

# Wood Pellet Heating

## Introduction



### Arctic Energy Alliance (AEA)

The AEA is a not-for-profit society established in 1997. Our mission is: "To promote and facilitate the adoption of efficient, renewable and carbon neutral energy practices by all members of NWT society". We offer support on energy efficiency, renewable energy and sustainable energy practices for individuals, businesses, communities, and other interested groups.

We are working with governments, local and out-of-territory suppliers, and others on projects related to wood pellet heating, a viable option for an increasing number of people in the NWT.

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### What are wood pellets?

- Small cylinders of compressed sawdust or wood shavings
- About 7mm (¼ inch) across
- Up to 38mm (1 ½ inches) long.
- No glues or additives



### How are they made?

Sawdust is dried and compressed into pellets using a die. No additives are needed since lignin, naturally present in the wood, holds the pellets together. Currently almost all the pellets made in Canada are produced from waste sawdust that would otherwise have been burnt or dumped.

### Where do they come from?

Currently there are no pellets produced in the NWT, so most pellets sold in the NWT come from mills in Alberta and BC.

### Environmental benefits of wood pellets

- Wood pellets are non-toxic so spills do not cause environmental damage
- Wood pellets are considered Carbon Neutral – when burned they release the same amount of carbon as the trees absorb when they grow
- Wood pellets are a renewable source of energy



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### Are wood pellets popular?

Over 10,000 tonnes of pellets (equivalent to 5,000,000 litres of oil) are used in the NWT every year, and the amount is growing rapidly. They have been used for heating in the NWT for over 10 years and are gaining popularity because they are cheaper than heating oil, clean burning and renewable. In addition, the pellet supply options are increasing and the choice of pellet stoves, furnaces and boilers has grown.

### Is the supply of wood pellets stable?

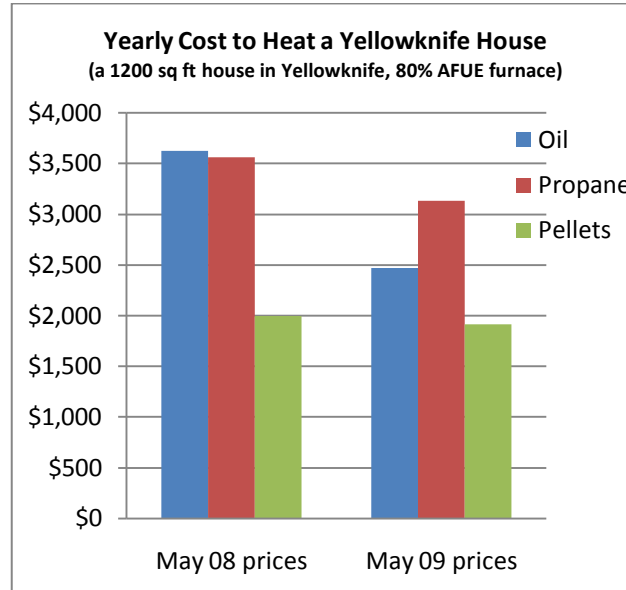
We are not likely to run out of pellets. The Canadian and world pellet markets are growing. World production was about 10 million tonnes in 2008 and Canadian production was about 2 million tonnes, from 32 pellet mills, and was expected to increase to 3 million tonnes per year by 2010. Most wood pellets produced in Canada are currently shipped to Europe, however Canadian pellet producers are eager to develop a domestic market. Heating for all NWT communities would use about 320,000 tonnes of per year, around 10% of Canadian production.

### Burning wood pellets

Wood pellets can be burned in pellet stoves, boilers and furnaces. Appliances are available to heat any size building or set of buildings. Wood pellet stoves are used to heat one room or area without being connected to a central heating system. Boilers and furnaces are connected to the central heating system and are used to heat whole houses or buildings. A wood pellet boiler can also be connected to a district heating system to heat several buildings, which is a very common approach in Europe.

### Will I save money on heating?

You should save money on your fuel bills if you use wood pellets. The amount depends on the cost of your fuel and on how much of your oil or propane you replace with pellets.



### How much will it cost?

Pellet stoves are generally \$2000 to \$3000, plus installation and additional components (such as venting, floor protection, and permits), which can cost up to as much as the stove itself depending on the complexity of the installation. Stoves are cheaper than boilers and furnaces – but the annual fuel savings are lower too. Residential boilers and furnaces cost between \$7,000 and \$12,000, plus installation, which can be around \$5000, but depends a lot on the complexity of the installation. When comparing costs, be sure to compare the full installed costs.

### Wood Stoves and Pellets

It is possible to burn wood pellets in a wood stove using a device such as the ‘Pelleteer’ basket or ‘Bradley Burner’. Many people do this without any problems, however because wood pellets have very little moisture compared to chopped wood they can burn very hot, so it must be done with care to avoid overheating. The use of a device to burn pellets could void the certification on your wood stove, and overheating damage may not be covered by the manufacturer’s warranty.

### Pellet Stoves

- Pellets cost less than oil or propane
- Fire starts at the push of a button
- Can be controlled automatically by thermostat
- Automatic fuelling – no logs to add or turn
- Fill stove with pellets every few days
- No need to open fire box, so embers don’t fly out into room
- Less risk of chimney fire than with logs
- Cannot burn logs in pellet stoves
- Needs electricity to operate
- Maintenance such as ash removal and cleaning must be performed regularly
- Pellets are usually more expensive than chopped wood per unit of heat produced.

### Pellet Boilers and furnaces

- Pellets cost less than oil or propane
- Pellet appliances are more expensive than oil or propane appliances to purchase
- Maintenance such as ash removal and cleaning must be performed regularly
- Pellet container must be filled regularly unless you have bulk storage with an automatic feed