and Toronto. Trans Northern Pipe Line Company, once a pipeline carrying products from Montreal to markets in Ontario as far west as Hamilton, now has a two-way flow. Products from Montreal are now delivered only in the area east of Brockville, including the Ottawa valley; products from refineries west of Toronto are carried eastward as far as Kingston.

In Western Canada, the recently constructed Petroleum Transmission Company pipeline carries propane, butane and pentanes plus from a plant at Empress in Alberta to Winnipeg in Manitoba, a distance of 578 miles. The predominant product carried is propane which is also marketed at various locations along the line. Elsewhere in Alberta, the Rimbey Pipe Line Company transports condensate from the Rimbey gas plant and takes deliveries from the Rangeland condensate pipeline to serve areas north of Calgary as far as Edmonton. Also going to Edmonton are three separate pipelines, one each for propane, butane and pentanes plus, running from the Leduc conservation gas plant. Near Calgary, Home Oil Company operates a condensate pipeline to serve refineries there and also to make deliveries to the Rangeland condensate pipeline. There are other condensate pipelines in Alberta, most of which are associated primarily with production and do not serve end users. During 1966, the Rangeland Pipeline Division of Hudson Bay Oil and Gas Company Limited laid a 191-mile, 12-inch condensate pipeline in western Alberta from Sundre to Pincher Creek, to tie in with the existing system that connects to pipelines in the United States.

Pipeline Tariffs.—Typical of the charges to move crude oil are the following pipeline tariffs:—

	Charge	*Distance*
	cts. per bbl.	miles
Edmonton to Vancouver	40.0	718
Edmonton to Regina	20.7	438
Edmonton to Winnipeg	30.2	847
Edmonton to Sarnia	48.0	1,743
Edmonton to Port Credit	51.0	1,899
Portland to Montreal	10.5	236

Natural Gas Pipelines.—Natural gas now accounts for 17 p.c. of Canada's energy requirements and, in addition, large volumes are delivered to markets in the United States. Although relatively small amounts of natural gas are transported in other areas of the world as a liquid under refrigeration, all of the gas used in Canada as well as in North America as a whole is moved by pipeline. Despite the current importance of natural gas, major gas pipelines were established in Canada only in recent years and it was not until 1958 that natural gas was used in provinces as far east as Quebec. Now, however, there is an extensive network of pipelines serving most centres of population from Vancouver to Montreal and delivering gas to several points of export on the United States border.

Since the mid-1950s when large-volume gas removal was authorized from Alberta, capital expenditures in gas pipeline construction have constituted a significant proportion of the country's total outlay for transportation facilities. In 1966, capital expenditures of $74,700,000 were made, and forecast expenditures for 1967 amount to $112,000,000. Thus, it is estimated that cumulative total expenditures for the period 1955-67 will amount to $1,367,000 for gathering and transmission systems, with an additional $880,000,000 for distribution systems.

Pipelines are usually categorized under three headings—gathering lines, transmission lines and distribution lines. The gathering lines are those that take gas from the wells or separators to the field gate or some other specified point. Transmission lines are normally the large-diameter pipelines that take gas from gathering lines and deliver it to the distributors principally at the 'city gate'. In total, there were 45,250 miles of all types of gas pipeline in operation at the end of 1966, of which 5,100 miles were gathering, 14,600 miles were transmission and 25.550 miles were distribution.