What Does It Cost To Heat Your Water?

It is generally accepted that it costs about 1¢ to 2¢ to heat a gallon of water. The exact amount will depend on the efficiency of your water heater, whether you use gas or electric and exactly what your electric or gas costs are.

Energy Required To Heat 1000 Gallons Of Water

- A Btu, or British thermal unit, is the amount of energy needed to raise one pound of water from 60°F to 61°F at sea level.
- A gallon of water weighs 8.33 lbs.
- If the incoming water is 60°F and we want to raise it to 140°F, that is a 80°F rise.
- Heating a gallon of water thus requires 8.33 x 80 = 667 Btu's, at 100% efficiency.

Cost To Heat Water Using Natural Gas

- A typical gas tank water heater is only 59% efficient. It takes 667 ÷ 59% = 1131 Btu's to heat a gallon of water with gas
- One therm is 100,000 Btu's. One Btu is 0.00001 therms
- 1131 Btu's is 0.0113 therms.
- It will take 0.0113 therms to heat a gallon of water, or 0.0113 x 1000 = 11.31 therms to heat 1000 gallons.
- At $1.20 /therm, it costs 11.31 x $1.20 = $13.58 to heat 1000 gallons.

Cost To Heat Water Using Electricity

- A typical electric water heater is 90.4 to 95% efficient or 92.7% average efficiency.
- It takes 667 ÷ 92.7% = 720 Btu's to heat a gallon of water using electricity.
- One kWh is 3413 Btu's. One Btu is 0.000293 kWh.
- 667 Btu's x 0.000293 kWh/Btu = 0.195 kWh
- It will take 0.195 kWh to heat a gallon of water, or 0.195 x 1000 = 195 kWh to heat 1000 gallons
- At $0.11/kWh, it costs 195 x $0.11 = $21.45 to heat 1000 gallons of water