

Energy Conversion Factors

Average Energy Content of Various Fuels

1 kilowatt hour of electricity	3,413 Btu
1 cubic foot of natural gas	1,008 to 1,034 Btu
1 therm of natural gas	100,000 Btu
1 gallon of liquefied petroleum gas (LPG)	95,475 Btu
1 gallon of crude oil	138,095 Btu
1 barrel of crude oil	5,800,000 Btu
1 gallon of kerosene or light distillate oil	135,000 Btu
1 gallon of middle distillate or diesel fuel oil	138,690 Btu
1 gallon of residual fuel oil	149,690 Btu
1 gallon of gasoline	125,000 Btu
1 gallon of ethanol	84,400 Btu
1 gallon of methanol	62,800 Btu
1 gallon of gasohol (10% ethanol, 90% gasoline)	120,000 Btu
1 pound of coal	8,100 to 13,000 Btu
1 ton of coal	16,200,000 to 26,000,000 Btu
1 ton of coke	26,000,000 Btu
1 ton of wood	9,000,000 to 17,000,000 Btu
1 standard chord of wood	18,000,000 to 24,000,000 Btu
1 face cord of wood	6,000,000 to 8,000,000 Btu
1 pound of low pressure steam (recoverable heat)	1,000 Btu

Measurement Conversions

1 short ton (ton) = 2,000 pounds = 6.65 barrels (crude oil)
1 metric ton (tonn) = 2,200 pounds
1 barrel (bbl) = 42 gallons = 5.615 cubic feet = 159.0 liters
1 Mcf = 1,000 cubic feet
1 therm = 10^5 Btu = 1,000,000 Btu
1 thousand Btu (Mbtu) = 1,000 Btu
1 million Btu (MMBtu) = 1,000,000 Btu
1 quad = 10^{15} (quadrillion) Btu or 1,000,000,000 MMBtu
1 kilowatt-hour (kWh) = 1,000 watt hours
1 megawatt-hour (MWh) = 1,000 kwh or 1,000,000 watt-hours
1 gigawatt-hour (GWh) = 1,000 MWh or 1,000,000,000 watt-hours
1 gallon = 4.524 pounds liquefied petroleum gas
1 standard cord of wood = 8 feet x 4 feet x 4 feet = 128 cubic feet = approx. 4,000 lbs.
1 face cord of wood = 8 feet x 4 feet x 16 inches = 42.7 cubic feet = approx. 1,333 lbs.

Energy Comparisons

Compare Natural Gas – sold in therms (100,000 BTU/therm)¹

Multiply the oil heat price per gallon by 0.72 to give the equivalent price per therm of natural gas

Multiply the propane price per gallon by 1.087 to give the equivalent price per therm of natural gas

Multiply the electricity price per kWh by 29.3 to give the equivalent price per therm of natural gas

Compare Propane – sold in gallons (92,000 BTU/gallon)

Multiply the oil heat price per gallon by 0.663 to give the equivalent price per gallon of propane

Multiply the natural gas delivered price per therm by 0.92 to give the equivalent price per gallon of propane

Multiply the electricity price per kWh by 27.0 to give the equivalent price per gallon of propane

Compare Heating Oil – sold in gallons (138,700 BTU/gallon)

Multiply the propane price per gallon by 1.507 to give the equivalent price per gallon of heating oil

Multiply the natural gas delivered price per therm by 1.387 to give the equivalent price per gallon of heating oil

Multiply the electricity price per kWh by 40.6 to give the equivalent price per gallon of heating oil

Compare Electricity – sold in kilowatt hours (3,413 BTU/kilowatt hour)²

Multiply the propane price per gallon by 0.037 to give the equivalent price per kilowatt hour of electricity

Multiply the natural gas delivered price per therm by 0.034 to give the equivalent price per kilowatt hour of electricity

Multiply the heating oil price per gallon by 0.024 to give the equivalent price per kilowatt hour of electricity

¹Figure out your price per therm by dividing your total fuel bill by the total therms of natural gas consumed. This is your price per therm

² Figure out your price per kWh by dividing your total fuel bill by the total kWh of electricity consumed. This is your price per kWh.