



# Claverack Rural Electric Cooperative, Inc.

*"Powered by Excellence"*

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## Heat Cost Comparisons

We are currently experiencing high oil and gas prices. Each day we consider the current prices of energy and wonder what tomorrow will bring. The price for a barrel of oil has hit record highs many times, and it seems that this trend might continue. Many members have contacted Claverack to inquire about electric heating options. Many wonder "what is the most cost effective way to heat my home this year?"

In an attempt to answer this question we must first understand the terminology. "Heat" or "Cooling" is measured in British Thermal Units or BTU's. All heaters, furnaces or boilers produce BTU's. For our comparisons we will look at the cost per million BTU's (MBTU) of electric, propane and fuel oil. We must also consider efficiency. Every propane or oil furnace or boiler has an "efficiency rating". Typically, the newer and higher quality the model, the more efficient it is. This efficiency rating must be taken into account when computing costs because some unburned gases and some of the heat generated in these systems are lost up the chimney. Electric heat is 100% efficient because all of the heat produced is immediately applied to the living space.

A price check of a local fuel oil and propane company showed an average current cash price of \$4.40 per gallon for oil and \$2.90 for propane. Many options have historically been available from oil companies including budget plans, pre-pay programs and price caps. Your oil and propane may have been purchased during the summer at a better price, however, most industry representatives are hesitant to speculate on what prices these fuels might reach this winter. These are only the average prices and are only quoted for comparison purposes.

Electric resistance heat refers to base board heaters, radiant heat or electric furnaces. These are the most widely known types of electric heat, and what most members with electric heat currently have.

Another electric heating option is the electric thermal storage unit. This unit produces and stores heat during off peak hours when kilowatt hour (kWh) costs are much lower, providing that you are participating in the Time Of Use program. Other options include the air to air heat pump and the ground source heat pump. As you can see on the table below operating costs for these options are considerably less than electric resistance heat.

The formula to determine price per MBTU is 1,000,000 multiplied by the current unit product price. This figure is then divided by the sum of the efficiency rating multiplied by the BTU's produced by one unit of the product.

Examples are as follows:

**Fuel Oil Burner — 85 percent efficient**

$$1,000,000 \text{ BTU} \times \$4.40 = 4,400,000 \text{ divided by } 119,000 (.85 \times 140,000) = \textbf{\$36.97 per MBTU}$$

**Propane Burner — 90 percent efficient**

$$1,000,000 \text{ BTU} \times \$2.90 = 2,900,000 \text{ divided by } 82,800 (.90 \times 92,000) = \textbf{\$35.02 per MBTU}$$

**Electric Ground Source Heat Pump — 400 percent efficient**

$$1,000,000 \text{ BTU} \times \$0.09 = 90,000 \text{ divided by } 13,652 (4 \times 3,413) = \textbf{\$6.59 per MBTU}$$

**Electric Air-to-Air Heat Pump — 300 percent efficient\*\***

$$1,000,000 \text{ BTU} \times \$0.09 = 90,000 \text{ divided by } 10,239 (3 \times 3,413) = \textbf{\$8.78 per MBTU}$$

**Electric Thermal Storage — 100 percent efficient (off-peak rate)**

$$1,000,000 \text{ BTU's} \times \$0.058 = 58,000 \text{ divided by } 3,413 = \textbf{\$16.99 per MBTU}$$

**Electric Resistance (Baseboard Heaters) — 100 percent efficient**

$$1,000,000 \text{ BTU} \times \$0.09 = 90,000 \text{ divided by } 3,413 = \textbf{\$26.37 per MBTU}$$

\*residential rate

\*\*air-source heat pumps typically lose efficiencies with lower temperatures

\*\*\*off-peak rate for time of use participants

This information should help you to determine current heating costs, by comparing various energy options. Remember that regardless of the type of heat you have it is very important to have adequate insulation in floors, walls and ceilings. Members choosing to invest in electric heat in their homes should consider equipment and installation costs, along with long term operating costs. The best way to heat your home depends on your particular situation.

For further information on electric heating options, call your Claverack Rural Electric Cooperative Member Services Department at 1-800-326-9799.