Cost of Living

RESIDENTIAL HEATING FUEL COMPARISON

Fairbanks, Alaska November 2012

Fuel (see notes below) Avg Price Per Unit (BTU) Efficiency Useful Heat Electricity (100% eff.) \$0.2277				
Fuel (see notes below) Avg Price Per Unit (BTU) Efficiency Useful Heat Electricity (100% eff.) \$0.2277 /kWh 3,413 100% \$6.672 District Hot Water Heat \$27.0300 /mmbtu 1,000,000 100% \$2,703 District Steam Heat \$10.5000 /1,000 lb 1,066,000 100% \$0.985 Fuel oil #2 (85% eff.) \$3.8670 /gal 135,000 85% \$3.370 Natural gas (85% eff.) \$23.3500 /mcf 1,010,000 85% \$2.720 Propane (85% eff.) \$4.1170 /gal 91,333 85% \$5.303 Wood, pellet (85% eff.) \$282.0000 /ton 16,000,000 85% \$2.074 Wood, birch (70% eff.) \$325.0000 /cord 20,500,000 70% \$2.265 Wood, spruce (70% eff.) \$327.0000 /cord 15,000,000 70% \$3.114 Coal, stoker \$115.0000 /ton 15,200,000 55% \$1.376 Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cos	·			
Electricity (100% eff.) \$0.2277	eful BTU's			
Electricity (100% eff.) \$0.2277	per \$1.00			
District Steam Heat \$10.5000 /1,000 lb 1,066,000 100% \$0.985 Fuel oil #2 (85% eff.) \$3.8670 /gal 135,000 85% \$3.370 Natural gas (85% eff.) \$23.3500 /mcf 1,010,000 85% \$2.720 Propane (85% eff.) \$4.1170 /gal 91,333 85% \$5.303 Wood, pellet (85% eff.) \$282.0000 /ton 16,000,000 85% \$2.074 Wood, birch (70% eff.) \$325.0000 /cord 20,500,000 70% \$2.265 Wood, spruce (70% eff.) \$327.0000 /cord 15,000,000 70% \$3.114 Coal, stoker \$115.0000 /ton 15,200,000 55% \$1.376 Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge. (1) BTU \$0.228 Hot water per million BTUs \$27.030 Steam pson, a former Institute of Northern Forestry research forester. Paper birch provides 25 4 million BTU per cord; tamarack provides 24.8 million BTU per cord. \$325.833 per c	14,989			
District Steam Heat \$10.5000	36,996			
Natural gas (85% eff.) \$23.3500 /mcf 1,010,000 85% \$2.720 Propane (85% eff.) \$4.1170 /gal 91,333 85% \$5.303 Wood, pellet (85% eff.) \$282.0000 /ton 16,000,000 85% \$2.074 Wood, birch (70% eff.) \$325.0000 /cord 20,500,000 70% \$2.265 Wood, spruce (70% eff.) \$327.0000 /cord 15,000,000 70% \$3.114 Coal, stoker \$115.0000 /ton 15,200,000 55% \$1.376 Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge. Hot water \$0.293 watt hours = (1) BTU \$0.228 Hot water \$per million BTUs \$27.030 Per 1,000 ibs p/month \$10.500 Wood, according to a table on the energy content of Interior Alaska trees prepared by George Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million BTU per cord; tamarack provides 24.8 million BTU per cord.	101,524			
Propane (85% eff.) \$4.1170 /gal 91,333 85% \$5.303 Wood, pellet (85% eff.) \$282,0000 /ton 16,000,000 85% \$2.074 Wood, birch (70% eff.) \$325,0000 /cord 20,500,000 70% \$2.265 Wood, spruce (70% eff.) \$327,0000 /cord 15,000,000 70% \$3.114 Coal, stoker \$115,0000 /ton 15,200,000 55% \$1.376 Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge. 0.293 watt hours = (1) BTU \$0.228 Hot water per million BTUs \$27,030 Steam per 1,000 lbs pr/month \$10.500 Wood, according to a table on the energy content of Interior Alaska trees prepared by George \$325,833 per c Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million Varies: p/ton; p/cord \$325,833 per c	29,674			
Propane (85% eff.) \$4.1170 /gal 91,333 85% \$5.303 Wood, pellet (85% eff.) \$282,0000 /ton 16,000,000 85% \$2.074 Wood, birch (70% eff.) \$325,0000 /cord 20,500,000 70% \$2.265 Wood, spruce (70% eff.) \$327,0000 /cord 15,000,000 70% \$3.114 Coal, stoker \$115,0000 /ton 15,200,000 55% \$1.376 Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge. 0.293 watt hours = (1) BTU \$0.228 Hot water per million BTUs \$27.030 Steam per 1,000 lbs pr/month \$10.500 Wood, according to a table on the energy content of Interior Alaska trees prepared by George \$25.833 per c Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million varies: p/ton; p/cord \$325.833 per c	36,767			
Wood, pellet (85% eff.) \$282.0000 /ton 16,000,000 85% \$2.074 Wood, birch (70% eff.) \$325.0000 /cord 20,500,000 70% \$2.265 Wood, spruce (70% eff.) \$327.0000 /cord 15,000,000 70% \$3.114 Coal, stoker \$115.0000 /ton 15,200,000 55% \$1.376 Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge. 0.293 watt hours = (1) BTU \$0.228 Hot water per million BTUs \$27.030 per 1,000 lbs per 1,000 lbs p/month \$10.500 Steam Wood, according to a table on the energy content of Interior Alaska trees prepared by George Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million varies: p/ton; p/cord \$325.833 per c	18,857			
Wood, birch (70% eff.) \$325.0000 /cord 20,500,000 70% \$2.265 Wood, spruce (70% eff.) \$327.0000 /cord 15,000,000 70% \$3.114 Coal, stoker \$115.0000 /ton 15,200,000 55% \$1.376 Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge. Hot water \$0.293 watt hours = (1) BTU \$0.228 Flot water \$0.293 watt hours = (1) BTU \$0.228 Steam \$0.200 lbs per 1,000 lbs p/month \$10.500 Wood, according to a table on the energy content of Interior Alaska trees prepared by George Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million BTU per cord; tamarack provides 24.8 million BTU per cord. \$325.833 per c	48,227			
Wood, spruce (70% eff.) \$327.0000	44,154			
Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge. Hot water Price includes rate, customer charge, RCA charge, cost of fuel adjustment charge. (1) BTU \$0.228 Per million BTUs \$27.030 per 1,000 lbs p/month Steam Wood, according to a table on the energy content of Interior Alaska trees prepared by George Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million BTU per cord; tamarack provides 24.8 million BTU per cord. \$325.833 per c	32,110			
adjustment charge. Hot water per million BTUs \$27.030 per 1,000 lbs pp/month Steam Wood, according to a table on the energy content of Interior Alaska trees prepared by George Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million BTU per cord; tamarack provides 24.8 million BTU per cord. \$325.833 per c	72,696			
Hot water per million BTUs \$27.030 Steam per 1,000 ibs p/month \$10.500 Wood, according to a table on the energy content of Interior Alaska trees prepared by George Sampson, a former Institute of Northern Forestry research forester. Paper birch provides 25.4 million BTU per cord; tamarack provides 24.8 million BTU per cord. varies: p/ton; p/cord \$325.833 per c				
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BTU per cord; tamarack provides 24.8 million BTU per cord. varies: p/ton; p/cord \$325.833 per c				
ruel oil (common; "60% #2, 40/% #1 blend" or "-15, #2") (delivered by truck) 1 135,000 B111/gall \$3,8671	energetzerztzer er effetre d			
, and a second s	per ga			
Natural gas (liquefied, trucked to Fairbanks, delivered by pipeline). NOTE: an average home in				
-,, ,	er 100 cubic			
used for heating only. PRICE includes rate, customer charge, RCA. 1,010 BTU/cf \$2.335	feet (CCF			
Propane (delivered by truck to homes) 91,333 BTU/gal \$4,117	per ga			
Coal, delivered to downtown \$115/ton \$115.000	per tor			

SOURCE: Golden Valley Electric Association, Inc. (GVEA), LEED Accredited Professional Energy End Use Specialist and SNAP Program Tech, Todd Hoener, *Heating Fuel Comparison, November 2012*, and FNSB Community Research Center, 2012.

NOTE: A British Thermal Unit (BTU) is the amount of heat energy needed to raise the temperature of one pound of water by one degree F. This is the standard measurement used to state the amount of energy that a fuel has as well as the amount of output of any heat generating device.

A common index of the cost of heat is "dollars per 100,000 BTUs of useful heat." In order to calculate useful heat (heat actually delivered to

COMPARISON PRICE PER 100,000 BTUs OF USEFUL HEAT

Fairbanks, Alaska November 2012 \$8,000 Fuels/Heater Efficiency \$7.000 \$6.000 \$5.000 Electricity - 100% eff 85% \$4.000 Propane - 85% eff Wood, spruce 70% eff \$3.000 gas Wood, birch eff \$2.000 Wood, pe 85% e iio Natural Fuel \$1.000 \$0.000