

How to save money on energy at home

*A comprehensive
guide with money
saving tips on
energy use and
misuse*



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ELECTRICAL OPERATING COSTS & ENERGY SAVING TIPS FOR THE HOME

Summer cooling and winter heating, followed by water heating, are traditionally the major users of energy in your home. These few items will usually have the biggest impact on your energy bill. This guide will show you how to make the most of the energy you consume each day. It is broken down into the following sections:

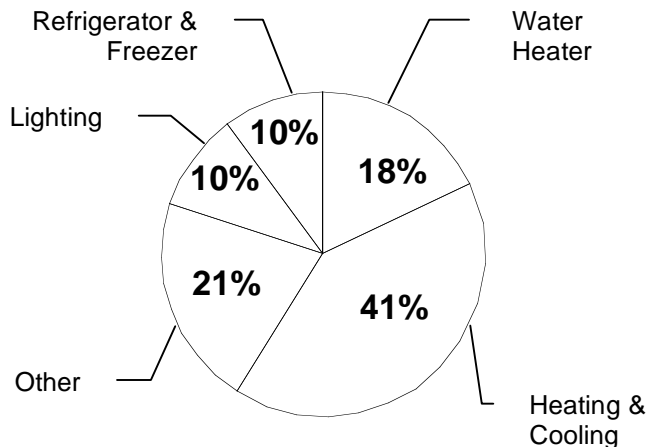
- **OVERVIEW:** A look at typical home energy costs and average billing plans 3
- **SECTION 1:** Heat pump and central air conditioning operating cost and energy saving tips 4
- **SECTION 2:** Electric space heater and window air conditioner operating costs 8
- **SECTION 3:** Electric water heating operating costs and energy saving tips 9
- **SECTION 4:** Pool pump operating costs and energy saving tips 12
- **SECTION 5:** Spa/hot tub operating costs and energy saving tips 14
- **SECTION 6:** Costs of basic household items and lighting and appliance energy saving tips 15
- **SECTION 7:** Home thermal energy saving tips 19

OVERVIEW:

What you need to know about saving money on energy use at home

This guide is meant to help you become aware of potential energy drains around the house, and the information is meant to give you the power to reduce your energy bill with a few changes around your home.

TYPICAL HOME ENERGY COSTS. The majority of energy costs lie within the heating and cooling of your home, but several other areas also come into play. Water heating, lighting, refrigeration and other appliances all contribute to your monthly electric bill. Take a moment to review the chart below, then look through this guide to find ways to reduce your energy consumption in these key areas.



ENERGY CONSERVATION.

Energy Depot Online. Cobb EMC offers Energy Depot, an online energy audit. It currently includes online residential energy audits and also provides energy information and tools for each customer's individual energy information need. You can access the audit and integrated suite by simply clicking on the Online Energy Audit button located on the Cobb EMC home page www.cobbemc.com.

Energy Audits. Free home-energy audits are available for members who want to know more about their energy use and learn how to save money. Call 678-355-3421 to request a do-it-yourself energy audit kit. You can also request an on-site visit from a field services representative.

FLEXIBLE BILLING OPTIONS. Due to changes in the weather, your electric bill can sometimes be unpredictable. That's because changes in the weather affect usage. So, while we can't change the weather, we are working hard to change how the weather affects your Cobb EMC electric bill.

In response to customer requests, Cobb EMC offers three convenient billing options. The option that is best for you depends on a couple of things, including your usage and your budget needs. Glance over the short descriptions below and call one of our Customer Service Representatives for a customized quote under the plan you think is right for you.

Even Bill

- No highs and lows, same daily/monthly bill for one full year*
- Bill is very simple, constant and is based on usage history
- No running balance to settle at year-end or if you move off the Cobb EMC system
- Includes premium of 12% to cover risks of weather impacts and customer usage increases

Simple Bill

- Same rate for summer and winter
- Overall lower kWh rate
- Base charge (calculated from base year) + 3 cents per kWh
- Bill is easier to read, fewer calculations

Standard Bill

- Traditional billing method
- Higher summer kWh rate
- Extreme weather-related bill differences during the year – makes budget planning difficult

* Daily amount will remain the same unless usage increases 50% or more from the same month in the previous year.

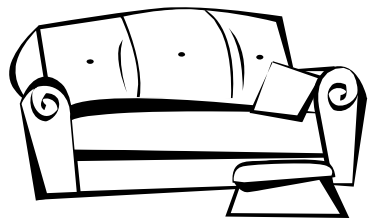
Heating and Cooling Energy Saving Tips

Heating and cooling your home uses more energy and drains more energy dollars than any other electrical equipment in your home. Here are some tips that will help keep your electric bill in check during the winter and summer months.

- A thermostat setting of 78 in the summer and 68 in the winter is recommended. Each degree setting lower in summer or higher in winter can result in 5% or more in energy costs. Fans will increase your comfort level, especially in warm weather. Remember, however, that in order to save energy dollars with ceiling fans, be sure to turn your air conditioner thermostat up (this will cause the air conditioner compressor to operate less) and turn the fans on only when you are in the area of the fan's air flow.

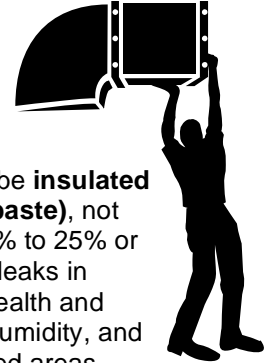


- Keep window curtains drawn during the day to block out summer sunlight. Keeping east and west windows shaded is particularly important as they get the most sunlight during hot summer days.
- A yearly service inspection by a licensed HVAC Contractor is recommended, with emphasis on **correct refrigerant levels** and **keeping coils clean**. A dirty outdoor (air conditioner condenser) coil or indoor (air conditioner evaporator) coil will decrease system efficiency.
- **Filters** should be checked on a monthly basis and changed when dirty. Better quality filters (quilted instead of fiberglass) will also insure better indoor air quality.



- Check all inside air vents to insure that they are not obstructed (rugs, furniture), causing poor airflow.

- It is important to understand the value of a properly designed, installed, and maintained heating and cooling duct system. **Duct leaks, uninsulated ducts in unconditioned areas, attic duct heat gain and loss, inadequate returns, incorrect duct and system sizing, improperly hung ducts, crimped ducts, extra long and winding duct runs, etc.** can significantly affect the amount of energy dollars you spend to keep warm in the winter and cool in the summer.



- **Ductwork** in unconditioned areas should be **insulated** and **sealed with mastic (a duct sealing paste)**, not tape. The average duct system loses 15% to 25% or more energy because of duct leaks. Duct leaks in unconditioned areas can affect comfort, health and safety levels by bringing additional dust, humidity, and other harmful pollutants into the conditioned areas. Properly sealing duct leaks can cut heating and cooling costs in many homes by 20% or more.
- When you have the need to replace your older heating and cooling system, make sure the new air conditioner or heat pump has a 13 SEER efficiency rating or higher. It is also important to select a qualified HVAC Contractor who will properly size your new system by calculating the heat loss/gain of your home. A properly sized system will not only save you energy dollars, but will help insure a more comfortable environment.
- The outside unit (air conditioner or heat pump) should be free of obstructions (weeds, shrubs, etc.) to insure proper air flow. If installed under a ceiling (porch, deck) a clearance of four feet is advised.

NOTES:


SECTION 2:

What you need to know about electric space heaters and the cost of using window air conditioners

Electric space heater usage (used as primary heat or supplemental heat) can quickly add up in energy dollars.

During the summer keep your window air conditioners operating at their best, and save energy dollars! Window air conditioner costs are lower when the unit and filter are cleaned on a regular basis.

| ELECTRIC SPACE HEATER OPERATING COSTS | | | | |
|--|---------------------|---------------------|----------------------|----------------------|
| Monthly kwh usage | | | | |
| Size | Operating 4 hrs/day | Operating 8 hrs/day | Operating 12 hrs/day | Operating 24 hrs/day |
| 750 w | 90 | 180 | 270 | 540 |
| 1000 w | 120 | 240 | 360 | 720 |
| 1500 w | 180 | 360 | 540 | 1080 |
| 2000 w | 240 | 480 | 720 | 1440 |



| WINDOW AIR CONDITIONER OPERATING COSTS | | | | |
|---|---------------------|---------------------|----------------------|----------------------|
| 9.5 EER | | | | |
| Size | Operating 4 hrs/day | Operating 8 hrs/day | Operating 12 hrs/day | Operating 24 hrs/day |
| 5000 btu | 63 | 126 | 189 | 378 |
| 7500 btu | 95 | 190 | 285 | 570 |
| 10000 btu | 126 | 152 | 378 | 756 |
| 15000 btu | 189 | 378 | 567 | 1134 |
| 18000 btu | 227 | 454 | 681 | 1362 |

SECTION 3:

What you need to know about the cost of electric water heaters

Some of the common causes for excessive electric water heater running time include:

BURNED OUT ELEMENT. If you are experiencing a shortage of hot water, or there has been a significant increase or decrease in hot water temperature, then you may have an element problem.

HOT WATER LEAKS. A leaky hot water faucet, leaking one drop of water a second can waste 60 gallons of hot water per week.

ADDITIONAL USAGE. Having guests or adding members to the household will result in additional hot water use for showers and tubs, as well as for washing clothes and dishes.

THERMOSTAT SET TOO HIGH. 120 degrees recommended. Most electric water heaters are set on 140 degrees.

WATER HEATER TANK NOT INSULATED. An electric water heater that is warm to the touch needs additional insulation. A water heater 'jacket' costs \$10-\$15 and is not difficult to install. Consult manufacturer warranty restrictions prior to installing a jacket (some dangers exist and some warranties become voided).

HOT WATER PIPES NOT INSULATED. Insulate hot water pipes wherever accessible, especially in unheated areas. If it takes an excessive amount of time for water to become hot when called for, then heat loss through pipes is probably the reason.

TYPICAL WATER HEATER ENERGY COST

| Family Size | Gallons used | Average daily running time | Monthly kwh |
|-------------|--------------|----------------------------|-------------|
| 2/3 | 64 | 3.23 hrs. | 436 |
| 4 | 79 | 3.99 hrs. | 538 |
| 5 | 94 | 4.74 hrs. | 640 |
| 6 | 109 | 5.50 hrs. | 742 |
| 7 | 134 | 6.30 hrs. | 844 |
| 8 | 149 | 7.06 hrs. | 946 |



SECTION 5:

What you need to know about spas and hot tub operating costs and how to save energy when using them

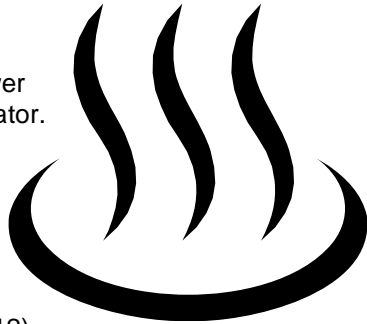
Spas and hot tubs can use a significant amount of energy, the vast majority going to heating and filtering water. The four major factors that affect operating costs are weather, spa size, operating temperature and filtering.

SPA SIZE: The average 6 ft. by 6 ft. spa (500 gallons) has a 2-horse power filter pump and a 1-horse power aerator. The water is usually heated with approx. 5,000 watts of electric heat.

OPERATING TEMPERATURE: The cost of operating these pumps is the same as pool pump operating costs (see operating costs on page 12).

A 5,000 watt electric heater operates at a cost of 40 cents per hour (based on an average of 8 cents per kwh). To reduce your spa's operating costs, keep it covered with a tight fitting insulated cover when not in use. When installing a spa, insulate it well around the sides and bottom. Heat the spa **ONLY** when you plan to use it, allowing time for warm up, and keep temperature at 102 degrees or lower. Check the accuracy of your spa's thermostat. An inaccurate thermostat can cost you significant energy dollars.

FILTERING: Filtering is another major cost of owning a spa. Reduce the number of hours you filter. The average spa requires one-half to one hour of filtering each day. If you have a pool/spa maintenance service, be sure to check with them before reducing filtration hours. Have your filter pump operation checked yearly by a qualified pool/spa maintenance company. A malfunctioning filter pump costs more to operate. When it's not needed, switch off your aerator, the device that adds bubbles to the water jets.



SECTION 6:

What you need to know about the electrical costs of using basic household items and how to save energy when using them

Your home's electrical base usage is the average consumption of a household – not including heating or cooling or other seasonal items (pools, etc.). It includes the household electrical load that operates 12 months a year, such as lights, refrigeration, television, washers, dryers, water heaters, computers, etc.

Every household is different, and there are other items that may be considered base usage. Items such as pumps, motors, workshop tools, fans and other household electrical items used 12 months a year should be considered base usage.

Use the chart and energy saving tips on the next three pages to understand and possibly lower your base usage over the next year.



ELECTRICAL COSTS OF BASIC HOUSEHOLD ITEMS

Average monthly kwh usage

Kitchen

| | |
|-------------------------------------|-----------|
| Refrigerator 20 cu. ft. upright FF | 160 / 200 |
| Refrigerator 17 cu. ft. S by S FF | 140 / 150 |
| Refrigerator 25 cu. ft. S by S FF | 175 / 185 |
| Freezer 13 cu. ft. upright FF | 135 / 145 |
| Freezer 18 cu. ft. upright FF | 170 / 180 |
| Freezer 21 cu. ft. upright FF | 240 / 250 |
| Freezer 10 cu. ft. chest | 65 / 75 |
| Freezer 15 cu. ft. chest | 90 / 100 |
| Freezer 20 cu. ft. chest | 115 / 125 |
| Freezer 28 cu. ft. chest | 155 / 165 |
| Range (self clean) | 85 |
| Microwave Oven | 23 |
| Toaster Oven | 8 |
| Fry Pan | 8 |
| Coffee Maker | 9 |
| Toaster Oven | 35 |
| Dishwasher (Hot water not included) | 37 |

Living Area

| | |
|----------------------------|----|
| Color TV (6 hrs/day) | 37 |
| Radio (3 hrs/day) | 7 |
| Stereo (3 hrs/day) | 11 |
| Computer, etc. (4 hrs/day) | 37 |
| VCR (4 hrs/day) | 6 |

Bath / Laundry

| | |
|---------------------------------|----|
| Washer (Hot water not included) | 9 |
| Dryer (30 loads) | 90 |
| Iron | 17 |
| Curling Iron | 10 |

Miscellaneous

| | |
|------------------------------|-----|
| Electric Blanket (8 hrs/day) | 42 |
| Ceiling Fan (24 hrs/day) | 72 |
| Whole House Fan (10 hrs/day) | 150 |
| Water Bed (10 hrs/day) | 120 |

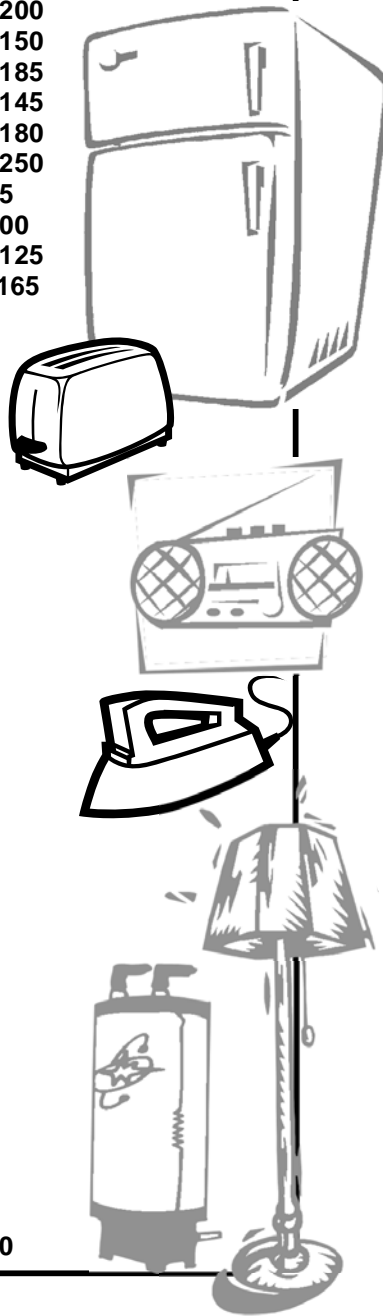
Lighting (average family)

Electric water heater

| | |
|-------------|-----|
| Family of 2 | 436 |
| Family of 4 | 538 |
| Family of 6 | 742 |

Well pump

20 / 70




Lighting and Appliance Energy Saving Tips

Here are some easy ways to reduce your base usage.

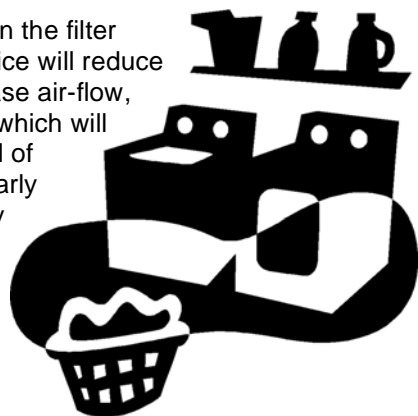
- Lighting:** You can save energy dollars by using household lighting only when needed and replacing high wattage bulbs with lower wattage bulbs (replacing a 100 watt bulb with a 60 watt bulb will save 40%). Using lights in summer when not necessary will also add to air conditioning cost. Switching from incandescent light bulbs to compact fluorescent bulbs can save energy dollars. While incandescent bulbs are inexpensive to purchase, they are inefficient and costly to operate. Compact fluorescent bulbs cost more to buy than incandescent, but the energy savings and the fact that they usually last 10 times or more longer than incandescent makes them worthy of consideration. In most cases, the light from fluorescent bulbs is just as bright and offers comparable colors and light quality. For example, a 19-watt fluorescent bulb typically gives off the same amount of light as a 75-watt incandescent bulb. The 19-watt fluorescent bulb will cost \$1.10 per month in electrical costs running 24 hours per day, compared to a cost of \$4.32 for the 75-watt incandescent bulb. Fluorescent bulbs have the same screw-in base as incandescent and are slightly larger, but fit in many different types of fixtures.

A 75-watt incandescent bulb costs \$4.32/month, while a 19-watt fluorescent bulb costs \$1.10/month


- Refrigeration:** The most effective way to reduce refrigeration energy costs is to remove or unplug unneeded refrigerators or freezers. An extra refrigeration unit can add in excess of \$10 per month in electrical costs. Also check to make sure your doors seal properly. Check temperature settings. Your refrigerator should be set between 36° and 38° F and your freezer should be set between 0° and 5° F. Unplug the refrigerator and clean back or bottom coils twice per year. Dirt and dust restrict airflow around the coils and cause the unit to work harder. Manual defrost refrigeration should be defrosted at least twice per year. Fully loaded refrigeration operates more efficiently. Keep the door closed as much as possible. When replacing refrigeration, consider purchasing high efficiency models.

Lighting and Appliance Energy Saving Tips *continued*

- **Cooking:** The typical cost of electric cooking with standard coils is usually so low for a family that it is difficult to justify new, more expensive options solely on the value of energy saved. There are many new types of burners on the market, but while they save energy, their main advantages are ease of cleaning, greater heat control, and other amenities. To save energy and increase comfort, consider using microwave and convection ovens. They will also release less heat into the home, helping lower air conditioning needs.
- **Dishwashing:** Over 80% of the energy used by a dishwasher can be for heating water (see Electric Water Heating). Models that use less water will also save energy. A model with a booster heater will allow you to set the water heater temperature to 120 degrees yet still have water temperatures in the dishwasher of 140 degrees. Using the air-dry feature and operating the unit at full load capacity will save energy and water. Overall, dishwashers are a better and more efficient way to clean dishes than hand washing.
- **Washers:** Approximately 90% of the energy used by clothes washers is for hot water. (see Electric Water Heating). Models that use less water use less energy. Remember to wash full loads. Use cold water settings as much as possible. This reduces the energy used to heat water. Modern detergents are designed for cold water washing.
- **Dryers:** Remember to clean the filter after every load. This practice will reduce the possibility of fire, increase air-flow, and decrease drying time, which will save energy. Dry a full load of clothes. The dryer uses nearly the same amount of energy to dry a few items as it does to dry a full load.



SECTION 7:

What you need to know about your home's insulation and how to use it to save on thermal energy waste

Checking your home's insulation levels in the attic and floor areas is a fast and cost-efficient way to reduce energy waste and maximize energy dollars. Insulation is measured in R-Value -- the higher the R-Value, the better your insulation will resist the flow of heat.

ATTIC: In the attic, R-30 batt (fiberglass) or blown (fiberglass or cellulose) type insulation is recommended. You should also weather-strip and or insulate doors and other openings that lead to unconditioned areas (attic, basement, etc.) Adequate roof ventilation is important for heat removal as well as humidity control. Attics should have proper ventilation from both top and lower areas of roof. Penetrations (plumbing, electrical, other) from the attic to conditioned areas should be sealed if possible.

FLOORS: Floors over unconditioned areas such as basements and crawl spaces should be insulated with batts rated at R-19. It is also important that 6 mil. plastic be placed on the ground or dirt floors of basements and crawl spaces. This plastic will protect the insulation and the home from excess moisture in the ground. Penetrations (plumbing, electrical, other) from the crawl space or basement to conditioned areas should be sealed if possible.

WINDOWS AND DOORS: Outside doors and windows should be caulked and weather-stripped. If you have single pane windows, a storm window is recommended. When replacing old windows, select double panes that have low-e coatings on the glass to reduce heat loss. Storm doors are also recommended. Other air infiltration areas of the home (plumbing and electrical penetrations, electrical outlets, etc.) should be sealed with caulk or foam insulation.

FIREPLACE: Fireplaces are one of the most inefficient heat sources you can possibly use. It literally sends your energy dollars right up the chimney along with volumes of warm air. When not in use, keep the damper closed. A glass screen is also recommended.

