Energy Guide

The first step to better energy management is understanding how your habits affect your bill. Use this guide to help you make informed energy decisions for your home or farm.

ENERGY WISE MN

BECOME AN INFORMED CONSUMER

Your cooperative provides the same quiet, dependable electricity whether you plug in a laptop or a refrigerator. However, these devices require very different amounts of electricity and have dramatically different costs to operate.

Because electrical outlets don't come equipped with gauges like cars, you need to make an extra effort to understand how much electricity you're using when you plug things in.

This guide is designed to provide the tools and information you need to better understand how much electricity you use in your home and how your habits affect your monthly bill.

CONTENTS

UNDERSTANDING YOUR ENERGY USE

Electricity is always ready to make our lives a little better. There's TV, video games, computers. Not to mention that electricity keeps us warm in winter and cool in summer, cooks our food, heats our water, cleans our clothes and keeps our homes and schools bright.

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.

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.

Using your meter

Your meter is a highly accurate tool. It gives you the most precise picture of your electricity use. 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 use more accurately. Your co-op may also offer online tools to track energy use.

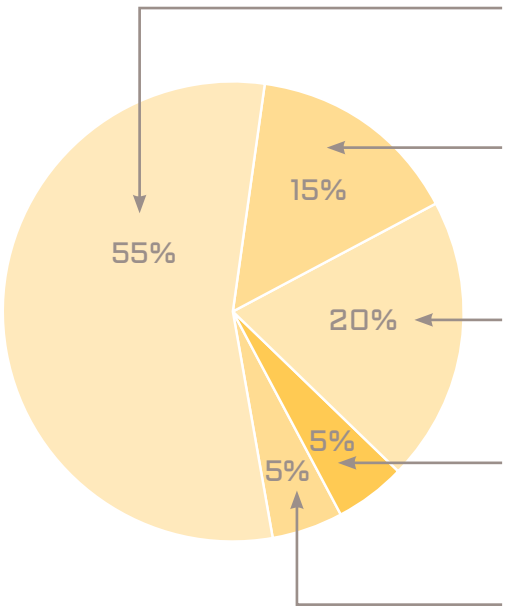
We're here to help

Once you have 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.

ENERGY NEEDS AT HOME

The typical family of four uses nearly 1,000 kilowatt-hours (kWh) of electricity per month, but each home is unique. Factors that affect your energy use include the number of people in your family, the type of heating and cooling you use or how often you entertain guests.

Other factors can affect energy costs as well. Was it colder or hotter than this time last year? Did you buy a bigger TV? The chart below shows what most people buy with their energy dollar.



HEATING AND AIR CONDITIONING

Several factors affect how much energy you need to keep your home comfortable, including the efficiency of your heating or air conditioning unit, your home's insulation and its sun exposure.

APPLIANCES

Appliances can save you a lot of time and effort, but they can also result in significant energy costs. The age of your electric appliances, how efficient they are, and how frequently you use them affects your energy expenses.

WATER HEATING

Homes use an immense amount of energy to heat water for laundry, showers, dishes and cooking. Small fixes like low-flow shower heads and faucet aerators can make a difference on your bill.

LIGHTING

The average household has more than 40 light sockets. However, highly efficient technologies such as LEDs are readily available and work well in most applications.

ELECTRONICS

The list of electronics continues to grow, and includes things like smart phones and tablets.

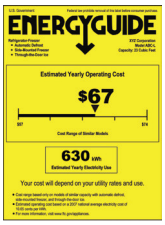
Source: Energy Information Administration

THE MARKS OF EFFICIENCY

ENERGY WISE MN

ENERGY WISE MN

Your electric cooperative offers a variety of Energy Wise MN programs and materials to help make your home more energy efficient. Saving energy means saving money, and your co-op wants to help you do both – without sacrificing comfort. Visit energywisemn.com to learn more.



ENERGYGUIDE

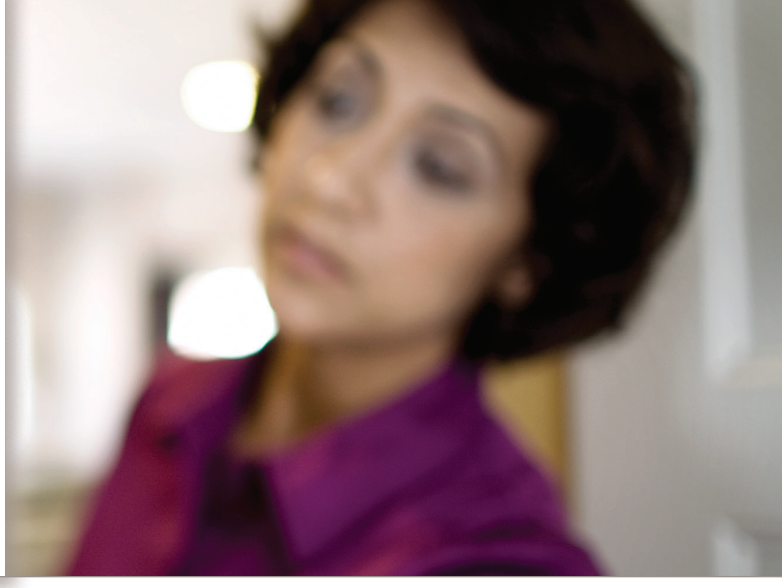
If you've shopped for appliances, you've likely seen the bright yellow EnergyGuide label. This resource provides an estimated annual operating cost for an appliance. The cost to operate an appliance should be a major consideration in your purchasing decision. A less expensive appliance may eventually 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

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 is determined by the number of kWh used in a billing period. The first step is to determine your average cost per kWh. Average kWh cost equals the amount of the energy portion of your electric bill divided by kWh used.

EXAMPLE $120 ÷ 1,000 kWh = **12¢ 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. 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 amps = **1,400 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 for 15 hours. How many kWh are used and what does it cost?

EXAMPLE kWh used = (100 watts x 15 hours) ÷ 1,000 watts = 1.5 kWh
Your cost = 1.5 kWh x 12¢ = 18¢

1,000 watt-hours equal 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**

ELECTRICITY USE TABLE

KITCHEN	TYPICAL ENERGY USAGE	AVERAGE MONTHLY COST AT 12¢/kWh	ESTIMATED MONTHLY COST
REFRIGERATORS			
Top Freezer – Purchased 1993-2000	86 kWh/mo	$10.32	
Top Freezer – Purchased 2001-2010	54 kWh/mo	$6.48	
Top Freezer – Purchased after 2010	37 kWh/mo	$4.44	
Side-by-Side – Purchased 1993-2000	111 kWh/mo	$13.32	
Side-by-Side – Purchased 2000-2010	71 kWh/mo	$8.52	
Side-by-Side – Purchased after 2010	55 kWh/mo	$6.60	
Bottom Freezer – Purchased 1993-2000	93 kWh/mo	$11.16	
Bottom Freezer – Purchased 2001-2010	64 kWh/mo	$7.68	
Bottom Freezer – Purchased after 2010	37 kWh/mo	$4.44	
FREEZERS			
Upright Freezer <16.5 cubic feet	37 kWh/mo	$4.44	
Chest Freezer <16.5 cubic feet	24 kWh/mo	$2.88	
COOKING			
Dishwasher	20 kWh/mo	$2.40	
Oven	45 kWh/mo	$5.18	
Range Top	37 kWh/mo	$4.26	
Microwave Oven	12 kWh/mo	$1.44	
Toaster Oven	3 kWh/mo	$0.36	
Coffeemaker	8 kWh/mo	$0.96	
LAUNDRY			
Clothes Washer	8 kWh/mo	$0.92	
Clothes Dryer	85 kWh/mo	$10.20	

LIGHTING

9-Watt LED Lamp	1.1 kWh/mo	$0.13	
18-Watt Compact Fluorescent Lamp	2.2 kWh/mo	$0.26	
43-Watt Incandescent Lamp (60-Watt Equivalent)	5.2 kWh/mo	$0.62	
300-Watt Halogen Torchiere Lamp	37.2 kWh/mo	$4.46	
Incandescent Mini Holiday Lights	5.0 kWh/mo	$0.60	
LED Mini Holiday Lights	0.5 kWh/mo	$0.06	

MISCELLANEOUS

Standard Electric Water Heater – Family of 4	350 kWh/mo	$42.00	
Standard Electric Water Heater – Family of 2	200 kWh/mo	$24.00	
Off Peak Electric Water Heater – Family of 4 ($0.05/kWh)	350 kWh/mo	$17.50	
Off Peak Electric Water Heater – Family of 2 ($0.05/kWh)	200 kWh/mo	$10.00	
Dehumidifier	81-690 kWh/mo	$9.32-$79.35	
Air Cleaner	60-120 kWh/mo	$6.90-$13.80	
Furnace Fan (Automatic)	100-200 kWh/mo	$11.50-$23.00	
Furnace Fan (Constant)	250-500 kWh/mo	$28.75-$57.50	
Ceiling Fan	7-30 kWh/mo	$0.81-$3.45	
Air Handler/Heat Exchanger	62 kWh/mo	$7.13	
Portable Heater (1,500 Watts)	280-1080 kWh/mo	$32.20-$124.20	
Water Bed Heater	100-200 kWh/mo	$11.50-$23.00	
Hair Dryer	3 kWh/mo	$0.35	

APPLIANCE	TYPICAL ENERGY USAGE	AVERAGE MONTHLY COST AT 12¢/kWh	ESTIMATED MONTHLY COST
Portable Spa/Hot Tub	200-500 kWh/mo	$23.00-$57.50	
Pool Pump (1 hp)	66-540 kWh/mo	$7.59-$62.10	
Well Pump	22-132 kWh/mo	$2.64-$15.84	
Desktop PC	20 kWh/mo	$2.30	
Stereo System	10 kWh/mo	$1.15	
Heat Tape	130 kWh/mo	$14.95	
Engine Block Heater (With Timer)	62 kWh/mo	$7.13	
Electric Toothbrush	0.5-2 kWh/mo	$0.06-$0.24	

ENTERTAINMENT

TELEVISIONS			
<40" Digital HD	14 kWh/mo	$1.68	
>40" Digital HD	21 kWh/mo	$2.56	
TVs are estimated on 3 hours/day.			
DVD Player/VCR	7 kWh/mo	$0.84	
Set Top Cable Box	15 kWh/mo	$1.80	
Video Game System	1.9-5.4 kWh/mo	$0.23-$0.65	
Smart Phone	0.3-3 kWh/mo	$0.04-$0.36	

These figures are based on the average use of an appliance in good working condition and are based on national averages and independent research. Actual use will vary based on the number of hours used, and the age and condition of equipment. Refer to your electric bill for the actual electric rates.

Lighting figures based on 4 hours of use per day. Calculations based on 414 cooling hours, the average annual cooling load in St. Cloud, Minn., according to ENERGY STAR.

SEER = Seasonal Energy Efficiency Ratio. Higher SEER means more energy efficient. EER = Energy Efficiency Ratio. Higher EER means more energy efficient.

ELECTRIC VEHICLES

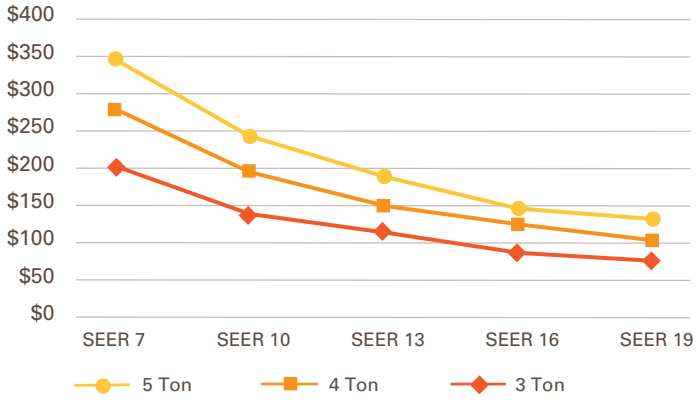
What are the fuel costs to drive 12,000 miles per year?

**Based on $2.80 per gallon gasoline*

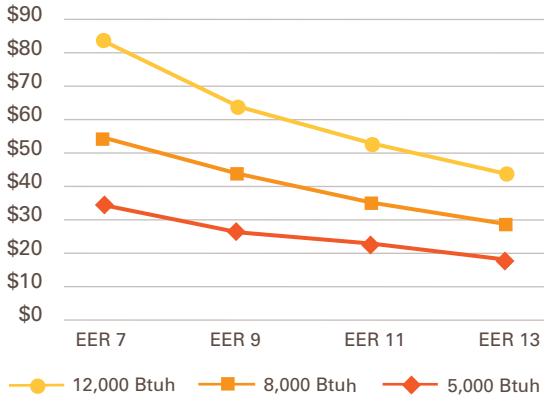
SEASONAL

(costs are calculated for an entire cooling season)

Central Air Conditioning



Room Air Conditioning



These cost estimates are based on a central air conditioner in good working condition used with a programmable thermostat.

SMALL FARM ELECTRICITY COSTS

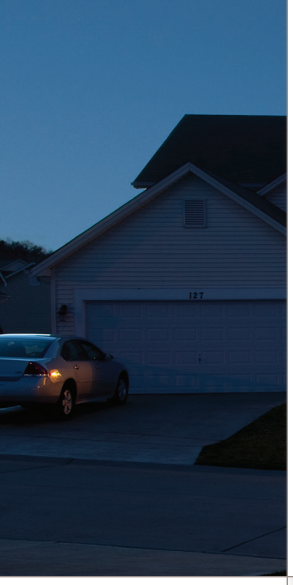
EQUIPMENT	ENERGY CONSUMPTION	ESTIMATED MONTHLY kWh
Aeration Fan	(HP x 0.746) x hours of use	
Air Compressor	(HP x 0.746) x hours of use	
Barn Cleaner (2-5 HP)	25-40 kWh per month	
Barn Lighting	60 kWh per month	
Block Engine Heater	1-2 kWh x hours of use	
Clipper	1 kWh x hours of use	
Electric Motor	(HP x 0.746) x hours of use	
Grain Dryer (No Heat)	1 kWh per bushel	
Grain Dryer (w/ Electric Heat)	2 kWh per bushel	
Grain Elevator	4 kWh per 1,000 bushels	
Grain Grinder	1 kWh per 500 pounds	
Incubator	1 kWh per 25 eggs	
Livestock Fan (1/2 HP)	0.5 kWh x hours of use	
Milk Cooler (Bulk)	1 kWh per 100 pounds	
Milking Machine (Portable)	2 kWh per cow per month	
Milking Machine (Pipeline)	5 kWh per cow per month	
Poultry House Lighting	6 kWh per 100 birds per month	
Poultry Water Warmer	30 kWh per month	
Silo Unloader (Grass)	4 kWh per ton	
Silo Unloader (Corn)	2.5 kWh per ton	
Tank Heater	1.5 kWh x hours of use	
Tool Grinder	0.5 kWh x hours of use	
Water Pump (Deep Well)	1.5 kWh per 1,000 gallons	
Water Pump (Shallow Well)	1 kWh per 1,000 gallons	
Water Stock Tank Heater	50-500 kWh per month	
Welder	9 kWh per month	
Yard Lighting (Dusk to Dawn)		
175-Watt Mercury Vapor	73 kWh per month	
250-Watt Mercury Vapor	105 kWh per month	
400-Watt Mercury Vapor	161 kWh per month	
	Farm total kWh	

These figures present a range of typical use based on the average use of an appliance in good working condition. Actual use will vary based on patterns of use, age and condition of equipment.

FAN AND MOTOR ENERGY USE

The horsepower (HP) and duration of use of a fan or motor determines the electricity consumed. Use the formula below to better understand how much electricity is consumed.

(HP of motor or fan x 0.746) x hours of use = kWh



FACTORS THAT AFFECT ENERGY CONSUMPTION

You can take control of your electricity expenses with efficient habits and smart decisions, but there are other factors that can dramatically affect your energy consumption.

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. Unplug all electronics that display a clock or light while turned off, or purchase a smart power strip at energywisemnstore.com.

Vacation

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, gaming systems, heating and air conditioning equipment, computers, fax machines and TVs may draw some "phantom" electricity. Unplug electronics and set your furnace fan to auto while you're away for an extended period of time.

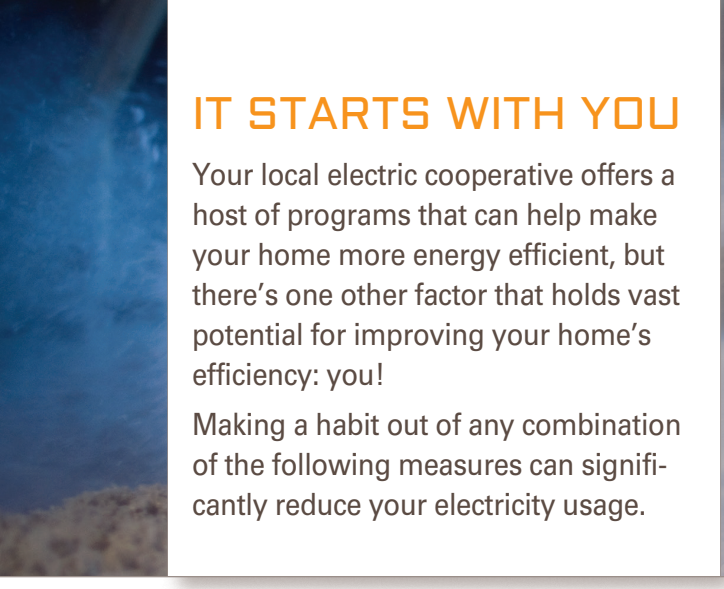
Vintage

Older appliances and electronic devices often draw more current than newer ones. While it can be difficult to invest in new appliances or electronic devices when you have reliable older models, the cost savings from reduced energy use can, in some cases, recoup the cost of an upgrade.

Get inside the outlet

While your meter is great for accurately measuring consumption for your entire home, tools such as a "Kill A Watt" portable electric monitor can isolate an individual device, so you can watch how your habits affect your power bill.

Ask your electric cooperative how to find a portable electric monitor.



IT STARTS WITH YOU

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

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 cooling your home. Install a smart 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 degrees Fahrenheit, most households usually only require them to be set at 120ºF. For each 10ºF reduction in water temperature, you can save 3-5 percent 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 LEDs

Light emitting diodes (LEDs) use less energy and last longer than other bulbs.

Fix 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 too easily. Use insulation with an R value of 45 or more in the ceiling and attic, and 20 or more in the walls.

Replace filters

Replacing a dirty air filter can save money by reducing the amount of electricity needed to run a blower motor.

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, stereos and computers.

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.

Close the door

Don't heat or cool the outdoors. Keep exterior doors closed as much as possible. Block and insulate unneeded windows and other openings.

Energy-efficient devices are always available at energywisemnstore.com.

WE'RE HERE TO HELP

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 member-owner cooperatives

Agralite Electric Cooperative
800-950-8375
agralite.coop

Arrowhead Cooperative
218-663-7239
aecimn.com

BENCO Electric Cooperative
507-387-7963
benco.org

Brown County Rural Electrical Association
507-794-3331 or 800-658-2368
browncountyrea.coop

Connexus Energy
763-323-2600
connexusenergy.com

Cooperative Light & Power
218-834-2226 or 800-580-5881
clpower.com

Crow Wing Power
218-829-2827 or 800-648-9401
cwpower.com

Dakota Electric Association
651-463-6212 or 800-874-3409
dakotaelectric.com

East Central Energy
800-254-7944
eastcentralenergy.com

Federated Rural Electric Association
507-847-3520 or 800-321-3520
federatedrea.coop

Goodhue County Cooperative Electric Association
507-732-5117 or 800-927-6864
gccea.com

Itasca-Mantrap Cooperative Electrical Association
218-732-3377
itasca-mantrap.com

Kandiyohi Power Cooperative
800-551-4951
kpcoop.com

Lake Country Power
800-421-9959
lakecountrypower.coop

Lake Region Electric Cooperative
800-552-7658
lrec.coop

McLeod Cooperative Power Association
320-864-3148
mcleodcoop.com

Meeker Cooperative Light & Power Association
320-693-3231
meeker.coop

Mille Lacs Energy Cooperative
218-927-2191 or 800-450-2191
mlecmn.net

Minnesota Valley Electric Cooperative
952-492-2313 or 800-282-6832
mvec.net

Nobles Cooperative Electric
507-372-7331
noblesce.coop

North Itasca Electric Cooperative
218-743-3131
northitascaelectric.com

Redwood Electric Cooperative
507-692-2214 or 888-251-5100
redwoodelectric.com

Runestone Electric Association
800-473-1722
runestoneelectric.com

South Central Electric Association
507-375-3164
southcentralelectric.com

Stearns Electric Association
800-962-0655
stearnselectric.org

Steele-Waseca Cooperative Electric
507-451-7340 or 800-526-3514
swce.coop

Todd-Wadena Electric Cooperative
218-631-3120 or 800-321-8932
toddwadena.coop

Wright-Hennepin Cooperative Electric Association
763-477-3000
whe.org

There are many resources available to help cooperative members take control of their energy costs:

www.energywisemn.com
www.greatriverenergy.com
www.energystar.gov
www.commerce.state.mn.us
www.aceee.org
www.eere.energy.gov
www.energy.gov

To purchase energy-efficient equipment visit our online store at energywisemnstore.com

ENERGY WISE MN

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