calculate how much your appliances and electronics cost to operate by using your measurements from the Kill A Watt:

### Estimated monthly kWh consumed

If you left your device plugged in for an hour or more, you can calculate its monthly energy consumption using the information gathered in Step 4. Divide the kWh measurement by the number of hours it was plugged in to get the kWh used in one hour. Use the equation below to determine the monthly energy use:

$$\frac{\text{Number of kWh (from Kill A Watt)}}{\text{Hours plugged in}} \times \frac{\text{Hours used per day}}{\text{per day}} \times \frac{\text{Days used per month}}{\text{per month}} = \text{Monthly kWh}$$

Note: If you used the Kill A Watt for less than an hour, take the instantaneous watt reading from Step 2 and divide it by 1,000 to get it to kWh. Use that as your “number of kWh” in the above equation to estimate the device’s monthly kWh consumed. See below for more information about energy and electrical terms.

### Estimated monthly cost

Use the equation below to calculate the device’s monthly energy cost:

$$\text{Monthly kWh} \times \text{Utility bill rate} = \text{Monthly energy cost}$$

Note: Refer to your electric utility bill or contact your local utility to determine your billing rate.

### Defining electrical terms

**Watt (W):** a unit of energy

$\frac{\text{Watts}}{1,000} = \text{Kilowatts}$

**Kilowatt (kW):** 1,000 watts

$\frac{\text{Watts}}{1,000}$

**Kilowatt hour (kWh):** A measurement of energy use over time; 1,000 watts used for one hour.

- Example: a 60W light bulb operating for 20 hours uses 1.2 kWh:  
(60W/1,000) x 20 hours
- A kWh is the billing unit your electric utility uses

A kW is like the rate at which water moves through a pipe—gallons per minute. A kWh is similar to the total volume of water that flows through the pipe in a certain amount of time.

# COMPARE YOUR ELECTRICITY USE

Compare your results to estimated average annual energy consumption and cost of typical appliances and electronics using the estimates below. There are many reasons the energy use of your electronics and appliances may be different from those in the table below, including the different energy use modes of various models and varying degrees of usage.

## Estimated average annual electricity usage (in kWh) and cost (in dollars)

	Average annual kWh	Average annual cost
Cable box	181	\$21.00
Compact fluorescent light bulb	14	\$1.65
Computer monitor (CRT)	66	\$7.67
Computer monitor (LCD)	52	\$6.02
Dehumidifier	971	\$112.46
Desktop computer	238	\$27.62
DVD player	24	\$2.78
Freezer (meeting 2001 federal energy use standards)	517	\$59.88
Freezer (average manufacture date 1984)	1,405	\$162.72
Game system	16-151	\$1.85-\$17.49
Laptop computer	63	\$7.34
Incandescent light bulb	66	\$7.61
LED light bulb	10	\$1.14
Microwave	135	\$15.64
Multifunction printer (inkjet)	55	\$6.37
Multifunction printer (laser)	22	\$2.55
Refrigerator (meeting 2001 federal energy use standards)	598	\$69.26
Refrigerator (average manufacture date 1983)	1,886	\$218.43
TV (new ENERGY STAR 4.1, various models 32"+)	184	\$21.31
TV (various models in home, 32"+)	258	\$29.88

*Note: The average annual cost has been calculated using \$0.11 per kWh as the billing rate.*

Create your own chart with items from your household and use the equations to the left to track your electricity costs per month by product. A sample chart is online at [www.energytrust.org/checkoutsavings](http://www.energytrust.org/checkoutsavings).

# WHERE CAN YOU SAVE ENERGY?

**Inefficient appliances** like older clothes washers, freezers and refrigerators use more energy and water than the new energy-efficient models on the market. Choose ENERGY STAR® models when you're ready to replace older appliances.

**Phantom loads** are caused by appliances and electronics drawing power while they are switched off or in standby mode. Between 5 and 15 percent of household electricity consumption is wasted powering devices that are turned off.

## FINDING PHANTOM LOADS

Common sources of phantom loads are battery chargers and almost any product with an external power supply, remote control, digital display, LED status light or digital clock. A typical home has around 40 devices that create phantom loads.

While plugged into the Kill A Watt, turn a device off to see if any electricity is being consumed when it is not in use (a phantom load).

Reduce phantom loads in your house and lower your utility bills by:

- Unplugging items with phantom loads when they aren't in use.
- Grouping computers, printers, TVs and other electronics on a single, easily accessible power strip that can be switched off when you're away from home or when they are not in use.

### Average phantom loads of household devices

#### Cable box

Active	Standby*
29W	0.5W

#### Desktop computer

Active	Low power*	Standby*
70W	17W	1.5W

#### Video game system

Active	Standby*
16 - 151W	Up to 3W

\*Phantom load



### **Caution**

The maximum voltage that the Kill A Watt can handle is 125V (also written as 125VAC). This allows for measurement of most household electrical devices, but make sure to check the voltage of appliances before plugging them into the Kill A Watt. You can usually find the voltage of most appliances stamped on the bottom or back of the appliance or on its nameplate.

### **Technical support**

For additional information or technical support about the Kill A Watt monitor (Model P4400), contact P3 International at 212.741.7289 or email [techsupport@p3international.com](mailto:techsupport@p3international.com).

Energy Trust is not liable for any damage caused by a Kill A Watt monitor. Operate only as instructed.

# TAKE CHARGE OF YOUR HOUSEHOLD ENERGY USE

The Kill A Watt monitor helps you see where you're consuming too much electricity, but did you know many homes can waste up to 60 percent of the energy used for heating and cooling due to leaky ducts, inefficient equipment, poor insulation and air leaks? Increasing your home's energy efficiency can reduce energy costs, increase comfort levels and improve indoor air quality.

Follow these no- and low-cost tips to get you started:

- Set your thermostat to 65-68 degrees during the day and 58-60 degrees at night during cooler months.
- Use shades or drapes to cover your windows.
- Clean or replace furnace or heat pump filters before and after the heating season.
- Unplug battery chargers for mobile phones, tablets, laptops and other devices when not in use.
- Get a Home Energy Review from Energy Trust and receive a list of customized energy-saving recommendations.

When you're ready, here are some projects that can save you even more energy:

- Install a smart thermostat.
- Install or upgrade insulation to keep your home at a more constant and controlled temperature.
- Upgrade your water heater to a new energy-efficient model.



Visit [www.energytrust.org/homes](http://www.energytrust.org/homes) or call **1.866.368.7878** for more tips and ideas on ways to save energy.

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Energy Trust of Oregon is an independent nonprofit organization dedicated to helping utility customers benefit from saving energy and generate renewable power. Our services, cash incentives and energy solutions have helped participating customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas and Avista save on energy costs. Our work helps keep energy costs as low as possible, creates jobs and builds a sustainable energy future. **Printed on recycled paper that contains post-consumer waste. 11/17**