

Your Guide to Home Energy Use



Customers like you are making a difference every day. Seeking to better understand how you use energy in your home is the first step in reducing your electric bill. When you take the next step and apply the principles in Your Guide to Home Energy Use, you will not only better manage your energy consumption but your environmental impact as well. By participating in energy efficiency and sustainability efforts, you are continuing a long history of that work in your community.

For over 20 years, Elk River Municipal Utilities (ERMU) customers have proven to be leaders in the areas of energy efficiency, renewable energy, and the adoption of advanced technologies. That leadership prompted state legislators to name Elk River "Energy City" in 1997, and we carry that designation and focus to this day. Elk River has achieved Step 5 in the Minnesota Green Step Cities initiative, ERMU has been recognized nationally by the American Public Power Association as a Smart Energy Provider, and the City participates in a multinational workgroup with other like-minded communities called Climate Smart Municipals. The commitment to efficiency and sustainability that we share with our customers has a local, national, and global impact.

Importantly, this all begins in your home. The decisions you make every day have a range of effects on your electric bill and your environmental footprint, which then affects the decisions we make as your utility provider. Understanding the information and adopting the practices in Your Guide to Home Energy Use will help drive our community to the leading edge of energy efficiency. Start making a difference today.

## TABLE OF CONTENTS

Using Your Guide to Home Energy Use	1
Energy Use Breakdown	2
Top to Bottom Tips	3
Understanding Your Electric Bill	4
Symbols of Efficiency	5
Energy Use Table	6-7
Another Way to Track Your Use	8
Resources	9

# USING YOUR GUIDE TO HOME ENERGY USE

Because electricity is abundant and reliable, it can be tricky to determine how much you're using. Other types of energy offer reminders of how much you've consumed. The low fuel light comes on in your vehicle or the propane tank on your gas grill runs out during a barbecue.

Elk River Municipal Utilities (ERMU) provides the same quiet, dependable electricity whether you plug in a space heater or a lamp. However, these devices use very different amounts of electricity, and have dramatically different costs to operate.

Because electrical outlets don't come equipped with gauges like vehicles do, you need to make an effort to understand how much energy you use when you plug something in. Familiarizing yourself with how much energy your electronic devices use can be helpful. The nameplate on an appliance, usually found on the back or underside, and Your Guide to Home Energy Use provide information similar to the nutritional information found on food labels.

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 impact your monthly bill.

## Appliance Nameplate



Running a central air conditioning system for two hours

**\$0.28 - \$0.81**



Doing one load of laundry

**\$0.38 - \$1.02**



Leaving a lamp on for four hours

**\$0.36**



Running a space heater for two hours

**\$0.28 - \$0.81**



Keeping a household's water heated for a month

**\$46 - \$77**



Recharging a smartphone

**\$0.01**

If you have questions, contact us at **763.441.2020** or visit our website at **ERMUMN.com** for more information on energy conservation programs, education, and rebates.

# ENERGY USE BREAKDOWN

The typical family of four uses approximately 1,400 kilowatt hours (kWh) of electricity each month, but your home is unique. The Energy Use Breakdown will give you a general idea of how energy is used.

## Heating and Cooling 55%

The efficiency of your heating or air conditioning unit, your home's insulation, and its exposure to sun have the largest effect on energy use for heating and cooling. Electric bills typically increase in summer with air conditioner use and in winter if you heat with electricity. Adjust your thermostats up in the summer and down in the winter when no one's home. Check if the furnace fan is set to automatic or if it runs continuously.

## Water Heating 15%

This includes water for laundry, showers, dishes, and cooking. Even when you aren't using hot water, the water heater will continue to operate and maintain the tank temperature. Lower the temperature during long absences. Water-efficient fixtures and faucet aerators can reduce usage.

## Appliances 15%

Older appliances and electronic devices often use more electricity than newer ones. While it can be difficult to invest in new appliances or devices, the cost savings from reduced energy use can recoup some of the cost of an upgrade.

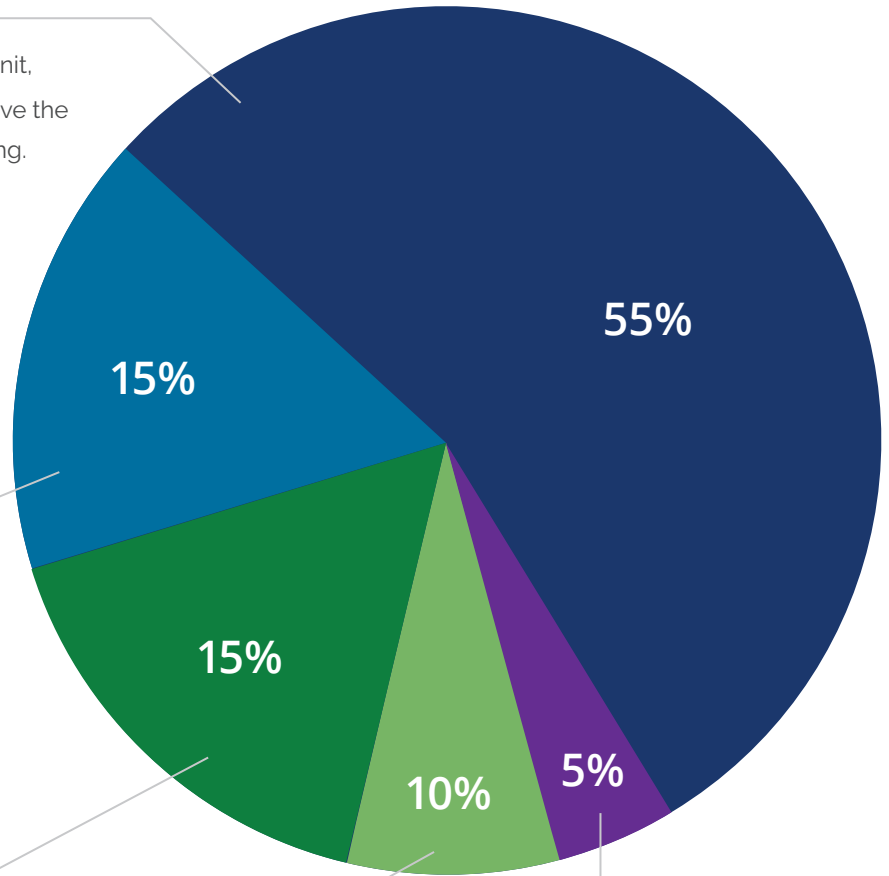
## Lighting 10%

The average home contains more than forty light sockets. Switching to LED (light emitting diode) products, which use light and energy more efficiently, results in lower energy consumption.

## Electronics 5%

The list of common household electronics continues to grow, including devices like smart phones, tablets, and TV set-top boxes. Unplug them while you're away for an extended period of time.

Many appliances that are plugged into the wall outlet draw energy whether in use or not. This is often known as "phantom load." For example, devices that can be turned on with a remote control use energy 24 hours a day.



Other factors that will affect your energy use include: the number of people in your family, the type of heating and cooling you use, maintenance practices, and how often you have guests.

# TOP TO BOTTOM TIPS

Now that we know where your energy goes, we can begin to look at ways to reduce the amount of energy you need without drastically impacting your daily life.

Install water flow restrictors and aerators on faucets and showerheads to reduce water use and minimize the burden on your water heater.

Program your thermostat to match your weekly schedule.

Unplug an unused garage refrigerator. They can cost more than \$100 per year.

Seal leaks in joints, elbows, and connections in your ductwork with foil tape or caulk.

Replace or clean your air filters regularly. Clean filters reduce the amount of electricity needed to run a blower motor.

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

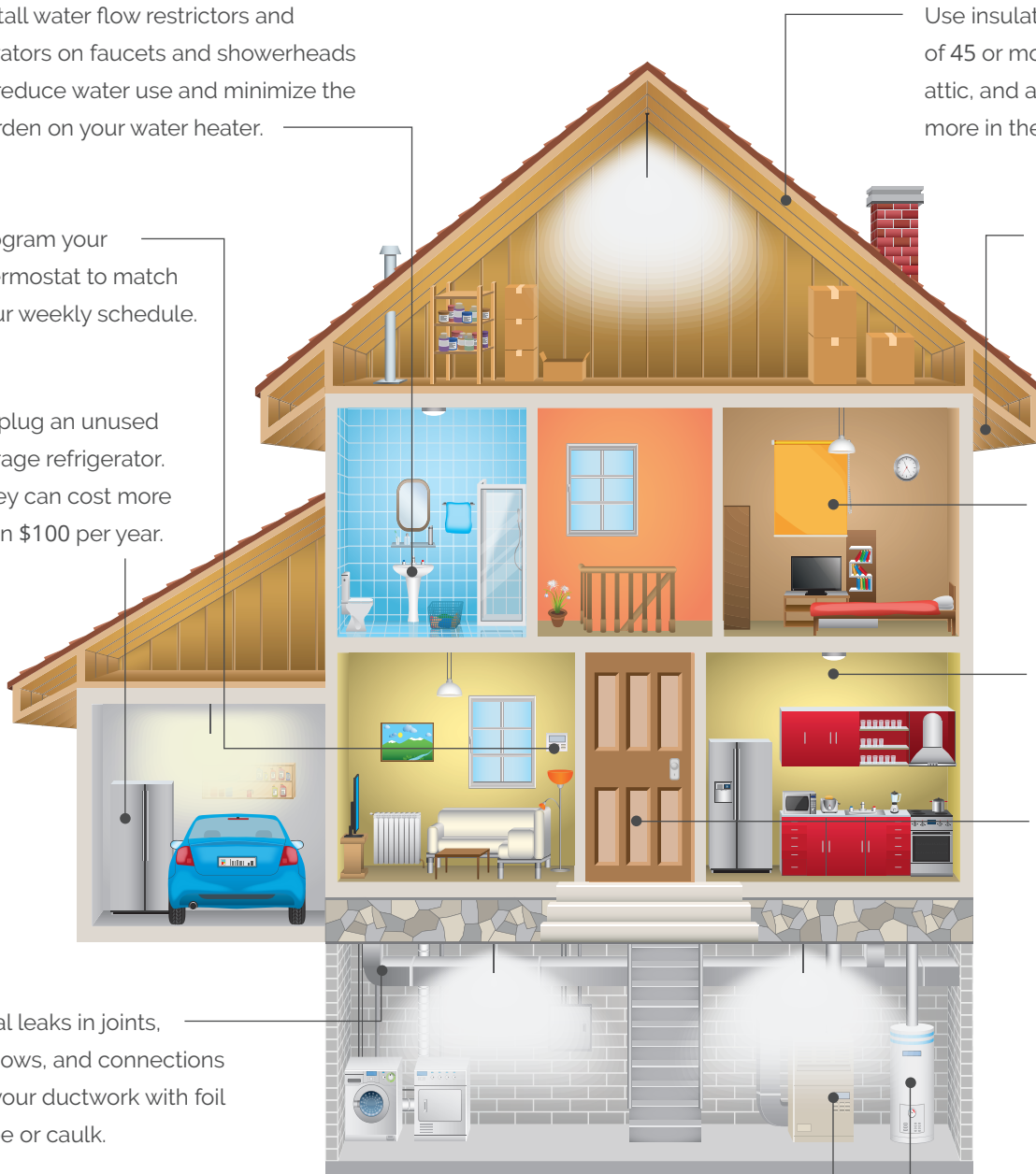
Seal exterior cracks and holes and ensure tight-fitting windows.

Close window coverings to make it easier to cool your home.

Turn off the lights.

Keep exterior doors closed.

Set the temperature on your water heater to 120°F or lower. Each 10°F reduction in temperature can save 3-5% in water heating costs.



# UNDERSTANDING YOUR ELECTRIC BILL

Your utility bill may include charges for multiple utility services in addition to electric.

Typically, the electric portion of the bill is separated into **three components**:

## Customer Charge

This fixed charge does not change. It covers costs for billing, meter reading, equipment, and maintenance.

## Power Cost Adjustment (PCA)

This charge varies based on ERMU's wholesale power costs. The PCA is set to zero but may fluctuate up as a surcharge or down as a credit that will be applied to your monthly energy use.

## Electric Usage

This is based on the amount of electricity you use. Your electric usage charge is the amount of kWh used multiplied by your electric rate.

(For example:  $500 \text{ kWh} \times \$0.1215 = \$60.75$ )

Electricity is measured in kilowatt hours (kWh). One kWh of electricity is equal to 1,000 watt hours.



x



= 1000 watt hours or 1kWh

## WHAT'S A WATT? CLUES TO HOW YOU USE

The wattage of an appliance determines the electrical use, so this is important information for evaluating usage. Find this information on the appliance nameplate. Electrical load may also be expressed in volts and amperes (amps) rather than watts.

**Amps** measure how fast electric current flows.

**Volts** indicate the force of the current.

**Watts** are the product of multiplying amps and volts, which tells you the power needed to run an appliance.

**Amps x Volts = Watts**  
which means  
 $W \div A = V$  and  $W \div V = A$

Wattage and operating costs of appliances and equipment can vary greatly.

These examples will illustrate how to determine how much electricity is being used and what that usage costs.

### EXAMPLE 1:

**A light uses 100 watts and is left on for 15 hours.  
How many kWh are used and at what cost?**

#### • kWh used:

$(100 \text{ watts} \times 15 \text{ hours}) \div 1,000 \text{ watts} = 1.5 \text{ kWh}$

#### • Your cost:

$1.5 \text{ kWh} \times \$0.1215 = \$0.18$

### EXAMPLE 2:

**A space heater uses 1,500 watts and is used 3 hours per night,  
every night in December. How many kWh are used and at what cost?**

#### • kWh used:

$(1,500 \text{ watts} \times 3 \text{ hours per day} \times 31 \text{ days}) \div 1,000 \text{ watts} = 139.5 \text{ kWh}$

#### • Your cost:

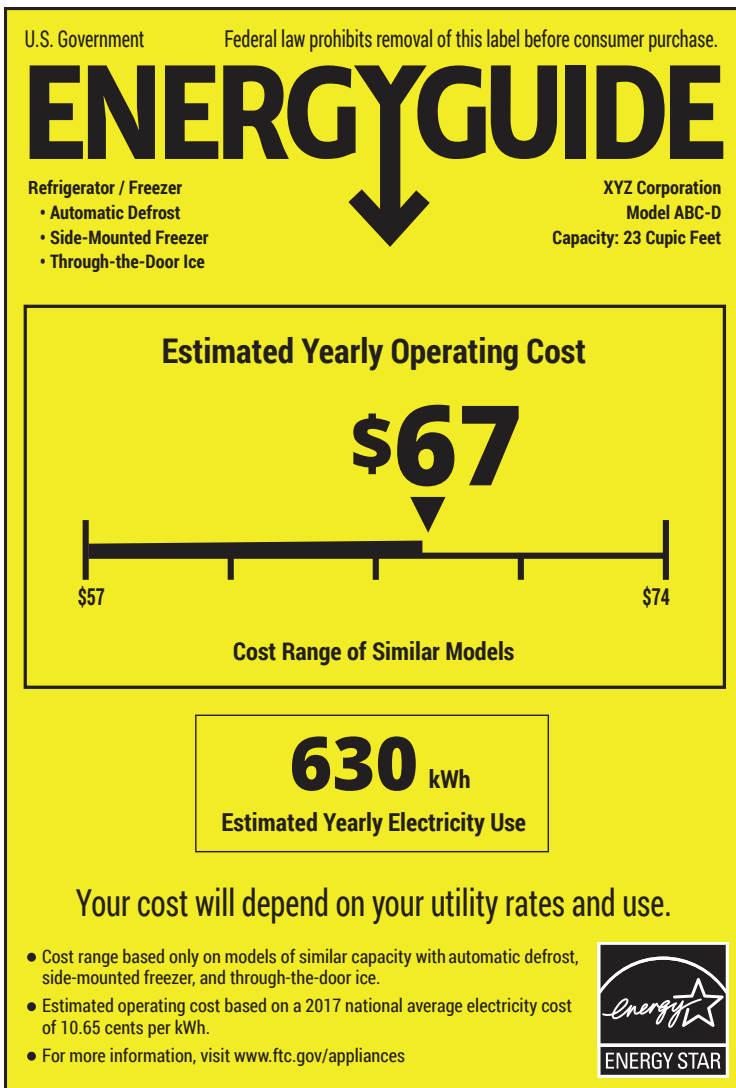
$139.5 \text{ kWh} \times \$0.1215 = \$16.94$

# SYMBOLS OF EFFICIENCY

## ENERGY GUIDE

When shopping for a new appliance, look for the EnergyGuide Label, the yellow tag attached to most appliances. This label estimates how much energy an appliance uses and makes it easier to compare the energy use of similar models in the store. The more energy efficient an appliance is, the less it costs to run and the lower your electric bills might be. Using less energy will also decrease your impact on the environment.

Source: [www.consumer.ftc.gov](http://www.consumer.ftc.gov)



## WATERSENSE

The WaterSense label identifies a water-efficient product that has been independently certified to meet WaterSense criteria for efficiency and performance. Only products independently certified to meet a WaterSense specification can bear the label.

Source: [www.epa.gov/watersense](http://www.epa.gov/watersense)



## ENERGY STAR®

Appliances that are ENERGY STAR® rated save money by using less energy. These appliances may cost more at first, but the additional cost is quickly paid for with energy savings. Next time you're shopping for appliances, look for the ENERGY STAR® logo.

Source: [www.energystar.gov](http://www.energystar.gov)

Save even more with ENERGY STAR® and WaterSense rebates at [ERMUMN.com](http://ERMUMN.com)

ENERGY-USING APPLIANCE	ESTIMATED MONTHLY ENERGY USE (KWH)	AVERAGE MONTHLY COST AT \$0.1206 / KWH	CALCULATE YOUR ESTIMATED MONTHLY COST
<b>REFRIGERATORS</b>			
Top Freezer - Purchased 1993 - 2000	71	\$8.56	
Top Freezer - Purchased 2001 - 2008	43	\$5.19	
Top Freezer - ENERGY STAR QUALIFIED	34	\$4.10	
Side-by-Side - Purchased 1993 - 2000	91	\$10.97	
Side-by-Side - Purchased 2001 - 2008	58	\$6.99	
Side-by Side - ENERGY STAR QUALIFIED	44	\$5.31	
Bottom Freezer - Purchased 1993 - 2000	73	\$8.80	
Bottom Freezer - Purchased 2001 - 2008	50	\$6.03	
Bottom Freezer - ENERGY STAR QUALIFIED	38	\$4.58	
<b>FREEZERS</b>			
Upright Freezer < 16.5 Cubic Feet	56	\$6.75	
ENERGY STAR Upright Freezer < 16.5 Cubic Feet	47	\$5.67	
Chest Freezer < 16.5 Cubic Feet	34	\$4.10	
ENERGY STAR CHEST FREEZER < 16.5 Cubic Feet	29	\$3.50	
<b>KITCHEN APPLIANCES</b>			
Dishwasher	30	\$3.62	
ENERGY STAR Dishwasher	26	\$3.14	
Oven	45	\$5.43	
Range Top	37	\$4.46	
Microwave Oven	17	\$2.05	
Coffeemaker	10	\$1.21	
Water Softener	6	\$0.70	
<b>LAUNDRY</b>			
Clothes Washer (electrically heated water)			
Warm Wash, Cold Rinse	37	\$4.44	
Hot Wash, Warm Rinse	101	\$12.15	
Clothes Dryer	64	\$7.72	
<b>LIGHTING</b>			
T-12 Fluorescent 8 foot 2 lamp fixture 110 watt	31	\$3.76	
T-8 Fluorescent 4 foot 4 lamp fixture 32 watt	16	\$1.91	
T-8 Fluorescent 4 foot 2 lamp fixture 32 watt	8	\$0.99	
LED T-8 or T-12 Replacement Fixture 50 watt	6	\$0.75	
300 Watt Security Light	37	\$4.49	
LED Security Light 50 Watt	6	\$0.75	
100 Watt Incandescent	12	\$1.50	
16 Watt LED	2	\$0.24	
60 Watt Incandescent	7	\$0.90	
15 Watt Compact Fluorescent	2	\$0.22	
6 Watt LED	1	\$0.09	
		<b>TOTAL</b>	



ENERGY-USING APPLIANCE	ESTIMATED MONTHLY ENERGY USE (KWH)	AVERAGE MONTHLY COST AT \$0.1206 / KWH	CALCULATE YOUR ESTIMATED MONTHLY COST
<b>APPLIANCES</b>			
Clock Radio (LED Display)	3	\$0.36	
Double/Queen Electric Blanket (7 hours per night)	22	\$2.67	
Portable Fan (200 Watts, 10 Hours per day)	8	\$0.93	
Vacuum Cleaner	3	\$0.36	
Ceiling Fan	7 - 30	\$0.85 - \$3.61	
Air Handler/Heat Exchanger	62	\$7.48	
Portable Space Heater (1,500 Watts, 3 hours/night)	140	\$16.82	
Cell Phone Charger (4 hours charging/day)	1	\$0.12	
Hot Tub (240 Volts)	248	\$29.90	
Pool Pump (1 hp)	66 - 540	\$7.96 - \$65.12	
Well Pump	7 - 108	\$0.89 - \$13.03	
Desktop Personal Computer	20	\$2.41	
Laptop Computer	6	\$0.72	
Stereo System	10	\$1.21	
Engine Block Heater (6 hours per night)	28	\$3.36	
<b>ENTERTAINMENT</b>			
< 40" Digital HD Television (LCD)	42	\$5.06	
> 40" Digital HD Television (LCD)	135	\$16.28	
< 40" LED Television	34	\$4.10	
> 40" LED Television	40	\$10.85	
55" OLED Television	15	\$1.75	
88" OLED Television	60	\$7.20	
DVD Player	7	\$0.84	
Cable TV/Satellite Set-top Box	15	\$1.81	
Video Game System	4	\$0.48	
<b>MISCELLANEOUS</b>			
Standard Electric Water Heater - Family of 4	400	\$48.23	
Standard Electric Water Heater - Family of 2	200	\$24.12	
Slow Cooker (Crock Pot)	5 - 8	\$0.60 - \$0.96	
Electric Smoker	500 - 1500	\$3.62 - \$10.85	
Baseboard Electric Heat (250 Watts/foot, 4 hr/night)	186	\$22.43	
Dehumidifier	81 - 690	\$9.77 - \$83.20	
ENERGY STAR Dehumidifier	69 - 587	\$8.32 - \$70.78	
Furnace Fan (Automatic)	100 - 200	\$12.05 - \$24.11	
Furnace Fan (Constant)	250 - 500	\$30.15 - \$60.29	
Fish Tank (35 gallon)	17	\$2.01	
Humidifier	41	\$4.93	
<b>MEDICAL EQUIPMENT</b>			
Oxygen Concentrator	91	\$10.92	
Sleep Apnea Machine (CPAP)	30	\$3.64	
		<b>TOTAL</b>	

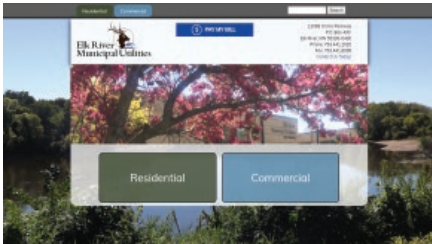
# ANOTHER WAY TO TRACK YOUR USE

You can use your meter to track daily usage. Be sure to do your reading at the same time every day.

DAILY READING		KWh USED DAILY	RECORD OF DAILY ACTIVITIES THAT AFFECTED YOUR ENERGY USE
EXAMPLE WEEK			
Day 1	5656		
Day 2	5697	41	
Day 3	5720	23	On vacation, nobody home
Day 4	5788	68	Turned Central AC on outside temp 97 degrees, turned dehumidifier on
Day 5	5848	60	Washed 3 loads of clothes in hot water, outside temp 94 degrees
Day 6	5876	28	Turned circulating pool pump off, temperature 84 degrees
Day 7	5905	29	
Weekly Total	40490	249	41.5 Average per day Week 1
1			
2			
3			
4			
5			
6			
7			
WEEKLY TOTAL			
8			
9			
10			
11			
12			
13			
14			
WEEKLY TOTAL			
15			
16			
17			
18			
19			
20			
21			
WEEKLY TOTAL			
22			
23			
24			
25			
26			
27			
28			
WEEKLY TOTAL			
29			
30			
31			

# RESOURCES

These resources can help customers take control of their energy costs:



[ermumn.com](http://ermumn.com)



[energystar.gov](http://energystar.gov)



[elkrivermn.gov/energycity](http://elkrivermn.gov/energycity)



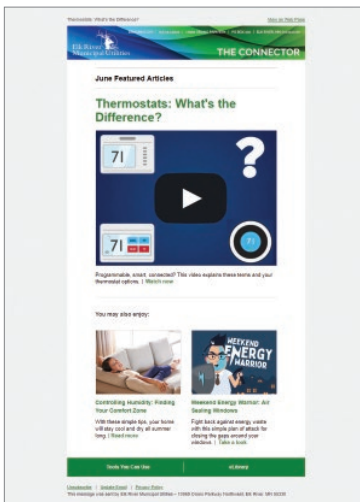
[commerce.state.mn.us](http://commerce.state.mn.us)



[aceee.org](http://aceee.org)

## GET INSIDE THE OUTLET

There are tools that can help identify those items that are particularly costly to operate. A kilowatt meter fits between an appliance and the outlet to measure electricity use. By isolating an individual device, you can watch how your habits affect your power bill. These meters can be purchased, or checked out from Elk River Municipal Utilities or the Elk River Public Library.



## THE CONNECTOR

Sign up today for Elk River Municipal Utilities' free monthly ecommunication, the Connector. It's filled with great information on ways to lower your energy use and save money.

In addition to time relevant articles, the Connector has a searchable eLibrary, energy Quick-Tips, and other helpful tools, all geared toward helping you better manage your energy.

The best part of the Connector is that it is delivered directly to your email inbox. We know everyone is looking for ways to save a few dollars and minimize their impact on the environment; the Connector is the answer. **Visit our website to sign up!**

For a current list of ERMU's energy efficient programs, visit our website at [ERMUMN.com](http://ERMUMN.com)



[www.ERMUMN.com](http://www.ERMUMN.com)

13069 Orono Parkway | PO Box 430 | Elk River, MN 55330-0430 | P: 763.441.2020