

Energy and Power

Energy is the capacity to do work and is measured in joules (J). Energy comes in several forms; potential, kinetic, chemical, nuclear, thermal, electromagnetic, electrical, etc.

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| 1 mega joule (MJ) = 10^6 J |
| 1 British Thermal Unit (Btu) = 1055 J |
| 1 kilowatt hour (kWh) = 3.6×10^6 J |
| 1 food calorie = 1000 cal = 1 kcal = 4184 J |
| 1 electron volt (eV) = 1.602×10^{-19} J |
| 1 Quad (Q) = 10^{15} Btu = 1.055 exa joules (EJ = 10^{18} J) |
| 1 barrel of oil (bbls) has about 5.8×10^9 J of energy |
| 1 metric ton (1000 kg) of coal has about 2.93×10^9 J of energy |
| 1 thousand cubic feet of natural gas (MCF) has about 1.06×10^9 J of energy |

Power is the rate at which you use energy and is measured in watts (W).

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| 1 W = 1 J/s |
| 1 horse power (hp) = 756 W = 0.178 kcal/s |
| 1 kW = 1000 J/s |
| 1 TW = 30 Q/s |