

Energy Conversions — Taking the myth out of the math



Understanding the terminology of energy

Understanding the terms used to measure energy and how these units relate can often be confusing. Since energy is typically billed on some form of volumetric scale, it is important to find a standard energy factor to perform cost comparisons. The chart on the right outlines the typical units of energy measurement and their equivalent energy content in BTUs.

By using the standard measurement of BTUs, you can easily compare energy costs and make an informed decision on new equipment for your facility. The math is simple:

Natural Gas: \$9.86/MCF*
 $\$9.86/\text{MCF} \div 1,034,000 \text{ BTU}/\text{MCF} \times 1,000,000 \text{ BTU}/\text{MMBTU}$
 Equivalent Gas Cost = \$9.53/MMBTU

Electricity: \$0.1021/kWh*
 $\$.1021/\text{kWh} \div 3,413 \text{ BTU}/\text{kWh} \times 1,000,000 \text{ BTU}/\text{MMBTU}$
 Equivalent Electric Cost = \$29.90/MMBTU

At 100% efficiency, natural gas is \$9.53/MMBTU versus \$29.90/MMBTU for electricity.

* Natural Gas and Electric average Retail Commercial pricing is from EIA for the Calendar year 2009. Conversions to \$/MMBTU are input energy prices prior to equipment efficiencies being factored in.

Conversion Factors Average Energy Content of Fuels	
Natural Gas	Energy Content
1 CCF	100 CF (1 Therm)
1 cubic foot (ft ³)	1,034 BTU
1 therm (therm)	100,000 BTU
1 dekatherm (DTM)	1,000,000 BTU (1 MMBTU)
1 cubic meter (m ³)	36,303 BTU
Electricity	Energy Content
1 kiloWatt (kW)	3,413 BTU
1 megaWatt (MW)	1,000 kW
Oil	Energy Content
1 gallon #2 oil	138,690 BTU
1 gallon #6 oil	149,690 BTUs

To get a thorough understanding of your energy savings, contact us for an analysis of your energy costs.



For more information, please contact the Energy Services Department at **302.736.7894**.