

**NOVA, AN ALBERTA CORPORATION | ANNUAL REPORT 1981**

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## Principal Operations of the NOVA Group of Companies

NATURAL GAS TRANSMISSION  
 Alberta Gas Transmission Division  
 Algas Engineering Services Ltd.  
 Foothills Pipe Lines (Yukon) Ltd.  
 Trans Québec & Maritimes Pipeline Inc.

RESOURCE DEVELOPMENT  
 Husky Oil Ltd.  
 Novalta Resources Ltd.  
 Pan-Alberta Gas Ltd.  
 Canstar Oil Sands Ltd.  
 Noval Technologies Ltd.  
 CanOcean Resources Ltd.

PETROCHEMICALS  
 Novacor Chemicals Ltd.  
 The Alberta Gas Ethylene Company Ltd.  
 ENESCO CHEM LTD.  
 Diamond Shamrock Alberta Gas  
 Alberta Gas Chemicals Ltd.  
 A.G. Pipe Lines (Canada) Ltd.  
 A.G. Pipe Lines Inc.

MANUFACTURING  
 Energy Equipment & Systems Inc.  
 Grove Valve and Regulator Company  
 WAGI International S.p.A.  
 Steel Alberta Ltd.  
 Western Star Trucks Inc.

## Units of Measure

Units of measure in this Annual Report are supplied in both imperial units and SI, the official symbol in all languages for the International System of Units (metric system). The SI units appear in brackets

following the more familiar measures. Abbreviations used throughout the report are shown below.

Units	Imperial	Metric (SI)	Approximate Metric Conversion Factors
Volume	million cubic feet (mmcf)	cubic metres (m <sup>3</sup> )	1 cubic foot = 0.0283 cubic metre of gas
	billion cubic feet (bcf)	thousand cubic metres (10 <sup>3</sup> m <sup>3</sup> )	
	trillion cubic feet (tcf)	million cubic metres (10 <sup>6</sup> m <sup>3</sup> )	
	barrels (bbls.)	billion cubic metres (10 <sup>9</sup> m <sup>3</sup> )	1 barrel = 0.1590 cubic metre of liquid
Weight	tons	tonnes (t)	1 ton (short) = 0.9072 tonne
	pounds (lbs.)		
Distance	miles (mi.)	kilometres (km)	1 mile = 1.6093 kilometres
Length	inches (in.)	millimetres (mm)	1 inch = 25.4 millimetres
Area	acres	hectares (ha)	1 acre = 0.4047 hectare
Power	horsepower (hp.)	kilowatts (kW)	1 horsepower = 0.7457 kilowatt

# The Company

NOVA, AN ALBERTA CORPORATION is a major, independent Canadian-owned company, headquartered in Calgary, Alberta, and active in many sectors of the energy industry: natural gas transmission, resource development, petrochemicals and manufacturing. It is participating in the Alaska Highway and Trans Québec &

Maritimes natural gas pipelines and expansion of the Alberta petrochemicals industry under the direction of Novacor Chemicals Ltd. NOVA is aggressively developing conventional and non-conventional petroleum resources through its majority ownership in Husky Oil Ltd. and other interests.



NOVA's head office building (centre, under construction) is a prominent new addition to Calgary's skyline.

## Consolidated Financial Highlights



	1981	1980	% Increase (Decrease)
Operating revenue	\$2,669,551,000	\$2,125,753,000	25.58
Net operating income	\$ 395,036,000	\$ 363,867,000	8.57
Net income	\$ 129,862,000	\$ 143,746,000	(9.66)
Earnings per common share			
Basic	\$ 0.90	\$ 1.10	(18.18)
Fully diluted	\$ 0.80	\$ 0.90	(11.11)
Dividends paid per common share	\$ 0.38666	0.36	7.41
Average number of common shares outstanding	107,582,894	99,000,654	8.67
Additions to plant, property and equipment	\$1,371,230,000	\$ 569,389,000	140.82
Investment in plant, property and equipment (cost)	\$4,338,575,000	\$2,995,508,000	44.84
Investment in plant, property and equipment (net)	\$3,745,700,000	\$2,541,902,000	47.36

# Report to Shareholders

This Alberta Corporation is known best for its readiness to stand up to large challenges and its ability to get work done. In the economic mood of early 1982, NOVA's management and Board are also aware of investors' concern that short-term financial capability be strong and that high interest rate periods continue to be weathered successfully.

Although NOVA has indeed concentrated on long-term growth of productive assets, its short-term financial position is reasonable. In 1981 earnings after interest and taxes did decline by about 10 per cent (as to annual earnings or fully diluted earnings per share) from the peak year of 1980, which is noticeable after consistent increases since 1958, our first year of operation. Nevertheless that decline was moderate during a very difficult year for the petroleum and petrochemical industries. Furthermore, NOVA's 1982 budget expects an increase over 1981 annual earnings. This has become timely assurance for our "Report to Shareholders".

After that comment on the present, the other question is management for the future. It is true that NOVA, AN ALBERTA CORPORATION has, as usual, a lot of large projects to carry forward. What we also emphasize in 1982 is that this project sponsor backlog enables us to choose with considerable care which projects and at what times to invest. It was choice of position in the energy future that was earned for NOVA in the seventies, not subjection to any project demands beyond our control. We will work hard on those projects which make good sense financially in the short run and offer fine prospects for the future. Those projects in which our participation would seem untimely or that have too low a return will be set aside.

After all, through periods like the present of high interest rates, fast changing government stipulations and staggering market conditions, our biggest responsibility is to protect the economic strength and industrial vitality that has been created in this Company.

## FINANCIAL HIGHLIGHTS

The strong trend of increasing assets and revenues continued in 1981 with consolidated assets rising from \$3.7 billion to \$5.0 billion and revenues rising from \$2.1 billion to \$2.7 billion. However, 1981 consolidated net income of \$129.9 million decreased 9.7 per cent from 1980, principally as a result of increased interest costs and the new Petroleum and Gas Revenue Tax.

NOVA's 1982 budget shows another large capital investment program, including about \$400 million in cash expenditures for the Alberta Gas Transmission Division. This budget has been kept flexible to permit the optimum

selection and timing of capital projects in order to maintain the strong positions NOVA has developed within each of its business segments.

Early in 1982 NOVA improved its financial position. Fixed rate financings totalling almost \$450 million have been completed and are being used to repay floating rate bank loans and notes. In addition, a Dividend Reinvestment and Share Purchase Plan is now available to provide shareholders with an opportunity to reinvest their cash dividends in Class "A" common shares at attractive prices and to acquire additional Class "A" common shares without brokerage cost. In view of the high cost of capital, the Company will be instituting a change in its rate of return on rate base to reflect the new fixed rate debt costs and to obtain a more appropriate return on the Company's equity investment in the Alberta Gas Transmission Division.

## 1981 OPERATING HIGHLIGHTS

- The Alberta Gas Transmission Division had a record year of growth, expending \$258 million (including \$9.5 million of interest during construction). The new Pan-Alberta gas export to the United States through Phase I of the Alaska Highway Gas Pipeline is the main reason the Alberta gas transmission system is experiencing such rapid expansion.
- On October 1, 1981, the western leg of Phase I commenced deliveries of gas to California and is now contributing cash income to the Company. The eastern leg is scheduled to start up on September 1, 1982, and will become a large contributor to income. Construction during 1981 on the western leg and parts of the eastern leg was done on schedule and on budget.
- The initial section of the Trans Québec & Maritimes Pipeline from St. Lazare to Boisbriand, Quebec, was completed in early 1982 and began making cash income contributions.
- The petrochemical activities of the Company were reorganized and a new subsidiary, Novacor Chemicals Ltd., formed to direct NOVA's interests in this industry. Also, during 1981 approval was received by Alberta Gas Ethylene for the construction of two additional ethylene plants at Joffre, Alberta, and for a styrene plant and a polyethylene plant to be built and operated by our 60%-owned joint venture company, ENESCO CHEM LTD. Construction is progressing on both the second ethylene plant and the styrene plant, and site preparation started on the polyethylene plant.
- A third Alberta Gas Chemicals plant at Medicine Hat came onstream in early 1982 and doubled the methanol capacity of that company. Also, construction started on a methanol plant in New Zealand owned by Alberta Gas Chemicals and a New Zealand government Crown corporation.
- On the regulatory side of the pipeline business, the U.S. Congress approved the waivers package required to enable sponsors of the Alaska Highway Gas Pipeline

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to start discussions with lenders to finance Phase II of that project. In Canada the National Energy Board approved the Maritimes portion of the Trans Québec & Maritimes Pipeline.

- Husky Oil Ltd. completed the acquisition of Uno-Tex Petroleum Corporation, substantially improving its cash flow from production and its conventional land position in Alberta, thus opening up some good possibilities of "new oil" discoveries as defined under the Alberta/federal energy agreement. Husky and Bow Valley Resource Services Ltd. formed a joint venture to contract for the construction of two semi-submersible drilling rigs capable of working in the east coast offshore areas of Canada. It is believed the ownership of such rigs will provide opportunities for participation in exploration plays in the future.
- NOVA's manufacturing subsidiaries had a very successful year and are expecting even better sales and profits in 1982.

#### EMPLOYMENT AND INDUSTRIAL BENEFITS

The NOVA group of companies provides full-time employment to more than 10,000 people in Canada with approximately 8,000 located in Alberta. Total investment in new projects in which NOVA participated during the period 1974 to the end of 1981 was \$3.7 billion and our share was \$2.4 billion. Of the latter figure, \$2.1 billion was expended in Alberta, primarily on pipeline and petrochemical projects.

Man-years of employment created from that investment, direct and indirect, were 52,500 and actual expenditures on goods and services in Alberta alone were \$1.3 billion. These figures illustrate the impact a company such as NOVA has on the regional and national economies of the country. We hope that with business, labour and government working together economic conditions will not discourage new capital investment. If large projects are delayed through lack of available financing and inadequate rates of return, the impacts are felt not only in the region where development takes place but across the country in the manufacturing and service sectors.

#### MANAGEMENT CHANGES

We are pleased to note the promotion of John E. Feick to Senior Vice President. In this position he is participating

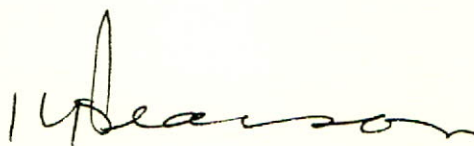
in the general management of the Company and in management direction of certain subsidiary companies. As well, he continues to direct the Company's activities in the oil sands and participates through Novacor Chemicals Ltd. as a senior member of petrochemicals management.

In the fall John Cowell, M.D., was appointed Vice President, Occupational Health and Safety, from which position he will provide functional direction to the NOVA group for the occupational health of all employees, certain aspects of potential environmental impact of our activities on public health and will also be involved in our continuing definition of safety procedures.

With regret the directors have accepted the resignation of Robin J. Abercrombie. Mr. Abercrombie has been with the Company since 1970 and was most recently the senior officer in charge of the Alberta Gas Transmission Division and also provided executive leadership for many activities including our co-sponsorship of the Trans Québec & Maritimes Pipeline and as president of Novalta Resources Ltd. In the early 1970s he was the officer responsible for NOVA starting in the petrochemical business in Alberta through its 50% ownership of Alberta Gas Chemicals Ltd., now a large methanol producer in Medicine Hat. Throughout his career in NOVA, Mr. Abercrombie exhibited an unusual entrepreneurial spirit and his value to the Company has been most significant. We wish him much success in any future endeavors.

The directors are very much aware of the hard-working, loyal group of people who work for this Company and, in return, are committed to keeping it a strong and rewarding place to be in the future.

Respectfully submitted on behalf of the Board of Directors:



H. J. S. Pearson, Chairman



S. R. Blair, President and  
Chief Executive Officer

Calgary, Alberta  
March 12, 1982

# President's Message

Our business responsibility is to conceive works and projects, carry out engineering and financial design, manage construction on schedule and budget, and run production and transportation operations at a profit. Our scope is pipelines and natural gas marketing across Canada and into the United States, building the petrochemical production base well started in Alberta, expanding one of the aggressive home-grown companies for future oil production, and manufacturing, in our case mainly steel product equipment. This year, the big job is to keep such investment growing healthily. So this year's president's message will be an update on our projects representative of energy development in this country, in ascending order of gross investment during the next few years for NOVA and affiliates.

First is exploration for future new light oil production in Alberta. This is still promising for those who can provide the upkeep for proficient geologists, geophysicists and landmen. For those companies among us whose experts turn out to win, it should be good indeed after the 1981 Alberta/federal energy pricing and taxation agreement. But it's like some other high risk gambles; each player absolutely has to hold a sustaining cash supply from other activities, which is somewhat harder than most of us expected after all the tax and royalty changes of 1980-81 have had full impact on current financial results. Anyhow, Husky is exploring for new oil in Alberta within advantageous industry terms.

My second category is exploration for light oil and gas, east coast offshore of Canada. This has been set up to encourage companies such as Husky, if it can obtain a position in the Canada Lands. With an experienced partner, we are going after these lands with the development of a complete exploration capability that will emphasize domestic content and offer an opportunity for participation in lands held by others. This is an aggressive course, but one designed to fit the particular circumstances of projected need for east coast activity and Canadian participation, and for Husky to start to catch up with the large companies who filed on huge acreage positions many years ago.

Third could be conventional and enhanced recovery of heavy oil in Saskatchewan and the associated upgrader. The upgrader has been our proposal, with other companies, for a project to take western Canadian heavy oil produced principally in Saskatchewan and convert it into a high quality refinery chargestock. If the Saskatchewan heavy oil resource were located in Alberta, and if it were offered treatment like Cold Lake or some other main Alberta enhanced recovery projects are offered, we'd be well underway by now. But political boundaries are always more important than that. While there is real potential there, we have been waiting for about three years now for a workable royalty and tax combination.

The fourth project I would report on is connecting Canadian natural gas to domestic and commercial users across Canada, from Victoria to Halifax. It makes all kinds of sense but it has also been a case study so far in how good ideas can turn difficult in this good country. For years, the eastward extension was opposed by the province of Ontario; more recently it has been delayed in the province of Quebec for various reasons. The provinces of Nova Scotia and New Brunswick have varied positions from time to time. While Alberta was initially the most encouraging provincial government for it in Canada as a way to send secure domestic supply to the Maritimes and to open up the New England export market to Canadian sales, subsequent events have caused caution about producer netbacks. The federal government adopted the project strategically but the permits came slowly in 1980-81. Try one like this for six to seven years to learn about jurisdictional complications in Canada. But we see it as basically good and beginning to move ahead now.

The fifth in this list of ascending investment is natural gas transmission in Alberta, with our corresponding marketing efforts. As the Phase I eastern leg of the Alaska Highway Gas Pipeline is completed in 1982, we will open up the largest new market for Alberta gas production in many years.

Sixth, we come to Alberta natural gas-based petrochemicals. The main moral support and facilitating for this activity came from the government of Alberta but it also had some important support from federal agencies. For all the negotiating tension of 1981 in the Alberta/federal energy pricing agreement, we remember that these two governments have shown they can and do work together under pressure to allow things to be accomplished. Between 1976 and 1981 much was accomplished in establishing a basic petrochemical industry in Alberta and employment in petrochemical centres in the province, such as Red Deer and Fort Saskatchewan, is strong and will be improving. And through this we are also achieving substantial addition to Canadian content in engineering, design, construction and management in each of the sequence of new plants.

The seventh item is the Alaska Highway natural gas pipeline. That project had a treaty in 1977 between the United States and Canada and Acts of Parliament and the Congress thereafter. There are no serious problems for the Canadian segment, but the United States segment has found one obstacle after another in the last several

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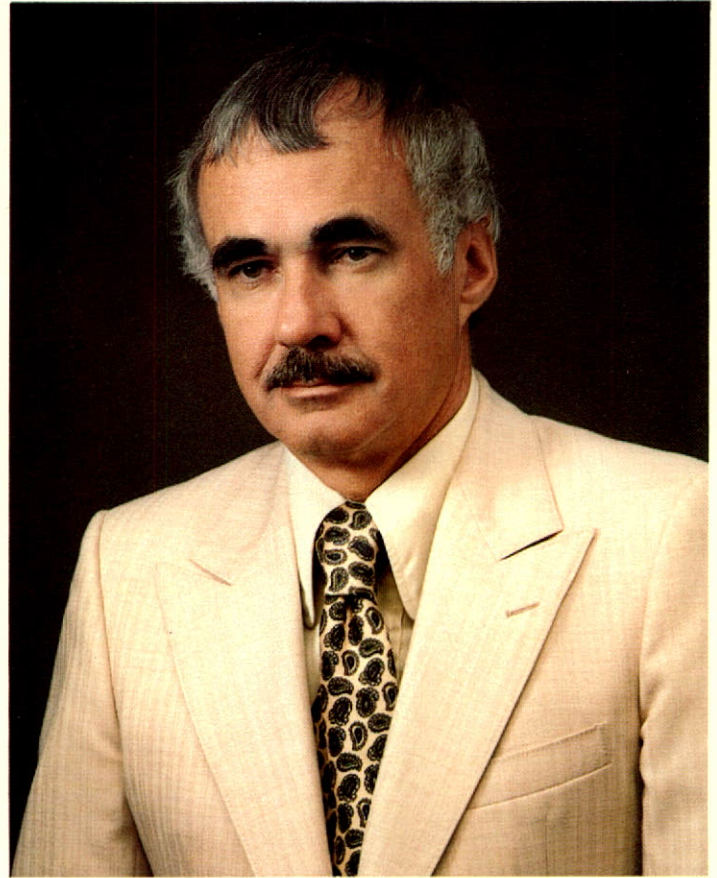
years to getting it started. However, 1981 and 1982 are seeing completion of the southern sections and we hope to get going with the full project soon.

Finally, in terms of size of capital investment, there is the prospective development of oil sands mining projects in Alberta. An excellent price/tax/royalties combination is already in place for enhanced recovery of heavy oil in Alberta. Mineable oil sands projects are under study as to economic regimes at the time of writing.

For the NOVA group such projects add up to \$2 to \$5 billion per year on the average in the early 1980s for new investment intended either under our management or co-sponsorship. But that level of expenditure will be very dependent on the state of the economy and the ability of companies to raise the funds required. While NOVA by its nature is both optimistic and aggressive, it is certainly also a time for restraint and caution and all our investments will be carefully selected in 1982. Some will become deferred. All investments are under continual review by the management and Boards involved. This is not time to be playing invest-the-most races but it is absolutely a time when the activity is needed in this country and the opportunity is very much there.

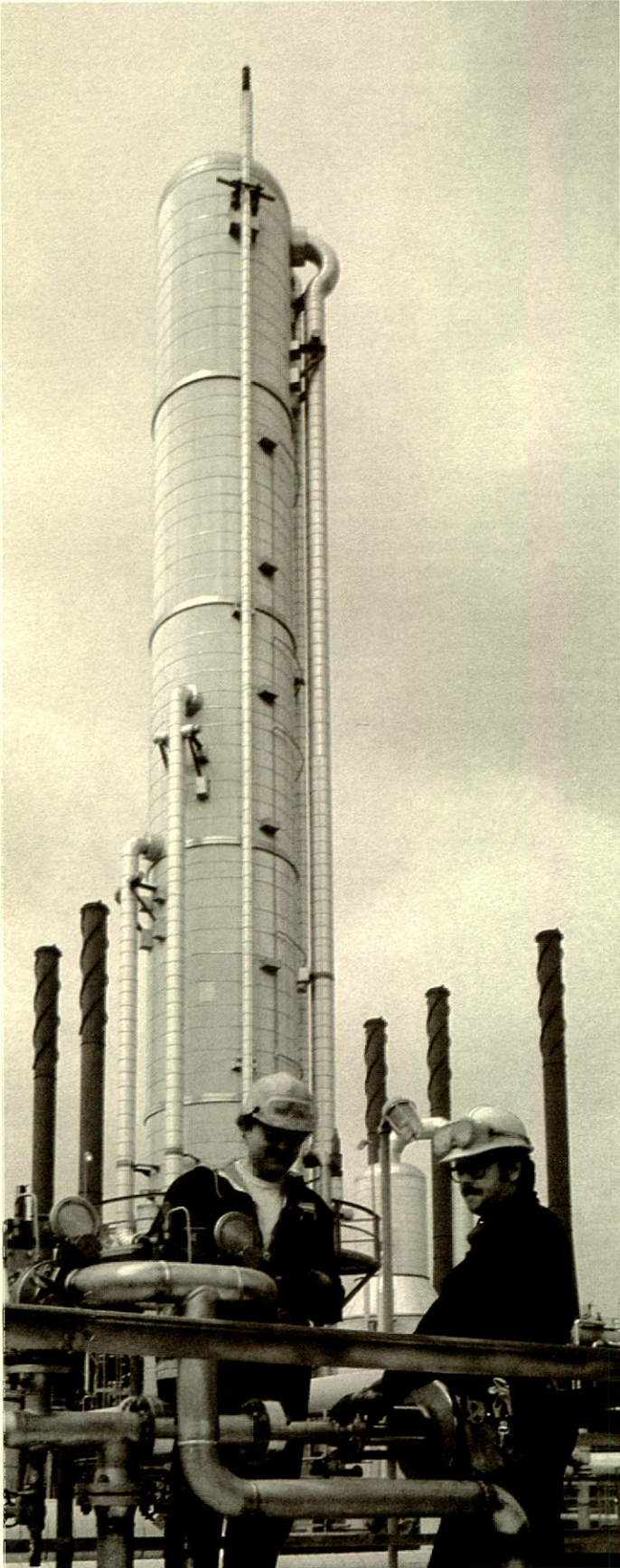
There are problems, of course, before us and before the nation and its economy. The largest single problem or hurdle to us is high interest rates. The second largest has been discouragement of the raising of equity capital. The 1981 federal budget moved abruptly in several respects, described as sealing loopholes. What were sealed in some cases were never loopholes, but prior investment incentive policies chosen as appropriate in a developing country (of the sort that Canada still is and will be for many years) to furnish the streams of equity capital needed. A company like this is built on the confidence and continuing re-investment of the private and institutional saver of capital and that arrangement was disturbed quite unnecessarily by the 1981 federal budget. A better budget is needed for Canada.

Meanwhile, we make do with what we have to and get on with our business as we see it. And in the end our real business is to review the mineral resource base of Alberta and Canada and get the right projects moving. We recognize that this country's work force, when given adequate plant size, technology and active management, is superior. It can capitalize on our very strong public infrastructures and then convert those combined resources into more highly skilled and widespread employment, direct and indirect, with good profits to keep that kind of operation going and producing.



*Bob Blair*

# Special Report – Natural Gas Marketing



Western Canada has extensive reserves of natural gas. Estimates for Alberta alone range as high as 200 trillion cubic feet or more, enough energy to meet current Canadian requirements past the end of this century.

Despite the existence of these abundant domestic reserves, eastern Canada today is heavily dependent on expensive, insecure supplies of imported oil for heating, transportation and industrial purposes. Reliance on the world market as a major source of energy supply affects the economic well-being of all Canadians.

While imported oil continues to fuel eastern Canada, natural gas producers in western Canada are unable to sell their shut-in reserves. For the most part, these producers are the small- to medium-sized Canadian independents who have drilled 70 per cent of the exploratory wells in recent years. They cannot generate from Canadian operations the cash flow needed to keep their companies healthy and continue the search for additional resources.

A primary goal of NOVA's activity over the past decade has been to assist the natural gas industry. The Company has concentrated on developing new gas markets, sponsoring projects that will generate new jobs and greater economic opportunities for Albertans and Canadians and, at the same time, provide greater energy security through wider use of natural gas.

Now, as we move into the 1980s, these goals are beginning to be realized. The measure by which NOVA can gauge its contribution is the growing proportion of Alberta-produced natural gas being consumed through NOVA's existing and presently planned projects. That proportion is expected to increase from seven per cent in 1981 to 34 per cent by 1986.

NOVA's efforts in natural gas marketing started in the early 1970s when the Company began to expand its interests, planning pipelines to carry Alberta production to new markets, creating an organization to contract for natural gas sales and branching out into the manufacture of petrochemicals.

Key elements of these efforts were the establishment of new gas transmission routes, linking homes and businesses across the country into a national transportation grid, and the securing of supply for existing and new markets over the long term.

The importance of these issues prompted NOVA's leadership and participation in the early pipeline development studies that have evolved into active

NOVA's world-scale ethylene facilities have provided a major new market for Alberta's natural gas producers.



projects, such as the Alaska Highway Gas Pipeline and the Trans Québec & Maritimes Pipeline.

NOVA's gas marketing affiliate, Pan-Alberta Gas Ltd., was charged with contracting for Alberta supply at a time when it was thought that most of western Canada's major natural gas reserves had already been discovered. The company's sponsors believed that supply was related to price, and time proved that to be correct.

Over the following decade, Pan-Alberta has actively sought out new natural gas markets for those NOVA-sponsored projects that would bring benefits to Canada over and above gas sales revenues. Pan-Alberta's activities have supported NOVA's efforts to carry Alberta natural gas to areas of Canada that currently do not have access to such supply: eastern Quebec, New Brunswick, Nova Scotia and the Yukon Territory. The eastern Canadian regions will be served through the Trans Québec & Maritimes Pipeline; the Yukon through northern sections of the Alaska Highway Gas Pipeline.

At the same time, export markets have been developed to the extent that \$43 billion of natural gas export sales revenue can be anticipated over the next 10 years, which will be most favorable to Canada's balance of payments and provide new markets for Alberta's natural gas producers.

A significant milestone in Pan-Alberta's growth occurred in 1978 when the company executed a contract for export sale through Phase I of the Alaska Highway pipeline. Gas began flowing to California under this contract in the fall of 1981, and when the midwestern United States is connected in late 1982, that sale will make Pan-Alberta one of the largest Canadian marketers of natural gas.

Pan-Alberta is also pursuing another export sale to the eastern United States through the facilities of Trans Québec & Maritimes and the proposed New England States Pipeline.

At present, Pan-Alberta has over seven trillion cubic feet of Alberta natural gas under contract to meet current and anticipated commitments. The company could be generating revenue for Canada, Alberta and Alberta producers in the range of \$3 billion a year by 1984 and \$4.5 billion by 1986. For the future, Pan-Alberta expects to continue its aggressive pursuit of new markets while continuing to serve established markets in Canada and the United States.

NOVA's efforts at marketing natural gas have been given wider horizons through involvement in the Western LNG Project, a plan to move liquefied natural gas to Japan. The project could provide Canada with an alternative to the United States export market.

NOVA has also been using more natural gas within the province through increasing investment in the manufacture of petrochemicals, an industry that is broadening and diversifying the provincial economy. NOVA-sponsored petrochemical plants planned for



Trans Québec & Maritimes' Ottawa River crossing was a first step toward the connection of markets east of Montreal to domestic supply.

construction during the next four to five years will result in more than \$3 billion worth of new productive assets in Alberta.

Growth within the petrochemical industry began when the first methanol plant at Medicine Hat came onstream in 1975, changing Canada from a net importer to a net exporter of this chemical. Three plants are in production, and that complex is now producing well over half of Canada's total methanol supply.

Development of the petrochemical industry has accelerated since 1975 when NOVA led a consortium of 12 companies in building the Alberta Petrochemicals Complex. The Alberta Gas Ethylene Company Ltd. plant is the key element in that project and, with expansion to three plants underway, it is anticipated that by the mid-1980s Joffre will be one of the largest single ethylene production sites in the world.

This natural gas-based ethylene is the basic ingredient in a whole spectrum of derivative petrochemical products that eventually are used in making tires, records, paints, pipe and other consumer and building products. It has been part of NOVA's overall objective to ensure that Albertans share in the numerous, highly skilled jobs created by a petrochemical industry within the province.

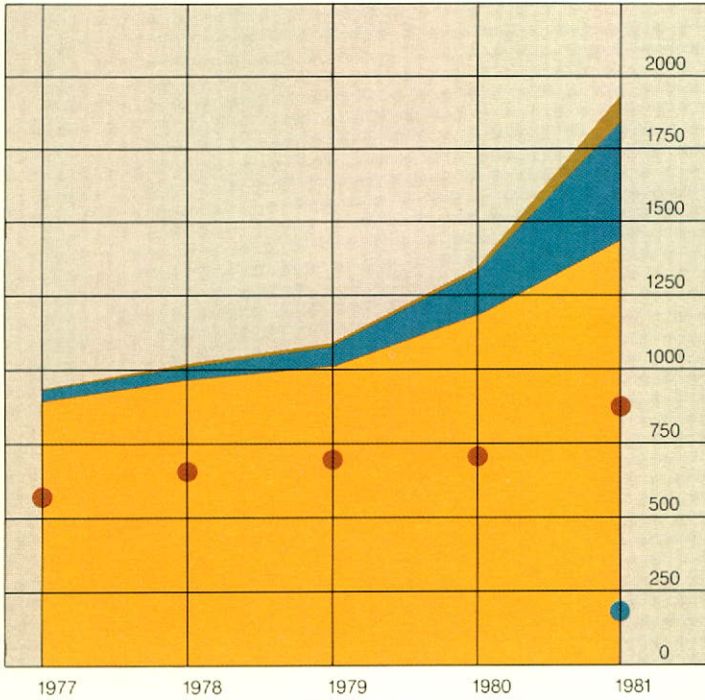
NOVA's initial involvement in producing ethylene derivatives was in the manufacture of polyvinyl chloride. Then in 1980 the Company announced a joint venture to manufacture and sell petrochemical derivatives, initially ethylene based, in Canadian and international markets. Already, plants to produce styrene and polyethylene are under construction and a proposal for a higher olefins plant is in the regulatory stage.

It is NOVA's belief that the course it is following will help to fuel the economies of Alberta and Canada for the rest of this century.

# Natural Gas Transmission

## Natural Gas Transmission Assets

(millions of dollars)

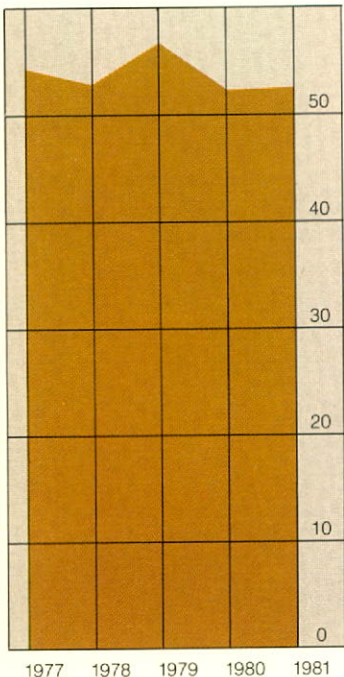


- Alberta Gas Transmission Division
- Foothills Pipe Lines (Yukon) Ltd.
- Trans Québec & Maritimes Pipeline Inc.
- Average Rate Base, Alberta System
- Average Rate Base, Foothills System



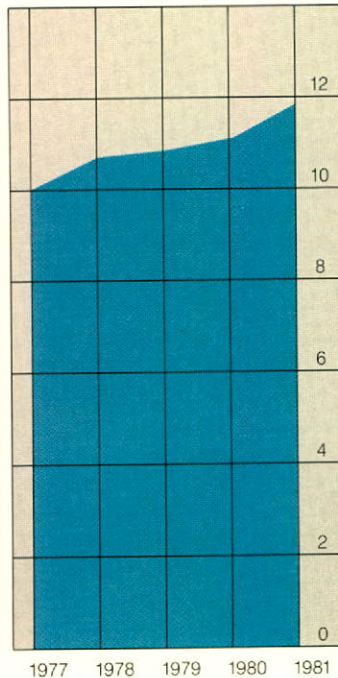
## Total Receipts – NOVA Alberta System

(billions of cubic metres)



## Kilometres in Service – NOVA Alberta System

(thousands of kilometres)



Natural gas transmission is the historic business base of NOVA and this sector has expanded rapidly in recent years. The Company's efforts to transport Alberta natural gas to new Canadian and export markets are coming to fruition, and 1981 was marked by initial gas flows through Phase I of the Alaska Highway Gas Pipeline and the start of construction on the Trans Québec & Maritimes Pipeline. The Alberta system continues to carry nearly three-quarters of the natural gas marketed in Canada and is one of the largest gas transmission systems in North America. It provides a strong base of experience and expertise for the Company's operations as a whole.

#### ALBERTA GAS TRANSMISSION DIVISION

This division — now officially designated the Alberta Gas Transmission Division — experienced a year of record activity in 1981. Highlights were an unprecedented construction program, implementation of an annual payment program for landowners and completion of two major service centres in the Edmonton area. Field receipts for the year totalled some 1.86 tcf (52.4 10<sup>9</sup>m<sup>3</sup>) with maximum day receipts of 6.9 bcf (196 10<sup>6</sup>m<sup>3</sup>) occurring on December 30, 1981.

Additions to facilities during the year totalled over 567 mi. (912 km) of pipeline ranging in diameter from 4- to 42-in. (114.3 to 1067 mm). This included major projects such as construction of 100 mi. (160 km) of 42-in. (1067 mm) loop in the Edson area, 168 mi. (270 km) of 36-, 30- and 24-in. (914, 762 and 610 mm) pipeline near Grande Prairie and 112 mi. (180 km) of 16-in. (406.4 mm) pipeline in the Kirby area. These were completed and placed in service during the second quarter of 1981.

Engineering was also completed on four major lateral projects scheduled for construction in early 1982. These facilities total 211 mi. (340 km) of 6- to 20-in. (168.3 to 508 mm) pipe and will connect new supplies of natural gas from the Leige, Graham-Chard, Cutbank and Robb areas of the province.

Also during 1981 four compressor stations were completed and commissioned adding 19,404 hp. (14 470 kW) to the NOVA system. Other major compression projects completed were the design and construction of a 10,594 hp. (7900 kW) compressor station at the Gold Creek location and a 7,040 hp. (5250 kW) combined cycle waste heat recovery facility at the Clearwater compressor station. The combined cycle installation uses waste heat from an existing compressor to power another compressor. It is the first of its type to be installed anywhere in the world.

On October 1, 1981, NOVA began an annual payment program for right-of-way acquired when landowners

voluntarily sign agreements related to pipeline projects undertaken after November 6, 1980. The new compensation terms are based on the outcome of extensive negotiating with groups representing rural landowners in Alberta and are a departure from the tradition of single lump sum payments by companies for rights acquired in such transactions. NOVA is confident that this agreement will serve to improve the relationship between the agricultural and pipeline industries in the province.

The division's Edmonton operations group directed and completed two major facility projects during the year. The first project was construction of a materials warehouse and combined works department fabrication facility at Spruce Grove, about 16 mi. (26 km) west of Edmonton. The facility has some 46,600 sq. ft. (4330 m<sup>2</sup>) of shop, warehouse and office space.

The second project was an expansion to the Edmonton Service Centre facility of some 41,980 sq. ft. (3900 m<sup>2</sup>) of compressor and machine shops and office space for the technical services department, as well as a 12,497 sq. ft. (1161 m<sup>2</sup>) vehicle service centre. All facilities were designed to accommodate present requirements and future growth.

In addition to routine operation and maintenance of the existing system, field crews commissioned 567 mi. (912 km) of new pipeline, 42 major receipt and delivery meter stations and four compressor stations throughout the year.

#### *Regulatory Activities*

By a judgment delivered on October 6, 1981, the Supreme Court of Canada dismissed appeals by NOVA from two judgments of the Court of Appeal of Alberta respecting decisions by the Public Utilities Board of Alberta. These decisions arose out of a series of complaints by several natural gas producers in 1977 and 1979 and related to the income tax and depreciation components of the Company's rates, tolls and other charges to its customers.

During 1981 NOVA applied to the Alberta Energy Resources Conservation Board (ERCB) for permits to construct more than 80 facilities. These included 41 pipelines, with a total length of more than 435 mi. (700 km), and 65 meter station additions. The ERCB held public hearings on five of these applications.

#### *Environmental Matters*

During 1981, fifteen Environmental Impact Assessments relating to division construction proposals were completed and submitted to the ERCB in support of permit applications.

Research continues into minimizing environmental impact of construction activities. The Company, with government co-operation, initiated two studies in 1980 to monitor the impact of construction on elk, moose and caribou. These are scheduled for completion in late 1982.

**Alberta Natural Gas Transmission System**



Procedures for post-construction restoration of rivers to their natural state are being refined, with special emphasis on erosion control and improvement of fish spawning conditions. To aid in the rehabilitation of forested areas, research on vegetation management and the effects of construction on all types of soils is being conducted. Significant advances have been made in right-of-way reclamation and revegetation, with NOVA being instrumental in the development of topsoil stripping equipment capable of conserving soil during winter construction.

**ALGAS ENGINEERING SERVICES LTD.**

This wholly-owned subsidiary of NOVA draws upon the expertise of the Company to provide engineering, project and construction management. As well, it offers training with respect to operations and maintenance and general

consulting services to others, primarily in the natural gas transmission industry

Algas has several projects proceeding within Canada and continues to carry out assignments for the NOVA group of companies. These include:

- Taking responsibility for all aspects of the natural gas pipeline system to be installed on Melville Island as part of the Arctic Pilot Project.
- Supplying design engineering services to Husky Oil Operations Ltd. for a project involving the movement of heavy oil blended with refinery condensate.
- Developing a transmission program for The Alberta Gas Ethylene Company Ltd. to allow an increase in the flow of ethylene from the Joffre plant to Fort Saskatchewan.
- Competing, as a member of an international consortium, for a contract to undertake the LABORS (Labrador Offshore Resources) study for a group of companies led by Petro-Canada.

Internationally, Algas has successfully completed its technical audit services for lead lender banks to the Centro-Oeste Pipeline Project in Argentina. The company is also negotiating a contract to supply natural gas transmission system operations and maintenance expertise to the Petroleum Authority of Thailand. A number of other natural gas pipeline projects are being studied and Algas is well positioned to participate in them. Algas recognizes the value of increasing the export of Canadian goods and services abroad as an important incentive for international activities.

**FOOTHILLS PIPE LINES (YUKON) LTD.**

The Alaska Highway Gas Pipeline observed an historic occasion in 1981 — the first flow of natural gas through the western portion in Canada and the United States. This major event occurred on October 1, and a commemorative ceremony was held in Los Angeles with a number of business and government officials from both countries participating.

This portion is the first element in a major project which, when complete, will total 4,821 mi. (7757 km) and be capable of transporting 2.1 bcf (59.5 10<sup>6</sup>m<sup>3</sup>) per day of natural gas from Alaska's North Slope to consumers in California and the midwestern United States. Co-ordination and direction of construction of the 2,062 mi. (3318 km) Canadian section is the responsibility of Foothills Pipe Lines (Yukon) Ltd., equally sponsored by NOVA and Westcoast Transmission Company Limited. Phase I in Canada comprises the eastern and western legs extending south from a point near Caroline, Alberta, and Phase II is the northern part of the line.

The completed Phase I western leg, 132 mi. (213 km) of 36-in. (914 mm) pipeline, is being supplied with natural gas by NOVA's affiliate, Pan-Alberta Gas Ltd., and

Operating Highlights — NOVA Alberta System	1981	1980	% Increase (Decrease)
Average Rate Base (\$000)	874,976	708,768	23.4
Average Rate of Return (%)	12.39	10.55	
Length of Pipeline in Service (mi.)	7,443	6,877	8.2
(km)	11,979	11,067	
Compression (hp.)	516,582	497,179	3.9
(kW)	385,216	370,747*	
Receipts (mmcf)	1,858,416	1,845,886	0.7
(10 <sup>9</sup> m <sup>3</sup> )	52,359	52,006	
Maximum Day Receipts (mmcf)	6,956	7,089	(1.9)
(10 <sup>3</sup> m <sup>3</sup> )	195,992	199,738	
Average Day Receipts (mmcf)	5,092	5,043	1.0
(10 <sup>3</sup> m <sup>3</sup> )	143,449	142,093	

\*The 1980 figure has been restated to reflect the addition of mobile compressors and consistency in horsepower ratings.



The past year was unusually active, with construction proceeding on small laterals as well as large-diameter loops and mainline. Environmental monitoring is carried out on a continuing basis.

NOVA's Alberta Gas Transmission Division is responsible for operation and maintenance of the Alberta portion of this leg and additional Alberta segments of the eastern leg still under construction.

Construction of the eastern leg portion, totalling 396 mi. (637 km) of 42-in. (1067 mm) pipe, continued at a significant pace in 1981. Three major contracts to install pipe were awarded and the sections involved were completed on schedule and under budget. The construction of four compressor stations was also started.

In late May work began on a 160 mi. (258 km) pipeline section in Saskatchewan and on a 106 mi. (170 km) section in Alberta. Installation, cleanup and testing of these sections was completed by the end of November. A crossing of the South Saskatchewan River commenced in June and, after a mid-summer shutdown to allow water levels to drop, was completed by mid-November.

Work started in mid-June on a compressor station near Jenner, Alberta, and at stations near Piapot and Monchy in Saskatchewan. At year end work on these three stations was on schedule and completion will be in September 1982. The construction of the Richmond, Saskatchewan, station was started in October with a completion date of November 1982.

Other developments during 1981 included:

- In March and April the National Energy Board held hearings on the company's application to finalize certain tariff matters and to approve the final design cost estimates for the eastern and western legs. The Board's decision issued in August approved the cost estimates for the purpose of incentive rate of return and

**Alaska Highway Gas Pipeline System**



- IN CANADA
- Phase I — Western Leg
- Phase I — Eastern Leg
- Phase II
- Dempster Lateral
- IN THE UNITED STATES
- Western and Eastern Legs, Alaska Section

**Trans Québec & Maritimes Pipeline System**



- Trans Québec & Maritimes Pipeline
- New England States Pipeline

- the company's 1980 expenditures for inclusion in rate base, as well as confirming several items that were outstanding from the 1979-80 tariff hearing.
- During 1981 Foothills Pipe Lines (Yukon) Ltd. completed the documentation for a loan of up to \$835 million from a consortium of three Canadian banks. The term of the loan is based upon Foothills' service agreements with Pan-Alberta and TransCanada PipeLines Limited. The total cost of Phase I is estimated at \$1 billion of which \$550 million had been expended to the end of the year.
- In late 1981 the United States gave Congressional approval to a waivers package incorporating changes to legislation currently in force regarding the Alaska Highway pipeline and intended to clear away obstacles to private financing. Included are provisions for partial ownership by the Alaska North Slope producing companies and streamlining of regulatory procedures. In the event that completion of the entire project or the conditioning plant is delayed beyond a specified date, the Federal Energy Regulatory Commission has been authorized to approve cost-of-service payments as various segments are finished.
- On December 8 TransCanada PipeLines and Consolidated Pipe Lines Company purchased 44% and 5% respectively of the Saskatchewan segment. TransCanada will operate the segment under a contract with Foothills Pipe Lines (Sask.) Ltd. when construction is completed in September 1982.
- NOVA's Alaska Project Division and Foothills Pipe Lines (Yukon) Ltd. were integrated at the end of July and, with the concurrence of Westcoast Transmission Company Limited, the merged organization has assumed responsibility for the design and construction of the entire Canadian portion. The merger makes it possible for a single organization to undertake the engineering, procurement and construction of that segment, with the exception of southern British Columbia where Alberta Natural Gas Company Ltd. is responsible for ongoing operation.
- Foothills constructed and put into operation the Quill Creek Test Facility located 186 mi. (300 km) northwest of Whitehorse in the Yukon. The site is being used to test pipeline design methods for discontinuous permafrost and to evaluate conventional pipeline construction techniques in northern soils. It is planned to continue monitoring the test pipe installations for several years.
- On October 28 Foothills opened an office in Fort Nelson, British Columbia, the first in areas crossed by

the northern British Columbia section. It will provide a centre for local enquiries about the project and serve as a base for engineering and pre-construction activities currently underway.

- In October Foothills expanded its Operations Trainee Program and a number of Yukon residents including several natives were hired to be trained as permanent staff for the Yukon segment.

#### TRANS QUÉBEC & MARITIMES PIPELINE INC.

The vision of a truly national Canadian natural gas transmission grid came closer to reality during 1981 as Trans Québec & Maritimes Pipeline Inc. (TQM), 50% owned by NOVA, received certification to complete the pipeline to Nova Scotia and began construction in Quebec.

Final approval for the section from Lévis/Lauzon, Quebec, through New Brunswick to Halifax and Cape Breton Island, Nova Scotia, was received from the federal government on December 10, 1981.

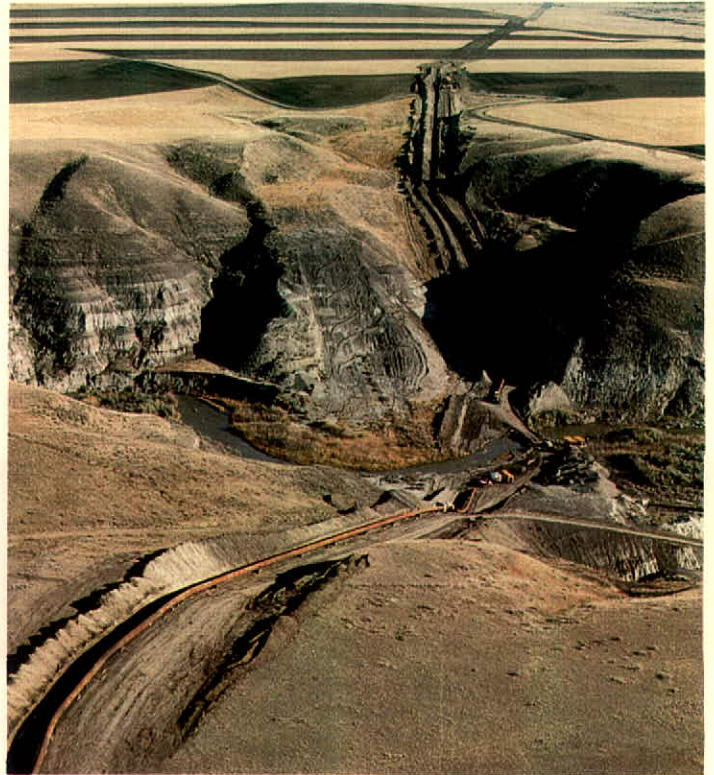
A 24 mi. (39 km) section of the line connecting St. Lazare and Boisbriand, Quebec, northwest of Montreal, was completed and is currently in service. The section included a major crossing of the Ottawa River at Lake of Two Mountains. Plans for the 1982 season call for a mainline construction program of 93 mi. (150 km) between Boisbriand and Trois-Rivières. Construction will also begin on some of the laterals to serve communities between these two locations.

The total TQM system consists of approximately 2,097 mi. (3375 km) of pipeline and nine compressor stations. There will be 716 mi. (1152 km) of mainline, ranging in diameter from 30- to 18-in. (762 to 457 mm), and 1,381 mi. (2223 km) of laterals and sub-laterals, ranging in diameter from 20- to 4-in. (508 to 114.3 mm).

TransCanada PipeLines Limited and Pan-Alberta Gas Ltd. are contracting for Alberta gas to supply total TQM requirements. An underground natural gas storage facility is planned, using salt caverns in southern New Brunswick to provide the system with additional supplies for high demand periods.

The capital cost of the pipeline, to be completed in 1985, is \$2.2 billion. About \$1.0 billion will be spent in the province of Quebec and about \$1.2 billion in New Brunswick and Nova Scotia.

Potential for export of surplus Canadian natural gas through TQM facilities was enhanced in September 1981 when NOVA announced that it had joined the New England States Pipeline (NESP) Project, a general partnership with each of four participants holding a 25% interest. NESP proposes to construct a 36-in. (914 mm) pipeline system extending 360 mi. (579 km) from a point on the Canada/United States border near St. Stephen, New Brunswick, to existing pipeline facilities near Burrillville, Rhode Island. It will transport 306 mmcf ( $8.6 \times 10^6 \text{ m}^3$ ) per day of natural gas supplied by Pan-Alberta



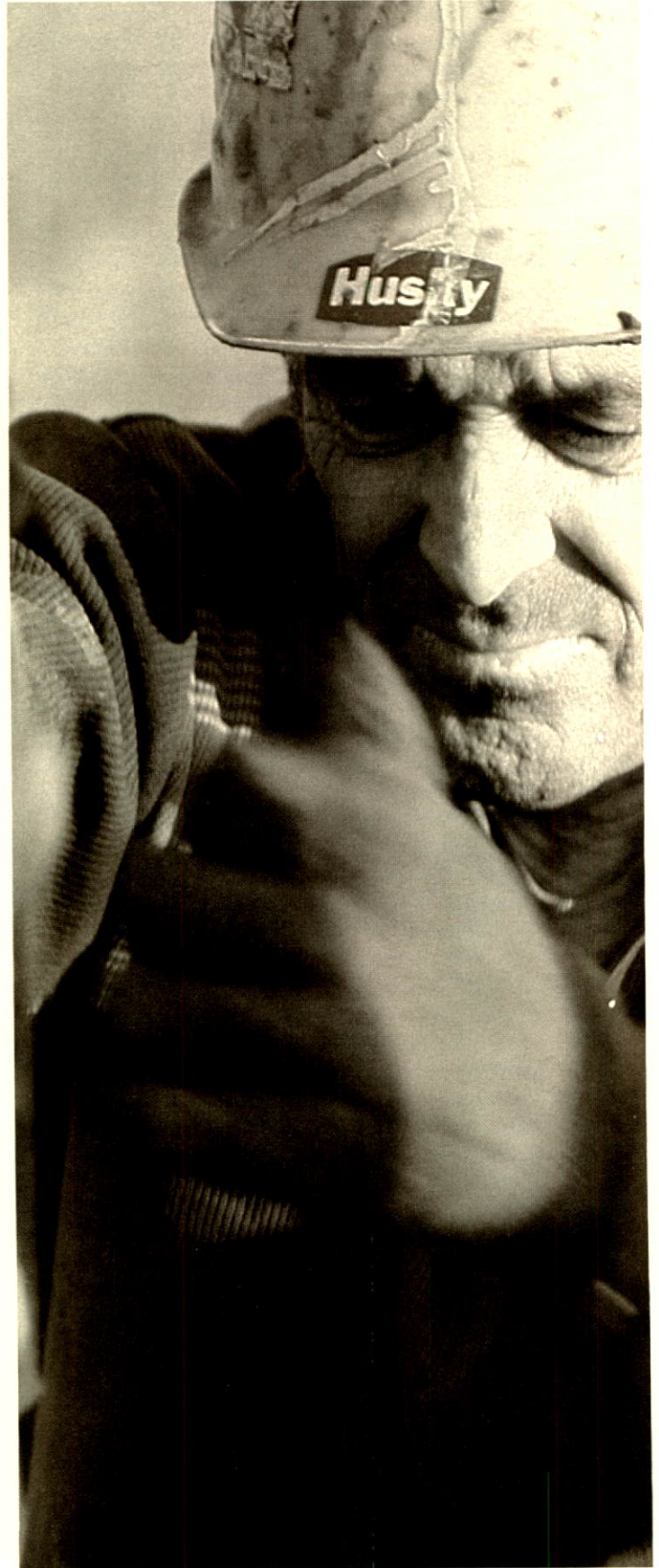
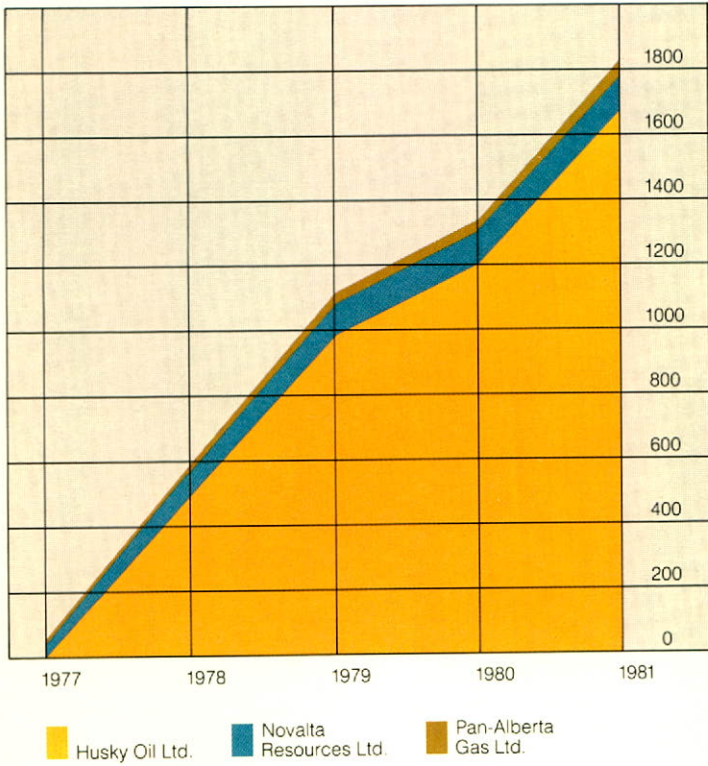
Phase I construction through southeastern Alberta and arctic testing of a new ditching machine were among 1981's highlights in the Natural Gas Transmission sector.

under a 15-year contract with a five-year extension option. Given timely regulatory approval, the NESP could be in operation by late 1984. It is expected to cost approximately U.S. \$600 million.

# Resource Development

## Resource Development Assets

(millions of dollars)





NOVA is proceeding on several fronts with activities in the resource development sector. Efforts to add to Canadian petroleum production continue with exploration for future new light oil production in Alberta and for light oil and natural gas in the Canadian east coast offshore areas, along with programs in enhanced oil recovery techniques and the upgrade of heavy oil resources. For the future, projects are proposed to liquefy natural gas, harness energy from less conventional sources and investigate alternatives for energy conservation.

#### HUSKY OIL LTD.

Husky Oil Ltd. (68% owned) is a fully-integrated oil and gas company engaged in exploration and production, supply and distribution, and refining and marketing.

#### *Canadian Petroleum Operations*

In 1982 Husky's growth strategy will focus on becoming one of the leading companies in the Canada Lands, particularly in the east coast offshore region, and improving its position in conventional lands in the province of Alberta.

In 1981 Husky was active in both provincial and frontier exploration by participating in 43 gross exploratory wells, resulting in 20 gas and four oil discoveries. Heavy oil exploration in the Lloydminster area involved participation in the drilling of 95 wells resulting in 43 successful oil and gas wells.

Canadian frontier programs began early in 1981 with particular emphasis on the east coast offshore areas. In January Husky acquired a 32 per cent interest in lands on the Scotian Shelf, offshore eastern Canada, where a test commenced late in the year. In September Husky, along with Bow Valley Resource Services Ltd., announced its commitment to joint construction, ownership and operation of two semi-submersible drilling vessels for use off the east coast of Canada. Husky's total capital investment for these rigs is estimated to be \$105 million.

Participation in a program on Banks Island in the Canadian Arctic involved the drilling of a well in October 1981 in which Husky held a 15 per cent interest. The well was drilling over year end but has subsequently been abandoned.

In August 1981 Husky purchased the Canadian assets of Uno-Tex Petroleum Corporation, adding 255,200 net acres (103 300 net ha) of undeveloped lands. This provided Husky with substantial conventional exploration and production opportunities and included 5,200 bbls. (830 m<sup>3</sup>) per day of crude oil and natural gas

liquids production and 17 mmcf (480 10<sup>3</sup>m<sup>3</sup>) per day of natural gas production.

Husky continued its research and planning on enhanced oil recovery (EOR) processes during the year with encouraging production results. EOR experimental projects were expanded during 1981 and seven projects are now either in operation or in the planning stage. These pilot projects include three fire flood, three steam flood and an oxygen fire flood in the Lloydminster area of Saskatchewan.

Husky took the lead early in the year and joined with four other companies in a joint venture to construct a heavy oil upgrader in Saskatchewan to process heavy crude oil produced in western Canada into synthetic crude oil.

During 1981 Husky initiated a program for the marketing of alternate fuels, with the planned addition of propane and compressed natural gas (CNG) for the general automotive consumer. In addition, selected service stations now incorporate self-serve gasoline facilities combined with convenience food stores.

Expansion of the Lloydminster refinery to meet the growing demand for asphalt in western Canada is proceeding on schedule, with completion planned for the fall of 1982. The expansion will more than double the capacity from 12,000 bbls. (1910 m<sup>3</sup>) to 25,000 bbls. (3970 m<sup>3</sup>) per day.

Husky is a 40 per cent participant in a joint venture with Shell Canada Limited in the construction of a light oil refinery, the world's first to use synthetic crude oil as its exclusive feedstock. Construction commenced near Scotford, Alberta, in August 1981 and is expected to be completed in mid-1984.

With Husky's continued growth and the need to accommodate a larger employee population, the company is building a new corporate headquarters in Calgary, which will be named Western Canadian Place. Completion is scheduled for September 1983. At the refinery site in Lloydminster construction is underway on a two-storey office services building.

#### *U.S. Petroleum Operations*

Husky Oil Company, headquartered in Cody, Wyoming, pursued aggressive exploration and development programs in the United States during 1981.

Exploratory drilling involved participation in 51 gross wells located in California, Nevada, Montana, Wyoming, Utah, New Mexico and Texas. In California there were two oil discoveries, one in Santa Barbara County, where Husky's interest is 100 per cent; the other in Kings County, with 50 per cent interest. In the Railroad Valley of Nevada, where Husky and a partner have extensive holdings, a significant oil discovery was made as part of an ongoing exploratory drilling program. Husky holds a 14.7 per cent interest in the well. Onshore in the Gulf of Mexico area, Husky participated in two oil discoveries,



Exploration in the Canada Lands and conventional areas is being emphasized by NOVA subsidiaries.

and the company is also a 15 per cent participant in fabricating and installing a drilling platform for offshore use in that area during 1982.

With respect to development wells, 126 were drilled in 1981, resulting in 59 oil wells and 55 gas wells. Seven oil wells were completed in the Halfmoon field in Wyoming and four in the Shoshone field, making significant contributions to production in these areas. Husky has a 100 per cent interest in both operations. Husky participated in 25 successful gas wells in the San Juan Basin of New Mexico during the latter part of 1981 and holds a 20 per cent interest in two successful gas completions in Duval County, Texas. The latter wells are awaiting pipeline connection and gas sales should commence in the first half of 1982.

Enhanced oil recovery projects in both heavy and light gravity oil reservoirs throughout the United States are proceeding, with involvement in four during 1981 and seven to be added in 1982.

Husky's marketing strategy throughout 1981 focused on promoting its image through the western United States. While overall demand for finished products in the United States fell approximately four per cent from 1980 to 1981, Husky's sales declined less than half that amount.

In addition, sales of tires, batteries and accessories and restaurant income achieved record levels in 1981.

A U.S. subsidiary, Husky Industries Inc., manufactures charcoal briquets as well as activated carbon for use in municipal water treatment. A second subsidiary, Gate City Steel Corporation, was sold in June 1981 for \$30.2 million (Cdn.).

*Overseas Operations*

Husky has working interests in areas offshore Senegal, the United Kingdom and German sectors of the North Sea, Indonesia and the Republic of the Philippines.

In the Philippines Husky holds interests in 4.6 million acres (1.85 million ha). The Cadlao field offshore Palawan Island came onstream and at year end was producing at a rate of 5,700 bbls. (900 m<sup>3</sup>) per day. Development is continuing on the Matinloc field north of Cadlao and production should commence in mid-1982. Husky holds approximately one-third interest in both development programs.

In September Husky was awarded two geophysical contracts by the Philippine government and will act as operator in this new venture. One is in the Palawan region adjacent to Busuanga Island, where Husky holds a 35 per cent working interest, and the other north of Palawan in the Lingayen Gulf, where Husky's working interest is 80 per cent. Marine seismic surveys were conducted over both blocks in late 1981, and processing and interpretation of the data will take place early in 1982.

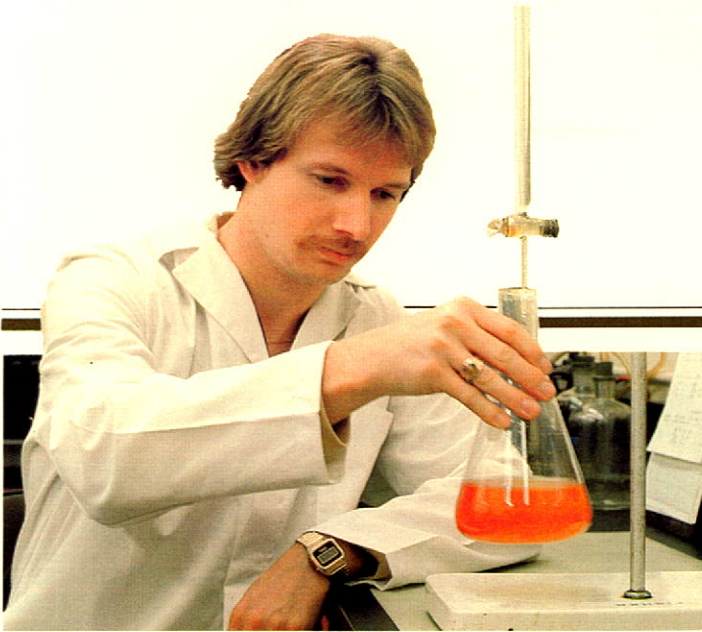
Husky has also signed a production sharing agreement with Pertamina, the Indonesian national oil company, covering 4.4 million acres (1.8 million ha) offshore east Sulawesi. A seismic survey of this area was recently completed. Husky is operator for this block and holds a 50 per cent interest.

NOVALTA RESOURCES LTD.

Novalta Resources Ltd., a wholly-owned subsidiary of the Company, is engaged in the exploration and development of crude oil and natural gas. In 1981 a successful exploration program was undertaken principally in the province of Alberta.

The company's exploration programs employ advanced geophysical and geological techniques, and continuous modification and research have enabled Novalta to achieve a success ratio that consistently exceeds the industry average by a wide margin. In 1981, with participation in drilling 82 wells (up from 55 wells in 1980), the company achieved an 81 per cent overall net success ratio. Drilling statistics for the year are summarized as follows:

WELLS DRILLED	GAS		OIL		DRY		TOTAL	
	Gross	Net	Gross	Net	Gross	Net	Gross	Net
Exploratory	17	12.4	4	2.0	11	7.3	32	21.7
Development	41	17.4	7	2.8	2	0.7	50	20.9
TOTAL	58	29.8	11	4.8	13	8.0	82	42.6



Husky's activities are multi-faceted and include enhanced oil recovery research, marketing and offshore exploration.



An additional nine wells were drilled on a farm-out basis at no cost to Novalta, resulting in five gas wells and four dry holes.

The four oil discoveries qualify for the new oil reference price and were drilled on lands in which Novalta holds a good acreage position. Gas discoveries, particularly in the Kehiwin (100% working interest) and Caslan (83% working interest) areas of east central Alberta, added very significantly to the proven gas reserves of the company. Novalta continues to work closely and co-operatively with the Kehiwin Indian Reserve Council and is actively pursuing alternative markets for the Kehiwin area proven reserves. Sales from the Caslan area will commence in late 1982.

Novalta's share of gross sales before royalty during 1981 amounts to 5.7 bcf (160  $10^6\text{m}^3$ ) of gas (including gas equivalent of oil and natural gas liquids) as compared to 6.6 bcf (186  $10^6\text{m}^3$ ) in 1980. As is the case with most small Alberta producers, Novalta has a substantial portion of its proven gas reserves shut in awaiting improved market conditions.

Novalta's strategy of placing more emphasis on exploration in the intermediate and deeper part of the western Canadian basin has resulted in a strong land position and, as indicated by several oil and gas discoveries, preliminary exploration results are very encouraging.

During 1981 Novalta participated in extensive seismic surveys and acquired exploratory acreage amounting to 56,960 acres (22 784 ha) gross, 44,439 acres (17 376 ha)

net, systematically strengthening its position in areas where it participated in oil and gas discoveries. Land holdings at year end were 1,251,209 acres (500 484 ha) gross, 510,970 acres (204 388 ha) net.

Total capital expenditures for petroleum and natural gas rights, geophysical surveys, exploration and development drilling and surface facilities amounted to \$13.5 million in 1981, as compared to \$12.1 million in 1980.

#### PAN-ALBERTA GAS LTD.

Pan-Alberta Gas Ltd. (50.005% owned by NOVA) marked a major event in its history of natural gas marketing activities during the past year when deliveries commenced of a large new gas export sale to the United States. The total sale of 1.04 bcf (29.40  $10^6\text{m}^3$ ) per day is being marketed through the western and eastern legs of Phase I of the Alaska Highway Gas Pipeline. Gas flows through the western leg to California markets began on October 1 at the designed capacity rate of 240 mmcf (6.8  $10^6\text{m}^3$ ) per day. Volumes to be transported through



Novalta Resources staff assess drilling plans for a well site in northern Alberta.

the eastern leg are 800 mmcf ( $22.7 \times 10^6 \text{m}^3$ ) per day, to commence in September 1982. Both these sales command the premium export price and will contribute significantly to the marketing of Alberta's surplus natural gas reserves.

During the year Pan-Alberta continued preparation to supply part of the gas required for domestic markets in Quebec and the Maritimes through the Trans Québec & Maritimes Pipeline extension east of Montreal. In addition, to complement the TQM extension, Pan-Alberta has executed contracts with Algonquin Gas Transmission Company, Transcontinental Gas Pipe Line Corporation and Texas Eastern Transmission Corporation for the sale of gas to serve the New England area of the United States. An export application has been filed with the National Energy Board for this sale of up to 306 mmcf ( $8.6 \times 10^6 \text{m}^3$ ) of gas per day commencing in late 1984.

In Pan-Alberta's established markets, sales of natural gas to Gaz Metropolitain, inc., continued at the usual favorable level in excess of 90% load factor during the year. Sales to Westcoast Transmission Company Limited, however, were down again reflecting continuing softness in the United States market area served by that company.

Pan-Alberta holds two permits authorizing the removal of natural gas from Alberta and four licences authorizing the export of gas from Canada. The first

Alberta permit authorizes the removal of 975 bcf ( $27.5 \times 10^9 \text{m}^3$ ) over a 15-year period expiring October 31, 1989, and the second, the removal of 4.9 tcf ( $138 \times 10^9 \text{m}^3$ ) over a 15-year period expiring October 31, 1995. The Canadian export licences authorize the export of 2.3 tcf ( $65.15 \times 10^9 \text{m}^3$ ) during the period November 1, 1980, to October 31, 1988.

During 1981 total revenues amounted to \$243 million, an increase of 20% over 1980. Sales of 62.2 bcf ( $1.8 \times 10^9 \text{m}^3$ ) of gas were comparable to the previous year. Net earnings amounting to \$1.2 million continued at a low level relative to total revenues as a result of regulation.

#### LIQUEFIED NATURAL GAS PROJECTS

NOVA is participating in two projects involving the transport of liquefied natural gas, one to help realize the energy potential of the Canadian Arctic, the other to provide alternate export markets.

The Arctic Pilot Project, in which the Company is a 25% participant along with Petro-Canada Exploration Inc., Dome Petroleum Limited and Melville Shipping Ltd., is designed to test the feasibility of producing and liquefying natural gas in the Arctic Islands and transporting it south on a year-round basis by ice-breaking carriers to a regasification site in eastern Canada. National Energy Board hearings commenced on February 2, 1982.

The second project in which NOVA is participating, the Western LNG Project, involves transport of up to 154.8 bcf ( $4.4 \times 10^9 \text{m}^3$ ) of liquefied natural gas per year to five regasification terminals in Japan. It is expected that a liquefaction plant will be located at Grassy Point, B.C., approximately 19 mi. (30 km) northwest of Prince Rupert.

#### CANSTAR OIL SANDS LTD.

NOVA and Petro-Canada Exploration Inc. share equally in the ownership of Canstar Oil Sands Ltd., a company created to develop oil sands mining opportunities in northern Alberta.

Canstar is currently engaged in a feasibility study for a commercial oil sands mining project, with an application to the Alberta Energy Resources Conservation Board planned for late 1983. Start-up of the plant depends on a final determination of the size and nature of the project but is tentatively scheduled for 1991. Technical and economic feasibility of a commercial plant will be reviewed at several points prior to the submission of the application.

Canstar has identified a preferred lease area for development and two back-up sites. Negotiations have essentially been concluded with current lease holders, enabling development activities to proceed. Options for participation have been provided for other parties, specifically Husky Oil Operations Ltd. and Alberta natives.

If a positive commercial climate for oil sands development emerges during 1982, it is estimated that

\$200 million could be spent by Canstar on field work, feasibility studies and preliminary design work over the next three years up to the point of receipt of regulatory and Alberta Cabinet approval. Of this amount, an estimated \$140 million is forecast to be to the account of NOVA, including farm-in payments for lease acquisition. Acceptable fiscal, commercial and pricing arrangements will have to be made with the Alberta and federal governments and suitable financing must be arranged before major construction can commence.

NOVA is also engaged in acquiring an interest through purchase and farm-in in other oil sands leases with an estimated value of \$22.5 million.

#### NOVAL TECHNOLOGIES LTD.

Noval Technologies Ltd. (formerly Algas Resources Ltd.), a wholly-owned subsidiary of NOVA, investigates, develops and operates projects in new and alternate energy sources, waste heat utilization and product development. It also sponsors projects, manages technology transfer and carries out technical assessments of high technology activities.

By mid-1982 Noval's waste heat utilization project in commercial greenhouse farming will have seven acres in operation at two sites, Princess and Joffre. The crops, being marketed at various locations in Alberta under the Prairie Sun Vine-Ripened label, include tomatoes, long English cucumbers, lettuce, potted flowers and bedding plants.

Work is continuing in two locations in Nova Scotia on extracting methane from coal. A mine methane drainage project near Sydney with Petro-Canada and the Cape Breton Development Corporation progressed more slowly than planned during 1981 because of a prolonged work stoppage at the mines. A second set of test production wells was completed in the Pictou area during the year. Decisions on taking both projects to a commercial stage will be made during 1982.

Noval is continuing to participate in coal liquefaction feasibility studies in Alberta and Nova Scotia. The fuel peat demonstration project near Bishop's Falls, Newfoundland, continued during the year with a small quantity of production sold as boiler fuel. Noval is participating with Memorial University and Lundrigans Limited in this project.

During the year Noval opened a new products development facility in Calgary to design and engineer electronics components for the NOVA companies, especially the flow control and measurement products manufacturing companies.

#### RESEARCH AND TECHNOLOGY CENTRE

Work has continued during the year on the planning of a permanent centre including laboratory, shops and pilot plant. The director of research has been appointed and



Peat harvesting in Newfoundland is a Noval Technologies undertaking.

initial administrative and technical personnel have been employed. Initial program work will begin at interim lab facilities during 1982. Research objectives are focused on improving and developing technologies of benefit to the operations of NOVA and Husky and their derivative companies, principally in the area of resource recovery.

A research program in biotechnology continued at University of Calgary laboratories through an arrangement with the Arctic Institute of North America. Additional work in this field is being done under contract with B.C. Research, an independent, non-profit society in British Columbia.

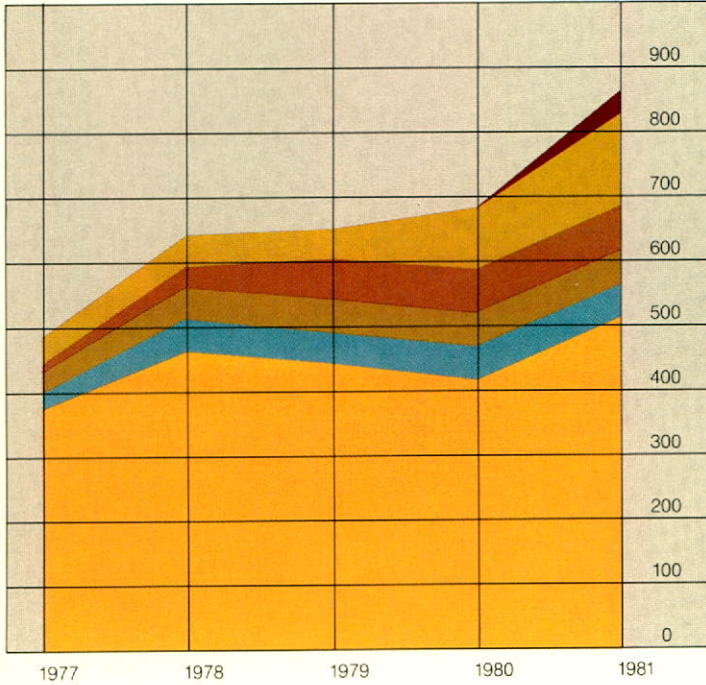
#### CANOCEAN RESOURCES LTD.

CanOcean Resources Ltd., headquartered in New Westminster, British Columbia, is a diversified international hydrocarbon technology company specializing in the development of energy resources, onshore and offshore. Production services include applied research and development, hardware and plant fabrication, wet or dry subsea installation and well completion, arctic production systems and systems maintenance. CanOcean's contract in Brazil with Petrobras for maintenance of a number of offshore oil wells in the Garoupa field continued during the year. The company has offices in Calgary, Houston, London and Rio de Janeiro.

# Petrochemicals

## Petrochemicals Assets

(millions of dollars)



- The Alberta Gas Ethylene Company Ltd.
- A.G. Pipe Lines (Canada) Ltd.
- A.G. Pipe Lines Inc.
- Diamond Shamrock Alberta Gas
- Alberta Gas Chemicals Ltd.
- ENESCO CHEM



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The world's petrochemical industry is becoming increasingly dependent for its continued growth on a secure, competitively priced supply of feedstock. Here in Alberta the growing reserves of natural gas combined with an agreed-upon national energy pricing policy are stimulating accelerated growth of a world-competitive industry. NOVA has been in the forefront of this growth since 1972 and continues to play the leading role in the province.

In 1981 the focus of the petrochemicals sector has been on two areas: continuing to execute plans for ethylene and derivative manufacture, and reorganizing the Company's chemical interests.

#### NOVACOR CHEMICALS LTD.

A key step in 1981 was the formation of Novacor Chemicals Ltd., a wholly-owned NOVA subsidiary responsible for direction, control and, in due course, ownership of the Company's petrochemical interests. This new company gives recognition to the growing size and importance of petrochemical activities and will achieve the development of a co-ordinated long-term strategy.

Petrochemical interests affected are The Alberta Gas Ethylene Company Ltd. (100% owned); ENESCO CHEM LTD. (60% owned); Alberta Gas Chemicals Ltd. (50% owned); Diamond Shamrock Alberta Gas (50% owned); A.G. Pipe Lines (Canada) Ltd. (100% owned); and A.G. Pipe Lines Inc. (100% owned).

Executive direction of Novacor is being provided by R. L. Pierce, President and Chief Executive Officer; J. P. Sutherland, Executive Vice President; G. L. W. Clark, Senior Vice President; and J. E. Feick, Senior Vice President.

Novacor's subsidiary and affiliate companies are incurring higher feedstock costs for their primary and derivative petrochemical production as a result of the September 1981 energy agreement between the Alberta and federal governments. However, this change does not alter significantly the fundamental competitiveness of Alberta natural gas-based petrochemical production.

Despite the progress achieved to date by the industry in Alberta and the prospects for continued growth, the state of world petrochemical markets and the economy

generally has given many participants cause for reassessment and some concern. Novacor remains confident that feedstock pricing and security of supply provide Alberta with a basic competitive advantage.

More difficult economic conditions do underscore the need to consolidate the marketing, technological and managerial competence necessary for long-term viability in the petrochemical business. The Novacor companies are focusing particularly on ensuring that their products get to markets. The reorganization undertaken during 1981 places NOVA in a most favorable position to benefit from its petrochemicals activity.

#### THE ALBERTA GAS ETHYLENE COMPANY LTD.

In 1981 the first Alberta Gas Ethylene Company Ltd. (AGEC) plant operated near its design capacity of 1.2 billion lbs. (544 000 t) per year as one of the world's most efficient plants. Industrial development permits have been received from the Energy Resources Conservation Board (ERCB) and the Alberta Cabinet for two additional AGEC plants, each of which will have a design capacity of 1.5 billion lbs. (680 000 t) per year. Construction of the second plant, scheduled to come onstream in 1984, is well underway, while engineering on the third, scheduled for mechanical completion by the end of 1985, has commenced. The estimated capital costs of the two plants are \$650 and \$750 million respectively, including capitalized interest and inflation. Maximum Alberta and Canadian content is being employed in the engineering, procurement and construction of both facilities.

Negotiations for the required feedstock supply are underway and construction of additional ethane extraction facilities has commenced. NOVA and Dome Petroleum Limited have announced plans to construct a new straddle plant at Empress, Alberta. During 1981 there were some new developments and initiatives in ethane supply, many of them still before provincial government agencies. It is the Company's position that priority be given to obtaining overall economic efficiency in ethane supply and extraction, while at the same time ensuring that interests of the petrochemical and gas production industries are respected and provided for equitably. NOVA is confident that these aims can be accomplished to the satisfaction of all concerned parties. And despite competition for feedstock, the Company believes that adequate supplies will be available.

#### ENESCO CHEM LTD.

The joint venture between NOVA (60%) and Shell Canada Limited (40%) has been named ENESCO CHEM LTD. This company is headquartered in Edmonton and will undertake the manufacture and sale of ethylene derivatives from facilities to be built at two Alberta locations.

To date two projects have received industrial development permits, a 600 million lbs. (270 000 t) per

**Alberta Petrochemical Operations**



- ALBERTA GAS CHEMICALS LTD.
- ◆ Methanol Plants
- ALBERTA GAS ETHYLENE COMPANY LTD.
- ▲ Ethylene Plant
- ◆ Ethylene Plant Under Construction
- Ethylene Plant Approved
- Ethylene Pipeline
- ▲ Ethane Extraction Plant Proposed
- ENESCO CHEM LTD.
- ▲ Polyethylene Plant Under Construction
- Styrene Plant Under Construction
- ◆ Higher Olefins Plant Proposed
- DIAMOND SHAMROCK ALBERTA GAS
- ▲ Polyvinyl Chloride Plant
- COCHIN PIPE LINE
- Pipeline Route
- A. G. PIPE LINES (CANADA) LTD.
- Ethane Gathering System

year linear low density polyethylene plant to be located at Joffre, Alberta, and a 660 million lbs. (300 000 t) per year styrene plant to be located at Scotford, Alberta. These facilities are both under construction and are expected to come onstream in mid-1984. ENESCO has announced an agreement with Union Carbide Corporation whereby Union Carbide will purchase up to 400 million lbs. (180 000 t) per year of polyethylene for a term of eight years. The linear low density polyethylene plant will cost approximately \$470 million and the styrene plant approximately \$400 million, including capitalized interest and inflation.

In 1981 an application was filed with the ERCB for a permit to construct and operate a linear higher olefins plant. This facility, to be located at Scotford, will be world scale and is expected to cost in excess of \$400 million.

When these three plants are in place, ENESCO will be Canada's second largest upgrader of ethylene. All three are using the most advanced commercially-proven technology, enhancing significantly the company's prospects for growth and profitability.

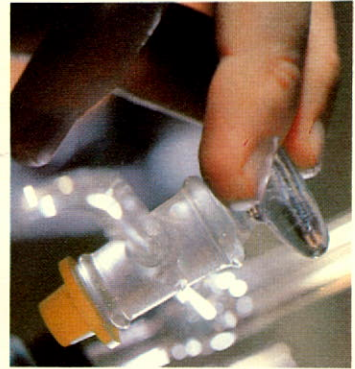
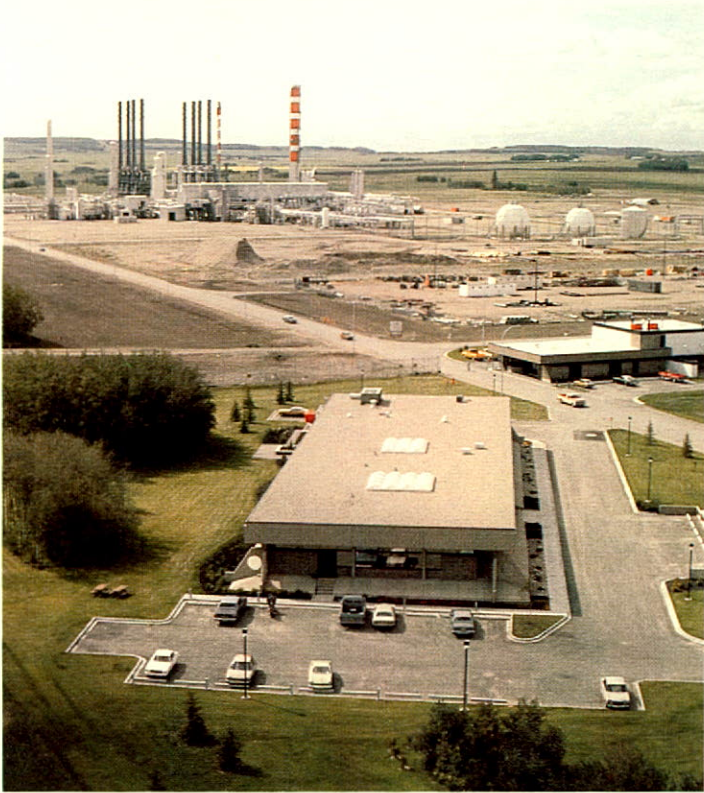
These ethylene-based petrochemical derivatives are used in manufacturing a variety of industrial and consumer products. Styrene is the base product for polystyrene, used by the building and refrigeration industries and in packaging and containers. It is also upgraded into synthetic rubber, used primarily in tires, and into products from which automotive parts and plastic pipe are manufactured. Low density polyethylene is marketed for use as packaging film and electrical wire coatings. Linear higher olefin derivatives are ingredients in the production of a variety of household goods such as dishwashing and laundry detergents, cosmetics, shampoo, toiletries, fabric softeners, candles and crayons. They are also used in the manufacture of industrial products such as textile finishes, rubber additives, synthetic lubricants and plastics. The low density polyethylene plant will use one of the higher olefin products in its manufacturing process. The availability of this range of products will stimulate further industrial growth, both large scale and entrepreneurial, in Alberta.

ENESCO has begun building an operating organization. R. G. Frakes, formerly with a major petrochemicals manufacturer in eastern Canada, was appointed President and Chief Executive Officer during 1981. He is supported by a growing organization which at year end amounted to approximately 30 persons.

**DIAMOND SHAMROCK ALBERTA GAS**

Diamond Shamrock Alberta Gas (DSAG), a joint venture of NOVA and Diamond Shamrock Corporation to manufacture and sell polyvinyl chloride, continued to experience manufacturing and marketing problems in 1981. The Company believes, however, that the technical problems have been resolved and that DSAG will be





Petrochemicals manufacture is a highly sophisticated operation, utilizing state-of-the-art technology. This includes the use of computerized process control at the Joffre ethylene plant (above) and the methanol plants at Medicine Hat (right).

positioned to take full advantage of an expected market upturn which may occur in the second half of 1982. The product is used primarily in making pipe, plastic bottles and molded items.

In 1981 Diamond Shamrock indicated its intention to sell its interest in DSAG. Discussions with prospective purchasers are ongoing.

#### ALBERTA GAS CHEMICALS LTD.

The first two methanol units of Alberta Gas Chemicals Ltd. (AGCL) operated at capacity in 1981, although there was a somewhat adverse impact on profitability because of substantially increased taxes on domestic natural gas consumption and the slump in world prices late in the year. The third unit of 1,200 tons (1088 t) per day was

mechanically completed and came into operation early in 1982, raising overall capacity at Medicine Hat to 2,400 tons (2178 t) per day. The capital cost of the third plant was \$129 million. AGCL also entered into an agreement with the Petroleum Corporation of New Zealand, a Crown corporation, to become a 49% participant in a joint venture to construct and operate a 1,320 ton (1200 t) per day methanol plant in New Zealand. Construction is underway and the facility is expected to come onstream in 1984.

During the year AGCL continued its program of securing feedstock by purchasing gas reserves, entering into supply agreements with other companies and participating in gas exploration. The malic and fumaric acid plants situated in Duluth, Minnesota, operated satisfactorily throughout the year.

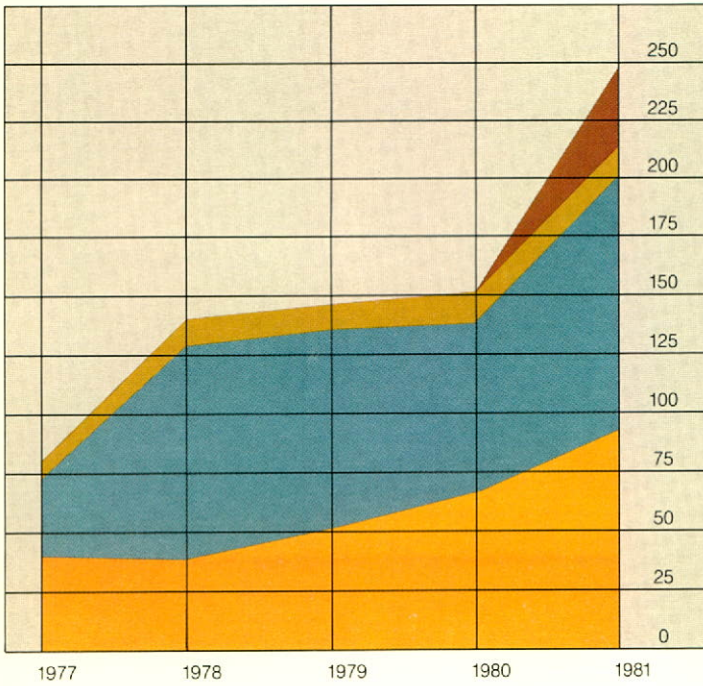
#### A.G. PIPE LINES

The A.G. Pipe Lines companies hold NOVA's investments in the Alberta Ethane Gathering System (33 $\frac{1}{3}$ %) and in the Cochin Pipe Line (20%). During 1981 the Cochin system continued to operate at high rates, although profitability was affected by high interest rates.

# Manufacturing

## Manufacturing Assets

(millions of dollars)



■ Grove Valve and Regulator Company   ■ WAGI International S.p.A.   ■ Steel Alberta Ltd.  
■ Western Star Trucks Inc.



Through subsidiary companies NOVA is engaged in the manufacture of high quality valves and other products related to the energy industry. During 1981 the Company became involved in the transportation sector with acquisition of an interest in the assembly and marketing of heavy duty trucks.

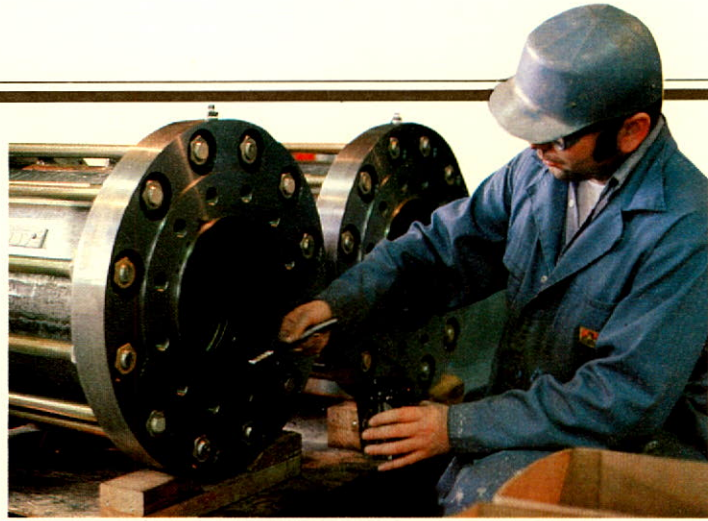
#### ENERGY EQUIPMENT & SYSTEMS INC.

Energy Equipment & Systems Inc. (EESI), a wholly-owned subsidiary, carries on engineering and manufacturing activities in the United States through its subsidiaries, Grove Valve and Regulator Company (Grove) of Oakland, California (100% owned), Ledeen Flow Control Systems Inc. (Ledeen) of Sun Valley, California (80% owned), and Pipeline Hydraulics Engineering Inc. (PHE) of Houston, Texas (100% owned).

Grove's 1981 sales increased about 30% and earnings were up almost 40% as its engineering services and products for oil and gas and water pipeline systems continued to receive strong acceptance in major markets and for use in large construction projects. Grove operates plants in Oakland and Berkeley, California, and Reno, Nevada. During the year Grove added two new subsidiaries, Grove Truseal Valve Company, Inc. (100% owned), with a plant in Cincinnati, Ohio, and Grove Energy Systems, Inc. (100% owned), of Houston, Texas. Construction of a new plant for Grove Energy Systems was begun during the year and will be completed in the spring of 1982, with initial shipments of oil and gas measurement equipment scheduled for later in the year. Capital spending for Grove and its subsidiaries during the year reached nearly \$10 million and a further \$8 million is projected for 1983.

PHE continued to provide consulting engineering and computer simulation services to the pipeline industry and to Grove for pipeline systems analyses and product development. Ledeen manufactures valve actuators and other flow control products for a variety of applications in the international energy field.

Manufacturing operations in Europe are carried on by WAGI International S.p.A., headquartered in Rome, Italy. WAGI, through four wholly-owned subsidiaries, operates five plants at various locations in Italy producing valves and actuators for the pipeline and process industries. Its principal subsidiaries are Grove Italia and Ledeen Italia. WAGI's 1981 sales increased about 30% and earnings were up substantially. During the year ownership in WAGI was increased from 66<sup>2</sup>/<sub>3</sub>% to 100%. WAGI's products continue to have strong acceptance in European, Comecon, Mideast and African countries.



The valve manufacturing plants had a particularly good year in 1981.

#### STEEL ALBERTA LTD.

Steel Alberta (50% owned) continues to own 20.2% of the shares of Interprovincial Steel and Pipe Corporation Ltd. (IPSCO) of Regina and, as agent for its shareholders, iron ore reserves in the Peace River area of Alberta and the Carter Creek area of Montana. IPSCO's business continued at high levels during the year with earnings up about 15%.

#### WESTERN STAR TRUCKS INC.

During the year NOVA and Bow Valley Resource Services Ltd. of Calgary purchased the assets and business of a long-established assembler and marketer of heavy duty trucks. Western Star (50% owned) assembles trucks in Kelowna, British Columbia, markets them throughout Canada and, through a distributorship agreement with Volvo White Truck Corporation, into the United States. The company also sells certain Volvo White trucks in Canada. Western Star's production and sales continued at normal levels into the fall of 1981 but declined steeply towards year end owing to the severe economic conditions affecting many segments of North American automotive industry.

# General Programs



"Youth in Action" was the theme of the NOVA-sponsored sport caravan at the 1981 Calgary Stampede.



Scientific study of the world's most northerly shipwreck is being supported. The illustration is by the Breadalbane's captain.

## CORPORATE CONTRIBUTIONS

Over and above direct business benefits, the Company believes that its role includes making other contributions to the local, provincial, regional and national communities in which it operates. Part of this role is exercised through a corporate contributions program. In 1981 NOVA contributed approximately \$1 million to various non-profit, voluntary organizations.

A particularly interesting project which NOVA supported is an expedition for the multi-disciplined study of the world's most northerly known shipwreck and the environment that surrounds it. The Breadalbane is a Victorian sailing ship that sank in 1853 in Canada's Northwest Passage and is representative of the golden age of Canada's Arctic exploration. Scientific dives made during the expedition will re-awaken this important element of the country's maritime history and promote a better understanding of this section of Canada's Northwest Passage.

The United Way campaigns of several Alberta communities continued to be the major recipients of the health and welfare portion of the budget, which is the largest segment of the contributions program.

In recognition of the importance of worker health and safety, NOVA made a major contribution to the University of Alberta towards the establishment of a chair

in Occupational Health and Safety. The Company was also one of the first corporate donors to Turning Point, a residential treatment centre located outside Calgary for individuals with alcohol and drug-related problems. The International Year of the Disabled was observed through contributions to a number of projects and even greater emphasis on employment of the disabled.

The Company contributed to various organizations working with young people. These included the Girl Guides, Boys' and Girls' Clubs of Canada, Junior Achievement, Alberta Debate and Speech Association and Youth Science Fair. In addition, NOVA sponsored various student seminars and conferences.

In education NOVA contributed to several national university campaigns and to regional and national institutes with special fields of interest.

The Council for Canadian Unity was a major recipient of funds in the civic activities category. The organization strives to give Canadians a better understanding of their national heritage and a stronger desire to preserve the values which unite all Canadians.

Through its Alberta Gas Transmission Division, NOVA participates in the Alberta communities where it

has facilities. In 1981 these communities received funds for some 80 projects, including support for purchase of a bus for senior citizens at the York Creek Lodge, work of the Lac La Biche Historical Mission Preservation Society and a contribution towards a program worker for the Wainwright Association for the Handicapped, as well as a donation to the Diamond Jubilee Recreation and Cultural Centre for Idlesleigh and Jenner.

In the recreational field the Company was again the major corporate sponsor of Skate Canada and presents the team trophy at this international sports event. NOVA participated with other companies in making a contribution to the Calgary Olympic Development Association in its bid to gain the 1988 Winter Olympics for Calgary. The Company also donated to the Commonwealth Games Association of Canada to send the country's athletes to Australia in 1982. NOVA contributed to the Arctic Winter Games and the Yukon Sports Federation in northern Canada.

In arts and culture NOVA was the major corporate sponsor of a coast-to-coast Canadian tour of the Royal Winnipeg Ballet which visited about 40 communities in nine provinces. Dance, choral, orchestral and theatre groups in Alberta were the primary recipients of funds. A number of arts companies and groups elsewhere in Canada also received support.

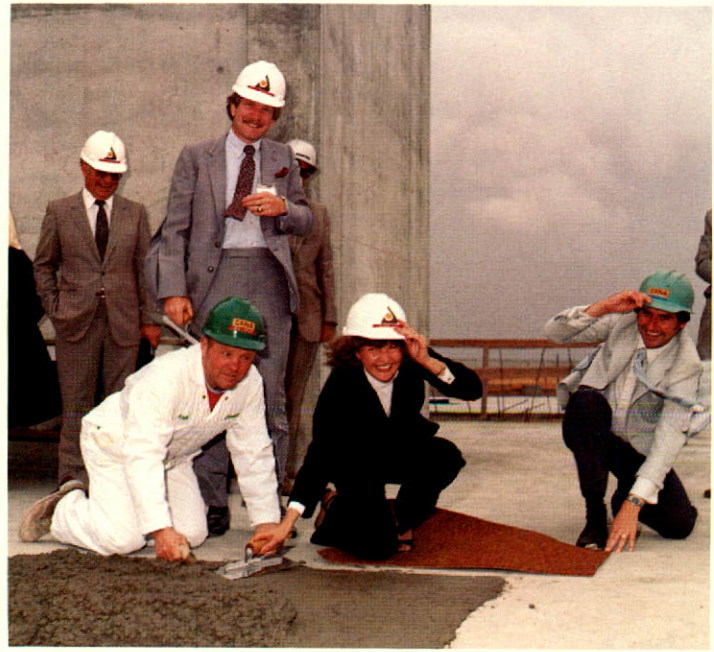
#### OCCUPATIONAL HEALTH AND SAFETY

NOVA expressed its commitment to the health and safety of its employees through the appointment in 1981 of Dr. John Cowell to the position of corporate vice president. NOVA is one of very few Canadian companies to have a person concerned with this area functioning at such a high level of visibility and authority in the organization.

Dr. Cowell brings excellent credentials to his position, coming to NOVA from a large multinational manufacturing company where he had similar responsibilities. He is certified in family and community medicine and by the Canadian Board of Occupational Medicine.

Already in its initial stages is NOVATION, a health enhancement program involving approximately 2,500 NOVA group employees. Emphasis is on influencing physical activity, nutritional eating habits, personal stress management, use of leisure time, physical and social awareness and self-responsibility. The pioneering program is motivated by high employee interest and the fact that the vast majority of employees are in the age group where such a program can make its greatest impact. NOVA is a fast growing, dynamic company, where change is the norm, and the intent is to equip employees with the skills to live and work comfortably in this environment. An evaluation of the effects of the program on employees is part of the overall effort.

Focus on another area of concern will occur with the upcoming appointment of an industrial hygiene manager. This person will be responsible for developing



The topping-off ceremony for NOVA's head office building was an event to remember for representatives of Novalta Properties and other companies involved in the construction.

and implementing a hazardous material management system and will be involved from the design stage to make sure that new plants and operations meet high standards for ensuring employee and public health and safety.

#### NOVALTA PROPERTIES LTD.

Construction of the new NOVA head office building is proceeding on schedule with move-in planned to begin in May and continue throughout the summer of 1982. The 37-storey stainless steel tower will provide both a dramatic architectural contribution to downtown Calgary and an attractive, efficient work environment for NOVA employees. The building is oriented to minimize shadowing on the adjacent city park. Public areas include a glass-enclosed garden court, an exhibition area, a restaurant and a +15 level food fair.

Interior spaces are designed to be bright and cheerful, with floor-to-ceiling windows, furniture in primary colors and extensive use of glass, wood, plants and art. The building incorporates the latest advances in safety and energy efficiency. It is fully equipped with sprinklers and is the first major building in Calgary to employ the task-ambient system of lighting.

Work began in November on the new NOVA computer centre. The building, a 131,000 gross sq. ft. (39,929 gross m<sup>2</sup>) facility, employs state-of-the-art technology to satisfy unique mechanical, electrical and security requirements. Scheduled for completion in the spring of 1983, the new computer centre is designed to accommodate the computer requirements of the NOVA group of companies to the year 2000.

# Officers of the Company

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## Senior Corporate Officers

S. Robert Blair

*President and Chief Executive Officer*

Robert L. Pierce

*Executive Vice President*

John E. Feick

*Senior Vice President*

Dianne I. Hall

*Senior Vice President and Secretary to the Board*

William C. Rankin

*Senior Vice President and Controller*

## Corporate Officers

George L. Bastin

*Vice President and Corporate Secretary*

William J. Beamer

*Vice President*

John W. F. Cowell, M.D.

*Vice President, Occupational Health and Safety*

Ronald D. Dooley

*Vice President and Treasurer*

Barry E. Harper

*Vice President*

Bruce G. Hartwick

*Vice President*

C. Kent Jespersen

*Vice President*

Richard C. Milner

*Vice President and Assistant Controller*

Robert W. Schmidt

*Vice President*

Bruce W. Simpson

*Vice President*

Joan A. Dennis

*Assistant Secretary*

James D. Hinks

*Assistant Treasurer*

## Alberta Gas Transmission Division

Donald G. Olafson

*Division Vice President and General Manager*

Terence N. Befus

*Division Vice President*

Douglas R. Hagerman

*Division Vice President*

V. Bent Kromand

*Division Vice President*

Walter J. Litvinchuk

*Division Vice President*

C. Dale Richards

*Division Vice President*

Eric H. Shelton

*Division Vice President*

## Novacor Chemicals Ltd.

John P. Sutherland

*Executive Vice President*

G. L. W. Clark

*Senior Vice President*

Robert E. Bowser

*Vice President*

William K. Stephenson

*Vice President*

## Other Officers

Peter C. Flynn

*Division Vice President*

*Resource Development*

On assignment to affiliate:

William J. Deyell

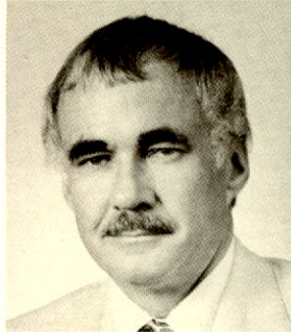
*Executive Vice President*

*Foothills Pipe Lines (Yukon) Ltd.*

# Board of Directors



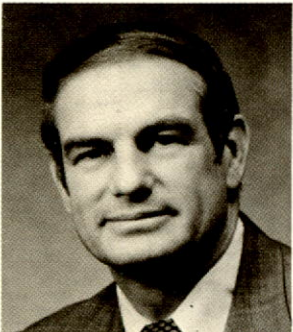
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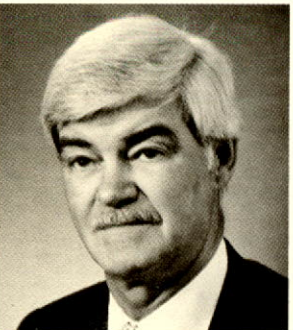
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1. **Robin J. Abercrombie**  
*Retired (former Senior Vice President of the Company)*
2. **S. Robert Blair**  
*President and Chief Executive Officer of the Company*
3. **Arthur J. E. Child**  
*President and Chief Executive Officer, Burns Foods Limited, Calgary, Alberta (Food Processor)*
4. **Donald R. Getty**  
*President, D. Getty Investments Ltd., Edmonton, Alberta (Investments)*
5. **J. Joseph Healy**  
*President, Healy Motors Limited, Edmonton, Alberta (Transportation)*
6. **Harley N. Hotchkiss**  
*Private Investor, Calgary, Alberta*
7. **William A. Howard**  
*Partner, Howard, Mackie, Calgary, Alberta (Barristers and Solicitors)*
8. **Peter L. P. Macdonnell**  
*Partner, Milner & Steer, Edmonton, Alberta (Barristers and Solicitors)*
9. **John R. McCaig**  
*Chairman and Chief Executive Officer, Trimac Limited, Calgary, Alberta (Transportation and Resource Services)*
10. **Frederick A. McKinnon**  
*Retired, Calgary, Alberta*
11. **A. Ernest Pallister**  
*President, Pallister Resource Management Ltd., Calgary, Alberta (Resource Management)*
12. **H. J. Sanders Pearson**  
*Chairman and Chief Executive Officer, Century Sales & Service Limited, Edmonton, Alberta (Industrial Tools and Fasteners Distribution)  
Chairman of the Board of Directors of the Company*
13. **Robert L. Pierce**  
*Executive Vice President of the Company*
14. **Daryl K. Seaman**  
*Chairman and Chief Executive Officer, Bow Valley Industries Ltd., Calgary, Alberta (Natural Resource Services, Exploration and Development)*
15. **Ronald D. Southern**  
*President and Chief Executive Officer, ATCO Ltd., Calgary, Alberta (Natural Resource Services, Property Development and Manufacturing)*

# Financial Review

Although 1981 saw the continuation of the trend of significant increases in assets and revenues, the consolidated net income of \$129.9 million was down by 9.7% compared to the 1980 figure of \$143.7 million. This decrease was principally due to increased interest costs of \$154.6 million and the new Petroleum and Gas Revenue Tax of \$16.1 million.

## REVENUE

Total operating revenue of \$2.670 billion represents an increase of \$544 million or 26% over revenue of \$2.126 billion for 1980. All segments achieved revenue growth with principal increases occurring in Resource Development (up \$371 million) and Petrochemicals (up \$103 million). A highlight for 1981 was the first revenues received by the Alaska Highway Gas Pipeline Project as a result of the first flow of natural gas through the western leg of Phase I.

## COSTS

Total costs and expenses of \$2.275 billion increased by \$513 million or 29% from \$1.762 billion in 1980. The increase in operating expenses of \$473 million or 30% was mainly attributable to Resource Development (\$343 million) and Petrochemicals (\$98 million).

Increases of \$24.5 million or 15% in depreciation and depletion reflect the significant additions over the past years to production and natural gas transportation assets. Substantial changes in the oil and gas industry in Canada have been created by the National Energy Program and the Energy Pricing and Taxation Agreements. As a result of these changes the limitations of the unit of production method for depletion became more pronounced. For companies employing the full cost method of accounting, the revenue depletion method provides a more acceptable basis for allocating the cost of oil and gas properties over future accounting periods. For 1981, the depletion expense for Canadian operations was computed by the revenue method. If the composite unit of production method had been used in 1981, net income would have been \$11 million lower.

Loss on foreign currency translation of \$17.3 million compares to a loss of \$7.7 million in 1980. The 1981 loss results principally from the translation effect of U.S. dollar debt retirements and the weaker Italian lire at year end. After allowing for income taxes, minority interest and amounts billed under cost of service contracts, this item had an adverse effect of 7¢ per share on net income (3¢ in 1980).

## NET OPERATING INCOME

Net operating income of \$395 million represents an increase of \$31 million or 8.6% over \$364 million in 1980. All segments reflected increases except for Petrochemicals where a slight decrease was principally due to

unsatisfactory market results from the polyvinyl chloride plant.

Continued strong market acceptance and improved margins by the valve manufacturing operations contributed to the \$14 million or 74% increase in net operating income for the Manufacturing segment. The net operating income for the Alberta Gas Transmission Division was up due to growth in the rate base and a higher average rate of return.

## OTHER INCOME ITEMS

The significant increase in the allowance for funds capitalized during development and construction was principally due to the large 1981 capital expenditure programs for regulated Natural Gas Transmission segment activities. The Company's proportionate share of funds capitalized for the Alaska Highway Gas Pipeline Project accounts for \$39 million out of the \$57 million increase over 1980. The balance of the increase was about equally divided between the Alberta Gas Transmission Division and the Trans Quebec and Maritimes Pipeline Project.

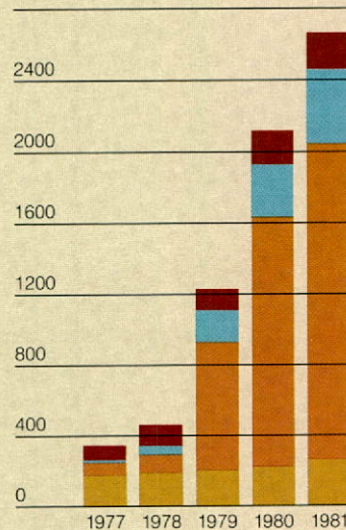
The decline of \$4 million within the Petrochemicals segment in equity earnings from Alberta Gas Chemicals was mainly due to the effect of the new energy taxes on the cost of natural gas feedstock, as well as a slump in world methanol markets towards the end of the 1981 year.

## INTEREST

Net interest expense for 1981 of \$247.9 million represents an increase of \$154.6 million over \$93.3 million in 1980. This variance is due both to increased borrowings to

## Gross Revenue

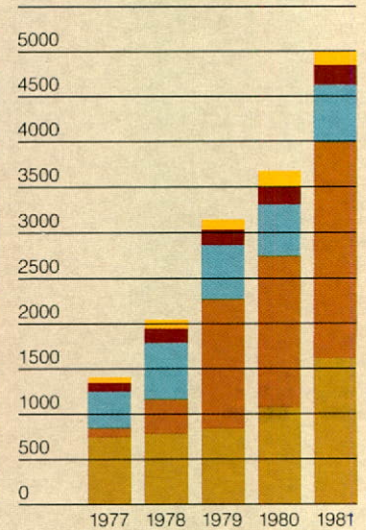
(millions of dollars)



■ Manufacturing  
■ Petrochemicals  
■ Resource Development  
■ Natural Gas Transmission

## Total Consolidated Assets

(millions of dollars)



■ Other  
■ Manufacturing  
■ Petrochemicals  
■ Resource Development  
■ Natural Gas Transmission



finance significant capital expenditures in all segments and higher average interest rates for 1981. The average 1981 consolidated interest rate on companies' borrowings was approximately 14½% versus 11% for 1980. An annualized variance of 1% in the prime rate for 1981 would have affected reportable net income by approximately \$4.7 million.

For regulated Natural Gas Transmission activity and certain Petrochemical operations, their cost of service nature shields them from the high interest rates. In the case of major construction activities for this group the interest costs are essentially capitalized, while during the operating phase higher interest costs are essentially reflected in the rates of return allowed on rate base.

#### INCOME TAX

The 1981 provision for income taxes represents an effective rate of 19.8% on income before income taxes and minority interest as compared to 35.4% in 1980. Income tax expense decreased by \$61 million or 56.6% from 1980.

The principal reasons for the reduction in the effective rate from 1980 are the lower billings for income taxes by the Alberta Gas Transmission Division as a result of the significant capital program and the large increase in after tax equity return capitalized for Natural Gas Transmission development and construction activities.

#### MINORITY INTEREST

Minority interest in net income of \$42.9 million is down \$9.9 million from \$52.8 million in 1980. This decline relates to the minority shareholders' interest in the lower Husky net income partially offset by an increase in the floating dividend rate on the minority interest preferred shares in A.G. Investments.

#### NET INCOME

As outlined in the introduction net income of \$129.9 million for the year represents a decrease of \$13.8 million or 9.7% compared to net income of \$143.7 million for 1980.

The following table displays earnings per common share, after providing for dividends on preferred shares, and the average common shares outstanding for 1981 and 1980.

	1981	1980	% Variance
Earnings per common share			
Basic	\$0.90	\$1.10	(18.2)
Fully diluted	\$0.80	\$0.90	(11.1)
Average common shares outstanding (millions)	107.6	99.0	8.7

The 1981 reported net income of Husky includes an extraordinary loss of \$15.2 million on the sale of Gate City Steel Corporation. At the time NOVA obtained control of Husky, NOVA valued Gate City at less than the investment amount recorded in Husky's books. Accordingly, the disposition of Gate City has had no material effect on the consolidated financial results of NOVA.

#### ASSETS

Total assets increased from \$3.7 billion at December 31, 1980 to \$5.0 billion at December 31, 1981, an increase of \$1.3 billion. This growth of approximately 37% reflects continued strong asset growth in all segments.

#### DIVIDENDS

Dividends paid or payable for 1981 totalled \$75.7 million compared to \$74.4 million for 1980. Common share dividends were \$42.9 million (\$37.5 million in 1980); convertible preferred share dividends were \$17.9 million (\$21.2 million in 1980); and preferred share dividends were \$14.9 million (\$15.7 million in 1980). The quarterly dividend on common shares was increased from 9.33¢ to 10¢ with the August dividend. In 1981 common shareholders received total dividends equal to 38.666¢ per common share compared to 36¢ in 1980, an increase of 7.4%.

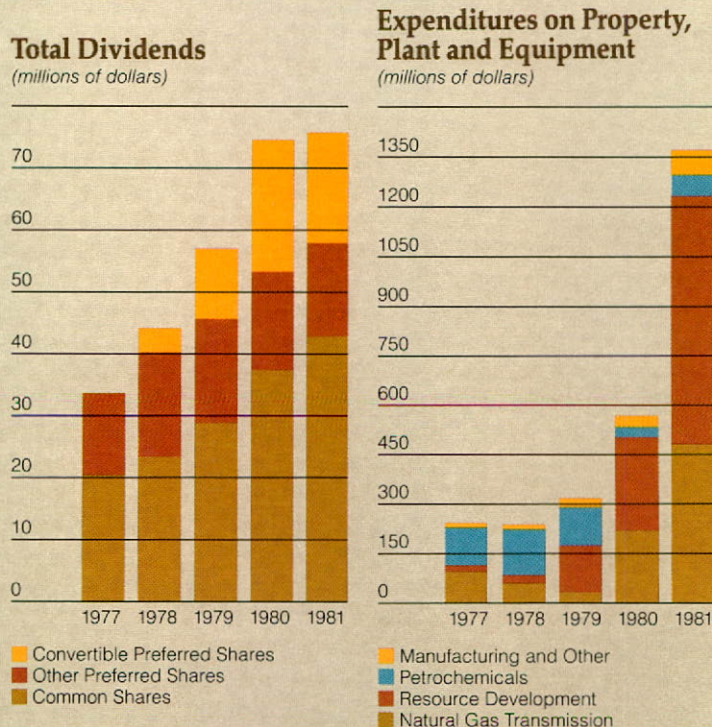
#### NEW FUNDS

Sources of funds of \$1.619 billion were obtained in 1981 compared to \$900 million in 1980. Funds from operations of \$351 million represent a decrease of \$47 million from \$398 million in 1980. This 12% decrease is primarily due to Husky's increased interest costs and the new Petroleum and Gas Revenue Tax. Funds from long term debt provided \$1.256 billion compared to \$220.1 million in 1980. A significant portion of the \$1.256 billion was represented by floating rate bank loans and notes. These borrowings were classified as long term because of the companies' intention to refinance with long term fixed rate financing.

The funds generated in 1981 were utilized principally for capital expenditures and deferred costs (\$1.428 billion), retirement of long term debt (\$92.3 million) and the payment of dividends to the shareholders of the Company (\$75.7 million) and minority shareholders of subsidiaries (\$31.5 million).

#### CAPITAL EXPENDITURES

Expenditures for capital assets and deferred project costs amounted to \$1.428 billion in 1981 compared to \$593 million in 1980. The 1981 capital expenditures were incurred principally for the petroleum properties, refining and marketing facilities (\$763.8 million — including the purchase of Uno-Tex Petroleum Corporation by Husky for \$371.2 million), Alberta Gas Transmission Division facilities expansion (\$234.0



million), the Company's proportionate share of Alaska Highway Gas Pipeline Project — Phase I facilities (\$194.5 million), the TQM Pipeline Project (\$60.0 million), and NOVA's head office building (\$53.5 million).

## FINANCING

The Company has taken steps in early 1982 to obtain fixed rate financing through the issue and sale of long term debentures and preferred shares in the Canadian, American and European capital markets. (For more details on these financings see Note 14 to the consolidated financial statements).

The Company anticipates additional financing of up to \$600 million may be raised for the 1982 capital expenditure program.

## SHARE CAPITAL

Effective February 13, 1981 the Company subdivided its Class "A" common shares on a three-for-one basis. This share split resulted in appropriate adjustments to dividend rates per share and conversion basis for convertible debentures and convertible preferred shares.

Class "A" common shares outstanding at December 31, 1981 totalled 111 million compared to 103.3 million a year previous. The increase in the number of Class "A" common shares occurred primarily as a result of conversions of 6<sup>3</sup>/<sub>8</sub>% Cumulative Redeemable Convertible Second Preferred Shares. The Class "A" shares are owned by 40,573 shareholders of whom 16,895 or 42% are registered in Alberta.

## 1982 OUTLOOK

The 1982 consolidated capital program, amounting to about \$2.0 billion, reflects the continuation of significant growth in production and natural gas transmission assets. These programs principally cover significant gas service expansions by the Alberta Gas Transmission Division; continuing exploration, production, refining and marketing activities of the Resource Development segment; additional upgrades and expansion to the Alberta based petrochemical complex, and major construction activities for the Alaska Highway Gas

Pipeline Project — Phase I and the Trans Quebec and Maritimes Pipeline Project.

However, the 1982 budget will be kept flexible to permit the optimum selection and timing of capital projects in order to maintain the strong positions NOVA has developed within each of its business segments.

## IMPACT OF INFLATION AND CHANGING PRICES

The Company is currently studying the re-exposure draft on "Reporting the Effects of Changing Prices" issued by the Canadian Institute of Chartered Accountants (CICA) in late December, 1981. A detailed examination of the re-exposure draft is underway to ensure that the recommendations have taken into account the many diverse industries in which the companies operate. Until final recommendations have been issued by the CICA, the Company does not feel it appropriate to issue supplementary information in this regard.

## Supplementary Segment Information

Financial information relating to specific segments is included both in the narrative section of this Annual Report and in the Financial Statements and Notes thereto. A summary of operations by segment is set out below.

### (a) Natural Gas Transmission

The Natural Gas Transmission segment consists of the Company's interest (either directly or through subsidiaries) in the following:

- (i) The Alberta Gas Transmission Division consists primarily of facilities for the transmission of gas owned by TransCanada PipeLines Limited, Alberta and Southern Gas Co. Ltd., Westcoast Transmission Company Limited, Westcoast Transmission Company (Alberta) Ltd., Consolidated Natural Gas Limited, Pan-Alberta Gas Ltd., Progas Limited and Many Islands Pipe Lines (Canada) Limited.

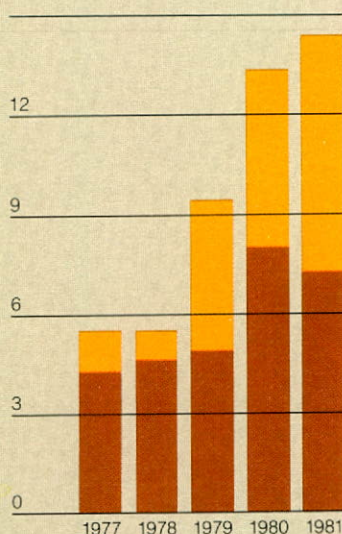
The natural gas transmission services are provided primarily under transportation contracts which provide for recovery of the cost of service. Cost of service includes reasonable and necessary operating expenses, depreciation, amortization, income and other taxes and a rate of return on net rate base. At December 31, 1981 the rate of return on rate base of 13.28% includes a return of 15.25% on a deemed common equity component of 32%. In 1982, the Company plans on changing its rate of return to obtain a more appropriate equity return under existing economic conditions and to insure continued coverage for the variable and fixed rate debt financing the rate base;

- (ii) The Alaska Highway Gas Pipeline consists of the Company's proportionate interests in Foothills Pipe Lines (Yukon) Ltd. and its subsidiaries who together with others are the sponsors of the Alaska Highway Gas Pipeline Project which has as its ultimate objective the transportation of natural gas from Alaska through Canada to the United States of America.

Construction of the Canadian section has been divided into two separate phases. Phase I involves the construction of facilities in Canada south of Caroline, Alberta to provide transmission service for Canadian gas destined for sale in the United States.

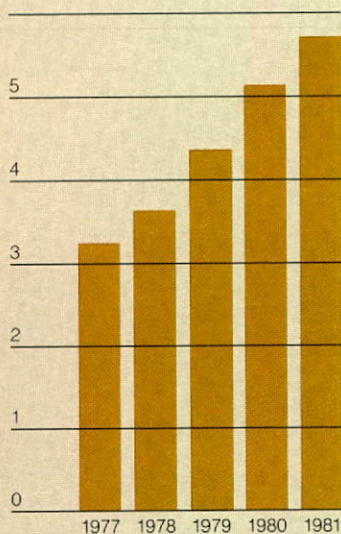
### Hi-Low Price

(dollars)



### Shareholders' Equity per Common "A" Share at Year End

(dollars)



Phase II involves construction of the remaining Canadian facilities required for the transportation of Alaskan gas to markets in the United States.

Phase I transportation service on a full cost of service basis commenced delivery to California markets on October 1, 1981 and is expected to commence delivery to midwestern United States markets in September, 1982. An approved incentive rate of return is expected to result in an after tax return to Foothills Pipe Lines (Yukon) common equity of approximately 18% on Phase I;

- (iii) Q & M Pipe Lines Ltd. (a 100% owned subsidiary) and TransCanada PipeLines Limited have formed a partnership as equal participants to construct and operate a major gas transmission system to transport natural gas in the provinces of Quebec, New Brunswick and Nova Scotia and to facilitate the export of natural gas into the northeastern United States.

Construction of the pipeline system commenced in the spring of 1981. Sections of the pipeline will be placed into service as they are completed with final completion estimated to be in late 1985. Initial service commenced in February, 1982. The project partners originally applied for an 18½% return on a 25% common equity component. The National Energy Board has issued an interim order allowing 15¾% with final determination awaiting a formal hearing.

#### (b) Petrochemicals

The following table summarizes the petrochemical investments (either directly or through subsidiaries) which are consolidated in the financial statements. Cost estimates presented are in as spent dollars including inflation factors and capitalized interest based on financing assumptions and represent initial completion costs.

Facilities In Service	Capacity Per Year	Effective Ownership %	Company's		Estimated Completion Date
			Total Cost	Proportionate Share	
(millions of dollars)					
Ethylene Plant #1 and related pipeline — Joffre, Alberta	1.2 billion lbs. (544 kt)	100%	\$361.5	\$361.5	
Cochin Pipe Line		20%	340.0	68.0	
Ethane Gathering System		33⅓%	50.0	16.7	
Polyvinyl Chloride Plant — Fort Saskatchewan, Alberta	220 million lbs. (99.8 kt)	50%	127.0	63.5	
Facilities Under Construction					
Ethylene Plant #2 — Joffre, Alberta	1.5 billion lbs. (680 kt)	100%	650.0	650.0	mid 1984
Styrene Plant — Scotford, Alberta	660 million lbs. (300 kt)	60%	404.0	242.0	mid 1984
Linear Low Density Polyethylene Plant — Joffre, Alberta	600 million lbs. (270 kt)	60%	477.0	286.0	mid 1984
Approved Facilities					
Ethylene Plant #3 — Joffre, Alberta	1.5 billion lbs. (680 kt)	100%	750.0	750.0	late 1985
Facilities Awaiting Approvals					
Linear Higher Olefins Plant — Scotford, Alberta	440 million lbs. (200 kt)	60%	411.0	247.0	early 1986

- (i) All production from Ethylene Plant #1 is sold to Dow Chemical Canada Inc. on a take or pay basis. The ethylene is paid for by Dow on a cost of service basis including cost of feedstock (ethane) and fuel, operating expenses, depreciation, amortization, income taxes, return to capital and foreign exchange gains or losses in respect of debt service. The return to capital includes a 20% after tax return to equity on a deemed 75:25 debt equity ratio.

Contracts have been signed with a number of purchasers for the sale of output of the second ethylene plant on substantially the same terms as the contract respecting the output of the first plant. The Company will be responsible for the purchase from Alberta Gas Ethylene of approximately 24% of the output of the second ethylene plant.

Preliminary negotiations have commenced with respect to the sale of the output of the third ethylene plant;

- (ii) The Cochin Pipe Line transports ethane, ethylene and other products from Alberta to markets in eastern Canada and the United States;
- (iii) A 33⅓% interest is held in a joint venture formed to own and operate an ethane gathering pipeline and related storage facilities to transport ethane from the extraction plants to the Joffre ethylene plants and to the western terminus of the Cochin Pipe Line at a point near Edmonton. The ethane gathering system consists of approximately 550 mi. (885 km) of pipeline together with storage facilities of approximately 500,000 bbls. (79.0 10<sup>3</sup>m<sup>3</sup>). Alberta Gas Ethylene has agreed to pay the joint venture on a cost of service basis for such transportation and storage;
- (iv) The Company, as to 20%, and others have agreed to purchase on a take or pay basis ethane in excess of the first ethylene plant requirements but not exceeding 44,000 bbls. (6950 m<sup>3</sup>) per day. (See Note 13(a) to the financial statements);
- (v) The polyvinyl chloride manufacturing plant uses vinyl chloride monomer feedstock purchased from Dow Canada. Dow Canada manufactures vinyl chloride monomer from ethylene purchased from the first Joffre ethylene plant. The polyvinyl chloride is marketed in both Canada and export markets and is used in the manufacture of such items as plastic pipe, wire coating, floor tiles, records and footwear;
- (vi) The Company and Shell Canada Limited have formed a joint venture to be operated by their agent ENESCO CHEM LTD. (owned 60% by the Company and 40% by Shell Canada) for the manufacture and sale of petrochemicals. Construction has commenced on the styrene monomer plant with production to be sold in the domestic and export markets. Ethylene and benzene will be utilized as feedstock to produce the styrene, a base product for polystyrene used in the building and refrigeration industries. Styrene is also upgraded into tires, automotive parts, plastic pipe products and paint.

The polyethylene plant, utilizing ethylene as feedstock, will employ UNIPOL technology under license from Union Carbide Corporation. Under agreement for a term of eight years Union Carbide Corporation will purchase up to 400 million lbs. (180 kt) per year of polyethylene resin. Linear low

density polyethylene is marketed for use in packaging film, food containers, pipe, electrical wire coating and molded forms such as toys and sporting goods.

The proposed linear higher olefins plant would use ethylene as feedstock and natural gas as fuel. Linear higher olefins derivatives are used in the production of household goods such as detergents, shampoo, cosmetics, candles and crayons. As well, they are used in the manufacturing of industrial products such as textile finishes, synthetic lubricants and plastics.

The Company equity accounts for its 50% interest in Alberta Gas Chemicals Ltd. which operates three methanol plants at Medicine Hat, Alberta. Natural gas provides the feedstock for the production of methanol which is currently being produced at approximately the total name plate capacity of 2,400 short tons (2178 t) per day. Methanol is sold either on the open market or under contracts for various periods. In addition, Alberta Gas Chemicals has a 49% interest in a joint venture to construct and operate a 1,320 short tons (1200 t) per day methanol plant in New Zealand. The estimated cost of this facility is approximately U.S. \$200,000,000 with completion in 1984. A subsidiary of Alberta Gas Chemicals owns and operates a malic and fumaric acid plant in Duluth, Minnesota.

The Company and Dome Petroleum Limited have announced plans to construct a new ethane extraction plant at Empress, Alberta at a cost of approximately \$200,000,000.

#### (c) Resource Development

This segment consists of the Company's investments (either directly or through subsidiaries) in the following interests:

- (i) 67.6% ownership of Husky Oil Ltd.; a fully integrated Canadian oil and gas company engaged in the exploration for, and the production and transportation of, crude oil and natural gas, the refining of crude oil and the wholesale and retail marketing of petroleum products as well as warehousing distribution and the marketing of charcoal briquets and industrial and activated carbons. For further details regarding the nature of Husky Oil Ltd. operations refer to the Husky 1981 Annual Report;
- (ii) 100% ownership of Novalta Resources Ltd.; a company engaged in the acquisition, development and production of crude oil and natural gas reserves;
- (iii) 50.005% ownership of Pan-Alberta Gas Ltd.; a company which contracts for the purchase of natural gas at field delivery points throughout Alberta and for the sale of such gas to purchasers primarily outside Alberta. Gas is transported within Alberta by the Alberta Gas Transmission Division;
- (iv) The Company and Petro-Canada Exploration Inc. have formed a joint venture company, Canstar Oil Sands Ltd. to examine the feasibility of developing an oil sands mining complex in northern Alberta. The current project schedule envisages an application being made to the Energy Resources Conservation Board of Alberta in late 1983;

- (v) 25% interest in the Arctic Pilot Project, the objective of which is the liquefaction on Melville Island of natural gas, and the year round transportation of liquefied natural gas by tanker from Melville Island to a regasification point in eastern Canada;
- (vi) Varying interests in other energy related projects including study and development of new energy sources that offer viable supplements to conventionally produced crude oil and natural gas.

The following table presents the estimated gross proved and probable oil and gas reserves of Husky Oil and Novalta Resources at December 31, 1981 and December 31, 1980:

	Canada		United States		International	
	Oil	Gas	Oil	Gas	Oil	Gas
<b>Proved</b>						
December 31, 1980	103,842	491,985	38,066	138,305	1,473	—
December 31, 1981	115,745	669,954	47,573	160,843	3,136	—
<b>Probable</b>						
December 31, 1980	25,679	72,338	4,527	767	2,002	—
December 31, 1981	58,168	185,555	8,165	13,742	—	—
<b>Combined</b>						
December 31, 1980	129,521	564,323	42,593	139,072	3,475	—
December 31, 1981	173,913	855,509	55,738	174,585	3,136	—

Crude oil, including natural gas liquids, is expressed in thousands of barrels. A barrel represents a stock tank barrel equivalent to 42 U.S. gallons or 35 Imperial gallons. Natural gas is expressed in millions of cubic feet measured at 60°F and 14.65 psia.

Volumes represent the reserves owned before deduction of royalties, reversionary interest, and net profit interests owned by others.

#### (d) Manufacturing

Manufacturing consists of the Company's investments (either directly or through subsidiaries) in the following interests:

- (i) The Company, through indirect wholly-owned subsidiaries, is engaged in the design, manufacture, distribution and licensed production of flow control systems (high quality valves and other products) on a world-wide basis for use primarily in the oil and gas industry. This investment is primarily represented by the 100% ownership of both the Grove Valve and Regulator Company and WAGI International S.p.A.;
- (ii) Steel Alberta Ltd. (50% owned) holds 20.2% of the issued common shares of Interprovincial Steel and Pipe Corporation Ltd., an integrated steel company which manufactures pipe, casing, structural tubing and sheet steel;
- (iii) On April 1, 1981 the Company and Bow Valley Resource Services Ltd. jointly purchased substantially all the assets and business of the truck division of White Motor Corporation of Canada, now operated as Western Star Trucks Inc. This operation sells heavy duty trucks from its own assembly plant and those imported from the United States under a distributorship agreement.

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**Management's  
Statement of  
Financial Reporting**

The December 31, 1981 consolidated financial statements of NOVA, AN ALBERTA CORPORATION presented in the Annual Report have been prepared by management on a consistent basis and in accordance with accounting principles generally accepted in Canada. The financial statements have, in management's opinion, been properly prepared within reasonable limits of materiality and within the framework of the accounting policies as outlined in the Summary of Accounting Policies which form an integral part of the financial statements.

The Company maintains systems of internal accounting controls, policies and procedures in order to provide, on a reasonable basis, assurance as to the reliability of the financial information and the safeguarding of assets.

Clarkson Gordon, the Company's external auditors, have examined the December 31, 1981 consolidated financial statements, and their report is set out below.

The audit committee of the Board of Directors has reviewed the consolidated financial statements, including the notes thereto, with management and both the internal and the external auditors. The financial statements have been approved by the Board on the recommendation of the audit committee.

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**Auditors' Report** To the Shareholders of  
NOVA, AN ALBERTA CORPORATION

We have examined the consolidated balance sheet of NOVA, AN ALBERTA CORPORATION as at December 31, 1981 and the consolidated statements of income, reinvested earnings, contributed surplus and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the Company as at December 31, 1981 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Calgary, Canada  
March 11, 1982

*Clarkson Gordon*

Chartered Accountants

# Consolidated Statement of Income

(thousands of dollars except for per share data)

		Total	
		1981	1980
	Year ended December 31		
Revenue	Operating revenue	\$2,669,551	\$2,125,753
	Intersegment revenue	—	—
		2,669,551	2,125,753
Costs and expenses	Operating expenses	2,059,457	1,586,124
	Intersegment expenses	—	—
	Depreciation and depletion	185,795	161,308
	Loss on foreign currency translation	17,347	7,734
	Other unallocated expenses	11,916	6,720
		2,274,515	1,761,886
Net operating income		395,036	363,867
Equity in earnings of affiliated companies		14,054	16,267
Allowance for funds	Used during development and construction	74,398	17,399
		88,452	33,666
Income before the undernoted items		483,488	397,533
Interest and expense on debt	(Net of interest income) (Note 6)	247,869	93,279
Income before taxes and minority interest		235,619	304,254
Taxes	Petroleum and gas revenue tax	16,105	—
	Income taxes (Note 7)		
	Current	221	27,953
	Deferred	46,516	79,779
		62,842	107,732
Income before minority interest		172,777	196,522
Minority interest		42,915	52,776
Net income		\$ 129,862	\$ 143,746
Earnings per common share	Basic	\$ 0.90	\$ 1.10
	Fully diluted	\$ 0.80	\$ 0.90

See accompanying summary of accounting policies and notes


Natural Gas Transmission		Resource Development		Petrochemicals		Manufacturing	
1981	1980	1981	1980	1981	1980	1981	1980
\$266,624	\$219,324	\$1,775,462	\$1,404,564	\$424,046	\$321,147	\$203,419	\$180,718
22,577	15,571	—	—	—	—	—	—
289,201	234,895	1,775,462	1,404,564	424,046	321,147	203,419	180,718
121,568	91,939	1,433,233	1,089,774	348,523	250,579	156,133	153,832
—	—	22,577	15,571	—	—	—	—
43,380	32,781	110,338	104,154	25,310	19,549	6,767	4,824
—	—	7,202	2,081	2,921	2,699	7,224	2,954
—	—	—	—	—	—	—	—
164,948	124,720	1,573,350	1,211,580	376,754	272,827	170,124	161,610
124,253	110,175	202,112	192,984	47,292	48,320	33,295	19,108
—	—	—	—	10,071	14,133	3,983	2,134
71,645	16,921	—	—	2,753	478	—	—
71,645	16,921	—	—	12,824	14,611	3,983	2,134
\$195,898	\$127,096	\$ 202,112	\$ 192,984	\$ 60,116	\$ 62,931	\$ 37,278	\$ 21,242

## Consolidated Balance Sheet

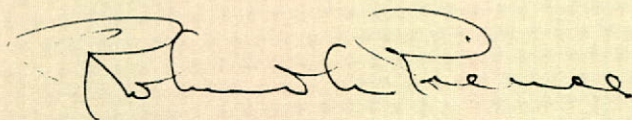
*(thousands of dollars)*

ASSETS	December 31	1981	1980
<b>Current Assets</b>	Cash and short term deposits	\$ 42,581	\$ 119,184
	Accounts receivable	489,047	413,861
	Inventories (Note 2)	413,388	375,058
	Prepaid expenses	9,500	4,439
		954,516	912,542
<b>Investments and Advances</b> (Note 3)		106,062	82,533
<b>Plant, Property and Equipment</b> (Note 4)		4,338,575	2,995,508
	Less accumulated depreciation and depletion	(592,875)	(453,606)
		3,745,700	2,541,902
<b>Deferred Costs</b> (Note 5)		197,641	126,568
		\$5,003,919	\$3,663,545

On behalf of the Board:



, Director



, Director

See accompanying summary of accounting policies and notes



<b>LIABILITIES</b>	December 31	1981	1980
<b>Current Liabilities</b>	Bank loans (Note 6)	\$ 195,103	\$ 271,585
	Accounts payable and accrued liabilities	545,011	387,774
	Income taxes payable	6,866	12,538
	Deferred income taxes	71,567	72,980
	Dividends payable	19,057	18,474
	Long term debt instalments due within one year	78,345	66,487
		915,949	829,838
<b>Long Term Debt</b> (Notes 6 and 14)		2,206,283	1,043,009
<b>Deferred Income Taxes</b> (Note 7)		369,048	328,097
<b>Minority Interest in Subsidiary Companies</b> (Note 8)		438,326	439,772
<b>SHAREHOLDERS' EQUITY</b>	Capital stock (Notes 9 and 14)		
	Preferred shares	441,235	492,723
	Common shares	85,345	43,070
	Contributed surplus	229,874	223,368
	Reinvested earnings	317,859	263,668
		1,074,313	1,022,829
<b>Contingencies and Commitments</b> (Note 13)		\$5,003,919	\$3,663,545

**NOVA, AN ALBERTA CORPORATION**

# Consolidated Statement of Contributed Surplus

(thousands of dollars)

	Year ended December 31	1981	1980
<b>Balance at beginning of year</b>		\$223,368	\$170,127
Premium on issue of common shares		4,431	60,152
Gain on purchase of preferred shares for cancellation		2,075	814
Capital stock issue expenses written off		—	(7,725)
<b>Balance at end of year</b>		\$229,874	\$223,368

# Consolidated Statement of Reinvested Earnings

(thousands of dollars)

	Year ended December 31	1981	1980
<b>Balance at beginning of year</b>		\$263,668	\$194,328
Net income		129,862	143,746
		393,530	338,074
Less dividends paid or payable			
Preferred shares		32,834	36,898
Common shares		42,837	37,508
		75,671	74,406
<b>Balance at end of year</b>		\$317,859	\$263,668

See accompanying summary of accounting policies and notes

# Consolidated Statement of Changes in Financial Position

(thousands of dollars)

Year ended December 31		1981	1980
Source of funds	Operations	\$ 350,627	\$397,755
	Preferred shares	—	200,000
	Long term debt	1,255,835	220,130
	Common shares	46,706	64,776
	Less common shares issued on conversion of —		
	Preferred shares	(41,612)	(62,351)
	Debentures	(213)	(664)
	Preferred shares issued by subsidiary —		
	The Alberta Gas Ethylene Company Ltd.	—	4,500
	Funds on deposit for construction expenditures	—	74,418
	Other	7,669	1,129
		\$1,619,012	\$899,693
	Use of funds	Plant, property and equipment —	
Alberta Gas Transmission Division		\$ 233,946	\$170,257
Alaska Highway Gas Pipeline — Phase I		194,473	53,759
TQM Pipeline under construction		56,278	—
Petrochemical facilities		64,288	34,083
Petroleum and mineral resource properties		660,718	235,597
Refining, marketing and other facilities		84,898	42,541
Manufacturing and corporate assets		76,629	33,152
		1,371,230	569,389
Other investments		19,490	23,639
Deferred costs		56,388	23,766
Reduction of long term debt		92,348	214,650
Purchase of minority interest in			
WAGI International S.p.A.		8,740	—
Dividends to —			
Shareholders		75,671	74,406
Minority shareholders of subsidiaries		31,481	27,920
Cost of issuing securities		—	7,725
Purchase of preferred shares for cancellation		7,801	7,693
Working capital decrease	(44,137)	(49,495)	
	\$1,619,012	\$899,693	

See accompanying summary of accounting policies and notes

# Summary of Accounting Policies

December 31, 1981

## Principles of consolidation

The consolidated financial statements include the accounts of the Company and all subsidiaries, principally:

### 100% Owned

The Alberta Gas Ethylene Company Ltd.  
 AGEC Security Corporation  
 A.G. Industries International, Inc.  
 A.G. Investments Ltd.  
 A.G. Pipe Lines Inc.  
 A.G. Pipe Lines (Canada) Ltd.  
 Algas Engineering Services Ltd.  
 Energy Equipment & Systems Inc.  
 Grove Valve and Regulator Company  
 Novacor Chemicals Ltd.  
 Noval Technologies Ltd.  
 (formerly Algas Resources Ltd.)  
 Novalta Properties Ltd.  
 (formerly Algas Properties Ltd.)  
 Novalta Resources Ltd.  
 Q & M Pipe Lines Ltd.  
 WAGI International S.p.A.  
 (100% effective July 1, 1981;  
 66.7% at December 31, 1980)

### Partially Owned

Husky Oil Ltd.  
 (67.6% owned; 68.0% at  
 December 31, 1980)  
 Pan-Alberta Gas Ltd.  
 (50.005% owned)

Companies acquired have been accounted for using the purchase method.

Substantially all of the companies' exploration and production activities related to oil and gas are conducted jointly with others and accordingly the accounts reflect only the companies' proportionate interest in such activities.

Investments in Phase I of the Alaska Highway Gas Pipeline Project, the Trans Quebec and Maritimes Pipeline Project and in unincorporated petrochemical joint ventures are accounted for by the proportionate consolidation method and, accordingly, the accounts reflect only the companies' proportionate interest in such activities. The Company's investment in Phase I of the Alaska Highway Gas Pipeline Project is represented by its direct and indirect percentage ownership in Foothills Pipe Lines (Yukon) Ltd. and its subsidiaries. Costs for Phase I of the project (being essentially those portions in Canada south of Caroline, Alberta) are classified as plant, property and equipment.

The companies' proportionate share of aggregate assets, liabilities, operating revenue and operating expenses of these ventures is as follows:

	Assets		Liabilities		Operating Revenue		Operating Expenses	
	1981	1980	1981	1980	1981	1980	1981	1980
	(thousands of dollars)							
Natural Gas Transmission								
Alaska Highway Gas Pipeline	\$385,331	\$ 74,685	\$210,907	\$ 52,345	\$ 9,351	\$ —	\$ 429	\$ —
TQM Pipeline	59,497	—	—	—	—	—	—	—
	444,828	74,685	210,907	52,345	9,351	—	429	—
Petrochemicals	158,647	163,556	49,182	50,161	88,688	66,079	67,577	46,112
Total	\$603,475	\$238,241	\$260,089	\$102,506	\$ 98,039	\$ 66,079	\$ 68,006	\$ 46,112

## Foreign currency translation

Accounts in foreign currencies have been translated to Canadian dollars using current rates of exchange for current assets and current liabilities, historical rates of exchange for non-current assets and non-current liabilities and average rates for the year for revenue and expenses, except depreciation and depletion which are translated at the rate of exchange applicable to the related assets. Gains or losses resulting from exchange adjustments are included in income.

## Inventories

Inventories are carried at the lower of cost, as determined on a first-in, first-out basis, and net realizable value. Other materials and supplies are carried at cost. Refined oil product inventory costs are determined by allocating costs to products on the basis of the relative market value of the product.

## Investments and advances

The Company accounts for its investment in Alberta Gas Chemicals Ltd., Steel Alberta Ltd. and Western Star Trucks Inc. (all 50% owned) by the equity method.

Other investments are carried at cost.

<b>Plant, property and equipment</b>	<p>Plant, property and equipment are carried at cost; maintenance and repair costs of a routine nature are expensed as incurred.</p> <p>An allowance for funds used during construction is capitalized when recoverable under cost of service contracts. For facilities subject to regulations the rate is the approved rate of capitalization and for petrochemical facilities the rate is the agreed cost of capital. For plant, property and equipment not subject to cost of service contracts, related interest incurred during construction is capitalized.</p> <p>Plant, property and equipment (except for gas transmission and certain petroleum production equipment) are depreciated on a straight-line basis at annual rates varying from 2.5% to 50.0% which rates are designed to write these assets off over their estimated useful lives.</p> <p>Depreciation of the Alberta Gas Transmission Division plant approximates a composite annual rate of 3.5% on cost in 1981 (1980 — 3.5%). Depreciation for the Alaska Highway Gas Pipeline — Phase I is based on the term of the export contract and approximated 16% in 1981.</p> <p>Certain petroleum production equipment is depreciated by the unit of production method.</p> <p>The companies employ the full cost method of accounting and capitalize all exploration and reserve acquisition and development costs into four cost centres: the Lloydminster area of Canada, all other areas of Canada, the United States and the Philippines.</p> <p>For 1981, in response to the changed circumstances resulting from the introduction of the National Energy Program and the Energy Pricing and Taxation Agreements, the companies have computed depletion expense relative to the Canadian cost centres by the revenue method.</p> <p>Under this method, the ratio of current year revenues to total revenues from the production of proved reserves determines the proportion of depletable costs to be expensed. Revenue projections are determined by the companies' engineers and are confirmed by an independent petroleum engineering consultant in a manner consistent with the establishment of proved reserves. If the composite unit of production method had been used in 1981, the net income for the year ended December 31, 1981 would have decreased by \$11,000,000, basic earnings per common share by \$0.10, and fully diluted earnings per common share by \$0.08.</p> <p>In the United States and the Philippines the costs are depleted on a composite unit of production method based upon proved developed reserves, as estimated by the companies' engineers.</p> <p>The cost of acquiring, exploring for and developing oil and gas interests outside of North America and the Philippines has been capitalized pending the outcome of exploration in each area of interest. These costs are being amortized on a straight-line method at an annual rate of 20% pending reserve development. Unamortized costs will be depleted by the method set forth in the preceding paragraph if sufficient reserves are developed. The unamortized costs of an abandoned area are charged against income at the time of abandonment.</p>
<b>Deferred costs</b>	<p>Costs relating to Phase II of the Alaska Highway Gas Pipeline Project, certain costs on the TQM Pipeline Project and costs of other projects which may benefit future periods are being deferred. Deferred costs applicable to projects which have been terminated are expensed.</p> <p>An allowance for funds on deferred expenditures incurred to date for the Alaska Highway Gas Pipeline Project — Phase II and the TQM Pipeline Project is capitalized (see Note 5).</p> <p>Unamortized debt discount and expense are being amortized over the terms of the respective issues.</p>
<b>Long term debt</b>	<p>Short term borrowings which will be repaid from the proceeds of long term financing are included in long term debt.</p> <p>Capital lease obligations which relate to transactions which are similar in nature to a purchase have been capitalized and included in long term debt.</p>
<b>Income taxes</b>	<p>The companies follow the tax allocation basis of recording income taxes on all income except for the Natural Gas Transmission and certain Petrochemical operations which are subject to cost of service contracts. Income taxes are provided on these sources of income only to the extent that they are included in allowable cost of service under such contracts.</p>
<b>Earnings per common share</b>	<p>Earnings per common share is calculated using the weighted average number of shares outstanding during the period. The calculation of earnings per common share on a fully diluted basis assumes conversion of all securities and exercise of all stock options which would have a dilutive effect on earnings per share.</p>

# Notes to Consolidated Financial Statements

December 31, 1981

1. Regulatory matters — Alberta Gas Transmission Division
- (i) During May 1981 the Supreme Court of Canada heard the Company's appeal of two judgments relating to its treatment of income taxes and depreciation for 1978 and 1979. The judgments arose from a 1978 Public Utilities Board decision and a 1979 interim order which ordered the Company for the years 1978 and 1979 to charge income taxes on a taxes payable ("flow-through") basis for gas transmission. The Supreme Court appeal decision was rendered on October 6, 1981, and dismissed the Company's appeal. If the Company refunds an amount by recalculating all the 1978 and 1979 monthly cost of service billings, the effect could be a reduction of working capital of approximately \$36 million with no material impact on net income.
  - (ii) Further complaints were filed by several natural gas producers in 1980 respecting the Company's depreciation rates and treatment of income taxes. No dates have been set for the hearing of these complaints.
  - (iii) Commencing on January 1, 1979 the Company charged depreciation in accordance with a 1978 Public Utilities Board decision. No hearings have been scheduled by the Public Utilities Board with respect to that part of the 1979 and 1980 complaints relating to depreciation. From and after July 1, 1980 the Company has charged depreciation on the basis of a depreciation study.
  - (iv) The Company charged income taxes for gas transmission on a tax allocation ("normalized") basis for the period January 1, 1978 to November 30, 1979. From December 1, 1979 to December 31, 1981 income taxes have been charged on a taxes payable ("flow-through") basis.

## 2. Inventories

	December 31	
	1981	1980
	(thousands of dollars)	
Alberta Gas Transmission Division	\$ 20,034	\$ 15,028
Petrochemicals	20,128	18,868
Resource Development	321,636	283,017
Manufacturing and other	51,590	58,145
	<u>\$413,388</u>	<u>\$375,058</u>

## 3. Investments and advances

	December 31	
	1981	1980
	(thousands of dollars)	
Alberta Gas Chemicals Ltd.	\$ 34,380	\$30,036
Steel Alberta Ltd.	15,050	13,286
Western Star Trucks Inc.	15,079	—
Other	41,553	39,211
	<u>\$106,062</u>	<u>\$82,533</u>

## 4. Plant, property and equipment

	December 31			
	1981		1980	
	(thousands of dollars)			
	Cost	Accumulated Depreciation and Depletion	Net	Net
Natural Gas Transmission				
Alberta Gas Transmission Division				
Plant in service	\$1,298,498	\$328,100	\$ 970,398	\$ 706,689
Plant under construction	72,876	—	72,876	133,241
Alaska Highway Gas Pipeline				
Phase I in service	91,164	3,581	87,583	—
Phase I under construction	182,983	—	182,983	74,685
TQM Pipeline under construction	59,497	—	59,497	—
Petrochemicals				
Plant in service	534,781	62,017	472,764	485,053
Plant under construction	61,950	—	61,950	6,495
Resource Development				
Petroleum and mineral resource properties	1,475,728	129,553	1,346,175	767,377
Refining and marketing facilities	351,619	35,482	316,137	246,624
Other facilities	46,078	10,300	35,778	48,270
Manufacturing	60,872	23,065	37,807	26,037
Corporate assets	102,529	777	101,752	47,431
	<u>\$4,338,575</u>	<u>\$592,875</u>	<u>\$3,745,700</u>	<u>\$2,541,902</u>

#### ALASKA HIGHWAY GAS PIPELINE PROJECT:

The Company, through its investment in Foothills Pipe Lines (Yukon) Ltd., is one of the principal sponsors of the Alaska Highway Gas Pipeline Project. This project has as its objective the transportation of natural gas from Alaska through Canada to the United States of America and would have the potential of facilitating the transportation of Canadian natural gas from the Mackenzie Delta and Beaufort Basin through a proposed pipeline — the Dempster Highway Pipeline.

Construction has commenced on Phase I (being essentially those portions in Canada south of Caroline, Alberta) and deferred costs allocated to Phase I have been reclassified to plant, property and equipment. Initial transportation service on a full cost of service basis commenced on the western leg on October 1, 1981 and is expected to commence on the eastern leg in September 1982. The total cost of Phase I is estimated at \$1.0 billion (as spent, including capitalized interest) of which \$100,000,000 will be provided as equity by the Company.

Upon commencement of construction of Phase II of the project, the Company would incur, or be responsible for, large expenditures in respect of this Phase. Costs related to Phase II are classified as deferred costs (see Note 5).

#### TQM PIPELINE PROJECT:

Q&M Pipe Lines Ltd. and TransCanada PipeLines Limited have formed a joint venture as equal participants to construct and operate a major gas transmission system to transport natural gas in the provinces of Quebec, New Brunswick and Nova Scotia and to facilitate the export of natural gas into the northeastern United States.

The National Energy Board has issued certificates of public convenience and necessity authorizing construction of a pipeline from St. Lazare to Levis, Quebec and laterals to certain other Quebec communities, subject to certain conditions. Construction commenced in 1981 and the capital cost of the pipeline and laterals is estimated at \$1.0 billion (as spent, including capitalized interest). As well, a certificate of public convenience has been issued, subject to certain conditions, for the construction of the balance of the proposed pipeline facilities in the province of Quebec east of Levis and in the provinces of New Brunswick and Nova Scotia. The capital cost for this portion of the pipeline is estimated at \$1.2 billion (as spent, including capitalized interest).

Sections of the pipeline will be placed into service as completed, with final completion estimated to be in late 1985. The Company currently estimates that its equity contribution to this project will be \$144,000,000.

#### PETROCHEMICAL PLANTS UNDER CONSTRUCTION:

The Company and Shell Canada Limited have announced the formation of a joint venture to be operated by their agent ENESCO CHEM LTD. (owned 60% by the Company and 40% by Shell Canada) for the manufacture and sale of petrochemicals. The necessary regulatory approvals have been received and construction has commenced on a 660 million pound per year styrene plant. The cost of the plant is estimated at \$404,000,000 (as spent, including capitalized interest) of which the Company's share is \$242,000,000, with completion estimated for mid 1984. In addition, ENESCO CHEM LTD. has received the necessary approvals and construction has commenced on a 600 million pound per year linear low density polyethylene plant. The cost of this plant is estimated at \$477,000,000 (as spent, including capitalized interest) of which the Company's share is \$286,000,000, with completion estimated for mid 1984.

As well, an application has been made for a permit to construct and operate a 440 million pound per year linear higher olefins plant at an estimated cost of \$411,000,000 (as spent, including capitalized interest) of which the Company's share is \$247,000,000, with completion estimated for early 1986. Costs related to the olefins plant are included in deferred costs (see Note 5).

Alberta Gas Ethylene has received approval for a second ethylene plant with a capacity of 1.5 billion pounds per year and construction has commenced. The cost of this second plant is estimated at \$650,000,000 (as spent, including capitalized interest), with completion estimated in mid 1984. In addition, Alberta Gas Ethylene has received the necessary approvals for a third ethylene plant having a capacity of 1.5 billion pounds per year. The cost of this third plant is estimated at \$750,000,000 (as spent, including capitalized interest), with completion estimated for late 1985.

#### PETROLEUM REFINING FACILITIES:

Husky and Shell Canada Limited have begun to construct, as a joint venture, a refinery complex. Husky will have a 40% interest in the refinery portion of the facility which will produce refined petroleum products. The cost of this 40% interest is estimated at approximately \$352,000,000 (as spent, including capitalized interest), with completion estimated for 1984.

#### 5. Deferred costs

	December 31	
	1981	1980
	(thousands of dollars)	
Alaska Highway Gas Pipeline Project — Phase II	\$114,765	\$ 74,959
TQM Pipeline Project	20,183	11,217
Arctic Pilot Project	16,396	13,680
Petrochemical Projects	14,660	—
Oil Sands Mining Project	11,883	1,080
Unamortized debt discount and expense	3,904	4,640
Other	15,850	20,992
	\$197,641	\$126,568

#### ARCTIC PILOT PROJECT:

The Company as to 25%, and others, have formed a joint venture (Arctic Pilot Project) for the purpose of processing natural gas in, and transporting liquefied natural gas by LNG tanker from, the Arctic Islands.

OIL SANDS MINING PROJECT:

The Company and Petro-Canada Exploration Inc. have formed a joint venture company, Canstar Oil Sands Ltd. to examine the feasibility of developing an oil sands mining complex in northern Alberta. The current project schedule envisages an application being made to the Energy Resources Conservation Board of Alberta in late 1983. The cost of the project through the regulatory and preliminary design stage is estimated at \$200,000,000 of which the Company's share is \$140,000,000, including farm-in payments for lease acquisition.

6. Long term debt (Note 14)	(thousands of dollars)	December 31		
		Maturity	1981	1980
<b>NOVA, AN ALBERTA CORPORATION</b>				
First Mortgage Sinking Fund Bonds				
	5¼% Series A		\$ —	\$ 2,296
	5¾% Series B (1980 – U.S. \$7,238)		—	7,238
	5½% Series C	1985	5,319	6,650
	8¾% Series D (1981 – U.S. \$36,900; 1980 – U.S. \$40,100)	1989	39,603	43,037
Secured Debentures				
	6½% Series A		—	7,245
	5¾% Series B	1985	16,903	17,742
Unsecured Debentures				
	7½% Series 1 (convertible)	1990	2,217	2,430
	9¾% Series 2	1990	16,872	17,297
	9¼% Series 3	1990	15,263	15,378
	8% Series 4	1991	43,189	43,717
	8⅛% Series 5	1992	31,017	31,455
	11⅞% Series 6	1995	54,715	55,047
			225,098	249,532
	Bank loans and notes (unsecured)		417,407	—
			642,505	249,532
<b>Alberta Gas Ethylene</b>				
Ethylene Plant I Financing				
	8¼% Secured Notes (1981 – U.S. \$242,517; 1980 – U.S. \$256,783)	1998	275,842	292,069
	5¾% First Income Debentures (1981 – U.S. \$242,517; 1980 – U.S. \$256,783)	1987	275,842	292,069
	Less certificates of deposit (1981 – U.S. \$242,517; 1980 – U.S. \$256,783) pledged as security against the First Income Debentures		(275,842)	(292,069)
			275,842	292,069
	Ethylene Plant II Financing			
	Unsecured bank loan		44,000	—
			319,842	292,069
<b>Husky Oil Ltd. and Subsidiaries</b>				
	Sinking Fund Debentures, Series A, B and C with interest rates varying from 6% to 8½%	1984-1991	29,907	32,632
	Notes Payable and Other Loans — secured and unsecured with interest rates averaging 20%			
	Canadian	1986	601,652	77,569
	United States (1981 – U.S. \$180,638; 1980 – U.S. \$157,777)	Various	203,921	174,858
	Capital Lease Obligations	Various	11,409	12,297
			846,889	297,356
<b>Novalta Resources</b>				
	Income Debentures (1981 – U.S. \$47,778; 1980 – U.S. \$51,796)	1986-1989	54,130	58,678
<b>Cochin Pipe Line and Ethane Gathering System</b>				
	A.G. Pipe Lines (Canada) Ltd.	1998	30,700	31,500
	A.G. Pipe Lines Inc. (1981 – U.S. \$39,487; 1980 – U.S. \$40,500)	2000	45,979	47,172
			76,679	78,672
	Foothills (Yukon) — Phase I Financing	1987-1996	194,046	52,345
	Polyvinyl Chloride Plant Financing (1981 – U.S. \$36,340; 1980 – U.S. \$36,340)	1999	42,095	42,095
	Novalta Properties — Head Office Building Financing	Various	56,108	10,000
	Other Bank Loans	Various	43,179	20,025
	Other Loans	Various	5,673	4,045
	Other Capital Lease Obligations	Various	3,482	4,679
			2,284,628	1,109,496
	Less instalments due within one year shown as current liability		78,345	66,487
			\$2,206,283	\$1,043,009



#### FIRST MORTGAGE SINKING FUND BONDS AND SECURED DEBENTURES:

The First Mortgage Sinking Fund Bonds are secured by a first fixed and specific mortgage, pledge and charge and a first floating charge on the assets of the Company. The Secured Debentures are secured in the same manner, subject to the prior charge of the First Mortgage Sinking Fund Bonds. The First Mortgage Sinking Fund Bonds, Series D, are payable in U.S. dollars and have been converted into Canadian dollars at 1.07325. Foreign exchange gains or losses relative to the principal and interest is for the account of customers of the Company.

#### ETHYLENE PLANT I FINANCING:

The proceeds from the issuance of the 8 $\frac{1}{4}$ % Secured Notes are invested in certificates of deposit which bear interest equivalent to that due on the Secured Notes. The Secured Notes are guaranteed by The Alberta Gas Ethylene Company Ltd. and are secured by a first fixed and floating charge on the first ethylene plant, the ethylene pipeline and related assets of The Alberta Gas Ethylene Company Ltd. and by the assignment of certain related contracts.

The First Income Debentures were issued simultaneously with the issuance of the Secured Notes and are secured by the certificates of deposit referred to in the previous paragraph.

Under the take or pay contract with Dow Chemical Canada Inc., all exchange gains and losses are for the account of Dow.

#### ETHYLENE PLANT II FINANCING:

The Alberta Gas Ethylene Company Ltd. has signed an offer of financing, subject to certain conditions, with a Canadian chartered bank under a term credit facility for up to \$425,000,000 and a further \$375,000,000 is expected to be placed with other institutions. These long term funds will replace the existing unsecured bank loan.

#### HUSKY OIL LTD. AND SUBSIDIARIES:

The Series A, B and C Sinking Fund Debentures are secured by the common shares of certain wholly-owned subsidiaries of Husky and a first floating charge on all other assets of Husky and certain of its subsidiaries. Certain notes payable and other loans of \$7,377,000 (\$80,707,000 at December 31, 1980) are secured by certain assets and properties.

#### NOVALTA RESOURCES FINANCING:

Security for the income debentures includes natural gas properties and a general assignment of book debts. Interest on these income debentures varies with the London Inter Bank Offered Rate and was approximately 9 $\frac{1}{8}$ % at December 31, 1981 (10% at December 31, 1980). The income debentures mature on various dates between 1986 and 1989.

#### COCHIN PIPE LINE AND ETHANE GATHERING SYSTEM FINANCING:

A.G. Pipe Lines (Canada) Ltd. in connection with the long term financing of its share of the cost of the Canadian segment of the Cochin Pipe Line and of the Ethane Gathering System, has entered into a loan agreement with certain banks which provides for a term credit facility consisting of term loans and/or bankers acceptances up to \$30,700,000. The term credit facility expires on December 31, 1998 and is secured by a first floating charge upon a portion of the assets of A.G. Pipe Lines (Canada) Ltd., and a first fixed charge on certain agreements. The interest rate on the term notes was 17 $\frac{1}{4}$ % at December 31, 1981 (19 $\frac{1}{2}$ % at December 31, 1980).

A.G. Pipe Lines Inc., in connection with the long term financing of its share of the cost of the United States segment of the Cochin Pipe Line, pursuant to a loan agreement, has issued promissory notes of U.S. \$40,500,000 (U.S. \$39,487,000 outstanding at December 31, 1981) which mature on various dates to December 31, 2000. These promissory notes are secured by an assignment of the interest of A.G. Pipe Lines Inc. in certain agreements (insofar as they relate to the United States segment of the Cochin Pipe Line), by the guarantee of A.G. Pipe Lines (Canada) Ltd., and by a pledge of the outstanding shares of A.G. Pipe Lines Inc. The interest rate varies with the London Inter Bank Offered Rate and was 14 $\frac{3}{4}$ % at December 31, 1981 (24% at December 31, 1980).

#### FOOTHILLS (YUKON) — PHASE I FINANCING:

In connection with the financing of Phase I of the Alaska Highway Gas Pipeline Project, Foothills Pipe Lines (Yukon) Ltd. has arranged long term financing with Canadian chartered banks for the issuance of term notes of up to \$835,000,000 of which the major portion will be maturing on December 31, 1987, with the balance maturing on December 31, 1996. These term notes are secured by the assignment of the interest of Foothills (Yukon) and three of its subsidiaries in certain agreements and floating charges on their respective properties and assets. The Company and Westcoast Transmission Company Limited have entered into an agreement with Foothills (Yukon) pursuant to which the Company and Westcoast have undertaken to provide, by way of equity capital, their proportionate shares of any funds required to complete construction of Phase I to the point where gas commences to flow. Similar agreements have been entered into by the shareholders of the three subsidiaries of Foothills (Yukon) involved in Phase I.

At December 31, 1981 \$399,298,000 (\$102,499,000 at December 31, 1980) had been issued pursuant to the loan agreement of which the Company's proportionate share is \$194,046,000 (\$52,345,000 at December 31, 1980). The interest rate at December 31, 1981 was approximately 17 $\frac{1}{8}$ % (18 $\frac{7}{8}$ % at December 31, 1980).

#### POLYVINYL CHLORIDE PLANT FINANCING:

The polyvinyl chloride plant is financed through the issuance of U.S. \$72,680,000 8 $\frac{3}{4}$ % secured notes Series A due December 15, 1999 of which the Company's proportionate share is U.S. \$36,340,000. These notes are secured by a first fixed and floating charge upon the property and assets relating to the project and by an assignment of certain rights under related contracts. Repayment on the notes is required to commence in 1984 at an annual rate of 5.88% of the principal amount outstanding.

NOVALTA PROPERTIES — HEAD OFFICE BUILDING FINANCING:

Novalta Properties Ltd., in connection with the financing of the Head Office building, has arranged a line of credit with a Canadian chartered bank of up to \$100,000,000 of which \$56,108,000 was outstanding at December 31, 1981 (\$10,000,000 at December 31, 1980). This line of credit is secured by the hypothecation of the title to the property and is repayable in varying amounts commencing in 1986 with final maturity in 1998. The interest rate at December 31, 1981 was approximately 17% (18¼% at December 31, 1980).

OTHER BANK LOANS:

At December 31, 1981 other bank loans are secured by natural gas properties as to \$80,000 (\$159,000 at December 31, 1980) and manufacturing inventories, facilities and accounts receivable as to \$24,994,000 (\$10,799,000 at December 31, 1980) and mature by agreement to 1984. The interest rate will vary during the term of the loans and approximated 15% at December 31, 1981 (18¼% at December 31, 1980).

OTHER LOANS:

Other loans of \$4,898,000 (\$2,570,000 at December 31, 1980) are secured by manufacturing facilities and mature by agreement to 1999. The effective interest on the other loans varies and approximated 7⅞% at December 31, 1981 (6% at December 31, 1980).

SINKING FUND AND REPAYMENT REQUIREMENTS:

Sinking fund and repayment requirements in respect of long term debt maturing within five years following December 31, 1981 are: 1982 – \$78,345,000; 1983 – \$83,423,000; 1984 – \$107,977,000; 1985 – \$130,073,000; 1986 – \$123,450,000.

CURRENT BANK LOANS:

Current bank loans of \$17,744,000 (\$88,195,000 at December 31, 1980) are secured by accounts receivable and inventories.

INTEREST AND EXPENSE ON DEBT:

	December 31	
	1981	1980
	(thousands of dollars)	
Interest and expense on long term debt	\$218,194	\$ 95,388
Interest on short term debt	49,030	28,709
Interest income	(19,355)	(30,818)
	\$247,869	\$ 93,279

7. Income taxes

For Natural Gas Transmission and certain of the Petrochemical operations, charges to customers are on a cost of service basis. Because income taxes related to these operations are a component of the charges, the billing for such income taxes on either a taxes payable or tax allocation basis does not affect net income.

Income tax expense varies from the amounts that would be computed by applying the Canadian federal and provincial income tax rates to income before income taxes as shown in the following table:

	Year ended December 31			
	1981		1980	
	Amount (thousands of dollars)	% of Pre-Tax Income	Amount (thousands of dollars)	% of Pre-Tax Income
Income before income taxes	\$235,619		\$304,254	
“Expected” income tax expense	\$114,982	48.8%	\$148,476	48.8%
Less adjustment of expected income taxes due to inclusion in pre-tax income of —				
Equity in earnings of affiliates	(6,058)	(2.6)	(7,939)	(2.6)
Income on which income taxes are recorded only to the extent they are included in cost of service billings				
Alberta Gas Transmission Division	(23,307)	(9.9)	(9,700)	(3.2)
Alaska Highway Gas Pipeline — Phase I	(1,451)	(0.6)	—	—
Petrochemicals	(8,655)	(3.7)	(9,032)	(3.0)
Allowance for funds used during development and construction	(19,582)	(8.3)	(4,575)	(1.5)
Resource Development activities	(6,996)	(3.0)	(7,741)	(2.5)
Other — net	(2,196)	(0.9)	(1,757)	(0.6)
Actual income tax expense	\$ 46,737	19.8%	\$107,732	35.4%

The principal reasons for an effective tax rate below the expected tax rate are the method of collecting income taxes in cost of service operations; the after tax income arising from equity in earnings of affiliates; the effect of resource allowances, earned depletion and investment tax credits on resource development income; and the after tax equity return capitalized for regulated Natural Gas Transmission construction activities.

## 8. Minority interest

	December 31	
	1981	1980
	(thousands of dollars)	
Husky Oil Ltd.	\$174,699	\$167,796
Preferred shares in A.G. Investments Ltd.	255,000	255,000
Other	8,627	16,976
	<u>\$438,326</u>	<u>\$439,772</u>

In connection with the acquisition of 41,716,500 shares of Husky, A.G. Investments Ltd. issued \$255,000,000 (or U.S. dollar equivalent) of variable rate, cumulative, redeemable, senior preferred shares. The preferred shares are redeemable at the option of A.G. Investments Ltd. between 1982 and 1989 and are redeemable at the option of the holder in certain events. The variable dividend rate approximated 10½% at December 31, 1981 (9¼% at December 31, 1980). The Husky shares owned by A.G. Investments Ltd. have been pledged as collateral security.

9. Capital stock  
(Note 14)

	December 31	
	1981	1980
	(thousands of dollars)	
(a) Preferred shares		
(i) Preferred shares of a par value of \$100 each		
Authorized — 2,000,000 shares		
Issued — Cumulative and Redeemable		
4¾% Series C — 107,541 shares (1980 — 121,777)	\$ 10,754	\$ 12,178
5⅜% Convertible Series D (1980 — 1,836)	—	184
(ii) Preferred shares of a par value of \$25 each		
Authorized — 10,000,000 shares		
Issued — Cumulative and Redeemable		
7¾% — 839,881 shares (1980 — 886,011)	20,997	22,150
9¾% — 1,200,681 shares (1980 — 1,289,636)	30,017	32,241
9.76% — 1,763,480 shares (1980 — 1,868,843)	44,087	46,721
7.60% — 2,756,650 shares (1980 — 2,846,935)	68,916	71,173
(iii) Second preferred shares of a par value of \$25 each		
Authorized — 15,560,000 shares		
Issued — Cumulative and Redeemable		
6⅜% Convertible — 2,725,626 shares (1980 — 4,342,361)	68,141	108,559
6½% Convertible — 7,932,905 shares (1980 — 7,980,671)	198,323	199,517
	<u>\$441,235</u>	<u>\$492,723</u>

The Company is required to set aside on its books as Purchase Funds \$1,575,000 annually or such lesser amount as would increase the funds to \$3,150,000 for the purchase for cancellation, if and when available, of its 4¾% Cumulative Redeemable Preferred Shares Series C at a price not in excess of \$100.00 per share plus costs of purchase, and its 7¾% Cumulative Redeemable Preferred Shares, at a price not in excess of \$25.00 per share plus accrued and unpaid dividends and costs of purchase.

The Company has the option of redeeming the 4¾% Preferred Shares Series C at \$102.00 per share on or before May 15, 1985, and the 7¾% Preferred Shares at \$26.50 per share on or before May 15, 1984, plus accrued and unpaid dividends and at reducing amounts after those dates.

The Company is required to call for redemption and redeem annually, through the operation of cumulative mandatory sinking funds, 64,000 9¾% Preferred Shares and 96,000 9.76% Preferred Shares at par value plus accrued and unpaid dividends unless acquired otherwise and credited against the cumulative mandatory sinking funds. In addition, the Company may call for redemption and redeem annually, through the operation of non-cumulative optional sinking funds, 48,000 9¾% Preferred Shares and 72,000 9.76% Preferred Shares at par value plus accrued and unpaid dividends.

The Company has the option of redeeming the 9¾% Preferred Shares at \$27.00 per share on or before May 15, 1982 and the 9.76% Preferred Shares at \$26.25 per share on or before November 15, 1982, plus accrued and unpaid dividends and at reducing amounts thereafter.

The 7.60% Preferred Shares are not redeemable until on or after February 5, 1983 at which time they are redeemable to February 15, 1984 at \$26.25 per share plus accrued and unpaid dividends and at reducing amounts thereafter. In addition, the Company shall annually use all reasonable efforts to purchase for cancellation 90,000 7.60% Preferred Shares at a price not in excess of \$25.00 per share plus accrued and unpaid dividends and costs of purchase.

The 6⅜% Preferred Shares are redeemable prior to November 15, 1983 at \$26.25 per share if the weighted average price at which the Class "A" common shares were traded was not less than 125% of the conversion price. These shares are redeemable from November 15, 1983 to November 15, 1984 at \$26.25 per share plus accrued and unpaid dividends and at reducing amounts thereafter. In addition, the Company shall annually, commencing in 1982, use all reasonable efforts to purchase for cancellation 216,000 6⅜% Preferred Shares at a price not in excess of \$25.00 per share plus accrued and unpaid dividends and costs of purchase.

The 6½% Preferred Shares are redeemable on or after February 15, 1983 and prior to February 15, 1985 at \$26.25 per share if the weighted average price at which the Class "A" common shares were traded was not less than 130% of the conversion price. These shares are redeemable from February 15, 1985 to February 15, 1986 at \$26.25 per share plus

accrued and unpaid dividends and at reducing amounts thereafter. In addition, the Company shall annually, commencing in 1983, use all reasonable efforts to purchase for cancellation 240,000 6½% Preferred Shares at a price not in excess of \$25.00 per share plus accrued and unpaid dividends and costs of purchase.

During the year ended December 31, 1981 the Company purchased for cancellation 14,236 4¾% Preferred Shares, 1,836 5¾% Preferred Shares, 46,130 7¾% Preferred Shares, 90,285 7.60% Preferred Shares, 88,955 9¾% Preferred Shares and 105,363 9.76% Preferred Shares at an aggregate discount of \$2,075,000, which has been credited to contributed surplus. In addition, 1,616,735 6¾% Preferred Shares were converted into 6,790,284 Class "A" common shares and 47,766 6½% Preferred Shares were converted into 123,500 Class "A" common shares.

(b) Common shares

	December 31	
	1981	1980
	(thousands of dollars)	
(i) Class "A" common shares without par value (1980 par value of \$1.25 each) non-voting except for the election of seven directors		
Authorized — 300,000,000 shares		
Issued — 110,959,389 shares (1980 — 103,349,520)	\$85,337	\$43,062
(ii) Class "B" common shares of the par value of \$5.00 each		
Authorized — 2,004 shares		
Issued — 1,653 shares	8	8
	\$85,345	\$43,070

On February 13, 1981 the Company increased the number of authorized Class "A" common shares from 100,000,000 to 300,000,000 and Class "A" common shares of the par value of \$1.25 per share were converted into Class "A" common shares without par value. In addition, February 13, 1981 was the date of record of the subdivision of the Class "A" common shares on a three-for-one basis.

Class "A" common shares were issued during the year as follows:

	Shares	Consideration		
		Share Capital	Contributed Surplus	Total
				(thousands of dollars)
On conversion of —				
6¾% Preferred Shares	6,790,284	\$37,062	\$ 3,356	\$40,418
6½% Preferred Shares	123,500	516	678	1,194
7½% Sinking Fund Debentures Series 1	63,900	148	65	213
On exercise of options granted to officers and employees	632,150	4,549	332	4,881
	7,609,834	\$42,275	\$ 4,431	\$46,706

(iii) Reserved:

Class "A" common shares were reserved at December 31, 1981 as follows:

	Shares
For conversion of the 6¾% Cumulative Redeemable Convertible Second Preferred Shares until November 15, 1986, on a conversion basis of 4.2 common shares for each preferred share	11,447,629
For conversion of the 6½% Cumulative Redeemable Convertible Second Preferred Shares until February 15, 1990, on a conversion basis of 2.586 common shares for each preferred share	20,514,492
For conversion of the 7½% Convertible Sinking Fund Debentures, Series 1 until July 15, 1982, on a conversion basis of 300 common shares for each \$1,000 principal amount of Series 1 Debentures	665,100
Under the incentive stock option plan, options are outstanding to officers and employees to purchase 1,244,250 common shares at prices ranging from \$4.667 to \$12.125 per share (1,280,100 shares at December 31, 1980 at prices ranging from \$4.375 to \$10.625) exercisable in annual instalments on a cumulative basis from 1982 to 1986 and 624,700 common shares are reserved but unallocated (741,000 shares at December 31, 1980)	1,868,950
Under the executive share option plan, options are outstanding to officers to purchase 1,275,000 common shares at prices ranging from \$8.417 to \$12.125 per share (1,680,000 shares at December 31, 1980 at \$8.417 per share) exercisable in annual instalments on a cumulative basis from 1982 to 1984 and thereafter over varying periods from 1989 to 1991 and 345,000 common shares are reserved but unallocated (420,000 shares as at December 31, 1980)	1,620,000
	36,116,171

- (iv) In December 1981 the Company instituted a Dividend Reinvestment and Share Purchase Plan which provides an opportunity for holders of its outstanding Class "A" common shares and Preferred Shares to purchase with reinvested dividends, at 95% of specified average market prices, additional Class "A" common shares to be issued from treasury. In addition, these shareholders will also have the option to make cash payments of up to \$5,000 per quarter to purchase Class "A" common shares to be issued from treasury at 100% of the specified average market prices.

As at December 31, 1981 the Company has reserved 5,000,000 Class "A" common shares for this purpose.

**10. Remuneration of directors and senior officers** The aggregate remuneration paid during the year by the Company and its subsidiaries to directors of the Company, as such, was \$311,000 (1980 – \$303,000) and, directly or indirectly to senior officers of the Company, as such, was \$2,466,000 (1980 – \$1,836,000).

In 1981 the aggregate amount paid in respect of the year 1980 to the trustee of the Company's Profit Sharing Deferred Bonus Plan for the benefit of senior officers was \$892,000 (in 1980 – \$693,000).

**11. Pension and retirement plans** The Company and its subsidiaries maintain pension and retirement plans for substantially all employees. At December 31, 1981 there were no significant unfunded liabilities with respect to any of the pension plans.

**12. Acquisition of Uno-Tex Petroleum Corporation** In August 1981 Husky acquired Uno-Tex Petroleum Corporation for a total consideration of \$371,247,000. This purchase was financed by existing lines of credit.

The excess of the purchase price over the book value of the assets acquired has been allocated to the carrying value of the petroleum resource properties. The assets acquired and total consideration, including fees and other costs relating to the acquisition, are summarized as follows:

	(thousands of dollars)
Petroleum resource properties	\$382,674
Less net liabilities assumed	(11,427)
Total consideration	\$371,247

**13. Contingencies and commitments** Petrochemicals —

(a) The Company (to the extent of 20%), Dow Chemical Canada Inc., Dome Petroleum Limited, Petro-Canada Exploration Inc. and Shell Canada Resources Ltd. have agreed on a cost of service basis under take or pay contracts to purchase, for a term extending to December 31, 1998, ethane acquired by Alberta Gas Ethylene in excess of its requirements for the ethylene plant but not exceeding 44,000 barrels per day. Dome has agreed to act as agent for the sale of the Company's 20% share of the surplus ethane.

(b) The Company and PVC Plastics of Canada Limited (formerly Diamond Shamrock Canada Ltd.), as limited partners, and Diamond Shamrock Alberta Gas Ltd., as general partner, are parties to a limited partnership agreement. The limited partnership owns and operates a polyvinyl chloride plant near Fort Saskatchewan, Alberta, having an annual capacity of 220 million pounds of polyvinyl chloride. Under a product purchase agreement, the Company has agreed to purchase 50% of the output of the polyvinyl chloride plant and in certain events to make advance payments to the limited partnership in an amount equal to 50% of the limited partnership's cash requirements, such advances to be credited against future purchases of polyvinyl chloride.

Resource Development —

(c) Husky and Bow Valley Industries Ltd. have jointly committed with Bow Valley Resource Services Ltd. for the construction and ownership of two semi-submersible drilling vessels. Husky has committed to \$105,000,000 (as spent, including capitalized interest) for the project and delivery is expected to take place in mid 1983.

**14. Subsequent events**

(a) On January 7, 1982, the Company issued U.S. \$100,000,000 (Cdn. \$118,982,000) principal amount of 16 $\frac{1}{4}$ % Debentures due January 7, 1989. The net proceeds of U.S. \$97,550,000 (Cdn. \$116,072,000) from this issue were used to reduce outstanding bank loans and notes classified as long term debt. These debentures were issued under a separate trust indenture and rank pari passu, except as to sinking funds and purchase funds, with all other unsecured debentures and other unsecured and unsubordinated indebtedness of the Company.

(b) Pursuant to an underwriting agreement dated January 28, 1982 the Company has issued and sold on February 17, 1982 \$75,000,000 principal amount of 17 $\frac{1}{2}$ % Debentures, Series 7 and \$50,000,000 principal amount of 17 $\frac{3}{4}$ % Sinking Fund Debentures, Series 8. The net proceeds of \$122,662,500 from this issue were used to reduce outstanding bank loans and notes classified as long term debt.

(c) On February 15, 1982 the Company increased the authorized class of 10,000,000 preferred shares of the par value of \$25 each to 12,500,000 preferred shares of the par value of \$25 each and designated 2,500,000 shares thereof as 15% Cumulative Redeemable First Preferred Shares.

(d) Pursuant to an underwriting agreement dated February 15, 1982 the Company has issued and sold on March 9, 1982 2,500,000 15% Cumulative Redeemable First Preferred Shares of the par value of \$25 each. The net proceeds of \$60,425,000 from this issue were used to reduce outstanding bank loans and notes classified as long term debt.

(e) The Company has arranged additional financing of up to U.S. \$110,000,000 on a private placement basis. This financing will be evidenced by 5 year term notes bearing interest on a fixed rate basis. Such notes, when issued, will rank pari passu with all other unsecured debentures and other unsecured and unsubordinated indebtedness of the Company. The proceeds of this financing will be used to reduce outstanding bank loans and notes classified as long term debt.

**15. Summarized quarterly financial data (unaudited)**

(thousands of dollars except for per share data)

	Three Months Ended							
	March 31		June 30		September 30		December 31	
	1981	1980	1981	1980	1981	1980	1981	1980
Consolidated revenue	\$599,666	480,772	629,615	515,745	641,595	536,164	798,675	593,072
Net operating income	\$100,327	78,916	78,141	80,403	112,393	113,979	104,175	90,569
Net income	\$ 35,670	29,338	33,508	27,717	32,381	52,952	28,303	33,739
Earnings per common share								
Basic	\$ 0.26	0.22	0.24	0.19	0.22	0.44	0.18	0.25
Fully diluted	0.22	0.19	0.21	0.16	0.20	0.33	0.17	0.22
Market price per common share								
High	\$ 14 <sup>3</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>4</sub>	12 <sup>7</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>	12	11 <sup>7</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>8</sub>
Low	11 <sup>5</sup> / <sub>8</sub>	8	10 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub>	10	8	10 <sup>3</sup> / <sub>8</sub>

1981 quarterly information has been restated to reflect the change to the revenue depletion method for Canadian resource development operations.

**16. Segmented information**

(a) Natural Gas Transmission (thousands of dollars)

	Year Ended December 31							
	Total		Alberta Gas Transmission		Alaska Highway Gas Pipeline		TQM Pipeline	
	1981	1980	1981	1980	1981	1980	1981	1980
Revenue:								
Operating revenue	\$266,624	\$219,324	\$266,624	\$219,324	\$ —	\$ —	\$ —	\$ —
Intersegment revenue	22,577	15,571	13,226	15,571	9,351	—	—	—
	289,201	234,895	279,850	234,895	9,351	—	—	—
Costs and expenses:								
Operating expenses	121,568	91,939	121,139	91,939	429	—	—	—
Depreciation	43,380	32,781	39,799	32,781	3,581	—	—	—
	164,948	124,720	160,938	124,720	4,010	—	—	—
Net operating income:	124,253	110,175	118,912	110,175	5,341	—	—	—
Allowance for funds:								
Used during development and construction	71,645	16,921	9,508	2,065	53,677	14,856	8,460	—
	\$195,898	\$127,096	\$128,420	\$112,240	\$59,018	\$14,856	\$8,460	\$ —

(b) Financial Information by Segment (thousands of dollars)

	1981	1980	1979
Revenue:			
Natural Gas Transmission	\$ 266,624 10.0%	\$ 219,324 10.3%	\$ 208,836 16.8%
Resource Development	\$1,775,462 66.5%	\$1,404,564 66.1%	\$ 716,324 57.6%
Petrochemicals	\$ 424,046 15.9%	\$ 321,147 15.1%	\$ 189,675 15.2%
Manufacturing	\$ 203,419 7.6%	\$ 180,718 8.5%	\$ 129,137 10.4%
Consolidated	\$2,669,551 100%	\$2,125,753 100%	\$1,243,972 100%
Net operating income:			
Natural Gas Transmission	\$ 124,253 31.4%	\$ 110,175 30.3%	\$ 125,099 45.8%
Resource Development	\$ 202,112 51.2%	\$ 192,984 53.0%	\$ 110,931 40.6%
Petrochemicals	\$ 47,292 12.0%	\$ 48,320 13.3%	\$ 24,686 9.0%
Manufacturing	\$ 33,295 8.4%	\$ 19,108 5.2%	\$ 14,380 5.3%
Other	\$ (11,916) (3.0%)	\$ (6,720) (1.8%)	\$ (2,076) (0.7%)
Consolidated	\$ 395,036 100%	\$ 363,867 100%	\$ 273,020 100%

		1981	1980	1979
Identifiable assets:	Natural Gas Transmission	\$1,595,999 31.9%	\$1,066,724 29.1%	\$ 818,603 26.1%
	Resource Development	\$2,423,045 48.4%	\$1,687,207 46.0%	\$1,429,782 45.5%
	Petrochemicals	\$ 646,633 12.9%	\$ 585,763 16.0%	\$ 602,901 19.2%
	Manufacturing	\$ 211,919 4.3%	\$ 171,513 4.7%	\$ 181,719 5.8%
	Other	\$ 126,323 2.5%	\$ 152,338 4.2%	\$ 107,540 3.4%
	Consolidated	\$5,003,919 100%	\$3,663,545 100%	\$3,140,545 100%

(c) Financial Information by Geographic Area (thousands of dollars)

		1981	1980	1979
Revenue:	Canada	\$1,449,585 54.3%	\$ 996,969 46.9%	\$ 668,236 53.7%
	United States	\$1,086,520 40.7%	\$ 988,796 46.6%	\$ 502,699 40.4%
	Other	\$ 133,446 5.0%	\$ 139,988 6.5%	\$ 73,037 5.9%
	Consolidated	\$2,669,551 100%	\$2,125,753 100%	\$1,243,972 100%
Net operating income:	Canada	\$ 266,101 67.4%	\$ 230,830 63.4%	\$ 199,240 73.0%
	United States	\$ 119,722 30.3%	\$ 118,841 32.7%	\$ 64,941 23.8%
	Other	\$ 9,213 2.3%	\$ 14,196 3.9%	\$ 8,839 3.2%
	Consolidated	\$ 395,036 100%	\$ 363,867 100%	\$ 273,020 100%
Identifiable assets:	Canada	\$3,885,101 77.6%	\$2,617,833 71.5%	\$2,271,490 72.3%
	United States	\$ 930,701 18.6%	\$ 917,399 25.0%	\$ 731,690 23.3%
	Other	\$ 188,117 3.8%	\$ 128,313 3.5%	\$ 137,365 4.4%
	Consolidated	\$5,003,919 100%	\$3,663,545 100%	\$3,140,545 100%

# Ten Year Consolidated Financial Review

(thousands of dollars except share data)

		1981	1980
<b>Statement of income</b>	Operating revenue	\$2,669,551	2,125,753
	Operating expenses	\$2,059,457	1,586,124
	Depreciation and depletion	\$ 185,795	161,308
	Loss (gain) on foreign currency translation	\$ 17,347	7,734
	Other unallocated expenses	\$ 11,916	6,720
	Net operating income	\$ 395,036	363,867
	Equity in earnings of affiliated companies	\$ 14,054	16,267
	Allowance for funds used during development and construction	\$ 74,398	17,399
	Interest and expense on debt (net of interest income)	\$ 247,869	93,279
	Income before taxes and minority interest	\$ 235,619	304,254
	Petroleum and gas revenue tax	\$ 16,105	—
	Income taxes	\$ 46,737	107,732
	Minority interest	\$ 42,915	52,776
Net income	\$ 129,862	143,746	
<b>Assets</b>	Working capital (deficiency) at year end	\$ 38,567	82,704
	Additions to plant, property and equipment	\$1,371,230	569,389
	Investment in plant, property and equipment (cost)	\$4,338,575	2,995,508
	Investment in plant, property and equipment (net)	\$3,745,700	2,541,902
	Deferred costs (net)	\$ 197,641	126,568
	Total assets	\$5,003,919	3,663,545
<b>Capital employed</b>	Long term debt (less due within one year)	\$2,206,283	1,043,009
	Deferred income taxes	\$ 369,048	328,097
	Minority interest	\$ 438,326	439,772
	Shareholders' equity		
	Preferred shareholders	\$ 441,235	492,723
Common shareholders	\$ 633,078	530,106	
<b>Share data</b>	Earnings per common share (1)		
	Basic	\$ 0.90	1.10
	Fully diluted	\$ 0.80	0.90
	Dividends paid per common share (1)	\$ 0.38666	0.36
	Average common shares outstanding during year (thousands) (1)	107,583	99,001
	Number of common shares outstanding at year end (thousands) (1)	110,961	103,351
	Book value per common share (1)	\$ 5.71	5.13
	Market value per common share (1)		
	High	\$ 14 <sup>3</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>8</sub>
	Low	\$ 7 <sup>1</sup> / <sub>4</sub>	8
	Number of preferred shareholders	25,368	28,776
Number of common shareholders	40,657	33,073	

(1) Share data has been restated, after giving effect to the 3-for-1 stock split on February 13, 1981.



1979	1978	1977	1976	1975	1974	1973	1972
1,243,972	464,131	348,779	271,397	141,844	89,860	78,715	64,666
871,241	280,802	186,725	146,992	66,338	31,434	22,864	19,644
97,404	46,073	38,599	29,493	20,861	13,112	12,408	11,227
231	(6,168)	(2,184)	—	—	—	—	—
2,076	3,970	—	904	—	—	104	20
273,020	139,454	125,639	94,008	54,645	45,314	43,339	33,775
18,580	16,924	3,184	1,620	1,993	135	—	—
21,165	23,777	13,831	8,544	4,030	1,228	1,668	2,635
64,658	41,113	28,055	29,470	25,015	22,546	24,255	22,343
248,107	139,042	114,599	74,702	35,653	24,131	20,752	14,067
—	—	—	—	—	—	—	—
91,489	47,668	49,372	30,338	9,188	6,321	5,884	—
40,220	5,743	7,756	4,947	415	—	—	—
116,398	85,631	57,471	39,417	26,050	17,810	14,868	14,067
132,199	125,431	64,305	87,279	6,614	15,179	(4,463)	2,716
313,905	233,154	233,988	152,244	108,306	44,255	26,804	44,604
2,428,515	1,368,054	1,110,991	863,007	680,009	578,448	535,009	507,903
2,110,332	1,137,411	923,420	712,674	558,472	477,539	446,396	432,000
110,578	68,421	46,358	29,120	26,277	12,435	9,226	7,435
3,140,545	2,061,821	1,443,625	945,356	657,918	534,673	473,491	459,157
1,038,193	821,091	744,255	411,311	377,369	305,370	315,113	315,329
256,192	90,754	62,653	40,747	20,248	12,205	5,884	—
410,679	218,208	15,915	10,293	446	6	—	—
363,581	392,593	210,597	142,254	45,413	47,982	30,547	32,142
402,901	317,970	270,546	239,936	162,674	146,190	103,455	95,694
0.99	0.77	0.55	0.47	0.36	0.28	0.26	0.25
0.81	0.71	0.53	0.45	0.35	0.28	0.26	0.25
0.30833	0.25907	0.2448	0.20453	0.17333	0.14833	0.14	0.1325
89,223	85,083	82,263	66,063	64,032	52,113	50,379	49,590
92,253	87,354	83,474	80,807	64,452	63,264	50,506	50,130
4.37	3.64	3.24	2.97	2.52	2.31	2.05	1.91
$9\frac{3}{8}$	$5\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{7}{8}$	$4\frac{5}{8}$	$4\frac{5}{8}$	6	6
$4\frac{7}{8}$	$4\frac{5}{8}$	$4\frac{1}{4}$	$3\frac{5}{8}$	$3\frac{3}{8}$	3	$3\frac{1}{4}$	$4\frac{1}{4}$
22,534	25,564	12,111	12,524	6,894	7,195	7,977	8,289
31,974	31,798	29,555	26,405	23,508	23,184	22,148	21,374

# Principal Offices

## Offices of NOVA, AN ALBERTA CORPORATION

**HEAD OFFICE**  
2800 Bow Valley Square 2  
205 Fifth Avenue S.W.  
P.O. Box 2535  
Postal Station M  
CALGARY, Alberta  
T2P 2N6 (403) 231-9100

As of September 1, 1982, NOVA will be located in its new head office at 801 Seventh Avenue S.W., Calgary. The Company's telephone number after that date will be (403) 290-6000. The mailing address will remain the same. Also being relocated to the new address are the following subsidiaries:

ALGAS ENGINEERING  
SERVICES LTD.

NOVALTA  
PROPERTIES LTD.

**EDMONTON OFFICE**  
Alberta Gas Transmission  
Division  
Floor 10  
9888 Jasper Avenue  
P.O. Box 2330  
EDMONTON, Alberta  
T5J 2R1 (403) 423-6111

**SERVICE CENTRES**  
Calgary Service Centre  
7210 Blackfoot Trail S.E.  
P.O. Box 2535  
CALGARY, Alberta  
T2P 2N6 (403) 252-8821

Edmonton Service Centre  
15810-114 Avenue  
EDMONTON, Alberta  
T5M 2Z4 (403) 451-0531

Spruce Grove Service Centre  
425 Diamond Avenue  
SPRUCE GROVE, Alberta  
P.O. Box 2330,  
EDMONTON, Alberta  
T5J 2R1 (403) 962-8807

**DISTRICT OFFICES**  
District No. 1 Headquarters  
9615-52 Street S.E.  
P.O. Box 2535  
CALGARY, Alberta  
T2P 2N6 (403) 279-7201  
District No. 2 Headquarters  
P.O. Box 819  
BROOKS, Alberta  
T0L 0J0 (403) 362-2838  
District No. 3 Headquarters  
P.O. Box 1808  
EDSON, Alberta  
T0E 0P0 (403) 723-3371  
District No. 4 Headquarters  
P.O. Box 1650  
VEGREVILLE, Alberta  
T0B 4L0 (403) 632-3336

## Offices of Principal Subsidiaries and Certain Affiliates

ALBERTA GAS  
CHEMICALS LTD.  
400-11456 Jasper Avenue  
EDMONTON, Alberta  
T5K 0M1 (403) 482-6361

P.O. Box 1100  
MEDICINE HAT, Alberta  
T1A 7H1 (403) 527-8141

THE ALBERTA GAS  
ETHYLENE COMPANY LTD.  
Suite 1600

734 Seventh Avenue S.W.  
CALGARY, Alberta  
T2P 3P9 (403) 290-8088

P.O. Box 5006  
RED DEER, Alberta  
T4N 6A1 (403) 342-8611

ALGAS ENGINEERING  
SERVICES LTD.  
2800 Bow Valley Square 2  
205 Fifth Avenue S.W.  
CALGARY, Alberta  
T2P 2N6 (403) 231-9791

CANSTAR OIL SANDS LTD.  
Suite 805  
605 Fifth Avenue S.W.  
CALGARY, Alberta  
T2P 3H5 (403) 262-8821

ENERGY EQUIPMENT &  
SYSTEMS INC.  
904 Spear Street Tower  
One Market Plaza  
SAN FRANCISCO, California  
U.S.A.  
94105 (415) 777-1607

ENESCO CHEM LTD.  
10105-109 Street  
EDMONTON, Alberta  
T5J 1M8 (403) 421-4299

FOOTHILLS PIPE LINES  
(YUKON) LTD.  
1600 Bow Valley Square 2  
205 Fifth Avenue S.W.  
P.O. Box 9083  
CALGARY, Alberta  
T2P 2W4 (403) 237-1422

Suite 930  
Metropolitan Life Building  
99 Bank Street  
OTTAWA, Ontario  
K1P 6B9 (613) 236-7163

HUSKY OIL LTD.  
HUSKY OIL OPERATIONS LTD.  
P.O. Box 6525  
Postal Station D  
CALGARY, Alberta  
T2P 3G7 (403) 267-6111

HUSKY OIL COMPANY  
P.O. Box 380  
CODY, Wyoming  
U.S.A.  
82414 (307) 578-1000

NOVACOR CHEMICALS LTD.  
Suite 1600  
734 Seventh Avenue S.W.  
CALGARY, Alberta  
T2P 3P9 (403) 290-8977

NOVALTECHNOLOGIES LTD.  
Ninth Floor, East Tower  
425 First Street S.W.  
CALGARY, Alberta  
T2P 2L8 (403) 264-8650

NOVALTA PROPERTIES LTD.  
1200 Bow Valley Square 1  
202 Sixth Avenue S.W.  
P.O. Box 2535  
CALGARY, Alberta  
T2P 2N6 (403) 231-9281

PAN-ALBERTA GAS LTD.  
350 Bow Valley Square 1  
202 Sixth Avenue S.W.  
P.O. Box 9660  
CALGARY, Alberta  
T2P 2R9 (403) 265-1763

TRANS QUÉBEC & MARITIMES  
PIPELINE INC.  
Les Atriums, Fifth Floor  
870 de Maisonneuve Boulevard  
MONTREAL, Quebec  
H2L 1Y6 (514) 286-5000

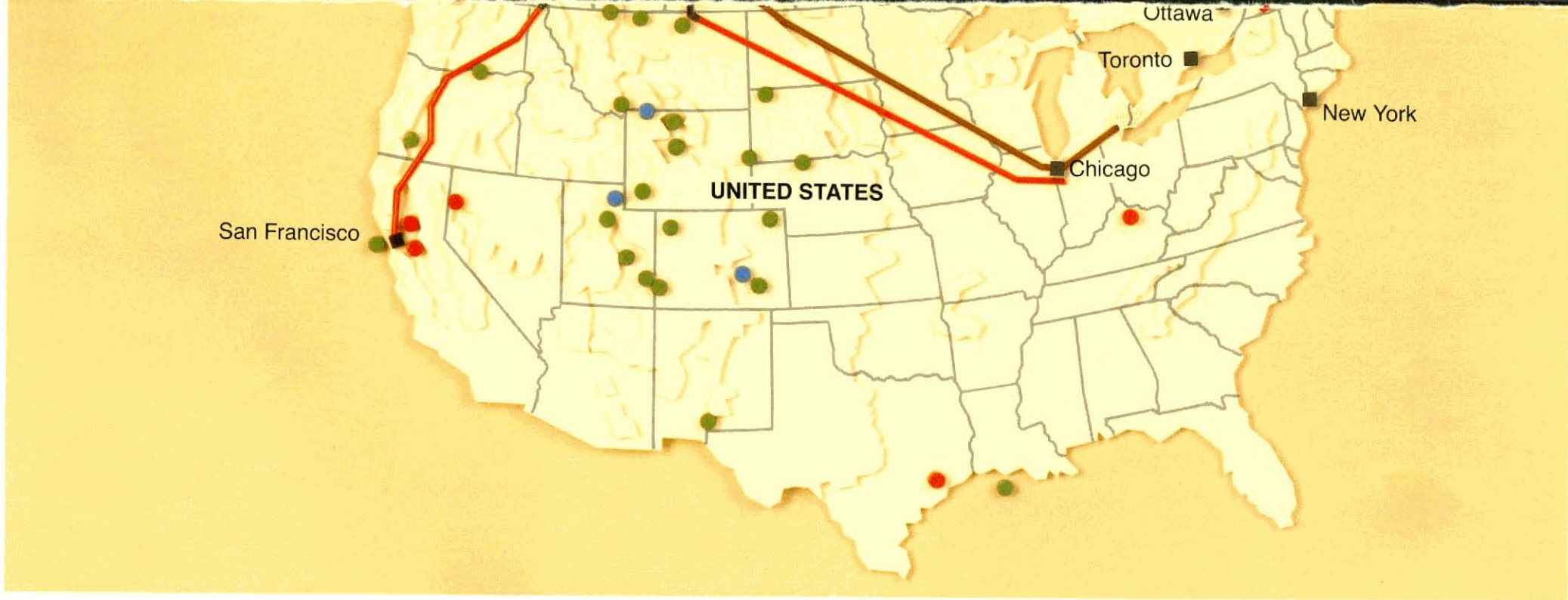
WESTERN STAR TRUCKS INC.  
6205 Airport Road  
MISSISSAUGA, Ontario  
L4V 1E2 (416) 677-9800

Also in Kelowna, British  
Columbia

<b>Solicitors</b>	Howard, Mackie	
<b>Auditors</b>	Clarkson Gordon	
<b>Stock Exchange Listings</b>	CLASS "A" COMMON SHARES Alberta Stock Exchange Montreal Stock Exchange The Toronto Stock Exchange	PREFERRED SHARES* Alberta Stock Exchange Montreal Stock Exchange for 7.60%, 6 <sup>3</sup> / <sub>8</sub> % and 6 <sup>1</sup> / <sub>2</sub> % Preferred Shares only. The Toronto Stock Exchange <i>*Application has been made for listing of the 15% Preferred Shares on the Alberta, Montreal and Toronto Stock Exchanges.</i>
<b>Transfer Agents and Registrars</b>	CLASS "A" COMMON SHARES National Trust Company, Limited in Vancouver, Calgary, Edmonton, Winnipeg, Toronto and Montreal. Canada Permanent Trust Company as agent for National Trust Company, Limited in Regina.  CLASS "B" COMMON SHARES National Trust Company, Limited in Calgary.	PREFERRED SHARES Crown Trust Company in Vancouver, Calgary, Edmonton, Winnipeg, Toronto and Montreal, except for 6 <sup>3</sup> / <sub>8</sub> % and 6 <sup>1</sup> / <sub>2</sub> % Preferred Shares. Canada Permanent Trust Company as agent for Crown Trust Company in Regina. The Royal Trust Company as agent for Crown Trust Company in Halifax for 7.60% and 15% Preferred Shares only. The Canada Trust Company in Vancouver, Calgary, Edmonton, Regina, Winnipeg, Toronto, Montreal and Halifax for 6 <sup>3</sup> / <sub>8</sub> % and 6 <sup>1</sup> / <sub>2</sub> % Preferred Shares only.
<b>Annual Meeting</b>	The Annual Meeting of the shareholders of the Company will be held at the Calgary Convention Centre, Calgary, Alberta, on Friday, May 7, 1982, at 10:00 a.m.	
<b>Annual Reports in French</b>	Les personnes désirant des exemplaires en français du présent rapport sont priées de s'adresser au secrétaire de la Compagnie.  P.O. Box 2535, Postal Station M, CALGARY, ALBERTA T2P 2N6	
<b>Duplicate Annual Reports</b>	Some holders of NOVA securities receive more than one copy of our annual report and other material mailed to shareholders. We make an effort to eliminate duplications of such mailings; however, if securities of the same class or series are registered in different names and addresses, multiple copies will be received. In those instances security holders should contact either the appropriate registrar or the Company to consolidate their holdings of each security under one name.	
<b>Contributors</b>	PHOTO CREDITS — NOVA, John Salus Commercial Photographer Ltd., John Sherlock Photography, Steve Wendelboe Photography.	PRODUCTION — NOVA; Intercorp Marketing Ltd., design consultants; Mitchell Press Limited, printing. Maps by Alexander S. Kozub.

# Principal Operations of the NOVA Group of Companies in North America\*





\*Detailed maps of two major NOVA activities in Alberta are exhibited elsewhere in this Annual Report: Alberta Natural Gas Transmission System on page 10 and Alberta Petrochemical Operations on page 22.

**NATURAL GAS TRANSMISSION**

- Alaska Highway Gas Pipeline, Canadian Sections
- Alaska Highway Gas Pipeline, United States Sections
- Trans Québec & Maritimes Pipeline

**RESOURCE DEVELOPMENT**

- General Areas of Petroleum Exploration and Production
- Husky Oil Ltd. Refineries
- Proposed Husky Oil Ltd. Refinery
- Arctic Pilot Project

**PETROCHEMICALS**

- Cochin Pipe Line

**MANUFACTURING**

- Grove Valve and Regulator Company Plants
- Western Star Trucks Inc. Plant

