The first step to better energy management is learning how your home and habits affect your bill. Use this guide to help you make informed energy decisions.
Understanding your energy use

We all know the wonderful things electricity makes possible. There’s TV, radio, video games, computers. Not to mention that electricity keeps us warm in winter, cool in summer, cooks our food, heats our water, cleans our clothes and keeps our homes and schools bright. Electricity is always ready to make our lives a little easier.

Electricity’s abundance and reliability are precisely why it’s so tricky to tell how much you’re using. Other types of energy require occasional reminders of how much you’ve consumed – your car will need a refill, or you’ll empty the propane tank on your gas grill – but you never really “run out” of electricity.

However, that doesn’t mean you can’t measure how much you use. The information and tools provided in this Energy Guide will help you become a smarter electrical consumer and make wise energy choices.

First, waste less

You don’t need to give anything up to reduce your energy use. By simply changing a few habits you can reduce the amount of electricity you waste and take control of your energy costs. Being a smart energy consumer means you’re doing the same thing you’ve always done – only with less energy.

This guide will introduce ways you can become Energy Wise® by providing tips to make your home more efficient. This is just a start. Check with your electric cooperative to find out what assistance they can offer.

Using your meter

Your meter is a highly accurate tool. If used properly, it gives you the most precise picture of your electricity use. The most important thing is to remember to read it on the same day of each month. If you check your meter every 30 days, you’ll be able to monitor your electricity use more accurately.

We’re here to help

Once you’ve got a clear picture of your electricity use, your co-op is willing to do whatever it takes to help make your home, farm or business as energy efficient as possible. Ask the experts at your local cooperative what they can do to help you get the most from your energy dollar.
Determining your electricity use

Your home is unique. Factors that affect your energy use range from the number of people in your family, to the type of heating and cooling you use, to how often you entertain guests.

Other factors can affect energy costs as well. Was it colder or hotter than normal? Did you finally buy that new flatscreen you’ve been saving up for?

The chart below estimates what most people buy with their energy dollar.

The marks of efficiency

ENERGY WISE®
Your electric cooperative offers a variety of Energy Wise® programs to help make your home more energy efficient. Saving energy means saving money, and your co-op wants to help you save both – without sacrificing comfort. Energy Wise programs range from incentives for installing energy efficient lighting and appliances to rebates for implementing heating and cooling options that use minimal energy.

ENERGYGUIDE
If you’ve shopped for appliances, you’ve likely seen the bright yellow EnergyGuide label. This label provides an estimated annual operating cost for an appliance. The cost to operate an appliance should be a major consideration in your purchasing decisions; a less expensive appliance may eventually cost you more due to the accumulation of higher energy bills.

ENERGY STAR®
If you’re not into crunching numbers to compare energy costs, just look for the ENERGY STAR® logo. It’s a simple way to ensure you’re buying an efficient product. ENERGY STAR® certified products meet strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and Department of Energy.

Estimating electricity use and cost

Appliance and equipment wattage and operating costs can vary greatly. The following formulas will show you how to determine where your electricity dollars are being spent.

Step 1
Your electric bill amount is determined by the number of kilowatt-hours (kWh) used during a billing period. The first step is to determine your average cost per kWh. Average kWh cost = $ amount of the energy portion of your electric bill divided by kWh used.

EXAMPLE: $115 ÷ 1,000 kWh = 11.5¢ per kWh

Step 2
Since the wattage of an appliance determines the electrical use per hour, the second step is to determine the wattage of the appliances of concern. The wattage of an appliance is found on the serial plate. Electrical load may also be expressed in volts and amps, rather than watts. If so, multiply volts times amperes to determine the wattage.

EXAMPLE: 120 volts x 12.1 amps = 1,452 watts

Step 3
Use the formula shown in the following example to estimate use and cost. A light uses 100 watts and is left on 15 hours. How many kWh are used and what does it cost you?

EXAMPLE: kWh used = (100 watts x 15 hours) ÷ 1,000 watts = 1.5 kWh
Your cost = 1.5 kWh x 11.5¢ = 17.25¢
1,000 watt-hours equals 1 kWh.

Step 4
To find your daily cost for electricity, divide your bill amount by the number of days in the month.

EXAMPLE: $115 ÷ 30 days = $3.83 which is your daily cost

To find the daily cost per person in your family, divide the daily cost by the number of people in your family.

EXAMPLE: $3.83 ÷ 4 people = 96¢ per person per day

Source: Minnesota Department of Commerce Office of Energy Security
### Electricity use table

<table>
<thead>
<tr>
<th>Appliance</th>
<th>Typical Energy Usage</th>
<th>Average Monthly Cost at 11.5¢/kWh</th>
<th>Estimated Monthly Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Refrigerators</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Top Freezer – Purchased Before 1990</td>
<td>142 kWh/mo</td>
<td>$16.33</td>
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<tr>
<td>Top Freezer – Purchased Between 1990 and 2000</td>
<td>86 kWh/mo</td>
<td>$9.89</td>
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<tr>
<td>Top Freezer – Purchased After 2000</td>
<td>45 kWh/mo</td>
<td>$5.18</td>
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<tr>
<td>ENERGY STAR® – Top Freezer</td>
<td>34 kWh/mo</td>
<td>$3.91</td>
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<tr>
<td>Side-by-Side – Purchased Before 1990</td>
<td>183 kWh/mo</td>
<td>$21.05</td>
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<tr>
<td>Side-by-Side – Purchased Between 1990 and 2000</td>
<td>114 kWh/mo</td>
<td>$13.11</td>
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<tr>
<td>Side-by-Side – Purchased After 2000</td>
<td>58 kWh/mo</td>
<td>$6.67</td>
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<tr>
<td>ENERGY STAR® – Side-by-Side</td>
<td>44 kWh/mo</td>
<td>$5.06</td>
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<tr>
<td>Bottom Freezer – Purchased Before 1990</td>
<td>157 kWh/mo</td>
<td>$18.06</td>
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</tr>
<tr>
<td>Bottom Freezer – Purchased Between 1990 and 2000</td>
<td>95 kWh/mo</td>
<td>$10.93</td>
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<tr>
<td>Bottom Freezer – Purchased After 2000</td>
<td>50 kWh/mo</td>
<td>$5.75</td>
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<tr>
<td>ENERGY STAR® – Bottom Freezer</td>
<td>38 kWh/mo</td>
<td>$4.37</td>
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<td><strong>Freezers</strong></td>
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<tr>
<td>Upright – 18.7 cu. ft.</td>
<td>62 kWh/mo</td>
<td>$7.13</td>
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<tr>
<td>ENERGY STAR® Upright – 18.7 cu. ft.</td>
<td>53 kWh/mo</td>
<td>$6.10</td>
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<tr>
<td>Chest Freezer</td>
<td>34 kWh/mo</td>
<td>$3.91</td>
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<td><strong>Kitchen</strong></td>
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<tr>
<td>Dishwasher</td>
<td>26 kWh/mo</td>
<td>$2.99</td>
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<tr>
<td>ENERGY STAR® Dishwasher</td>
<td>20 kWh/mo</td>
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<tr>
<td>Oven</td>
<td>45 kWh/mo</td>
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<tr>
<td>Microwave Oven</td>
<td>17 kWh/mo</td>
<td>$1.96</td>
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<tr>
<td>Toaster Oven</td>
<td>4 kWh/mo</td>
<td>$0.46</td>
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<tr>
<td>Coffeemaker</td>
<td>10 kWh/mo</td>
<td>$1.15</td>
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<td><strong>Laundry</strong></td>
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<tr>
<td>Clothes Washer</td>
<td>39 kWh/mo</td>
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<tr>
<td>ENERGY STAR® Clothes Washer</td>
<td>27 kWh/mo</td>
<td>$3.16</td>
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<tr>
<td>Clothes Dryer</td>
<td>83 kWh/mo</td>
<td>$9.55</td>
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<td><strong>Lighting</strong></td>
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<tr>
<td>18-Watt Compact Fluorescent Lamp</td>
<td>1.6 kWh/mo</td>
<td>$0.18</td>
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<td>60-Watt Incandescent Lamp</td>
<td>3.3 kWh/mo</td>
<td>$0.38</td>
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<tr>
<td>100-Watt Incandescent Lamp</td>
<td>6 kWh/mo</td>
<td>$0.69</td>
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<tr>
<td>Halogen Torchiere Lamp</td>
<td>37 kWh/mo</td>
<td>$4.26</td>
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<td><strong>Miscellaneous</strong></td>
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<tr>
<td>Standard Electric Water Heater – Family of 4</td>
<td>400 kWh/mo</td>
<td>$46.00</td>
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<tr>
<td>Standard Electric Water Heater – Family of 2</td>
<td>200 kWh/mo</td>
<td>$23.00</td>
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<tr>
<td>Off Peak Electric Water Heater – Family of 4 ($0.04/kWh)</td>
<td>400 kWh/mo</td>
<td>$18.00</td>
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</tr>
<tr>
<td>Off Peak Electric Water Heater – Family of 2 ($0.04/kWh)</td>
<td>200 kWh/mo</td>
<td>$8.00</td>
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<tr>
<td>Dehumidifier</td>
<td>81-690 kWh/mo</td>
<td>$9.32-$79.35</td>
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<tr>
<td>AIR Cleaner</td>
<td>60-120 kWh/mo</td>
<td>$6.90-$13.80</td>
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<tr>
<td>Furnace Fan (Automatic)</td>
<td>100-200 kWh/mo</td>
<td>$11.50-$23.00</td>
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<tr>
<td>Furnace Fan (Constant)</td>
<td>250-500 kWh/mo</td>
<td>$28.75-$57.50</td>
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</tr>
<tr>
<td>Ceiling Fan</td>
<td>7-30 kWh/mo</td>
<td>$0.81-$3.45</td>
<td></td>
</tr>
</tbody>
</table>
Monitor your use and cost

The most effective way to measure your electricity use is to use your meter and keep an accurate record. Take a few minutes each day (preferably at the same time) to jot down your electric meter reading. Start the first day of the month. By subtracting the previous day’s reading from the current reading, you’ll get the number of kilowatt-hours (kWh) used during that 24-hour period. By adding the daily figures into a weekly total, you can see how much – and when – your family used power during that month.

Monitoring your kWh is a vital first step to understanding your electricity use. Understanding your electricity use is the first step to becoming more energy efficient at home.

**Factors that affect energy use**

**Season**

Electric bills will typically jump in the summer due to air conditioner use. You may see similar increases in the winter if you heat with electricity. Electric bills tend to be lower in the spring and fall when temperatures are milder.

**‘Phantom’ load**

When you turn something off, that doesn’t necessarily mean that it has stopped using electricity. Many electronics have a standby mode that draws an electric current even while turned off. Known as “phantom” loads, they can add up quickly. In fact, the average home wastes 42 kWh each month due to phantom loads – that’s nearly $50 per year. Unplug all electronics that display a clock or light while turned off, or use a smart power strip to limit phantom loads.

**Vacation**

When you’re gone for a couple of weeks, your electric bill should decrease significantly, right? Wrong!

Many people believe that when they leave for vacation, their electric meter stops until they return. If you’ve ever wondered how an empty house can use so much energy, ask the following questions:

- **Was the water heater turned down or off during your vacation?**
  Remember, if the water heater is left on during vacation, it will continue to operate and maintain the tank temperature even if you’re not using any hot water.

- **Did other appliances and electronic devices run while you were on vacation?**
  Clocks, cell phone chargers, DVD players, heating and air conditioning equipment, computers, fax machines and TV sets may draw some “phantom” electricity. Unplug them while you’re on vacation.

**Vintage**

Older appliances and electronic devices often draw more current than newer models (televisions are the most common exception). While it can be difficult to invest in new appliances or electronic devices when you’ve got reliable older models, the cost savings from reduced energy use can, in some cases, recoup the cost of an upgrade.

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**Get inside the outlet**

The table on pages 4 and 5 will give you an estimate of your electricity use, and your meter is great for accurately measuring consumption for your entire home, but there are tools that can help identify those items that are particularly costly to operate.

A portable electric monitor fits between an appliance and the outlet to measure electricity use and cost. By isolating an individual device, you can watch how your habits affect your power bill.

Contact your co-op to find out how to get a portable electric monitor and to learn about other tools available to give you a clearer picture of your electricity use.
Making a habit out of any combination of the following measures can significantly reduce your electricity usage:

- **ADJUST THERMOSTATS**
  Turn down your thermostat during cool months and turn it up when air conditioning. Install a programmable thermostat to accommodate your weekly schedule (i.e., don’t heat an empty home).

- **TURN DOWN THE WATER HEATER**
  Although some manufacturers set water heater thermostats at 140°F, most households usually only require them to be set at 120°F. For each 10°F reduction in water temperature, you can save 3-5% in energy costs.

- **GO LOW FLOW**
  Install water flow restrictors and aerators on sink faucets and shower heads. These measures save money by reducing water use—and minimize the burden on your water heater.

- **TURN OFF LIGHTS**
  Just like mom and dad always said: leaving lights on wastes electricity.

- **SWAP FOR CFLS**
  Compact fluorescent lamps (CFLs) use 70% less energy and last up to 10 times longer than standard incandescent bulbs.

- **PLUG DUCT LEAKS**
  Leakage from areas such as joints, elbows and connections in your ductwork can be substantial. Use foil tape (not duct tape) or caulk to seal ducts.

- **INSULATE**
  You spend a lot of money and energy heating your home. Don’t let it escape so easily. Use insulation with an R value of 45 or more in the ceiling and attic, and 20 or more in the walls.

- **FILL THE CRACKS**
  Seal exterior cracks and holes and ensure tight-fitting windows. Small cracks or holes in the building’s exterior can really add up to substantial heating or cooling losses.

- **MAKE SOME SHADE**
  Sunlight streaming through windows in the summer can substantially increase air conditioning costs. Use shading methods (like window coverings, awnings, trees and bushes) wherever possible.

- **SHUT THEM OFF**
  Turn off electronic devices when not in use. Don’t underestimate the energy savings realized by turning off or unplugging unused televisions, stereo and computers.

- **TURN OFF LIGHTS**
  Just like mom and dad always said: leaving lights on wastes electricity.

Your local electric cooperative offers a host of programs that can help you make your home more energy efficient, but there’s one other factor that holds vast potential for improving your home’s efficiency: you.

Your electric cooperative is willing and ready to do whatever it takes to help make your home as energy efficient as possible. So, ask the energy experts at your cooperative what else they can do to help you get the most from your energy dollar.

**GREAT RIVER ENERGY OWNERS AND DISTRIBUTION PARTNERS**

- Agralite Electric Cooperative
  Phone: 320-843-4150
  Web site: www.agralite.coop

- Arrowhead Electric Cooperative
  Phone: 218-663-7229
  Web site: www.arrowheadcoop.com

- BENO Electric
  Phone: 507-387-7983
  Web site: www.benco.org

- Brown County Rural Electric Association
  Phone: 507-794-3231 or 800-659-2368
  Web site: www.browncoyrera.coop

- Connexus Energy
  Phone: 763-322-2600
  Web site: www.connexusenergy.com

- Cooperative Light & Power Association
  Phone: 218-534-2226
  Web site: www.lakenet.com or www.clpower.com

- Crow Wing Power
  Phone: 218-828-2827
  Web site: www.cwpower.com

- Dakota Electric Association
  Phone: 651-463-6212
  Web site: www.dakotaelectric.com

- East Central Energy
  Phone: 800-254-7844
  Web site: www.eastcentralenergy.com

- Federated Rural Electric Association
  Phone: 507-547-3520 or 800-271-3520
  Web site: www.federatedrea.coop

- Goodhue County Cooperative Electric Association
  Phone: 507-732-5117
  Web site: www.gccea.com

- Itasca-Mantrap Cooperative Electric Association
  Phone: 218-722-3577
  Web site: www.itasca-mantrap.com

- Kandiyohi Power Cooperative
  Phone: 320-796-1155
  Web site: www.kpcoop.com

- Lake Country Power
  Phone: 800-621-8899
  Web site: www.lakecountrypower.coop

- Lake Region Electric Cooperative
  Phone: 218-883-1171 or 800-552-7658
  Web site: www.lrtec.coop

- McLeod Cooperative Power Association
  Phone: 320-884-3148
  Web site: www.mcleodcoop.com

- Meeker Cooperative
  Phone: 507-393-3521
  Web site: www.meeker.coop

- Mille Lacs Energy Cooperative
  Phone: 218-927-2191 or 800-450-2191
  Web site: www.milecmn.net

- Minnesota Valley Electric Cooperative
  Phone: 952-492-2931 or 800-292-5622
  Web site: www.mvec.net

- Nobles Cooperative Electric
  Phone: 507-372-7331
  Web site: www.noblescoop.coop

- North Itasca Electric Cooperative
  Phone: 218-743-3131
  Web site: www.northitascaelc.com

- Redwood Electric Cooperative
  Phone: 507-842-2214

- Runestone Electric Association
  Phone: 320-382-1121
  Web site: www.runestoneelectric.com

- South Central Electric Association
  Phone: 507-375-3184
  Web site: www.southcentralelectric.com

- Stearns Electric Association
  Phone: 320-256-4276 or 320-259-6601
  Web site: www.stearnes.org

- Steele-Waseca Cooperative Electric
  Phone: 507-451-7340 or 800-526-3514
  Web site: www.swce.coop

- Todd-Wadena Electric Cooperative
  Phone: 218-631-3120 or 800-321-8932
  Web site: www.toddwadena.coop

- Wright-Hennepin Cooperative Electric Association
  Phone: 763-477-3000
  Web site: www.whel.org
For more money-saving energy efficient ideas, visit these websites:

www.mnbrighterideas.com
www.greatriverenergy.com
www.togetherwesave.com
www.energystar.gov
www.commerce.state.mn.us
www.aceee.org
www.eere.energy.gov
www.ftc.gov
www.energy.gov