

## Conversion Factors for Energy and Power

The below information is reproduced from the extensive reference section of the website  
<http://home.mchsi.com/~gweidner/site>.

Energy and power are not the same thing. Energy is the capacity to do work, and power is the rate that energy “flows”—the rate it is produced, transported, converted from one form to another, or used to do work.

### Terms and Abbreviations

Btu = British thermal unit	m = meter
hp = horsepower	min = minute
hr = hour	N = newton
J = Joules	s = second
kg = kilogram	W = watt
kW = kilowatt	

### Notes on using the charts

- To get the reverse of any conversion, divide 1.0 by the conversion factor. For example, the factor to convert “Btu/hr to W” is 0.2931, so the factor to convert “W to Btu/hr” is  $1/0.2931 = 3.4118$
- If you cannot find a particular conversion (suppose, for example “W to Btu/hr”), try looking for the reverse conversion (“Btu/hr to W”). If you find the reverse conversion, divide it into 1.0 to get the conversion you need.

MULTIPLY	BY	TO OBTAIN
Btu	778.1693	ft-lb
Btu	1055.0559	J
Btu	107.5858	kg-m
Btu	0.000,2931	kW-hr
Btu	0.000,01	therms
Btu/hr	0.000,2931	kW
Btu/hr	0.2931	W
Btu/hr	0.000,3930	hp
ft-lb	0.001285	Btu
ft-lb	1.3558	J
ft-lb	0.1383	kg-m
ft-lb	0.000,3766	W-hr
ft-lb/min	0.001286	Btu/min
ft-lb/min	0.000,03030	hp
ft-lb/min	0.000,02260	kW
hp	33,000	ft-lb/min
hp	745.700	W
hp	2544.5292	Btu/hr
J	1.0	N-m
J	0.000,9478	Btu
J	0.7376	ft-lb
J	1.0	W-s
N-m	1.0	J
KW-hr	3412.1416	Btu
kW-hr	2,655,220	ft-lb
therms	100,000	Btu
W-hr	3.4121	Btu
W-hr	3600.0	J