

## Cost of Living

### RESIDENTIAL HEATING FUEL COMPARISON

Fairbanks, Alaska  
November 2012

| Fuel (see notes below)  | Avg Price  | Per Unit  | Gross Heat (BTU) | Heater Efficiency          | \$/100,000 Useful BTU's of Useful Heat | Useful BTU's per \$1.00  |
|---|------------|-----------|------------------|----------------------------|--|--------------------------|
| Electricity (100% eff.)   | \$0.2277   | /kWh      | 3,413            | 100%                       | \$6.672                                | 14,989                   |
| District Hot Water Heat   | \$27.0300  | /mmbtu    | 1,000,000        | 100%                       | \$2.703                                | 36,996                   |
| District Steam Heat   | \$10.5000  | /1,000 lb | 1,066,000        | 100%                       | \$0.985                                | 101,524                  |
| Fuel oil #2 (85% eff.)  | \$3.8670   | /gal      | 135,000          | 85%                        | \$3.370                                | 29,674                   |
| Natural gas (85% eff.)  | \$23.3500  | /mcf      | 1,010,000        | 85%                        | \$2.720                                | 36,767                   |
| Propane (85% eff.)  | \$4.1170   | /gal      | 91,333           | 85%                        | \$5.303                                | 18,857                   |
| Wood, pellet (85% eff.)   | \$282.0000 | /ton      | 16,000,000       | 85%                        | \$2.074                                | 48,227                   |
| Wood, birch (70% eff.)  | \$325.0000 | /cord     | 20,500,000       | 70%                        | \$2.265                                | 44,154                   |
| Wood, spruce (70% eff.)   | \$327.0000 | /cord     | 15,000,000       | 70%                        | \$3.114                                | 32,110                   |
| Coal, stoker  | \$115.0000 | /ton      | 15,200,000       | 55%                        | \$1.376                                | 72,696                   |
| Electricity (distributed): PRICE includes rate, customer charge, RCA charge, cost of fuel adjustment charge.  |            |           |                  | 0.293 watt hours = (1) BTU | \$0.228                                | per kWh                  |
| Hot water   |            |           |                  | per million BTUs           | \$27.030                               | hot water                |
| Steam   |            |           |                  | per 1,000 lbs p/month      | \$10.500                               | steam heat               |
| 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 cord of wood         |
| Fuel oil (common: "60% #2, 40% #1 blend" or "-15, #2") (delivered by truck)   |            |           |                  | 135,000 BTU/gal            | \$3.867                                | per gal                  |
| Natural gas (liquefied, trucked to Fairbanks, delivered by pipeline). NOTE: an average home in Fairbanks may use 250 CCF or 25,000 cubic feet (cf) of gas in a typical January, when natural gas is used for heating only. PRICE includes rate, customer charge, RCA. |            |           |                  | 1,010 BTU/cf               | \$2.335                                | per 100 cubic feet (CCF) |
| Propane (delivered by truck to homes)   |            |           |                  | 91,333 BTU/gal             | \$4.117                                | per gal                  |
| Coal, delivered to downtown   |            |           |                  | avg: \$115/ton             | \$115.000                              | per ton                  |

**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

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