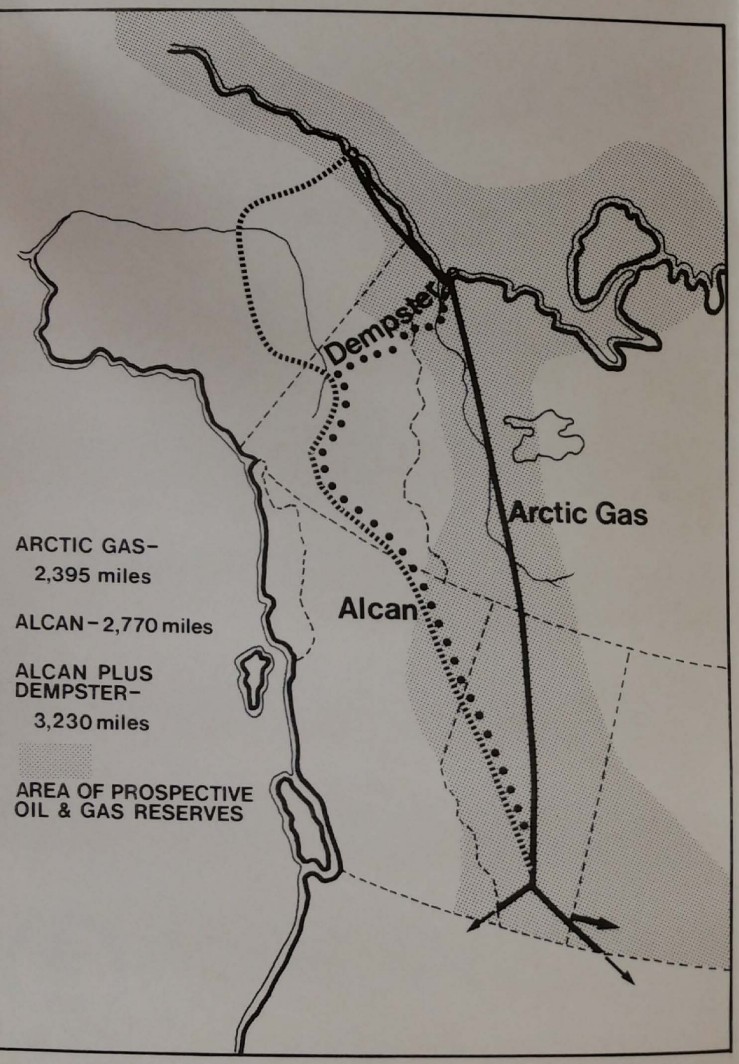
A. Earle Gray
Director,
Public Affairs

Canadian Arctic Gas Study Limited
Suite 200, Commerce Court East
Toronto, Ont. M5L 1E2 (416) 868-0721

SOME QUESTIONS ABOUT THE ARCTIC GAS PIPELINE

ARCTIC GAS PIPELINE

Why one is better than 2



I N D E X

The Arctic Gas route for the transportation of natural gas from the western arctic is 835 miles shorter than the Alaska highway and Dempster routes. It would also reduce by hundreds of additional miles the pipeline construction required to connect future gas discoveries along a 1,200-mile sedimentary belt stretching from the arctic coast to Alberta. Arctic ecologist Dr. L.C. Bliss of the University of Alberta says that this "holistic approach of a single northern gathering system bringing gas from the known and highly probably new fields in one pipeline is the most sound ecologically, environmentally, economically and probably socially."

AN ENERGY DECISION FOR CANADA

The Government of Canada will decide soon on competing pipeline applications for the transportation of natural gas from the western arctic.

Arctic Gas believes that a single pipeline to transport natural gas from both the North Slope of Alaska and the Mackenzie Delta will best serve the interests of Canada because it will:

-- provide the only presently assured means of transporting Delta gas to Canadian consumers;

-- reduce pipeline construction across the north by at least 800 miles, possibly as much as 2,000 miles;

-- reduce the use of land, steel, horsepower and fuel, saving annually enough Canadian gas to heat 200,000 Canadian homes;

-- provide employment and other opportunities sought by northern residents, both native and non-native peoples.

-- create important economic benefits for the Canadian economy, including increased jobs and industrial activity.

THE ARCTIC GAS PROJECT

Arctic Gas has spent more than seven years of investigation and study to determine the best route to transport natural gas from the western arctic of Canada and Alaska.

The optimum route that has been selected offers these advantages:

-- It is 835 miles shorter than the shortest alternative pipeline routes for the transportation of both Delta and Prudhoe Bay gas.

-- It could connect future gas discoveries along 1,200 miles of sedimentary basins from Prudhoe Bay, along the arctic coast and up the Mackenzie Valley to the Alberta border.

-- It avoids crossing numerous mountain ranges, and is thus less difficult and costly for pipeline construction and operation.

Sponsors of the Arctic Gas project began initial studies on the transportation of natural gas from the western arctic in 1970. Four years later, in March, 1974, applications for approval to construct the proposed Arctic Gas pipeline were filed with the governments of both Canada and the United States. By 1977, expenditures by Arctic Gas sponsors amounted to $130 million. This included more than $60 million for engineering, design, construction and route studies, and $20 million for the most extensive environmental research program conducted by industry. Other major expenditures included studies of northern regional socio-economic matters, national economic effects, and financing as well as the cost of regulatory procedures.

THE ENERGY OF EIGHT JAMES BAY PROJECTS

The main line portion of the Arctic Gas pipeline will be 48-inches in diameter with a design gas supply volume of 4.5 billion cubic feet per day. This is equal to the daily energy output of eight James Bay hydro-electric projects.

The pipeline will stretch 2,400 miles -- 200 miles along the Alaskan coast would be owned and operated by Alaskan Arctic Gas Pipeline Company, and 2,200 miles across northern and western Canada would be owned and operated by Canadian Arctic Gas Pipeline Limited.

Gas will be delivered at four principal points for transmission by other pipelines to the final markets.

Delta gas for the British Columbia market would be delivered to Westcoast Transmission at a point near the junction of the borders of Alberta, B. C. and the Northwest Territories. Delta gas for markets in Saskatchewan, Manitoba, Ontario and Quebec would be delivered to TransCanada PipeLines at Empress on the Alberta-Saskatchewan boundary.

North Slope gas for U.S. midwest and eastern markets would be delivered on the Saskatchewan-Montana border. North Slope gas for markets in California and the U.S. Pacific northwest would be delivered across the southeast corner of B.C.

More than two million tons of steel pipe on the Arctic Gas system would be buried from four to eight feet beneath the surface. The surface over the buried pipe would be re-vegetated. The gas would be chilled to avoid ground and ice thawing in areas of permafrost. Possible problems of pipe frost heave or settlement in areas of discontinuous permafrost would be avoided by insulation of the pipe, by selective electrical heat traces, and by underground pipe supports, where required.

Compressor stations would be spaced approximately every 50 miles. Initially, 20 compressor stations with a combined 800,000 horsepower would be installed to provide a delivery capacity of 3.25 billion cubic feet of gas per day. Installation of additional stations to provide a total of more than 1.5 million horsepower could increase the capacity to the design volume of 4.5 billion cubic feet per day. Beyond that, the capacity could be expanded incrementally by installing short sections of additional line (called "loops"), together with more horsepower.

If government approvals are secured, about five years would then be required to complete the pipeline, allowing for purchase and delivery of pipe, materials and construction equipment; preparation of wharves and stockpiling sites, and actual pipe laying. A peak labor force of some 8,000 men would be involved in construction.

North of the 60th parallel, construction would be limited to the winter months. It would require two winters of pipe-line construction prior to the delivery of the first gas from the Mackenzie Delta, and a third winter for construction of the section between the Delta and the Alaskan North Slope.

If final approvals were obtained in 1977, initial deliveries of Delta gas could start by mid-1982, with the start of Alaskan gas deliveries in mid-1983.

The pipeline is planned to handle an initial delivery volume of 1.25 bcf/d of Delta gas and two bcf/d of Alaskan gas. With continuing discovery of the large potential gas resources in the western arctic, it is anticipated that deliveries could reach the design volume of 4.5 bcf/d by the fifth year of pipeline operations -- or about 10 years from now.

COST $7.5 BILLION TO FINANCE

The financing that would have to be raised to build the Canadian Arctic Gas pipeline is estimated at $7.5 billion, including provision of $1.9 billion, for escalation of costs above 1976 levels. An additional $1.9 billion would be committed and available if needed from the sponsors and lenders to meet any unanticipated cost over-runs. The U.S. and Canadian Governments would be asked, in return for payment, to provide any additional assurances that financial lenders may require.

Beyond this financing required to start gas deliveries from the Delta, additional capital required to expand the pipeline to design capacity would be provided out of operating revenues.

One-quarter of the required financing would be in the form of equity or ownership capital, and the remaining three-quarters would be borrowed.

Most of the equity capital would be sought from Canadian-owned firms and Canadian investors, while most of the debt capital would be sought from foreign lenders. Arctic Gas also plans a public offering of securities to Canadian investors.

Arctic Gas is sponsored by 11 Canadian firms (eight of which are Canadian-owned) and 7 U.S. firms. The Canadian-owned firms include regulated utility companies which transport or distribute two-thirds of the natural gas used in Canada.

Canadian sponsors are:

Alberta Natural Gas Company
Canada Development Corporation
Greater Winnipeg Gas Company
The Consumers' Gas Company
Gaz Metropolitain
Gulf Oil Canada Limited
Imperial Oil Limited
Northern and Central Gas Corporation Limited
Shell Canada Limited
TransCanada PipeLines Limited
Union Gas Limited

U. S. sponsors are:

The Columbia Gas System, Inc.
Michigan Wisconsin Pipe Line Company
Natural Gas Pipeline Company of America
Northern Natural Gas Company
Panhandle Eastern Pipe Line Company
Texas Eastern Transmission Corporation
Pacific Lighting Corporation

ARCTIC GAS AND ALCAN: WHY ONE IS BETTER THAN TWO

The proposed Alaska highway system follows a great arctic circle route to carry Alaskan gas across the northern half of the continent in a series of separately-owned pipelines linked together like a chain of sausages.

The Alcan route via Dawson and Whitehorse covers 2,768 miles to carry only Alaskan gas -- 373 miles more than the Arctic Gas route which would carry both Alaskan and Canadian gas to the same delivery points. If it later became feasible to build the 460-mile Dempster lateral from Dawson to connect the Delta gas, the total route would be 3,228 miles, or 835 miles longer than the Arctic Gas route.

This 3,228-mile Alcan-Dempster route would pick up gas from only two points along the 1,200-mile northern belt of prospective gas-bearing sedimentary rocks that stretches from the Alaskan arctic coast to Alberta. Hundreds of miles of additional pipeline would have to be built across the north if the full gas resources of this sedimentary trough are ever to be brought to markets and utilized.

From Prudhoe Bay the route of the Alcan pipeline extends south along the Alyeska oil line (actually crossing the oil pipeline more than 40 times) to Fairbanks; in a crooked line from there to Dawson, Yukon Territory, along the Yukon and Alaskan highway past Whitehorse, across northeastern British Columbia, and through Alberta.

The section across Alaska would be owned and operated by Alcan Pipeline Company; across the Yukon by Foothills Pipe Lines (Yukon) Ltd.; across B.C. by Westcoast Transmission Company, and across Alberta by Alberta Gas Trunk Line.

To deliver volumes of 2.25 billion cubic feet per day from each of the two producing areas in the Delta and the Alaskan North Slope, to the same points as the Arctic Gas pipeline, the Alcan and Dempster pipelines would require looping of the mainline south of the point of connection at Dawson, and an additional:

-- 700,000 tons of steel;

-- more than one million horsepower;

-- $4 billion capital investment.

At planned supply volumes the fuel used by the Alcan and Dempster systems attributable to the movement of just Delta gas would be 30 trillion BTU more each year than used by the single Arctic Gas pipeline -- enough extra fuel to heat 200,000 Canadian homes.

The additional transportation cost for Delta gas by this longer and less efficient route is estimated at a minimum 40 cents per thousand cubic feet. At the planned supply volumes, the additional cost to transport this volume of Canadian gas would amount to $900,000 every day; more than $300 million per year; more than $6 billion during a 20-year period.

At minimum start-up transportation volumes of 0.8 billion cubic feet per day from the Delta and 2.0 bcf/d from the North Slope, the added cost to transport Delta gas by the Alcan-Dempster system is estimated at more than $100 million per year.

No application has been made to build a Dempster pipeline, and there is no assurance that it would ever be feasible or financeable.

ENERGY AND ENVIRONMENT: THE HOLISTIC APPROACH

In his report to the Minister of Indian Affairs and Northern Development, Mr. Justice Thomas Berger has recommended that no pipeline should be approved along the 372-mile route proposed by Arctic Gas to transport Alaskan North Slope gas across the coastal plains of Alaska and northern Yukon to connect with the gas reserves in the Mackenzie Delta.

Mr. Justice Berger did not find that pipeline construction and operation as proposed by Arctic Gas is environmentally unacceptable. He found that construction work on the pipeline might not be limited to the winter months, that it might lead to a second gas pipeline, to an oil pipeline, and to permanent roads, and that the cumulative effect of these would have an intolerable impact on the environment and wildlife resources of the coastal plains.

This coastal section of the Arctic Gas route includes 195 miles in Alaska and 177 miles in the northern Yukon. Following two years of public hearings, the staff of the U.S. Federal Power Commission; Judge Nahum Litt, the FPC presiding hearing Judge, and the commissioners of the FPC, all found the Arctic Gas route to be environmentally acceptable, with appropriate controls.

Arctic Gas has testified that it will not build this section in the summer months, will not construct permanent gravel roads here, and would accept a government condition which would completely prohibit this. In addition:

-- there is a low probability of a second gas pipeline, an oil pipeline and permanent roads being sought along this route and that they could, in any event, be precluded if found environmentally unacceptable;

-- the alternative to connecting the Alaskan and Delta gas for transportation by a single pipeline, as proposed by Arctic Gas, will be the construction of two separate gas pipelines across the north, with greater combined environmental impacts as well as large conservation penalties.

These factors have led environmental and ecological authorities to conclude that the Arctic Gas route is preferable.

"...as an ecologist, I favor the coastal land route from Prudhoe Bay and not the unstudied Alcan pipeline route for the reasons that gas will be brought south from the Delta and more gas will be found offshore in the Beaufort Sea westward," Dr. L. C. Bliss, Department of Botany, University of Alberta, told a University of Toronto seminar on May 12, 1977. "The holistic approach of a single northern gathering system bringing gas from the known and highly probable new fields in one pipeline is the most sound ecologically, environmentally, economically and probably socially. A holistic approach to current and potential future pipeline plans is needed now."

Dr. Bliss noted that "no other major project in North America has spent so much money to reduce the environmental impact of its proposal." He said that "sections of the route have been modified, location of compressor stations moved, and most significantly, the timing of construction in relation to use of snow roads, migrating caribou and waterfowl, and calving beluga whale, were set as a result of these studies."

"... the combination of two pipeline corridors across the tundra and coniferous forest zones in the place of one route does not make sense environmentally," Dr. A.W.F. Banfield of Brock University, St. Catharines, former Director of the Natural Resources Museum, testified to the FPC. "The combined environmental impact on the natural resources of northwest North America would be approximately double."

An independent panel of ecologists and environmentalists also told the Alaska Highway Pipeline Inquiry at Whitehorse on May 17 that the coastal route proposed by Arctic Gas is preferable to the Alcan pipeline route with a connecting lateral to the Delta by way of the Dempster highway.

The "Arctic Gas project which efficiently connects the Prudhoe Bay field to the Mackenzie Delta field, over the shortest route, becomes not only the least costly project, but the environmentally superior project," according to the final argument of the FPC staff on April 8, 1977.

THE NEED FOR ENERGY

Canada needs new supplies of energy to

-- meet demand growth;

-- offset declining supplies of our principal source of energy, oil and natural gas from the western provinces.

Western Canada oil production has amounted to about half of Canada's total energy needs; natural gas supplies one-quarter.

New reserves of oil and natural gas are not being found in the western provinces as fast as they are being produced:

	Proved Remaining Reserves of Oil and Gas Liquids in Western Canada	Remaining Reserves of Natural Gas in Western Canada
1971	10.4 billion bbls.	59.9 trillion cu. ft.
1976	8.2 billion bbls.	59.2 trillion cu. ft.

Source: Canadian Petroleum Association

Oil production has declined by nearly 25 percent from its 1973 peak, and will drop nearly another 25 percent by 1985.

Western Canada Oil Production

1973 -- 1,963,000 barrels per day
1976 -- 1,434,000 barrels per day
1985 -- 1,000,000 barrels per day

Forecast: National Energy Board, 1977.

In 1973, oil production exceeded demand for net exports of 300,000 b/d. In 1977, demand will exceed production, with net oil imports of 300,000 b/d, costing $1.8 billion.

Natural gas production from western Canada is expected to follow a similar pattern, and peak in the early 1980's.

By 1985, total production of both oil and natural gas from western Canada is expected to be 25 percent below the 1973 peak rate:

Combined Western Canada Oil & Gas Production

1973 -- 3,100,000 barrels oil equivalent per day
1976 -- 2,600,000 barrels oil equivalent per day
1985 -- 2,300,000 barrels oil equivalent per day
1990 -- 1,900,000 barrels oil equivalent per day

Assuming domestic demand increases 3.5 percent annually, vs. 5.5 percent historically, supplies of oil and gas will fall short of matching 1985 domestic demand by an amount equivalent to one million barrels per day of oil.

Domestic Demand and Supply of Oil and Natural Gas

(millions of barrels per day of oil equivalent)

	Domestic Demand	Western Canada Supply	Surplus (Deficit)
1973	2.3	3.1	0.8
1976	2.4	2.6	0.2
1985	3.3	2.3	(1.0)
1990	4.4	1.9	(2.5)

With an anticipated oil import price of at least $20 per barrel (compared with $14 per barrel now) the cost to import one million b/d of oil in 1985 would exceed $7.5 billion per year.

ANOTHER ENERGY CRUNCH COMING?

Recent authoritative studies on the outlook for world energy supply and demand concur that:

-- world demand for oil will probably exceed available supplies within the next 10 to 20 years, possibly sooner;

-- well before this happens, tightening demand pressures will likely cause further sharp rises in oil prices, together with risks of supply interruptions;

-- greater energy conservation and increased efforts to develop new energy supplies are both matters of crucial urgency.

The findings are confirmed in reports within the past year from a 15-nation energy study co-ordinated by the Massachusetts Institute of Technology, by Canada's Department of Energy, the Japan Petroleum Association, the International Energy Agency, the recent report to U.S. President Carter by the Central Intelligence Agency, the U.S. Federal Energy Administration, the Organization for Economic Co-operation and Development, the Council on Foreign Relations, the Walter Levy firm of petroleum economic consultants, and others.

In light of these findings, Canada's increasing reliance on imported oil is a matter of growing concern. This year, net imports from OPEC nations will account for nearly 20 percent of Canadian petroluem consumption. But by 1985, this will increase to more than 50 percent.

Arctic Gas believes that this creates an added urgency to gain access to the natural gas reserves in the Mackenzie Delta by the earliest possible date.

The 15-nation world energy study sponsored by MIT concluded in May that demand for oil in the non-Communist world will probably exceed available supplies starting sometime between 1985 and 1995, and that shortages could occur as early as 1981. Prof. Carroll Willson of MIT, director of the study, concluded that the industrialized world"must drastically curtail growth in the use of energy and move massively out of oil and into other fuels with wartime urgency."

The CIA report to President Carter in April found that "After 1980 demand for OPEC oil will rise rapidly... The ability and willingness of OPEC countries to meet this demand is far from certain... The rising pressure of oil demand on capacity in the early 1980's is bound to cause oil prices to rise well in advance of any actual shortage."

Prof. Dankwart A.Rustow of City University, New York, in the April issue of Foreign Affairs, concluded: "In the next five to ten years, the industrial world's demand for oil from the Organization of Petroleum Exporting Countries is likely to catch up with the amounts that OPEC countries will be able or willing to make available for export... there is serious danger of physical shortages of oil throughout the non-communist world, of a second price jump comparable in amount to that of 1973-74."

Prof. Donald Mackay, Associate Director, Institute for Environmental Studies, University of Toronto, writing in the Globe and Mail May 14, stated: "Canada's energy supply situation is increasingly precarious and there must be massive developments of coal, nuclear power and frontier oil and gas to satisfy the energy demands of the 1980's and 1990's."

Energy Minister Alastair Gillespie, in 1976: "The growing gap between our energy demands and our ability to supply them from domestic reserves...carries with it economic and political risks which the Government of Canada views with concern."

Arctic Gas believes that increased utilization of natural gas offers one effective means to help increase the security of Canada's energy supplies.

Natural gas supplies one-quarter of Canada's total energy needs, and in Quebec, only five percent. In the United States, prior to recent supply curtailments, gas supplied one-third of total energy demand.

Yet two-thirds of potential new hydrocarbon energy supplies in Canada are in the form of natural gas, according to a report by the Geological Survey of Canada, released in April.

"... natural gas clearly has to be one of our major options in reducing our dependence on foreign oil," Energy Minister Alastair Gillespie told the House of Commons Standing Committee on Natural Resources and Public Works, March 8, 1977.

THE DELTA GAS SUPPLY

The largest potential increase in Canada's natural gas supply lies in the area of northern Canada that would be connected with the proposed Arctic Gas pipeline, based on estimates by the Geological Survey of Canada.

The Arctic Gas pipeline would connect to markets the discovered and potential gas reserves in the Mackenzie Delta-Beaufort Sea basin, and the Territories mainland area, in and adjacent to the Mackenzie Valley.

The GSC estimates potential new gas reserves for the major exploration regions of Canada as follows.

	90% Probability	50% Probability
Delta-Beaufort & Mackenzie Valley	45 tcf	70 tcf
Western Canada	30 tcf	38 tcf
Arctic Islands	24 tcf	53 tcf
Atlantic & Labrador offshore	27 tcf	62 tcf

Source: Oil and Natural Gas Resources of Canada 1976: Energy, Mines and Resources, Ottawa.

Of the potential gas reserves of 45 tcf in the Arctic Gas supply area at the 90 percent probability, the Delta-Beaufort area is credited with 39 tcf, and the Mackenzie Valley region with 6 tcf.

Reserves already discovered in the Arctic Gas pipeline supply area are estimated by the GSC at 6.5 tcf in the Delta-Beaufort basin, and one tcf for the Mackenzie Valley, including less than 0.5 tcf near the NWT-B.C. border which is already connected by pipeline.

Just the presently discovered reserves could:

-- increase present gas supplies used in Canada by 20 percent over 20-year period;

-- displace oil imports costing $17 billion at today's prices and $25 billion at projected 1985 prices.

-- heat 2.5 million Canadian homes for 20 years.

THE NATIONAL BENEFITS

The Arctic Gas pipeline offers:

-- an improvement in Canada's balance of payments, through a reduction in the growth of oil imports, and export revenues from the transportation of Alaskan gas;

-- savings for the Canadian economy in the cost of energy;

-- increased security of energy supply.

BALANCE OF PAYMENTS

Concern about Canada's balance of payments reflects trends in national output and productivity, the rising cost of interest on foreign debt, and the prospect of large oil imports at high prices.

The deficit in the current account balance of payments (trade in goods and services) has increased from an average of $0.3 billion per year during the decade ended in 1973, to an annual rate of $5.4 billion during the fourth quarter of 1976.

Net foreign debt increased from $28 billion in 1970 to $48.5 billion at the end of 1976, and now amounts to $2,200 per capita. Net outflow of funds for dividends and interest on foreign debt amounted to $2.56 billion in 1976.

The inevitable consequence of a large trade deficit are: 1) increased foreign borrowings; 2) increased foreign holdings of Canadian equities; 3) a reduction in the exchange value of the Canadian dollar; or 4) a combination of these.*

Foreign borrowings may increase the balance of payments deficit by increasing the interest payments on foreign debt; or may help reduce the deficit by increasing national output and productivity, depending on how the borrowed funds are used. Sale of equity abroad increases foreign ownership of Canadian industry. Reduced exchange value of the Canadian dollar worsens terms of Canada's trade "and thus inpinges on the real welfare of Canadians" (Beattie).

The Arctic Gas pipeline offers a greater improvement in Canada's trade position than any other proposed new industrial undertaking. It would do this by reducing the growth of oil imports, and by earnings resulting from the transporting of Alaskan gas.

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*See "Impact on the Canadian Economy," written direct testimony of J.R. Beattie, former Senior Deputy Governor, Bank of Canada, to the National Energy Board, Octover, 1976.

Balance of payments contribution from Delta gas supply plus transportation export earnings would average $1.9 billion per year at initial delivery rates, and $3.2 billion per year at projected pipeline volumes.

Charges for transporting Alaskan gas would earn revenues estimated at $7.8 billion over a 25-year period (more than $300 million per year), after deduction of interest, dividends and debt retirement on all foreign financing for the pipeline.

Initial deliveries of 1.25 bcf/d of Delta gas are equivalent to a supply of 220,000 b/d of oil which, at $20 per barrel, would cost $1.6 billion per year to import.

Projected deliveries of 2.25 bcf/d of Delta gas by the fifth year of pipeline operation is equivalent to a supply of 400,000 b/d of oil which at $20 per barrel, would cost $2.8 billion per year to import.

ECONOMIC BENEFITS

Government revenues and investor profits are part of the price which is paid abroad for purchases of imported oil, and part of the price which stays in Canada for purchases of domestic energy.

Thus the cost of domestic energy less government revenues and earnings of Canadian-owned investment, compared with the price of imported energy, represents a net economic benefit to Canada. An additional economic benefit of the Arctic Gas pipeline is the export revenues from transporting Alaskan gas.

Measured on this basis, the Arctic Gas pipeline would generate an estimated $47 billion in economic benefits for Canada during a 25-year period, assuming:

-- a price of $20 per barrel for imported oil;

-- pipeline deliveries of 2.25 bcf/d each from the Delta and North Slope, by the fifth year of pipeline operation.

Net Economic Benefits

Value of Delta gas delivered by Arctic Gas pipeline		$53.91 billion
Charges for transporting Alaskan gas		14.03
		$67.94
Less (1976 costs + escalation)		
Pipeline const. & operation	$ 6.18 billion	
Interest & dividends on foreign investment	6.24 billion	
Exploration & Production	8.49 billion	
	$20.91 billion	20.91
NET ECONOMIC BENEFIT		$47.03 billion

Source: Revised Benefit-Cost Analysis, Canadian Arctic Gas, filed with National Energy Board, March 1977.

The net economic benefits are available in the form of government revenues, earnings on Canadian investments, and savings to consumers as compared with the price of imported oil. How the benefits will be divided is primarily a function of government policy and regulations.

Government revenues in the form of production royalties and taxes will account for a major portion of the net economic benefits.

Income, property and other taxes on the pipeline alone are estimated at more than $500 million per year by the sixth year of pipeline operations. Of this, charges for the transportation of Alaskan gas would generate more than $300 million per year in Canadian taxes.

THE NORTHERN BENEFITS

Regional benefits which would result from the Arctic Gas pipeline are at least as important to the people of the Northwest Territories as the national benefits are to the rest of Canada. For the N.W.T., the pipeline would:

-- increase employment;

-- promote economic self-reliance and development of regional self-government;

-- offer a means for native land claims settlements to provide economic rewards and opportunities;

-- provide a source of low-cost fuel for northern communities near the pipeline.

Thirty thousand people live in the valley and delta area of Canada's largest river -- the Mackenzie River in Northwest Territories.

They live in 23 communities, where the populations range from 10,000 to less than 50.

More than half are native peoples -- Indian, Inuit and Metis.

It is one of the fastest growing populations in the world. In the early 1960's, the birthrate was five-times the national average. It is still more than double.

Half the people who live here are under 16 years of age.

In 1950, less than 15% of the young people in the north had received any formal schooling. By 1970, more than 95% of school-aged children were in school.

Today, more than 40 percent of the people who live here are school students.

Now, and in the years ahead, these students will be finishing school with the idealism, the confident expectations, and the high aspirations of all youth.

They face a northern world that has changed since the time their parents were youths.

Traditional hunting, trapping and fishing pursuits remain important. But there are already too many people to be sustained by this alone. Nor can traditional pursuits entirely satisfy present aspirations. There is a demand for the same level of prosperity, goods, services and opportunity that the people of southern Canada take for granted.

But opportunities are limited. Unemployment rates are high. In many native communities, more than a quarter of the adult population is out of work and actively seeking jobs. Federal government expenditures -- amounting to more than $8,000 per year for every northerner -- is the main economic prop. Welfare expenditures are nine times the national average.

Northerners want to make their own choices -- whether it's living off the land, working for wages, combining both of these, or setting up their own businesses.

Developing the natural gas resources of this region can help provide the opportunities.

More than 800 northerners -- mostly native peoples -- worked on oil and gas exploration jobs in the arctic, either full-time or seasonally, in 1976.

Many combine seasonal exploration jobs with hunting and trapping. The wages helped allow greater use of snowmobiles, aircraft, outboard motors, portable camping equipment and modern hunting and trapping equipment. As a result, the harvesting of wildlife resources in several arctic communities has increased significantly.

A pipeline to transport the discovered and potential gas resources of the Mackenzie Valley and Delta area could expand these opportunities.

An estimated 2,200 people would be employed full-time in the long-term jobs required to operate the pipeline and gas processing plants and in the continuing exploration and development activities. That's a quarter of the total number of jobs that now exist in the region. Seasonal work would provide an additional 1,200 jobs. And this primary employment would create still further jobs in the northern economy.