

Give Your Old Water Heater an Efficiency Boost



Top, wrap your old electric water heater with fiberglass insulation, then with construction foil, to block heat loss.

Above, drain about a gallon of water from the bottom of the water heater tank every several months to reduce sediment buildup.

Photos by James Dulley



To ask a question, write to **James Dulley**, Energy Report, 6906 Royalgreen Dr., Cincinnati, OH. 45244, or go to www.dulley.com.

Copyright 2018, James Dulley

Q: My electric water heater is 18 years old, but still works. What can I do to make it more efficient and reduce heating costs?

A: For a typical family of four, it is not unusual for water heating to consume 20 to 25 percent of the total annual energy use. New water heaters are more energy efficient than old ones, but many homeowners cannot afford to replace an older, less efficient one.

Electric water heaters are simple devices. There are two electric resistance heating elements in the water tank: one at the top and one at the bottom. They are not on at the same time because that would draw too much electric current. The bottom element keeps the tank water hot. When hot water runs low, the top element comes on to supply hot water faster.

Electric water heaters, even old ones, have nearly 100-percent heating efficiency. All the electricity used ends up heating water because the heating elements are submerged. The difference in the overall efficiency and your water heating costs are determined by how much heat is lost from the water tank.

In old water heater tanks, the lower heating element must come on fairly often just to make up the heat lost through the insulation to the surrounding air. The most energy-efficient electric water heaters have several inches of high R-value insulating foam between the water tank and the outer skin. Older tanks may have just a couple of inches of fiberglass insulation.

Increase efficiency by adding tank insulation. Test your water heater tank to see if it needs more insulation. Place your hand on other metal objects in your basement or utility room to get a sense for their temperature. Next, put your hand on the water heater tank near the top. I bet your old water heater will feel much warmer because it is losing heat.

Water heater insulating jackets are available at most home center stores. These wrap around the tank and cover the top. R-13 fiberglass batt wall

insulation also works well. Face the vapor barrier to the outside and cover this with construction foil to create a low-emissivity barrier.

When insulating a gas water heater, do not block the combustion air inlet at the bottom and the draft diverter at the top.

Older water heaters may not have heat trap fittings in the inlet and outlet pipes as new water heaters do. Because hot water is less dense than cold water, it naturally circulates up into the section of the pipes above the water heater. This hot water loses heat and drops back down. This continuous convection current wastes energy.

Put tubular foam insulation over the pipes immediately above the tank to minimize heat loss. You can also have heat trap fittings installed in your old tank to stop this.

Drain a gallon of water from the valve at the bottom of the tank every several months. If you have not done it before, you may see a lot of sediment come out.

Check the temperature of the hot water at the kitchen faucet with a thermometer. A temperature of 110 to 120 F is adequate.

You will find two covers on the side of the water heater over the heating elements and thermostats. Switch off the circuit breaker and adjust the thermostats. Switch the power back on and let the temperature stabilize.

Install a water heater timer to switch it off during the daytime when away working. The water will stay reasonably hot. Set the timer to come back on late at night. This helps your electric utility control peak demand. Ask your utility if it offers an incentive program for them to install a water heater they can control during peak times.

If you decide to buy a new electric water heater, select a model with a 12-year warranty. These have higher R-value foam insulation in the tank walls than cheaper 6-year models. Most 12-year models have accurate electronic digital controls and a vacation-mode to help save electricity when you are away. ■