



YOUR UNIQUE ENERGY NEEDS

Discover ways to reduce your energy costs.

Keep track of monthly energy consumption in your home and on your farm. Identify changes in your patterns of use and how seasonal temperature changes impact your utility bills.

Take a few moments now to work through this guide. Then, if you still have questions about energy use and costs, call the professionals at your cooperative.

We're here to help!

Lifestyle Makes a Difference

You have complete control over how you use your energy by choosing ingredients necessary for maintaining your standard of living.

The way you live and the way you use your electrical appliances may have a greater impact on your consumption of energy than the number of appliances you use. Let's look at some of these "lifestyle considerations" that can make your energy bills seem higher than average.

Family Size

There is a direct relationship between the number of people living at home and the amount of energy used. That's especially true if you have teenagers at home. In addition, if you have overnight visitors, expect to use more energy for cooking, baking, laundry and hot water.

Heating and Cooling

From a comfort standpoint, most of us prefer to be relatively cool in summer and warm in winter. Others prefer temperature extremes. Humidity plays an important part in our year-round comfort, too. Operating dehumidifiers in summer (and to a lesser degree, humidifiers in winter), contributes to our household energy consumption. Portable space heaters, air conditioners and fans located in such places as the garage and basement also contribute to your energy consumption.

By taking a look at your "comfort" lifestyles in terms of maintaining relative humidity and temperature, you can use energy wisely in many ways. These range from adding insulation, weather-stripping, caulking and changing/cleaning filters monthly to turning down the thermostat in winter and up in summer.



Water Heating

Hot water plays a significant role in everyone's lifestyle, but many people require substantial quantities of hot water, and that results in higher energy use. Ask yourself some of the following questions:

- ▶ When I take a bath, do I use hot water sparingly, or is the tub completely full?
- ▶ Do I take short showers, or do I stay in the shower until the hot water gets cold?
- ▶ Do I repair leaky faucets, or simply let them drip and waste hot water?
- ▶ Do I operate washers and dishwashers with a full load, or just whenever convenient?
- ▶ Are my hot water pipes insulated?



Appliance Use

The wise use of appliances can have a positive effect on your energy consumption. Ask yourself these questions:

- ▶ Do I turn off lights and ceiling fans when a room is not in use, or do I leave them on?
- ▶ Does the television set entertain the entire family, or does it entertain an empty room?
- ▶ Do I leave my computer and peripherals on for extended periods of time when not in use?

These are prime considerations that affect the amount of energy you use to maintain your lifestyle.



Hot water use is the second largest energy consumer in the household behind heating and cooling.

PLAN

When vacation time comes and you're planning to be gone for a couple of weeks, your energy bills should decrease significantly, right? WRONG!

Vacation & Seasonal Use

Many people believe that when they leave for vacation, their energy use and electric meter stop until they return. Ask yourself a few questions before assuming your energy bills should decrease by any considerable amount during vacation:

- ▶ Was the water heater turned down or off while you were gone? If not, it will continue to operate and maintain the tank temperature even if you're not using any hot water.
- ▶ Were the refrigerators and freezers emptied and turned off? If not, they will continue to operate to maintain the preset temperatures.



Refrigerators and freezers will continue to operate to maintain the preset temperatures. Empty and turn them off before going on vacation.

- ▶ Take a look at other appliances that run while you are on vacation – clocks, fans and power ventilators, heating and cooling equipment, lights, personal computers, cable boxes and other phantom load appliances.
- ▶ Perhaps you can arrange with a neighbor to watch your home and adjust the heating or cooling and water heater shortly before you return. In addition, you may wish to unplug all appliances not in use. If lights will be on in your absence, hook them to a timer.
- ▶ Many vacationers bring home several days or weeks of dirty laundry. This will give your water heater, washer, and dryer a workout your first day or two back home.
- ▶ In addition to vacations, take a look at some of the seasonal uses for energy that may cause an increase in consumption. These include crop dryers, air conditioners, hot tubs, swimming pool pumps, portable heaters in the garage or basement, engine heaters that keep your car, truck or tractor ready to run, holiday lighting, heat tape to keep pipes from freezing ... the list goes on and on.
- ▶ Don't forget about hobbies or businesses that operate out of the home.

RECORD

You can do something about how you and your family use energy. A big first step is tracking current energy consumption.

Your Meter Doesn't Lie!

The electric meter is often accused of inaccuracy, but it's seldom the culprit. Your meter does not lie. When it records more energy being used, try to find out why by looking at your family's activities during that period. Was the weather colder than normal? Was it a washday? See what activities, if any, can be altered to use energy more wisely.

The meter is a finely calibrated, highly accurate device used to measure power use. Historical data bears out the fact that in more than 99 percent of the cases, the electric meter is accurate. High bills are usually traced to other causes.



CHECK

Common Sources of High Use

Common sources of high energy use include electrical faults in wiring systems that are usually due to physical damage, moisture and dirt or improper connections. Sometimes you'll simply find equipment using energy you thought was turned off, such as a stock tank heater, leaky hot water faucet or lights and equipment.

However, if you can't find the problem, contact your electrician or seek advice from your cooperative.





TO DO LIST

1. Pull the plug
2. Turn off lights
3. Seal the cracks
4. Lower the blinds
5. Seal air ducts
6. Add insulation
7. Adjust water heater
8. Wash clothes in cold water; hang to dry

ACT

Keep Records

Keep records for a few weeks each season. Learn how changes in your activities can affect your energy budget.

Use Less Energy

Make easy changes first. Here are some ideas to get you started:

- ▶ Set thermostats for energy economy. Make changes in temperature levels gradually so you and your family can adjust. It is estimated that 1 F temperature change can reduce heating and cooling costs by 2-3 percent.
- ▶ Keep heating and cooling systems working more efficiently by replacing filters monthly and cleaning coils annually.
- ▶ Turn off lights whenever possible.
- ▶ Keep fixtures clean.
- ▶ Use energy efficient LEDs everywhere in your home.



OTHER THINGS TO CONSIDER

Ceiling Fans

Perhaps you've been told to run your ceiling fans to assist your air conditioner. Many homes have ceiling fans in each bedroom, the family room, living room and kitchen. The direction of the fan can determine how comfortable each space is.

In the summer, operate the fan in a counterclockwise direction to create a cooling breeze. Reduce energy consumption by raising the thermostat.

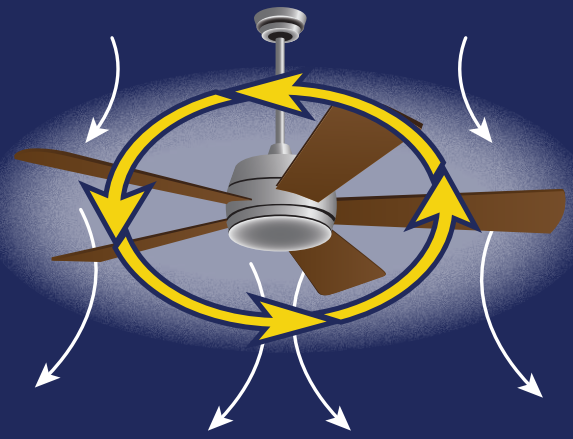
In the winter, operate the fan in a clockwise direction at a slow speed. This redistributes the warm air and provides an even heat in the room. Reduce energy consumption by lowering the thermostat.

Air Leaks

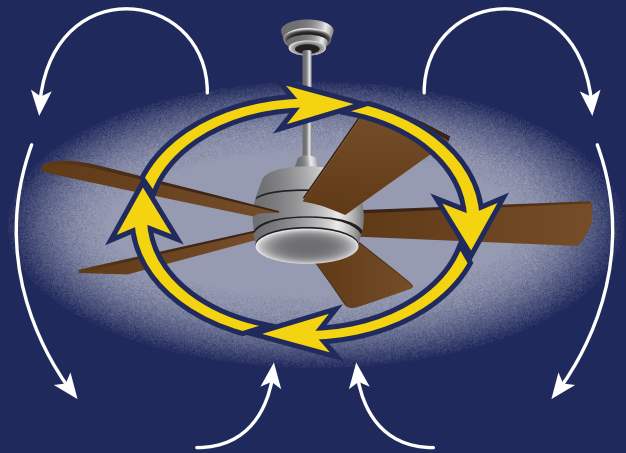
It's been estimated that a typical home with all of its foundation and wall cracks, holes around sink plumbing and electrical outlets, gas and fireplace flues, and use of recessed can lighting in ceilings have air leakage equivalent to leaving a door open year-round. Take the time to seal all of these openings with caulk or foam and apply insulated foam gaskets behind outside wall switches and receptacles. Add sufficient insulation where needed in attics and walls. Contact your cooperative for an energy audit to determine where air leaks are occurring to maximize your effort.

Save on lighting

Reduce your lighting expenses. Turn off lights when not in use and use LED lighting. The most efficient lighting on the market, it uses 70-85 percent less energy and lasts up to 50 times longer than incandescent bulbs. Different wattage sizes and styles are available to fit your lighting needs.



SUMMER: DOWN (COUNTERCLOCKWISE)



WINTER: UP (CLOCKWISE)

Using Energy-Efficient Heating and Cooling Systems

If your heating and cooling units are more than 15 years old, consider replacing them with energy-efficient units. Great strides have been made in improving the energy efficiency of heating and cooling equipment. According to the U.S. Environmental Protection Agency (EPA), geothermal HVAC systems are the most efficient, environmentally clean and cost-effective space conditioning systems available. Talk with your cooperative about what is available.

Shut the door

Every time the entry doors are opened during heating and cooling seasons, unconditioned air from outside enters the home, which has to be heated or cooled. Try to reduce these door openings to a minimum.

TRY THIS AND **\$**SAVE

While tankless water heaters offer some modest energy savings over storage water heaters (possibly as little as \$36/year for electric water heaters), these minimal gains are at the expense of substantially higher initial purchase costs, higher installation costs (upgraded power requirements), higher maintenance costs, and possible lifestyle changes to accommodate the limited flow rate output of tankless water heaters. For example, taking a shower while washing clothes could require as much as 6 gallons per minute of hot water. It's unlikely that any electric tankless water heater could supply the heating capacity to meet this demand.



Install water flow restrictors and aerators in sink faucets. This can save you money by reducing water use.



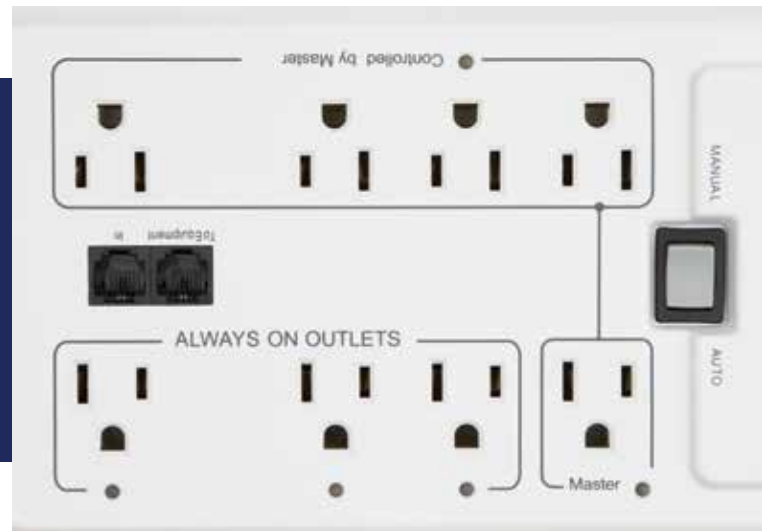
Reduce the water heater temperature to 120 F. This can decrease heat loss from your tank. Dishwashing may require higher temperature settings around 130 F. However, many dishwashers now have a temperature boost that allows you to keep the water heater temperature set lower.





Well pumps occasionally cause unexpectedly high energy use. Common failures that cause a pump to gobble energy include water leaks, defective pressure tanks and defective pressure switches. Water leaks and defective pressure tanks can cause your pump to start and stop more often than necessary. Defective pressure switches may cause the pump to run continually. If water for pumping continues to be available to a pump experiencing these problems, it can run for a long time before failing. When pumps are in the well (submersible) or located away from the home, the owner may be unaware there is a problem. Check your pump's run time. A water pump should run for a short time (normally less than 30 seconds) to reach its pre-selected pressure, shut off, and not run again until enough water is used to reduce system pressure to the pre-selected "cut in" pressure. For more information, contact your local electric cooperative.

You can eliminate phantom loads by plugging them into a smart "advanced" power strip that is equipped with its own power switch. Simply plug appliances into the appropriate outlets, and your main systems power switch (located on the remote) will control power to each ancillary device, prevent wasting energy, and improve your home's energy efficiency.



Seal exterior cracks and holes and ensure tight-fitting windows. Small cracks or holes in the building exterior (walls, windows, doors, ceiling and floors) can really add up to substantial heating or cooling losses. Install weather stripping and caulking to stop air leaks.

Appliance Energy Use Guide

KITCHEN	Avg Watts	Hours/Mo	kWh/Mo	Cost/Mo
Coffee Maker	900	50	45	
Dishwasher (incl water heating cost)	1200	30	36	
Air Fryer	1200-1500	12	17	
Instant Pot/Pressure Cooker	1000	12	12	
Microwave	1450	15	21.8	
Range	12500	8	100	

FOOD STORAGE	Avg Watts	Hours/Mo	kWh/Mo	Cost/Mo
Refrigerator *				
Manual Defrost			70-150	
Frost-Free			75-175	
Side-by-Side			120-250	
Freezer*				
Manual Defrost			70-150	
Frost-Free			85-175	
*(wattage and hours of run time for refrigerators and freezers vary widely due to age, location, frequency of maintenance, and energy efficiency rating)				

HOME ENTERTAINMENT	Avg Watts	Hours/Mo	kWh/Mo	Cost/Mo
Television (5 hours per day)				
32-50" Energy Star-rated	250	240	60	
Gaming	100	60	6	
Personal Computer (6 hrs/day)	125	180	22.5	

GENERAL HOUSEHOLD	Avg Watts	Hours/Mo	kWh/Mo	Cost/Mo
Water Heater (personal use only)				
1 person-685 gal per month	4500		252	
2 people-900 gal per month	4500		297	
3 people-1350 gal per month	4500		374	
4 people-1800 gal per month	4500		450	
5 people-2250 gal per month	4500		548	

6 people-2700 gal per month	4500		650
Clothes Dryer (5 loads per week)	2300	50	75
Clothes Washer (5 loads per week including water heater cost)			
Hot/Warm setting	5000	20	90
Warm/Warm setting	5000	20	70
Warm/Cold setting	5000	20	38
Cold/Cold setting	500	20	6

HEATING & COOLING	Avg Watts	Hours/Mo	kWh/Mo	Cost/Mo
Electric Heat pump (average) 10 SEER (8 hours/day)			864	
Electric Furnace -10 Kw (8 hours/day)			2400	
Portable Space Heater	1500	240	360	
Air Conditioner (window type, 8 hours/day)				
6,000 btu/hr	600	240	144	
10,000 btu/hr	1000	240	240	
12,000 btu/hr	1200	240	288	
Dehumidifier (8-12 hours/day)	600	360	216	

LIGHTING COMPARISON	Avg Watts	Hours/Mo	kWh/Mo	Cost/Mo
60-watt Incandescent Bulb/LED	60/8.5	120	7.2/1.0	
100-watt Incandescent Bulb/LED	100/15	120	12/1.8	

FARM AND MISCELLANEOUS	Avg Watts	Hours/Mo	kWh/Mo	Cost/Mo
Heat Lamp	250	720	180	
Water Pump				
1 hp	750	60	35	
Engine Block Heater (8 hrs/day)				
800-watt	1000	240	240	
6' Heat Tape (8 watts/ft)	48	720	34.6	
Aerated septic system	384	720	276	
Tank Heater – varies on location and number of livestock			40-300	
Blow Dryer	1500	2.5	3.8	
Hot Tub – varies widely			250-400	
Swimming Pool – refer to serial nameplate				

How to Estimate Energy Use & Cost

The wattage of appliances (equipment) and the amount of operating time can vary greatly. The following information will show you how to determine where the energy dollars are going in your home.

Step 1 – Determine the average cost per kilowatt-hour (kWh)

(Total cost per kWh + wholesale power adjustment) / Total kWhs consumed = ___ /kWh

Step 2 – Determine the wattage of the appliance.

Please refer to the serial plate on the appliance. If watts are not present, multiply volts times amps to obtain the watts. (120 volts * 12.1 amps = 1452 watts)

Example:

MICROWAVE

AMPS	12.1	VOLTS	120
HERTZ	60	WATTS	1452
FORM NO.	00000	MODEL #	00000
CODE	00000	SERIAL #	00000

Step 3 – Use the following equation to determine use and cost:

watts	x	hours/day	/	1,000 watts	=	kWh used	x	\$/kWh	=	\$/day
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Example: 100-watt light bulb that runs 5 hours/day =

100	x	5	/	1,000	=	0.5	x	\$0.10	=	\$0.05
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\$0.05/day x 30 days in a month = \$1.50/month to run the light 5 hours/day



Your Touchstone Energy® Cooperative 

Egyptian Electric Cooperative
1732 Finney Road
Murphysboro, IL 62966
(800) 606-1505
www.eeca.coop