

## Guide to Saving Your Water-Heating Dollars



The price of running your hot water system varies depending on the following:

- Temperature of the incoming water
- Temperature losses resulting from uninsulated pipes
- Temperature losses resulting from long runs of pipe
- Thermostat settings
- Time spent showering or amount of bathtub water
- Flow rate of showerheads and faucets
- Leaking hot water taps
- Leaking water tank or pipe
- Efficiency of your water heater

## Energy-Saving Tips

### Purchasing & installation considerations:

- Purchase an energy efficient model. Use the EnergyGuide to find the cost of operation. This is based on the Energy Factor (EF). You can find information on any model at [www.gamanet.org](http://www.gamanet.org). This is the agency that tests all water heaters for their efficiency rating. The higher the number, the more efficient it will run – saving you money in the long run.
- Purchase the correct size. Too large and you waste energy, too small and you run out of hot water. Use the chart in AELP's Shopper's Guide to Water Heaters to help you.
- Install your water heater in a heated area, and closest to where the largest volume of hot water is used.
- Install a heat loop or in-line trap (aka: heat trap) to keep hot water in the tank rather than in the pipes. Many models include this device, or you can ask for them to be installed. Traps will reduce the amount of heat lost when water isn't being used by 12%.
- If you have hard water, install a water softener to help prevent mineral deposits from coating the elements, thereby saving energy and extending the life of your heater.
- Place the heater on a 2 inch, R-10 bottom board and save 50 kWh/year in a heated space; even more in an unheated area.

### Things you can do anytime:

- Set the two thermostats between 115°- 120° and save up to 13% in water heating cost for every 10° reduction. Another way to think of this: For every 10° reduction, you will save about 3% on your electric bill. You'll also extend the life of your water heater and significantly reduce the risk of scalding.

### How to set your thermostats:

- **First, turn off the water heater at the breaker or fuse.**
- Remove the cover plates for the thermostats and the insulation.
- Adjust the temperature according to your owner's manual. Make sure both thermostats are adjusted the same or one will work harder than the other.
- If it's hard to tell what temperature you are adjusting to, start by turning the indicators halfway between the low and medium set points. You may want to make incremental adjustments over a one week period.
- Replace the insulation and panel covers before turning your water heater back on.
- The dials on the thermostat are often inaccurate. Test the water temperature a day later with a candy thermometer and adjust again if needed.
- Insulate the accessible pipes into and out of your heater. This reduces heat losses and your wait for hot water at your taps.
  - The split foam rubber type is effective and easy to use. Select a minimum of R-3, or the thickest you can find.
  - Choose the size that closes fully around your pipes.
  - Place the crack downward and tape the seams with acrylic tape, if you can find it (duct tape won't last as long).
- Insulate the tank, unless your owners manual says otherwise. You will save 4 – 9% of your water heating costs and pay for the jacket in lower bills in less than one year. Even if your water heater is rated at an EF of .93, using an R-10 wrap will reduce usage by 96 kWh/year.
  - Choose a jacket with insulating value of at least R-7 to R-11, or use two R-5 jackets.

- Leave thermostats uncovered and follow directions carefully. Covering the access panels will void the UL certification, and cause overheating of the wiring.
- For advice on installing tank insulation when you don't have a kit, see [www.eere.energy.gov](http://www.eere.energy.gov) for the Energy Efficient Water Heating Fact Sheet
- Install efficient showerheads.
  - Standard showerheads have flow rates of 3.5 to 6 gallons per minute.
  - Efficient ones use 1.0 – 2.5 gpm. Your inlet water pressure will cause variance. The rating is based on 80 psi.
  - High efficiency showerheads are designed to give excellent showers, and are not to be confused with flow restrictors.
  - Cost recovery will occur within one year in saved energy.
  - Test your showerhead with a bucket and timer to find out your present efficiency. If a gallon bucket fills in 10 seconds = 6 gpm; in 12 seconds = 5 gpm; in 15 seconds = 4 gpm; in 20 seconds = 3 gpm; in 24 seconds = 2.5 gpm. If it takes less than 20 seconds, you can benefit from low-flow showerheads.
- Install flow restrictors on faucets.
  - Average sink faucets have flow rates of 3 – 5 gpm.
  - Aerators and laminar faucets can reduce this to 0.5 – 1 gpm in bathrooms and 1.5 – 2 gpm in the kitchen.
  - Aerators are inexpensive and easy to install. Look for fingertip control for reducing flow to a trickle without losing the hot-cold mix.
- Leaving for three or more days? Turn your water heater off at the breaker and make sure you turn it back on when you return. It takes about 2½ hours to reheat.

- Timers. Some sources suggest them, others say they may not save anything, depending on how water is used and a host of other factors. Your money is probably better spent reducing standby losses and reducing actual usage.

## Energy-Efficient Habits

- Avoid rinsing dishes before placing them in the dishwasher and wash only full loads.
- Use cold water to flush your garbage disposal. This solidifies grease so the disposal gets rid of it more effectively.
- Take quick showers instead of baths. A 15 minute shower at 2.5 gpm uses 1779 kWh annually; with a 2.2 gpm showerhead, the same shower will use 1565 kWh, and a 15 minute shower with a 1.5 gpm showerhead will use 1067 kWh annually. A 5 minute shower using a 1.5 gpm showerhead will use 356 kWh annually. Multiply this by the number of showers taken in your house!
- Shut off the faucet when shaving, washing and doing dishes.
- Use cold or cool water for household cleaning, when possible.
- Wash clothes with cold water.
  - Always rinse with cold water.
  - Adjust the settings to match the size of the load.
  - When it's time for a new washer, consider a front loading machine.

Wash/Rinse Setting	kWh/year
Hot/Cold	1547
Warm/Cold	825
Cold/Cold	103

Note that "cold" should be 70 degrees to make detergents more effective.

- Ensure your next dishwasher has a booster heater. This will allow you to turn your heater down further.

- Hand-washing dishes can use less hot water, especially if rinsing with cold water, or into a sink partially filled with water.

## Maintenance

- Fix leaky faucets promptly. One drop per second wastes 48-60 gallons of hot water per week. This can equal 50 – 200 kWh per month. Imagine the cost of a constant trickle of hot water.
- Whatever you do, **always turn off the water heater at the breaker before doing anything with your water heater.** Also, test the heater to assure it is really off, just in case your breaker is faulty.
- Annual maintenance.
  - Have a licensed plumber check the anode rod annually. If any of the core wire is exposed or the anode is substantially depleted, it should be replaced to slow the corrosion of your water heater and extend its life.
  - Also have the pressure release valve tested.
  - While you have the plumber, have a heat loop or in-line trap installed. You might see if a second anode rod can be installed, too.
  - If you have a well, the tank should also be drained and sediment removed.
- Sediment removal. Follow the advice in your owner's manual or have a plumber do this. Sediment collection has a lot to do with the type of tank, and the minerals and conductivity of the water. One option is to drain off a quart of water every three months. Other concepts include draining the tank as often as every six months.