

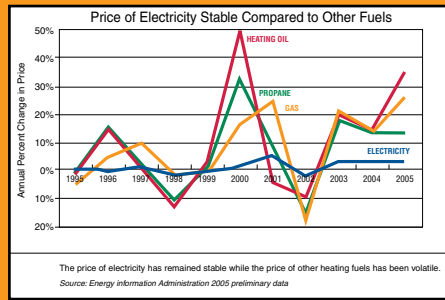
ELECTRIC WATER HEATERS



SAVE MONEY AND ENERGY
WITH AN ELECTRIC WATER HEATER



Whether you're replacing a furnace or water heater, choosing new appliances, or building a new home, how well you use energy has become an increasingly important factor in your decision. Making the right choice can mean big cost savings. But other factors are important too, like size, efficiency and reliability.



That's a lot of information to collect and digest, especially if you need to decide quickly. Wouldn't it be easier if there was someone you could go to for advice? Someone who knows all the options and won't try to sell you on just one?

That's when your local electric cooperative's Energy Advisor can help. As a member-owner of a Touchstone Energy® cooperative, you already have energy professionals who work for you. It's one of the benefits of ownership — being able to call on your employees for expertise. And because they're also your neighbors, they understand your needs and will give you honest, unbiased advice.

You have the power to control your energy costs. It's the power of human connections provided by the Energy Advisors at your local Touchstone Energy® cooperative. And it's there to help you make the best choices both for your family and your community.



Using energy efficiently can lower your energy bills, improve the comfort of your home and help decrease our dependence on foreign oil. So when it's time to replace your water heater, be sure to select an energy-efficient electric model that's sized to fit your needs.

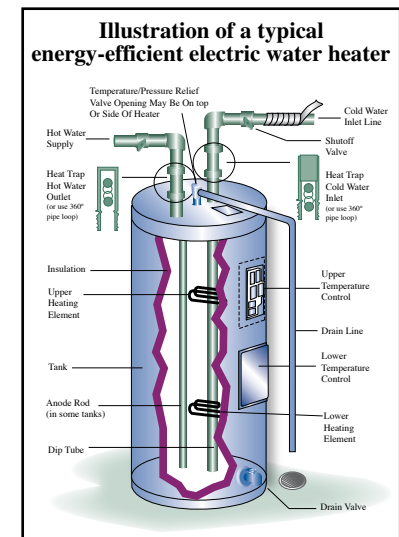
Not sure what you need? The Energy Advisors at your local Touchstone Energy® cooperative will be happy to share energy-efficiency information and advice.

ELECTRIC WATER HEATING

Water heating accounts, on average, for 14 to 25 percent of the energy consumed in your home. But you can reduce your monthly bills by choosing the right water heater for your home and by using some energy-efficient water-heating strategies.

TYPES OF ELECTRIC WATER HEATERS

It's important to pick a system that not only will provide enough hot water but also will do it efficiently and save you money. That's why it's a good idea to know the different types of water heaters before you purchase one.

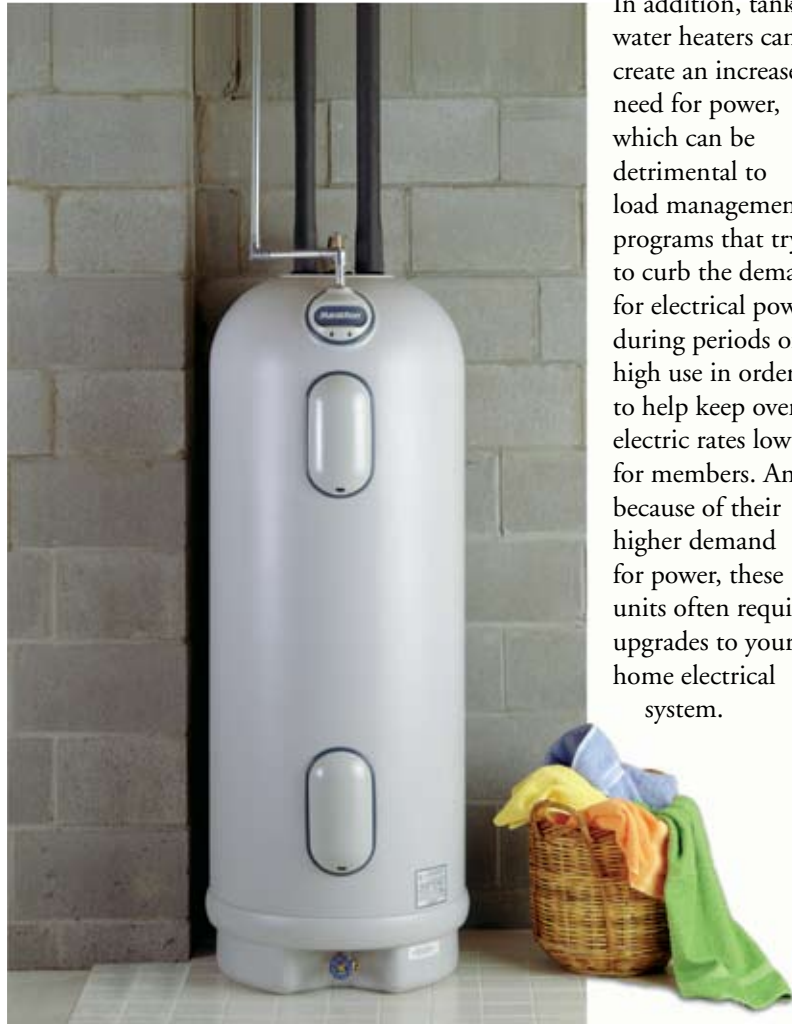


CONVENTIONAL WATER HEATERS offer a ready supply of hot water via a storage tank. It's the most popular type of water heating system for the home, and it's also generally one of the most economical to install.

ON-DEMAND (TANKLESS) WATER HEATERS heat water instantly but don't store it. When a hot water tap is turned on, cold water is heated by electric elements. This means less time and water is wasted in waiting for the water at the tap to heat up, but a

tankless water heater's output is limited and may be best suited for one or two person households, or where smaller quantities of hot water are needed, rather than for supplying a whole house. Sometimes even the largest model cannot supply enough hot water for simultaneous, multiple uses in large households. For example, taking a shower and running the dishwasher at the same time can stretch a tankless water heater to its limit.

In addition, tankless water heaters can create an increased need for power, which can be detrimental to load management programs that try to curb the demand for electrical power during periods of high use in order to help keep overall electric rates low for members. And because of their higher demand for power, these units often require upgrades to your home electrical system.



Conventional Water Heater

Photo courtesy of Marathon® Water Heaters



HEAT-PUMP WATER HEATERS also work without a storage tank. Heat pumps most often are used to heat and cool homes, but they also can heat water. And they can be two to three times more energy efficient than conventional electric-resistance water heaters. You can buy a stand-alone heat-pump water heater with a storage tank and backup heating elements, or modify a heat pump to work with an existing conventional-storage water heater.

GEOHERMAL HEAT PUMPS

When homeowners install geothermal heat pumps which draw heat from the ground during the winter and pull heat from the indoor air during the summer, they also have the

option to add a desuperheater for water heating. A desuperheater is a small, auxiliary unit that uses the heat pump's compressor to heat water that's held in a storage tank. In the summer, the desuperheater uses the excess inside heat to heat most of your water. During the fall, winter and spring, when the desuperheater isn't producing as much excess heat, you'll need to rely more on your storage water heater. Some manufacturers also offer geothermal systems which provide heating, cooling, and hot water, using a separate heat exchanger to meet all of a household's hot water needs.

SELECTING A WATER HEATER

A low-priced water heater may look like a good choice, but may be more expensive to install, operate and maintain over its lifetime. Before buying a new water heater, you should consider:

SIZE

To make sure you have enough hot water and still get the most energy efficiency, you need to base the size of your unit on the number of



Photo courtesy of State Water Heaters

Freedom Conventional Water Heater

people in your household and how much hot water they use at a two-hour peak usage period, when the largest amount of hot water will be required. For example, a family with two baths and an automatic washer might need at least a 50-gallon hot water heater, but if they also had a whirlpool tub, the water heater may need to be 85 gallons or larger.

ENERGY FACTOR (EF)

To maximize your savings, it's important to get a water heater that has a high energy efficiency rating. This is usually noted on the tank as "EF."

WARRANTY

Be sure to look for a water heater that has at least a 7-year warranty. Good quality water heaters can have a life of 10 years or more. And if you have hard water, adding a water softener can extend the life of your water heater by several years.

COSTS

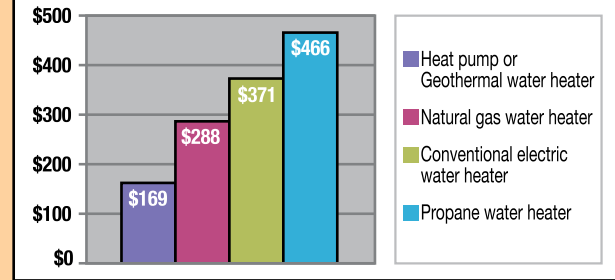
Before you purchase a water heater, it's also a good idea to estimate its annual operating costs and compare them with those of other models. And if you are in doubt about the tank size, remember that while a larger unit costs more to purchase, the difference in operating costs when compared to a smaller tank can be insignificant.

COMPARING COSTS AND DETERMINING PAYBACK

To compare the costs of different types of water heaters, you need to know the energy factor as well as the cost of fuel. The chart at the right provides an example of possible annual operating costs for different types of water heaters. Your actual operating cost will vary depending upon the water heater model and type chosen, the amount of hot water you use, and the cost of fuel.

When selecting an electric water heater, always select one with the highest energy factor (EF) that your budget will allow. For example, an electric water heater that has a .89 EF and costs \$209 might have an estimated \$387 annual operating cost (with a \$0.09/kWh cost). But another model costing \$309 with an EF rating of .93 might have an estimated \$369 operating cost. The higher EF

Water Heater – Estimated Annual Operating Costs



NOTE: Cost comparisons based upon energy efficiencies of .60 for natural gas and propane, 0.91 for a conventional electric water heater and 2.0 for heat pump/geothermal water heaters. Fuel costs used were 9 cents/kWh for electricity, \$1.35/ccf for natural gas and \$2/gallon for propane. This assumes use of 60 gallons of hot water per day or 12,800,000 BTU per year. Energy efficiencies can vary based upon model of water heater. These are for basic comparison only. Call your Energy Advisor at your local electric cooperative for a detailed analysis.

water heater would save about \$18 per year in energy and pay back the cost difference in less than six years.

Higher-efficiency water heaters can save you money over the life of the appliance. At a minimum, always select an electric water heater with at least a .90 EF value for improved energy efficiency.

OTHER COSTS

If you want to consider the cost of installation and maintenance of water heaters, consult the manufacturers and a qualified contractor. Costs will vary between different systems and water heater models. Natural gas and propane water heaters require installation of a flue and proper venting, as well as a carbon monoxide detector. Tankless water heaters may require an upgrade in electrical service.





Load management control room at Buckeye Power

PEAK MANAGEMENT – SAVE MONEY BY USING POWER WISELY

There's another way you can help keep your energy costs low — by joining your electric cooperative's peak management program. If your cooperative participates in this program, it will install a free radio-controlled switch that is only activated at times of peak power demand, usually on days of weather extremes — on a bitterly cold and windy winter day or an extremely hot and humid summer day. When the switch is activated, it temporarily turns off your water heater for a few hours. Most folks never even notice. Typically load control occurs less than 1 percent of the hours in the year. And by avoiding a new peak demand, you help keep electric rates low for yourself and all the other electric cooperative members in Ohio.

ENERGY-SAVING TIPS

To lower your water-heating bills, try one or more of these energy-saving strategies.

REDUCE YOUR HOT WATER USE

One of the easiest ways to lower your water-heating costs is by using and/or wasting less hot water in your home.

FIX LEAKS

You can significantly reduce hot water use by simply repairing leaks in fixtures — faucets, shower heads and pipes.

INSTALL LOW-FLOW FIXTURES

Some quality, low-flow fixtures cost as little as \$10 to \$20 but can deliver water savings of 25 to 60 percent.



PURCHASE ENERGY-EFFICIENT DISHWASHERS AND CLOTHES WASHERS

The biggest cost of washing dishes and clothes comes from the energy used to heat the water. You'll reduce your energy costs if you use an energy-efficient dishwasher and clothes washer.

LOWER WATER-HEATING TEMPERATURE FOR ENERGY SAVINGS

You can reduce your water-heating costs by simply lowering the thermostat setting on your water heater. For each 10° Fahrenheit (F) reduction in temperature, you can save 3 to 5 percent.

Most households need hot water of only 115 to 120°F. Reducing your water temperature to 120°F can slow mineral buildup and corrosion in your water heater and pipes. This helps your water heater last longer and operate at its maximum efficiency as you also save energy and money.

INSULATE YOUR ELECTRIC WATER HEATER TANK FOR ENERGY SAVINGS

Unless your water heater's storage tank already has a high R-value of



insulation (at least R-18), adding insulation to it can reduce standby heat losses by 25 to 45 percent. This will save you around 4 to 9 percent in water-heating costs. If you don't know your water heater tank's R-value, touch it. A tank that's warm to the touch needs additional insulation.

Insulating your storage tank is fairly simple and it will pay for itself in about a year. You can buy pre-cut jackets or blankets for around \$10 to \$20. Choose one with an insulating value of at least R-8. Always check the water-heater manufacturer's recommendations before installing an insulating blanket.



INSULATE HOT WATER PIPES FOR ENERGY SAVINGS

Insulating your hot water pipes reduces heat loss and can raise water temperature 2 to 4°F hotter than what non-insulated pipes deliver, allowing for a lower water heater temperature setting.

Insulate all accessible hot-water pipes, especially within 3 feet of the water heater. It's also a good idea to insulate the cold-water inlet pipes for the first 3 feet. Use quality pipe-insulation wrap, or neatly tape strips of fiberglass insulation around the pipes. Pipe sleeves made with polyethylene or neoprene foam are the most commonly used insulation.

INSTALL HEAT TRAPS

Install heat traps on the cold-water pipe leading into your water heater and on the hot-water pipe going out. They prevent hot water from escaping during standby and can save you \$15 to \$30 on your water heating bill. Some newer water heater models have heat traps available as an option.

Talk to the Energy Advisor at your local Touchstone Energy® cooperative for other ways you can save money by using energy wisely.

RESOURCES AND REFERENCES

Our thanks to the United States Department of Energy/Energy Efficiency and Renewable Energy (www.eere.energy.gov/consumers) for a portion of the content of this brochure.

NOTES



**YOUR ELECTRIC COOPERATIVE IS A
TOUCHSTONE ENERGY® COOPERATIVE.**

Touchstone Energy® is an alliance of more than 600 cooperatives in 46 states that offers reliable power, a strong local presence, and the expertise and resources of a nationwide network of energy professionals.

Your Touchstone Energy® electric cooperative is there for you when you have questions or need information. Call the Energy Advisor at your local cooperative to learn how you can use energy wisely and save money too!

