

Reserves

At the end of 1978 Canada's proven liquid hydrocarbon reserves, including conventional crude oil and natural gas liquids, amounted to 1.32 billion cubic metres made up of approximately 1.0 billion of crude oil and 320 million of natural gas liquids. These estimates do not include oil in the Athabasca bituminous sands. At the 1978 annual production level of 80.7 million cubic metres the life index (reserves-to-production ratio) for conventional crude oil and natural gas liquids was approximately 16 years.

The reserve position of most provinces declined except in Alberta where total reserves including natural gas liquids increased because ethane reserves have been included for the first time. The Canadian Petroleum Association (CPA) estimated Alberta's remaining recoverable reserves of crude oil at 931.6 million cubic metres and natural gas liquids at 214.7 million. Together, these represent about 87% of Canada's proven reserves. Saskatchewan's reserves of liquid hydrocarbons declined from 121.2 million cubic metres to 118.8 million and accounted for 9% of the national total.

Natural gas liquids from recently discovered, but as yet unproduced, gas fields in the Mackenzie Delta are included in the estimates but oil from the frontier regions is not, because discovered reserves of crude oil in the territories are negligible and currently well beyond economic reach.

At the end of 1978 the CPA estimated Canada's proven reserves of marketable gas at 2.3 trillion cubic metres. Using the 1978 level of production of 181 million cubic metres a day the life index increased to 35 years in 1978 from 22.95 years in 1977. Gross additions to reserves amounted to 157.2 billion cubic metres, including 71.4 billion due to extensions to existing fields, 28.7 billion to new discoveries and 57.1 billion to previously estimated field reserves. Gross additions of marketable gas reserves increased in various areas by the following percentages: Saskatchewan by 7% to 35.3 billion cubic metres; Alberta by 5% to 1.5 billion; the Arctic islands by 5% to 306.6 billion; British Columbia by 4% to 35.3 billion; and Ontario by 1% to 9.1 billion.

Alberta accounted for 67% of Canadian reserves at the end of 1978, British Columbia 9% and the territories 22%.

According to an appraisal of Alberta's oil sands completed in 1973 by the AERCB, ultimate recoverable reserves of synthetic crude oil from all of Alberta's bituminous deposits amount to 39.7 billion cubic metres. Of this, approximately 4.2 billion is considered recoverable by open-pit mining methods. Most of the oil from deeper formations will only be recoverable by on-site thermal or other techniques still being developed.

In addition to these known resources, the Geological Survey of Canada estimated in 1975 that between 2.5 and 5.4 billion cubic metres of combined crude oil and natural gas liquids remained to be discovered at the high (90%) and low (10%) probabilities respectively, about 80% of it in frontier areas. For natural gas, between 4.1 and 8.3 trillion cubic metres may exist at the high and low probability levels respectively, about 90% of it in frontier areas.

Oil refining, gas processing

The rate of growth of petroleum product demand in recent years has been reduced because of a combination of factors — a slowdown in economic activity, higher product prices and energy conservation efforts. Surplus refining capacity has resulted, mostly in the East. At the end of 1978 there were 39 operable refineries in Canada with a total capacity of 400 900 m³/d compared to 38 in 1977 with a capacity of 384 300 m³/d. Refinery runs in 1978 were about 289 233 m³/d compared to 287 267 m³/d in 1977.

Domestic demand for natural gas in Canada increased 1 003 million cubic metres a day to an estimated 42 526 million and exports were down by 11.9%.

Natural gas processing capacity at the end of 1978 was 496.8 million cubic metres, about 75.6 million over 1977. This increase reflects the addition of a record number of new plants and some expansion to existing facilities. With major new gas reserve discoveries in 1978 and 1979, gas processing capacity will probably increase substantially. Plant output includes pipeline gas, propane, butanes, pentanes plus and sulphur.