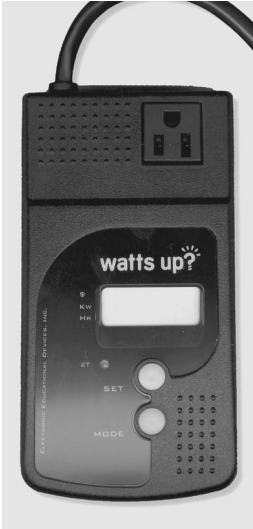


Are your appliances wasting energy?

FACT SHEET



Use a watt meter to measure energy used by your appliances. Watt meters are available at many libraries in Wisconsin.

How much energy your household appliances use every month depends on the wattage of the appliances and the number of hours those appliances are using electricity. How much you pay to run those appliances depends on the rate your utility charges. Use a watt meter to find out exactly how many watts of energy an appliance uses.

A watt meter is an electronic instrument that measures the power (watts) used by an appliance. When you plug the meter into the appliance, you can measure how much electricity your appliances are using and what they are costing you. The meter will display wattage, cumulative kilowatt hours and cumulative cost. In most Wisconsin communities you can borrow a watt meter from your public library.

The actual electricity used is measured as a kilowatt-hour, which is equal to one kilowatt (or 1000 watts) of electricity used steadily for one hour. For example, ten 100-watt light bulbs, left on for one hour, would use one kilowatt-hour (or 1000 watt hours) of electricity.

If you know the wattage of an appliance, you can estimate how much electricity it uses and what it costs you by following these steps.

1. Find the kilowatt-hours (kWh) the appliance uses per day:
 $(\text{Wattage} \times \text{hours used per day}) \div 1000 = \text{daily kWh}$
2. Find the kWh the appliance uses per month:
 $\text{Daily kWh} \times 30 = \text{monthly kWh}$
3. Calculate your monthly cost:
 $\text{Monthly kWh} \times \text{electric rate} = \text{monthly cost}$

To find your electric rate, look at your utility bill and add the rates for electricity service and electric distribution service, or call your utility. An average electric rate in Wisconsin is \$0.10 per kWh.

A wattmeter can be used to measure the electric consumption of most household plug-in appliances and lighting, including your:

- Refrigerator
- TV and VCR
- Microwave
- Computer and other office equipment
- Room air conditioner
- Portable space heater
- Table lamps and halogen torchiere lamps

- Vacuum cleaner
- Humidifier
- Coffee maker
- Oscillating fan
- Hair dryer

REFRIGERATOR ENERGY USE

Your refrigerator is one of the biggest energy users in your home, especially if it is more than 10 years old. But just how much energy could you save if you upgraded to an ENERGY STAR® qualified model? That depends on exactly how much energy your current refrigerator uses.

You can measure the electric usage of your refrigerator using a watt meter and the following directions:

1. Unplug your refrigerator. (It will only be unplugged for a few moments; there's no need to empty the refrigerator or freezer.) Plug the watt meter into the same socket.
2. Plug the refrigerator cord into the watt meter. The watt meter will automatically begin measuring the electricity used by your refrigerator.

ANNUAL BREAKDOWN

| | NEW ENERGY STAR REFRIGERATOR | 10-YEAR OLD REFRIGERATOR | ANNUAL SAVINGS |
|---|------------------------------|--------------------------|--------------------|
| Electrical usage | 500 kWh | 1,927.2 kWh | 1,427.2 kWh |
| Operating cost* (electrical usage x cost per kWh) | \$50.00 | \$192.72 | \$142.72 |

*CALCULATED AT 10¢ PER KWH

10-YEAR COST COMPARISON

| | NEW ENERGY STAR REFRIGERATOR | 10-YEAR OLD REFRIGERATOR |
|---|------------------------------|--------------------------|
| Purchase price | \$795.00 | \$795.00 |
| Operating cost* (10 years x annual electrical usage x cost per kWh) | \$500.00 | \$1,927.20 |
| Total 10-year cost (purchase + operating cost) | \$1,295.00 | \$2,722.20 |

*CALCULATED AT 10¢ PER KWH

To learn more about Focus on EnergySM, call 800.762.7077 or visit focusonenergy.com

3. The watt meter will first show you the estimated cost of the electricity being used. Push the MODE button once so it displays kilowatts (KW). This is the number of kilowatts being consumed by your refrigerator. You are likely to see:
 - 0 to 40 watts if the refrigerator is not running
 - 150 to 400 watts if the refrigerator is running
 4. The MODE button will switch readings from the kilowatts (KW) being consumed, to the length of time (HR) the unit has been running, to the total kilowatt hours (KW/HR or kWh) of electricity consumed. You will need all three measurements for an accurate calculation, so be sure you're comfortable finding the readings.
 5. When you open the refrigerator door, the watt meter reading should go up by 10 to 40 watts. This is the amount of electricity used by the light bulb inside the unit. If the meter reading remains the same when you open the door, the refrigerator light bulb may be on even when the door is closed, warming the interior unnecessarily. If the meter doesn't change, unscrew the light bulb and check the reading again.
 6. After you've become familiar with the readings, unplug the meter cord and plug it back in so the time is reset to 0.00.
 7. Let the meter run for at least two uninterrupted hours. Keep the refrigerator door shut during this time.
 8. After two hours, use the MODE button to find the HR and KW/HR readings. If you ran the meter for two hours, the KW/HR reading should be between 0.100 kWh and 0.700 kWh.
 9. Multiply the KW/HR total by 12 to get a daily usage. Then you can multiply by 365 to get annual electric usage of the refrigerator.
4. The MODE button will switch readings from the kilowatts (KW) being consumed, to the length of time (HR) the unit has been running, to the total kilowatt hours (KW/HR or kWh) of electricity consumed. You will need all three measurements for an accurate calculation, so be sure you're comfortable finding the readings.
 5. After you've become familiar with the readings, unplug the meter cord and plug it back in so the time is reset to 0.00.
 6. Start with the appliance "off"; if the watt meter shows a reading for kW while the appliance is off, the appliance uses standby power, and you should skip to Step #7. If the reading is 0, then the appliance does not use standby power, and you should follow the process below in 6a.
 - 6a. For appliances that don't use standby power, turn the appliance on for 10 minutes and look at the kilowatt hour usage. Multiply this number by 6 to get hourly usage.
 7. For appliances that use standby power:
 - 7a. Keep the appliance off for 10 minutes and record the amount of standby power used in terms of kilowatt hours. You can multiply this number by 6 to get the hourly usage when the appliance is "off."
 - 7b. Unplug the meter to reset it and then plug it in and turn on the appliance. Keep the appliance on for 10 minutes and record the electric usage in terms of kilowatt hours. You can multiply this kilowatt hour number by 6 to get the amount of electricity used when the appliance is on.
 - 7c. The total electric usage of the appliance will be the amount it uses when it is on, plus the amount it uses when it is off. (Number of hours appliance is off x usage when off (7a) + number of hours appliance is on x usage when on (7b))

Interpreting the results

As a rule of thumb, you should consider replacing your refrigerator if it uses more than an average of 0.150 kWh per hour. An ENERGY STAR qualified refrigerator uses about half the electricity of a standard 10-year-old refrigerator. Replacing an older refrigerator will reduce your electricity bill.

Please refer to the Focus on Energy Reducing Appliance Energy Use fact sheet for more information. Ask your librarian for a copy, download it from focusonenergy.com, or call 800.762.7077 to have a copy mailed to you.

HOME ELECTRONICS AND COMPUTERS ENERGY USE

Many home electronics and computers use electricity even when you think the equipment is switched off. Standby electricity accounts for about four to seven percent of total electrical consumption in Wisconsin homes (or 40 to 70 watts). Any appliance with an external power supply, remote control or clock display requires standby electricity. These appliances include TVs, VCRs, cable boxes, stereo systems and telephone answering machines. A watt meter can help you determine exactly how much energy your appliances are using.

To use the watt meter on appliances, lighting and electronics:

1. Unplug the appliance. Plug the watt meter cord into the same socket. The watt meter will switch on automatically.
2. Plug the appliance into the watt meter.
3. The watt meter will first show you the estimated cost of the electricity being used. Push the MODE button once so it displays kilowatts (KW). This is the number of kilowatts being consumed by the appliance.

For example, if a television uses .050 kwh when it is off and .250 when it is on and the television is typically used for 3 hours a day: 21 hours off x 0.050 kWh + 3 hours on x .250 kWh = 1.05 kWh + .750 kWh = 1.8 kWh daily. Over the course of a month (30 days) this television would use 54 kWh.

Interpreting the results

It may make good economic sense to replace some appliances or lighting with high-efficiency ENERGY STAR qualified models. Typically, ENERGY STAR qualified appliances and lighting use about half the electricity of standard models. Plus, they may be more reliable and durable, offer more features or operate more quietly.

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LEARN MORE

Focus on Energy provides public libraries with the Watts Up? watt meters to help consumers make smart energy choices. Contact Focus on Energy for more information about Focus programs. 800.762.7077 focusonenergy.com