

09/08

# Water Heater Comparison

## *Electric vs. Propane*

Since propane and electricity are measured with different units (gallons and kilowatt hours), an accurate comparison converts these units to price per million BTUs (British Thermal Units). One BTU is equal to the amount of heat required to raise the temperature of one pound of liquid water by 1 degree Fahrenheit. The following formula is used to calculate the cost per million BTUs:

$$\frac{1,000,000 \times \text{fuel unit cost}}{\text{fuel unit BTU value} \times \text{energy factor}}$$

For this comparison, I used a **50-gallon Kenmore Power Vent High Altitude gas water heater** and a **50-gallon Marathon**:

### Kenmore Power Vent 50-gallon

$$\frac{1,000,000 \times \$2.50}{91,600 \times 0.62} = \$44.02 \text{ per million BTUs}$$

**NOTE:** \$2.50 is the average price per gallon of propane in the past 12 months; 91,600 is the BTU value of liquid petroleum, 0.62 is the Energy Factor of this water heater

### Marathon Electric 50-gallon

$$\frac{1,000,000 \times \$0.095}{3,413 \times 0.94} = \$29.61 \text{ per million BTUs}$$

**NOTE:** \$0.095 is standard residential rate for 2008; 3,413 is the BTU value of electricity, 0.94 is the Energy Factor of this water heater