3. Alternative Energy Development

It is highly improbable that the NWT could diversify away from imported petroleum products completely due to the present state of technology and existing economic realities, especially in the transportation sector of the economy. However, there is room for major reductions in petroleum dependency through diversification. Some alternative fuels that could provide new or larger segments of NWT energy supplies are mentioned below. The list is not comprehensive, however those described here can provide a benchmark towards further investigations.

a) Wood

Approximately 9%, or 15,094,000 hectares (37,298,000 acres) of the total Territorial land mass is productive forest. The Boreal Forests on the west side of Great Slave Lake down the Mackenzie River to the Delta comprise 37% with a mean average annual growth rate of 0.8 m^3 per hectare. The Boreal Barrens, northeast of Great Slave Lake and the Mackenzie River to the treeline, cover the remaining 63% with a mean average annual growth rate of 0.4 m^3 per hectare. These figures can be compared to the Canadian average annual growth of 1.7 m^3 per hectare.

Therefore, while the growth is slow, the total volume of wood is high, especially in per capita terms. There are many ways to utilize the energy stored in "biomass solids". The most obvious is to burn the wood in a stove or fireplace for space heat. Currently 14% of the buildings in ten Mackenzie Valley communities utilize wood to some degree. Almost 9% rely exclusively on wood. In fact, up to the late 1940's, that figure would be closer to 100%. Home ownership has an effect on the amount of buildings that utilize wood space heating. Fully 35% of privately owned homes in these 10 communities use wood while only 4% of government houses and building do likewise.

Wood can be used in other generation processes as well. It can be chipped and gasified for small scale production of electricity similar to the Snowshoe Inn experiment in Fort Providence. Since the 18 month test period (October 1981 to April 1983) the conclusion is that should the minor, yet significant, operation problems be overcome, the advantage of using such a system on a community basis would be cheaper power, increased local employment through wood harvesting, and the conversion away from petroleum products. This is definitely an area for further on-site testing.

Wood can also be converted into methanol, a type of alcohol, and used in much the same way as gasoline and other petroleum products. The conversion process is highly complex and technical and while it is currently produced from natural gas, wood waste and other biomass can be used as the feed with the price of methanol less than gasoline assuming methanol is not subject to the taxes and royalties that currently apply to gasoline.