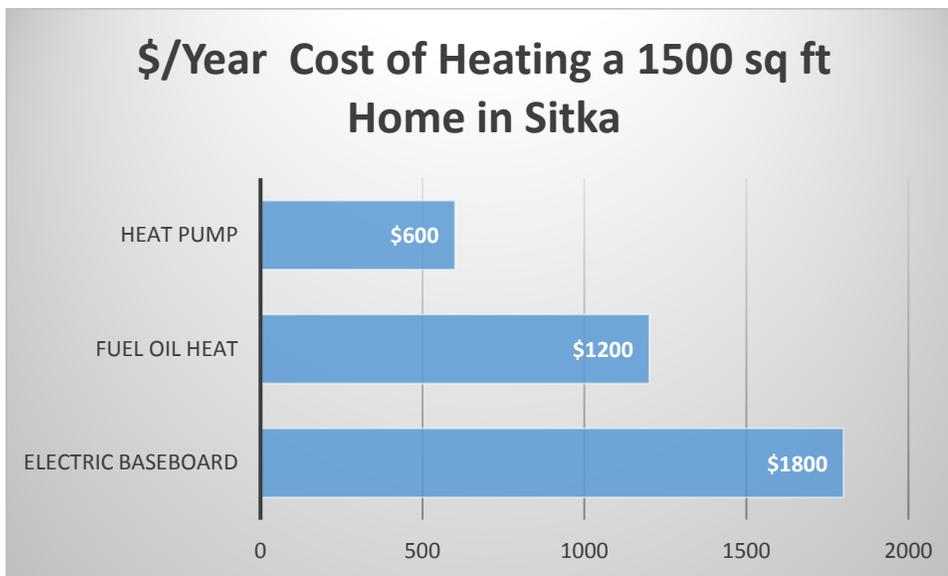


## WHY SHOULD I HEAT MY HOME WITH A HEAT PUMP?

In our 2016 Sitka community , it costs approximately \$1200 per year to heat a 1500 square foot home with a modern fuel oil heater (with \$3/gal fuel). *If you owned a heat pump in that same home, it would cost about **ONE-HALF** as much or about \$600 per year in electric cost (FY17 rate of 15cents).* A similar home with baseboard heat would cost \$1800 per year. Additionally, heating with electricity rather than fuel oil keeps those \$ here in Sitka which lowers both your electric rate and the rates for our entire community. Further, our hydro-electric system is one of the finest in Alaska and represents clean energy without carbon emissions.



### Details:

Fuel oil heating value is approximately 130,000 btu/gallon. A modern TOYO stove runs at approximately 85% efficiency or approximately 110,000 btu/gallon. At a price of \$3/gallon, that is equivalent to 36,000 btu/\$. A heat pump with a HSPF rating of 12 or 12,000btu/kw efficiency and 15 cent power will cost approximately 80,000 btu/\$. In summary, the heat pump is ½ the cost of fuel oil for the same amount of heat.

An AFUE of 90 means that 90 percent of the energy in the fuel becomes heat, while the other 10 percent is lost.

New fossil-fuel warm-air furnaces must have an AFUE of at least 78 percent. High-efficiency models will have an AFUE of 90 percent or higher. Electric furnaces generally have AFUE ratings of 95 or higher, though the cost of electricity to power these systems is typically higher than natural gas.

In contrast, heat pump efficiency is measured by its HSPF, or Heating Seasonal Performance Factor. HSPF ratings range from the minimum required of 7.7 for units manufactured after 2005 to 9.35. A heat pump with an HSPF of 8.2 is considered a high-efficiency model.

The most common type of heat pump is the air-source heat pump, which transfers heat between your house and the outside air. Today's heat pump can reduce your electricity use for heating by approximately 50% compared to electric resistance heating such as furnaces and baseboard heaters. High-efficiency heat pumps also dehumidify better than standard central air conditioners, resulting in less energy usage and more cooling comfort in summer months. Air-source heat pumps have been used for many years in nearly all parts of the United States, but until recently they have not been used in areas that experienced extended periods of subfreezing temperatures. However, in recent years, air-source heat pump technology has advanced so that it now offers a legitimate space heating alternative in colder regions.

Fuel	Furnace/boiler	AFUE
Heating oil	Cast iron (pre-1970)	60%
	Retention head burner	70–78%
	Mid efficiency	83–89%
Electric heating	Central or baseboard	100%
	Geothermal heat pump	see COP
	Air-source heat pump	see HSPF
Natural gas	Conventional	55–65%
	Mid-efficiency	78–84%
	Condensing	90–97%
Propane	Conventional	55–65%
	Mid-efficiency	79–85%
	Condensing	88–95%
Firewood	Conventional	45–55%
	Advanced	55–65%
	State-of-the-Art	75–90%

AFUE Comparison – Wikipedia

### Estimated Annual Htg Costs Per Heating System

