


1 btu = Amount of heat energy needed to heat one pound of water one degree fahrenheit

3,413 btu = 1 KW Electricity


92,000 btu = 1 gallon Propane 

140,000 btu = 1 gallon Fuel Oil

100,000 btu = 1 Therm Natural Gas

100,000 btu = 100 cu. ft. Natural Gas

16,000,000 btu = 1 Ton Wood Pellets

7,000 btu = 1 lb. Shelled Corn 
(56 lbs. = 1 bushel)

13,000 btu = 1 lb. Coal 

C.O.P. = Coefficient of Performance, a ratio calculated by dividing the total heating capacity provided by a refrigeration system, including circulating fan heat but excluding supplementary resistance (BTU's per hour), by the total electric input (watts) x 3.413.



[Typical air source heat pump systems C.O.P. = 2.5]

[Typical geothermal ground source heat pump systems C.O.P. = 4.0]



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Fuel Cost Comparison




Fuel Cost Comparison



Comparable Energy
Cost Comparison =

$$\frac{E_c \times C_{btu} \times C_{eff}}{E_{btu} \times E_{eff}}$$

Electricity* (Cents/kWh)	Fuel Oil 60% Efficient Furnace (\$/Gal.)	Fuel Oil 80% Efficient Furnace (\$/Gal.)	Propane 60% Efficient Furnace (\$/Gal.)	Propane 90% Efficient Furnace (\$/Gal.)	Natural Gas 60% Efficient Furnace (\$/Therm)	Natural Gas 90% Efficient Furnace (\$/Therm)	Wood Pellets 60% Efficient (\$/Ton)	Shelled Corn 78% Efficient (\$/Bushel)
4.8	1.16	1.55	0.77	1.16	0.844	1.265	134.97	4.30
4.9	1.20	1.61	0.79	1.19	0.861	1.292	137.83	4.39
5.0	1.21	1.62	0.80	1.21	0.879	1.318	140.60	4.48
5.2	1.26	1.68	0.84	1.26	0.914	1.371	146.26	4.66
5.3	1.30	1.73	0.86	1.29	0.932	1.397	149.08	4.75
5.4	1.31	1.75	0.87	1.30	0.949	1.424	151.85	4.84
5.6	1.36	1.81	0.90	1.35	0.984	1.476	157.47	5.02
5.8	1.41	1.88	0.93	1.40	1.019	1.529	163.09	5.20
6.0	1.46	1.94	0.96	1.45	1.054	1.582	168.72	5.38
6.2	1.50	2.00	1.00	1.50	1.090	1.634	174.34	5.55
6.3	1.55	2.07	1.02	1.53	1.108	1.661	177.20	5.64
6.4	1.58	2.10	1.04	1.55	1.125	1.688	180.02	5.73
6.6	1.62	2.17	1.07	1.60	1.160	1.740	185.64	5.91
6.8	1.67	2.23	1.10	1.65	1.195	1.793	191.27	6.09
7.0	1.72	2.30	1.13	1.70	1.230	1.846	196.89	6.27
7.4	1.82	2.43	1.20	1.80	1.300	1.950	208.15	6.63
7.8	1.92	2.56	1.26	1.89	1.370	2.060	219.40	6.99
8.2	2.02	2.69	1.33	1.99	1.440	2.160	230.65	7.35
8.5	2.09	2.79	1.37	2.06	1.490	2.240	239.09	7.62
9.0	2.22	2.95	1.46	2.18	1.580	2.370	253.15	8.06
9.15	2.25	3.00	1.48	2.22	1.610	2.410	257.37	8.20
9.5	2.34	3.12	1.54	2.31	1.670	2.505	267.21	8.52
9.8	2.41	3.22	1.58	2.38	1.723	2.584	275.65	8.78
10.3	2.54	3.38	1.67	2.50	1.811	2.716	289.72	9.23
10.8	2.66	3.54	1.75	2.62	1.898	2.848	303.78	9.68
11.3	2.78	3.71	1.83	2.74	1.986	2.980	317.84	10.12
12.0	2.95	3.94	1.94	2.91	2.109	3.164	337.53	10.75
12.5	3.08	4.10	2.02	3.03	2.197	3.296	351.60	11.20
13.0	3.20	4.27	2.10	3.15	2.285	3.428	365.66	11.65
13.5	3.32	4.43	2.18	3.28	2.373	3.560	379.72	12.09
14.0	3.45	4.59	2.26	3.40	2.461	3.692	393.79	12.54
15.0	3.69	4.92	2.43	3.64	2.637	3.955	421.92	13.44

- E_c = Cost of Electricity
- E_{btu} = Btu Content of Electricity
- E_{eff} = Efficiency of Electric Application
- C_{btu} = Btu Content of Comparison
- C_{eff} = Efficiency of Comparison

To use this chart, find the applicable electric rate in column No. 1, follow this line to the column for the fuel source you are comparing. These two values are equal. For instance, 5.0¢/kWh electricity is equal to \$1.21/Gal. Propane at 90% Efficiency.



**Note: This column refers to electric resistance heating. For heat pumps, current electric rates can be divided by the seasonal C.O.P. of the equipment.*