Esso's development plan and pipeline system, as outlined to the Committee, anticipates major production commencing in 1989 building up to 64,000 cubic metres (400,000 barrels) a day by 2000. Alternatively, Esso proposes a demonstration oil pipeline project to match the capacity of, and join up with, the Norman Wells pipeline. Gulf, on the other hand, did not see production reaching 48,000 cubic metres (300,000 barrels) a day before the mid-1990s, possibly utilizing a marine system. The development plan in the joint EIS tends to reflect Dome's more optimistic timing although changes in the market situation may retard the project.

The EIS development plan for the Beaufort Sea Region includes both tanker and pipeline options. Both options cover the probable requirement to commence on a small scale, either by a smaller version 80,000 tonne (503,000 barrel) tanker to transport oil from Tarsiut at the rate of 3,200 cubic metres (20,000 barrels) per day or by a small-diameter pipeline of almost identical capacity, connecting to the Norman Wells pipeline. As more reserves are proven, the capacity of either system would be expanded. The descriptions which follow address cases when intermediate/high rates of production have been achieved.

During the early years of production, the industry expects to transport only oil out of the Beaufort Sea Region. Eventually, natural gas will require shipment to markets but probably not before the mid-1990s. These products, as well as such others as natural gas liquids and methanol, could be transported by tanker or pipeline.

The oil would be gathered by buried pipelines onshore and by subsea pipelines offshore to an overland pipeline or to an offshore tanker-loading terminal such as the APLA described previously, depending on the mode of transport chosen.

1. Pipelines

An overland pipeline transporting oil from the Beaufort Sea-Mackenzie Delta Region would originate near North Point on Richards Island at the northern end of the Mackenzie Delta. It would extend along the Mackenzie Valley for a distance of 2,250 kilometres to Fort Simpson, from there to Zama in northwestern Alberta and on to a southern terminal near Edmonton to tie into the Interprovincial system for transport to markets in Eastern Canada (Figure 8). A pipeline with an outside diameter of 1.1 metres (42 inches) would be required to satisfy the high production level. For lower production rates, smaller diameter lines could be utilized; a 30 to 40 centimetre (12 to 16 inches) buried line is being considered to link up with the Norman Wells pipeline. Construction would take place over four years, mainly in the winter months. Existing transport systems would be used as much as possible to bring in construction materials, equipment, fuel and personnel.

The pipeline right-of-way would comprise a corridor of land 37 metres wide to accommodate trenching and backfilling. Twenty-four pumping stations would be needed. Each pumping station would require an area of 182 metres by 304 metres. Altogether, land requirements north of 60° would comprise 5,600 hectares (13,830 acres).

Based on the Trans-Alaska oil pipeline experience, one-third of the pipeline would be elevated above ground, in the region where permafrost is prevalent and the warm oil could cause local thawing and settlement. Two-thirds of the line would be buried in the conven-