

QUARTERLY FOCUS:

Recently Completed and Planned Facilities Affecting United States - Canada Gas Trade

INTRODUCTION

This *Quarterly Focus* examines some of the recently completed and planned pipeline projects which were designed to facilitate natural gas trade between the United States and Canada. Specifically, this report looks at new and expanded international pipeline interconnects, as well as projects which could improve the downstream and upstream transportation of such cross-border gas trade. The report includes projects which became operational in 1995 and projects which currently are being planned to become operational by the year 2000.

Most of the major construction projects aimed at increasing cross-border natural gas trade between 1995 and 2000 are covered by this report. However, certain of the proposed projects undoubtedly will be altered, delayed, or not completed at all due to financing, environmental considerations, competitive alternatives, or changes in the marketplace. Obviously, this report merely represents a snapshot of proposed pipeline construction activity aimed at facilitating gas trade between the United States and Canada. Most assuredly there will be other proposals introduced in the future.

The report is divided into three parts. **Part I** provides a brief discussion on the growth of Canadian natural gas imports over the past decade and where most of increased sales of Canadian gas occurred in the United States during this period. **Part II** gives an overview of recently completed and planned facilities construction which would further the opportunity for increased gas trade between the two countries. Finally, **Part III** provides individual descriptions and graphic representations of some of the new or planned projects. The project descriptions found in **Part III** are sorted primarily by the geographical areas served by the facilities; however, there are a couple of projects

which may serve more than one region. The first and second group of projects are designed to serve the West/Pacific Northwest and the Midwest, respectively. The third group of projects is dedicated to further cross-border trade in the East Coast, including New England. The fourth and last group includes projects which serve multiple regions.

PART I

GROWTH IN BILATERAL GAS TRADE

During the past decade (1986 - 1995), there has been substantial growth in the natural gas import and export trade. This increased international gas trade is indicative of the continued emergence of a more efficient, integrated North American natural gas market. During this period, Canadian natural gas imports into the United States have grown from 749 billion cubic feet (Bcf) in 1986 to 2,816 Bcf in 1995, or an increase of 276 percent. During the same time period, exports to Canada have grown from 9.2 Bcf to 29.2 Bcf, an increase of 217 percent.

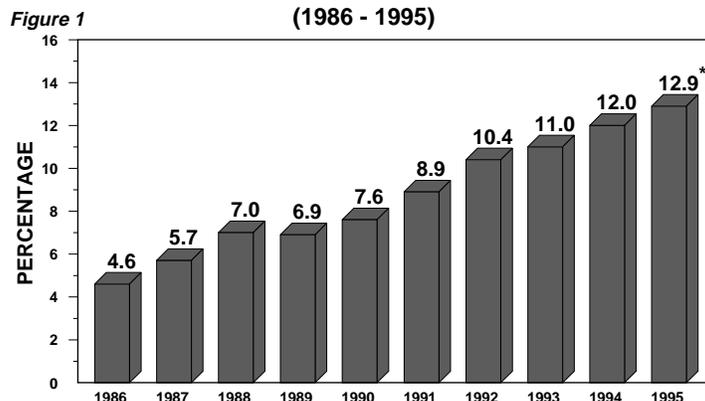
The tremendous growth in U.S. - Canada natural gas trade is the direct product of a more deregulated natural gas marketplace, the streamlining of the regulatory processes in both countries, and the passage of a free trade agreement. First, both the United States and Canada during the mid-1980's streamlined their regulatory review of natural gas trade between the two countries, by minimizing government intervention and stressing the importance of encouraging buyer-seller negotiated arrangements. Second, implementation of the U.S. - Canada Free-Trade Agreement (FTA) in 1989 effectively codified the regulatory changes made by the two countries in fostering a more competitive, market-oriented, natural gas marketplace. The passage of the FTA now ensures that the United States will have long-

term access to Canadian supplies and Canada will have access to the natural gas markets in the United States on a non-discriminatory basis. In addition, the energy provisions of the FTA also ensure access to Canadian natural gas supplies during times of short supply; affirm non-discrimination in pricing for the export market; and limit the circumstances under which national security may be involved in the justification for one country taking action to limit imports from or exports to the other. The FTA was another phase in the continuing evolution of U.S. - Canadian energy policy; one that is market-oriented and as free as possible. For example, the FTA eliminated all tariffs on natural gas trade between Canada and the United States in January 1993. Finally, the January 1994 passage of the North American Free Trade Agreement (NAFTA) has advanced further the progress toward a more fully integrated North American natural gas market. Full implementation of the NAFTA over the next seven years will eliminate all government duties and tariffs associated with cross-border natural gas trade between Canada, Mexico, and the United States, reduce government intervention in the marketplace, and increase energy trade opportunities for all three countries.

During the past decade, the increased use of imported natural gas in the United States has been the result of increased domestic demand, the availability of competitively priced supplies from Canada, and an improved transportation

infrastructure to facilitate such trade. From 1986 through 1995, domestic natural gas consumption grew by 5,434 Bcf (16,221 v. 21,655 Bcf). The 1995 consumption figure is from the Energy Information Administration's (EIA) *Natural Gas Monthly*, DOE/EIA-0130 (August 1996). This growth in gas consumption represents over a 33 percent increase in ten years. During the same time period, **net** imports (imports minus exports) of Canadian natural gas grew by 2,047 Bcf (689 v. 2,787 Bcf), or an increase of 304 percent. The fact that natural gas imports grew at a faster rate than the growth in U.S. natural gas consumption during this ten year period has resulted in market share growth for Canadian gas supplies. The growth in **net** Canadian natural gas imports during this period represented about 38 percent of the incremental growth in total U.S. gas consumption during this time period (1986 - 1995). As illustrated by **Figure 1**, **net** Canadian natural gas imports in 1995 were estimated to equal about 12.9 percent of the total U.S. natural gas consumption; in comparison, **net** Canadian imports in 1986 equaled about 4.6 percent of total U.S. gas consumption. **Figure 1** also illustrates the decade long trend in which natural gas imports from Canada are becoming increasingly important in meeting this country's growing gas consumption. 1995 was the ninth consecutive year of growth for Canadian natural gas imports, and the eighth year in which imports from Canada established a new record level.

NET CANADIAN NATURAL GAS IMPORTS AS A PERCENTAGE OF TOTAL U.S. CONSUMPTION



* Estimate based on preliminary consumption figure of 21.655 Tcf found in EIA's *Natural Gas Monthly*, DOE/EIA - 0130 (96/08). Table 3.

Figure 2 shows by census region the tremendous growth of Canadian natural gas sales in the United States over the past seven years. During 1995, Canadian natural gas was marketed in eight of nine census regions located in the lower-48 contiguous states. Census Region 6 (East South Central) was the only area of the country not indicating purchases of Canadian gas. **Figure 2** shows the five census regions where almost 96 percent of the Canadian gas sales were made in 1995.

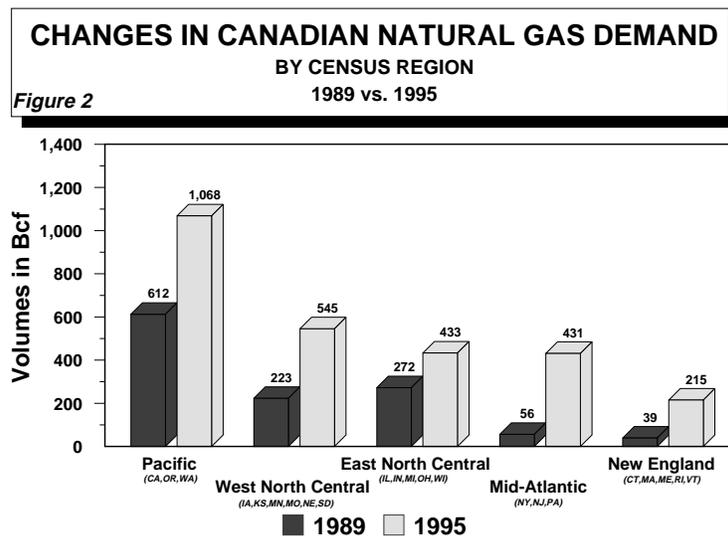
The overall growth in natural gas imports is expected to continue, albeit at a slower rate than the past decade. Virtually all major forecasters expect that the demand for natural gas imports into the United States will continue to increase in the foreseeable future. For example, EIA's *Annual Energy Outlook 1996* (DOE/EIA-0383), January 1996, in its reference case forecast, projects that **net** imports will reach 4.02 trillion cubic feet (Tcf) by the year 2015, with 3.45 Tcf coming from Canada. In another recent study entitled *Canadian Gas Exports in the U.S. Market: 1995 Evaluation and Outlook* (March 1996), Natural Resources Canada (NRCan) projects that Canadian natural gas exports to the United States will exceed 3 Tcf by the year 2000. NRCan, the predominant natural resource agency of the Canadian federal government, performs policy analysis studies on energy resource and international trade issues. Although there is general agreement that natural gas imports will continue to grow, particularly from

Canada, the pace of the growth is expected to be more modest over the next few years than in the most recent past. From 1989 through 1995, **net** Canadian natural gas imports experienced double-digit annual growth; however, this is not expected to continue. The principal reason for the expected decline in growth rate over the next few years is the lack of available pipeline capacity between the United States and Canada. This lack of sufficient pipeline capacity has already impacted on the level of imports from Canada this year. Based on quarterly company filings with OFP, **net** Canadian natural gas imports during the first six months of 1996 are running just ahead of the import level of last year (1,400 v. 1,393 Bcf).

PART II

NATURAL GAS FACILITY EXPANSIONS

The tremendous growth in natural gas import/export trade over the past decade has led to large capital investments in both the United States and Canada to increase transportation capacity in order to accommodate these record import/export levels. Most of the growth in natural gas import pipeline capacity occurred in the 1990's. From 1990 to 1996, the annual pipeline capacity to import Canadian natural gas grew from 2,265 Bcf to 3,367 Bcf per year, or a 1,102 Bcf increase; this represented almost a 49 percent increase in pipeline capacity.



The majority of the new import capacity built during the early 1990's was dedicated to serve the growing gas markets in the Western and Northeastern regions of the United States. In the West and Pacific Northwest, the bulk of the new capacity was due to the completion of an expansion project by the Pacific Gas Transmission Company, which added about 330 Bcf per year of additional capacity. In addition, four new customer-dedicated pipelines were built in the State of Washington; these four pipelines added another 181 Bcf per year pipeline capacity to the Pacific Northwest. In the East, a major expansion of the Tennessee Gas Pipeline System, and the construction of three new pipelines in the State of New York (Iroquois, Empire State, North Country) resulted in an additional import capacity of 412 Bcf per year.

OFPP estimates that the current annual pipeline capacity to import Canadian natural gas is about 3.37 Tcf. Although the actual crossborder pipeline capacity is somewhat higher than 3.37 Tcf/year, OFPP's figure has been adjusted to take into account that some facilities are bi-directional, used primarily by exporters, used jointly by both domestic and Canadian shippers, or are tied to diminishing production fields. **Table 1** on the next page shows the current annual pipeline capacity to import Canadian gas as estimated by OFPP, as well as the possible increases in this capacity if the various planned pipeline projects discussed in this report become operational.

Canada's enormous natural gas resource base and its continued surplus gas wellhead deliverability, coupled with government and industry forecasts for continued growth in demand for natural gas in the United States, has created a mini-stampede by pipelines and Canadian gas producers to build or expand pipeline facilities in order to accommodate increased export sales. Despite the fact that most industry and government forecasts project increases in domestic gas production, the growth rate is not expected to keep pace with the growth in demand. The expected shortfall in U.S. gas production compared with gas demand will continue to make supplemental supplies of gas from Canada an important source of energy

to this country. Likewise, Canadian natural gas exports also are very important to Canada's energy industry and economy, as revenues from gas exports totaled about \$4.1 billion in 1995. NRCan, in its March 1996 report, stated that 52 percent of the 5.24 Tcf of natural gas produced in Canada during 1995 was exported to the United States. It further pointed out the importance of exports to Canadian producers by citing the fact that 80 percent of their incremental gas production between 1990-1995 was destined for sales in the United States.

As illustrated in **Table 1**, crossborder pipeline capacity could grow substantially between 1998 and 2000 in the Midwest and Northeast regions of the country, but there are presently no major active plans to expand pipeline capacity for transporting additional volumes of Canadian gas to the West. When reviewing this table, keep in mind that some of the projects listed in this report have not advanced beyond the early developmental or conceptual stage; as a consequence, there is no certainty that some of these projects will actually be built. The report is intended merely to give the reader an idea of what the industry currently is contemplating in terms of size and markets for future crossborder pipeline expansion.

In the Midwest, the two major proposed construction plans involve the expansion of the Northern Border Pipeline, and the building of the Alliance Pipeline, which would run from British Columbia to the Chicago, Illinois, area. If both of these two projects were built, pipeline import capacity into the Midwest would expand by over 620 Bcf per year, which is almost a 55 percent increase over the current level. In the Northeast, the pipeline construction proposals discussed in this report would increase the import capacity by about 234 Bcf per year over the next few years. Aside from expansions on existing pipelines, the two major plans to increase capacity would involve the replacement of the converted oil to gas Portland Pipeline with a new Portland Natural Gas Transmission System, and the building of one of the two proposals to ship offshore Nova Scotia gas to the Northeast.

TABLE I

CURRENT AND PROJECTED CANADIAN IMPORT CAPACITY: 1995 TO 2000

(Annual Capacity in Bcf)

	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
<u>Western Region</u>						
Northwest Pipeline	379.4	379.4	379.4	379.4	379.4	379.4
Ferndale Pipeline	38.3	38.3	38.3	38.3	38.3	38.3
Sumas International Pipeline	82.1	82.1	82.1	82.1	82.1	82.1
Sumas Energy - U.S.A.	16.4	16.4	16.4	16.4	16.4	16.4
Sumas Cascade Pipeline	43.8	43.8	43.8	43.8	43.8	43.8
Pacific Gas Transmission	895.7	895.7	895.7	895.7	895.7	895.7
Montana Power Co. (3 sites) ¹	46.3	46.3	46.3	46.3	46.3	46.3
Total for Western Region	1502.0	1502.0	1502.0	1502.0	1502.0	1502.0
<u>Midwestern Region</u>						
Northern Border Pipeline	611.4	611.4	611.4	866.9	866.9	866.9
Williston Basin Pipeline ²	3.6	3.6	3.6	3.6	3.6	3.6
Portal Municipal Gas Pipeline	0.8	0.8	0.8	0.8	0.8	0.8
Viking/Great Lakes Pipelines	415.4	415.4	415.4	415.4	415.4	415.4
Centra MN Pipeline	12.8	12.8	12.8	12.8	12.8	12.8
Bluewater Pipeline	73.0	73.0	73.0	73.0	73.0	73.0
Panhandle Eastern Pipeline	14.6	14.6	14.6	14.6	14.6	14.6
Alliance Pipeline	0.0	0.0	0.0	0.0	0.0	365.0
Total for Midwest Region	1131.6	1131.6	1131.6	1387.1	1387.1	1752.1
<u>Eastern Region</u>						
Tennessee Gas/National Fuel Pipelines ³	313.7	313.7	331.2	331.2	331.2	331.4
Empire State Pipeline ⁴	39.2	39.2	39.2	39.2	39.2	39.2
Iroquois Pipeline	301.2	301.2	314.2	314.2	314.2	314.2
St Lawrence Gas	22.5	22.5	22.5	22.5	22.5	22.5
North Country Pipeline	25.6	25.6	25.6	25.6	25.6	25.6
Vermont Gas	16.1	16.1	16.1	16.1	16.1	16.1
Portland Pipeline ⁵	14.6	14.6	14.6	0.0	0.0	0.0
Portland Natural Gas Trans.	0.0	0.0	0.0	65.0	65.0	65.0
Maritimes & Northeast Pipeline ⁶ or Sable TransCanadian Pipeline	0.0	0.0	0.0	0.0	153.3	153.3
Total for Eastern Region	732.9	732.9	763.4	813.8	967.1	967.1

1. Capacity constrained by declining production fields in Alberta.
2. Bi-directional pipeline.
3. Table does not include possible expansion in 1998/99. National Fuel currently is conducting an open season to determine interest in expanding capacity from Niagara to Leidy by 91 to 182 Bcf per year.
4. Actual capacity is 191.6 Bcf; however, majority of capacity is dedicated for transporting domestic supplies.
5. Assumes pipeline will return to transporting oil in April 1998.
6. Assumes only one of these two pipelines will be built.

PART III

DESCRIPTIONS OF NEW AND PLANNED PROJECTS

This part contains brief descriptions of sixteen new or proposed pipeline projects which are intended, in whole or in part, to promote cross-border trade between the United States and Canada. The project descriptions, which are sorted by geographic markets to be served, include projects which became operational in 1995, and those projects which are scheduled to become operational before the year 2000. The sixteen project descriptions contain information on ownership, location, pipeline size and capacity characteristics, date of anticipated commercial start-up, capital costs, relative supply sources, markets to be served, and project/regulatory status. Most of the pipeline project descriptions also include maps illustrating the general location and route of the construction.

Listed below, by geographical areas served, are the sixteen project descriptions and the page where they can be found in this part.

West

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Midwest

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East

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National Fuel Gas Supply Corp.'s 1997 Niagara Expansion	xiii
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Sable TransCanadian Pipeline Project	xxi

Multi-Regional

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ANR PIPELINE COMPANY "LINK PROJECT"

Owner(s): ANR Pipeline Company (a subsidiary of Coastal Corp.)

Location/Description: ANR would construct a 12.1 mile pipeline from its existing Muttonville Lateral, just west of St. Clair, Michigan to interconnect with a 5.8 mile lateral, to be constructed by Consumers Gas Company Limited (Consumers Gas) of Toronto, Canada at the U.S./Canada international boundary which is separated by the St. Clair River.

Summary: On November 15, 1994, ANR Pipeline filed with the FERC an application to amend a project it proposed in July 1993 to export gas into Canada through the Canadian Interprovincial Pipe Line, an oil pipeline which would have been converted to gas use. The amended proposal by ANR known as the "Link Project" would create an opportunity to both export natural gas to Consumers Gas, a Toronto local distribution company, and further transport gas downstream via TransCanada PipeLine where it could be routed back into the U.S. Northeast at the Grand Islands, Niagara Falls or Waddington import points in Upstate New York. Consumers Gas, the Canadian sponsor to this project, would construct a 5.8 mile, 24-inch interconnecting pipeline between ANR's facilities and its Tecumseh gas storage facility in Ontario. Michigan Consolidated Gas (MichCon) and Great Lakes Gas Transmission would also tie in with the ANR Link Project. Initially, ANR is holding firm transportation contracts to move up to 75 MMcf/day on behalf of MichCon and up to 15 MMcf/day on behalf of Consumers Gas. ANR hopes to establish an electronic bulletin board for shippers wanting to use the remaining 60 MMcf/day. Pending future FERC approval, the pipeline could be reversed to import gas from Canada to ANR from Consumers Gas, if conditions warrant it.

Length/Diameter: 12.1 miles - 24 inch (U.S. segment)
5.8 miles - 24 inch (Canadian segment)

Projected In-Service Date: November 1, 1996

Daily Pipeline Capacity: 150 MMcf

Capital Costs: \$15 million

Supply Source: U.S.

Proposed Market(s): Canada and possibly U.S. Northeast

Status: On December 18, 1995, ANR received approval from the FERC under Docket CP-93-564-003 to construct and operate the ANR Link.

On December 14, 1995, Niagara Gas Transmission Limited, a wholly-owned subsidiary of Consumers Gas, received NEB approval to construct and operate the companion Canadian facilities.

ALLIANCE PIPELINE PROJECT

Sponsor(s): Alliance Pipeline, L.P., a limited partnership of 17 gas producing, marketing, and pipeline companies. The investment from each group is proportional to company size, with no firm representing more than 11% ownership in the project. Partners include affiliates of:

Alberta Energy Company	IPL Energy Inc.
Beau Canada Exploration Ltd.	PanCanadian Petroleum Ltd.
Canadian Occidental Petroleum Ltd.	Petro-Canada
Chevron Canada Resources	Poco Petroleum, Ltd.
Cordeca Corporation	Ranger Oil Limited
Crestar Energy, Inc.	Summit Resources Ltd.
Direct Energy Marketing Ltd.	Tarragon Oil and Gas Ltd.
Gardiner Oil and Gas Ltd.	Unocal Corporation
Gulf Canada Resources Ltd.	

Location/Description: The Alliance Pipeline would originate near Fort St. John, British Columbia and extend about 1000 miles across the main gas producing regions of Alberta, through Saskatchewan, to a point on the Canada/United States border. After crossing the U.S. border into North Dakota, the pipeline would extend approximately 900 miles across parts of Minnesota and Iowa to its terminus near Chicago, Illinois. The pipeline would follow existing rights-of-way for most of its length.

Summary: The Alliance Pipeline Project represents Canada's largest effort in recent years. The proposed pipeline would provide an alternative to Canada's principal pipelines (NOVA in Alberta and TransCanada PipeLines Ltd. east of Alberta) for moving western Canadian gas supplies to midwestern U.S. markets. With North American gas demand expected to grow by about 1.5% annually, Alliance Pipeline's capacity would represent 20% percent of this new growth. The Western Canada Sedimentary Basin has been identified as an area containing large amounts of natural gas for future exploration and development. The sponsors to the Alliance Pipeline state that the project would alleviate the high transportation costs associated with moving this supply to North American markets.

Length/Diameter: 1900 miles/36-inch

Proj. In-Service Date: Late 1999

Daily Pipeline Capacity: 1 Bcf

Capital Costs: \$2.5 billion

Supply Source(s): Western Canada (Western Canada Sedimentary Basin)

Proposed Market(s): Midwest United States, primarily Chicago

Status: All 17 partners have contributed initial capital for the project and have committed additional funds for its various phases. The results of an initial feasibility study completed earlier this year, the Northern Area Transportation Study (NATS), showed the pipeline project to be economically, technically, and environmentally sound. Alliance Pipeline, L.P. plans to file for approval with the FERC by the end of this year and with Canada's National Energy Board by early 1997. Alliance currently is conducting an open season from September 16 through October 31, 1996, to determine the level of interest in shipping supplies on the proposed pipeline.

BLUEWATER PIPELINE PROJECT

Owner(s): CMS Gas Transmission and Storage Company (CMS). CMS is an intrastate pipeline company that is a wholly owned subsidiary of CMS Enterprises Company, a subsidiary of CMS Energy Corporation (CMS Energy).

Location/Description: The Bluewater Pipeline Project establishes a direct connection between the natural gas distribution systems of Union Gas Ltd. (Union) in Ontario and CMS Energy Corporation's gas-utility subsidiary, Consumers Power Company (Consumers), in Michigan. CMS, an intrastate pipeline, converted a 12-inch natural gas liquids pipeline (Polysar) that crosses the St. Clair River into a natural gas pipeline. The Polysar pipeline connects with the newly built pipeline facilities of St. Clair Pipelines, Ltd., which is an affiliate of Union. The new 3.1-mile, 20-inch Bluewater Pipeline connects the Polysar line to the Grand Lacs Market Center via Consumers' existing 20-inch Marysville-Ray Pipeline. The Grand Lacs Market Center is owned and operated by CMS. It is a major facility for the trade and storage of domestic and Canadian gas. Its location provides access to nearly every major North American supply basin and major consuming markets in the United States and Canada.

Summary: This project provides a bi-directional pipeline which will serve gas consumers in both Michigan and Ontario. CMS plans to use the facilities: (1) to import Canadian gas for markets in Michigan; (2) to store in Michigan gas that is imported from Canada and then redelivered to Canadian markets; (3) to export gas produced in Michigan for Canadian markets; and (4) to exchange gas between Union and others during emergencies.

Length Diameter: 3.1-miles/20-inch (Bluewater)
12-inch (Polysar)

In-Service Date: November 1995

Daily Pipeline Capacity: 200 MMcf (maximum peak day 250 MMcf)

Capital Costs: \$3.3 million (U.S. side)
\$2.0 million (Canadian side)

Supply Sources: United States and Canada

Proposed Markets: Michigan and Ontario

Status: On April 7, 1995, CMS received approval for this project from the Michigan Public Service Commission.

On June 15, 1995, the Canadian National Energy Board issued an order authorizing St. Clair to lease from Genesis Pipeline (Canada) Ltd. and convert to gas service, the Canadian side of the Polysar Pipeline. St. Clair was also authorized to construct a connecting pipeline to Union's Sarnia Industrial Pipeline.

On August 2, 1995, the FERC approved CMS's proposal to convert the Polysar Pipeline and construct the Bluewater Pipeline in Docket Nos. CP95-331-000 and CP95-332-000.

GREAT LAKES CONSTRUCTION PROJECTS

Sponsor(s): Great Lakes Gas Transmission Limited Partnership (Great Lakes) [Great Lakes is 50% owned by TransCanada PipeLines Limited (TransCanada) and 50% owned by Coastal Corporation]

Location/Description: Great Lakes owns and operates a natural gas pipeline system which extends about 973 miles from an inter-connection with TransCanada near Noyes, Minnesota, through northern Minnesota, Wisconsin, and northern and east central Michigan to interconnections with TransCanada near St. Clair, and Sault Ste. Marie, Michigan. In addition, Great Lakes transports gas to various customers in the states of Minnesota, Wisconsin, and Michigan. Currently, 96 percent of the system is looped, consisting of two 36-inch pipelines. The remaining four percent of the system consists of three separate single-line segments totaling 38.3 miles. Great Lakes proposes to loop the remaining single-line portions of its system over the next couple of years.

Summary: Since April 1995, Great Lakes has filed four applications with the FERC requesting certificates to construct and operate new pipeline facilities on its system. The overall purpose of the first three projects is to increase the system's reliability and flexibility and to facilitate system maintenance. Under the fourth planned project, Great Lakes would provide year-round firm transportation service between Noyes, Minnesota, and St. Clair, Michigan, to five new shippers, totaling 126 MMcf/day. In the **first project** (CP95-375), Great Lakes would build 13.8 miles of 36-inch pipeline loop at its existing Boyne Falls compressor station in Charlevoix County, Michigan, which would interconnect with its existing 36-inch loop in Otsego County, Michigan. This is the first phase of the so-called "Security Loop Project", and would complete the last remaining unlooped portion of Great Lakes' mainline in lower Michigan. In its **second project** (CP96-26), Great Lakes would add 1,500 feet of 36-inch pipeline looping to its border-crossing facilities near St. Clair; thereby providing needed security and reliability across the St. Clair River. In its **third project** (CP96-297), Great Lakes would construct and operate about 24.5 miles of 36-inch pipeline loop in Delta and Mackinac counties, Michigan. This project represents the second and final phase of Great Lakes' "Security Loop Project." In its **fourth project**, Great Lakes would construct and operate three 36-inch pipeline loop segments totaling 71.5 miles in Minnesota and Wisconsin; install and operate two new 7,400 HP compressor units; replace an existing aerodynamic assembly; and construct and operate certain minor, permanent above-ground ancillary facilities.

Projected In-Service

Date(s): CP95-375 (November 1, 1996) CP96-26 (November 1, 1996)
 CP96-297 (November 1, 1997) CP96-647 (November 1, 1998)

Capital Costs: CP95-375: \$17.4 million
 CP96-26: \$3.9 million
 CP96-297: \$44.3 million
 CP96-647: \$149.3 million

Market(s): United States and Canada

Status: **CP95-375:** On February 20, 1996, the FERC issued an order authorizing the project. The FERC found that the proposed facilities were needed to "enhance system reliability and flexibility, particularly during peak summer months, in order for Great Lakes to operate its system in the post-Order No. 636 environment."
CP96-26: On August 2, 1996, the FERC issued an order authorizing the project.
CP96-297: Pending before FERC **CP96-647:** Pending before FERC

IROQUOIS GAS TRANSMISSION SYSTEM EXPANSION PROJECT

Owner(s): Iroquois Gas Transmission System, L.P. (Iroquois) [Iroquois consists of 10 general partners and 3 limited partners. The 3 partners with the largest percentage of interest are affiliates of TransCanada PipeLines Ltd. (29%), Coastal Corporation (22.6%) and Brooklyn Union Gas Company (18%)].

Location/Description: The Iroquois extends from the New York-Canadian border near Waddington, New York, through the states of New York and Connecticut, and terminates near South Commack, New York on Long Island. Iroquois interconnects with the Tennessee Gas Pipeline Company at Wright, New York and Shelton, Connecticut; with CNG Transmission Corporation near Fort Plain, New York; and with Algonquin Gas Transmission Company in the town of Brookfield, Connecticut.

Summary: Iroquois currently owns and operates two compressor stations located near the towns of Wright and Croghan, New York. These two compressor stations were put in service on November 1, 1993, and December 15, 1994, respectively. Under the proposed project, Iroquois plans to construct and operate a third compressor station near Athens, New York. The new compressor station will allow Iroquois to provide firm transportation services for two new shippers in an aggregate quantity of 30 MMcf/day. The shippers will be Coastal Gas Marketing Company (14 MMcf/day) and ProGas U.S.A., Inc. (16.16 MMcf/day). The new compressor station will increase the existing capacity of the Iroquois at the international border by about 35.5 MMcf/day (825.2 MMcf to 860.9 (excluding compressor fuel).

Specifications: Athens Compressor Station: 9,500 HP

Projected In-Service Date: November 1, 1997

Daily Pipeline Capacity: 35.5 MMcf (increase at international border)

Capital Costs: \$22 million

Supply Sources: Canada

Proposed Markets(s): U.S. Northeast

Status: On July 31, 1996, Iroquois filed an application with the FERC (CP96-687) requesting a certificate authorizing it to build and operate the new compressor station in the town of Athens, New York. The application also requested that the FERC make a determination that the costs associated with the project be given rolled-in rate treatment in the first rate proceeding following the projected in-service date.

MARITIMES AND NORTHEAST PIPELINE

Owner(s): PanEnergy (37.5%), Westcoast Energy (37.5%), Mobil Oil Corporation (25%). (Central Maine Power currently is negotiating to acquire an equity position in this project).

Location/Description: When fully completed, the Maritime and Northeast Pipeline Project (M&NE) will span from Country Harbour, Nova Scotia, through New Brunswick, Maine, and New Hampshire, to a terminus in Dracut, Massachusetts. M&NE will cross the U.S./Canada border near St. Stephen, New Brunswick, and Woodland, Maine. The U.S. facilities will be owned by Maritimes and Northeast Pipeline, L.L.C., and the Canadian facilities will be owned by Maritimes and Northeast Pipeline Limited Partnership. The Pipeline will be constructed in two phases with Phase I facilities running from Dracut, MA to an interconnection with Granite State Gas Transmission (Granite State) near Wells, ME. The planned Phase II facilities will span from Wells, ME, up to Country Harbour, Nova Scotia.

Summary: The Phase I facilities will enable an increase in deliveries of domestic gas from the North American pipeline grid to shippers in the Northeast markets; i.e., Maine and New Hampshire. In 1999, M&NE plans to complete construction of its Phase II facilities. The Sable Offshore Energy Project is scheduled to make offshore Nova Scotia natural gas supplies available to Eastern Canada and the Northeastern United States by 1999. M&NE is in partial competition with the Portland Natural Gas Transmission System (PNGTS) which proposes to transport gas from the Canadian border at North Troy, VT to Haverhill, MA (see p. xx). Unlike M&NE, PNGTS would access its gas supply from western Canada.

Length/Diameter: Phase I - 64 miles/24-inch diameter
Phase II - 243 miles/24-inch diameter
- 8 laterals of various length and diameter

Projected In-Service Date: Phase I - 1997, Phase II - 1999

Daily Pipeline Capacity: 1997 - 60,000 MMBtu (domestic gas)
1999 - 440,000 MMBtu (Canadian gas)

Capital Costs: Phase I = \$84 million
Phase II - To Be Determined

Supply Source(s): United States and Canada (Nova Scotia)

Proposed Market(s): Nova Scotia, New Brunswick, New England

Status: On February 8, 1996, M&NE filed for a section 7(c) construction certificate for Phase I of the 64-mile "prebuild" portion of the project (CP96-178). In its application, M&NE stated that Phase I construction is not contingent on construction of the Phase II facilities, nor would Phase I transporters be obligated to take capacity on Phase II facilities. On July 31, 1996, the FERC issued a Preliminary Determination (PD) approving the Phase I facilities project, subject to environmental review and certain conditions. In the PD, the FERC urged M&NE and PNGTS to consider a joint pipeline or a shared right-of-way between Wells, Maine and Dracut, Massachusetts.

On September 10, 1996, the NEB appointed a five person panel to conduct a joint review of the Sable Gas Projects (see description on page xxi).

NATIONAL FUEL GAS SUPPLY CORPORATION'S
1997 NIAGARA EXPANSION PROJECT

Owner(s): National Fuel Gas Supply Corporation (National Fuel)

Location/Description: National Fuel owns and operates a 3,289-mile natural gas pipeline network that extends from the New York-Canadian border near Niagara Falls, New York, to southwestern Pennsylvania. National Fuel's expansion project would provide an additional 48,000 Mcf per day of firm winter capacity and 21,344 Mcf per day of firm non-winter capacity from the Niagara import point to interconnections between its facilities and those owned by Transcontinental Gas Pipe Line Corporation (Transco) at Leidy and Wharton, Pennsylvania. Two shippers, Enron Capital & Trade Resources Corporation and Renaissance Energy (U.S.) Inc., have subscribed to long-term transportation agreements (ten years) with National Fuel for most of this proposed additional pipeline capacity. National Fuel currently is soliciting service requests for the remaining 3,656 Mcf per day of firm winter capacity.

Summary: Under the construction project, National Fuel intends to replace four compressor units at Ellisburg, Pennsylvania, (three 330 horsepower (HP) compressor units and one 300 HP compressor unit) which currently are being used for storage, and install one new 2,250 HP compressor. In addition, National Fuel proposes to increase the HP of its Concord, New York, compressor station from 9,950 HP to 11,250 HP, by modifying its existing facilities. Finally, National Fuel plans on increasing the maximum allowable operating pressure of its facilities in Niagara and Erie Counties, New York, by replacing and installing certain valves, pressure control devices, station piping and other auxiliary facilities at six metering and regulating stations.

Projected In-Service Date: November 1, 1997 (Concord facilities will be April 1, 1998, at the earliest)

Daily Pipeline Capacity: 48,000 (firm winter capacity: Niagara Falls to Leidy)
21,344 (firm non-winter capacity: Niagara Falls to Leidy/Wharton)

Capital Costs: \$10.6 million

Supply: Canada

Proposed Market(s): Western New York and Pennsylvania

Status: On July 25, 1996, National Fuel filed an application (CP96-671) with the FERC requesting authority to construct and operate the proposed new facilities. There are two other FERC proceedings which affect National Fuel's construction proposal. First, the shippers planning on using the additional capacity on National Fuel's system also are planning on using proposed capacity additions on Transco's system in its Seaboard Expansion Project (CP96-545). Second, Tennessee Gas Pipeline Company, the co-owner and operator of the Niagara Spur Loop Line, filed an application (CP96-721) with the FERC on August 16, 1996, requesting authority to upgrade the Lockport compressor station in order to facilitate National Fuel's project.

NATURAL GAS PIPELINE'S AMARILLO MAINLINE PROJECT

Owner(s): Natural Gas Pipeline Company of America (Natural)

Location/Description: Natural's gas transmission system consists of the Amarillo line, the Gulf Coast mainline, and the A/G line which connects the two mainlines. The Amarillo line extends from the natural gas production areas of the Southwest to the Chicago, Illinois area. The Gulf Coast line runs from the offshore and onshore gas producing areas of the Gulf of Mexico to the Chicago area. Natural's proposed project is to expand the Amarillo line east of Harper, Iowa, to Chicago. Natural's proposal is dependent on a proposal by Northern Border Pipeline Company (Northern Border) to expand its upstream facilities from Port of Morgan, Montana, to Harper, but the project also is in competition with part of Northern Border's own proposal to expand its system from its existing terminus at Harper to the Chicago area. (See page xv for a description of this project.)

Summary: As the result of an open season held by Natural in the summer of 1995, Natural states that the proposed expansion of its facilities from Harper to the Chicago area is needed to provide firm, long-term transportation service of 525 MMcf/day to ten new shippers. Under the proposed project, Natural would receive the incremental volumes from Northern Border at Harper, and then transport and deliver these volumes to various locations along the existing Amarillo line before reaching the terminus of Natural's system in Chicago. In order to accomplish this expanded transportation service, Natural's proposed construction project would entail the building of about 10 miles of pipeline looping in Iowa upstream of compressor No. 199, the installation of a new 9,000 HP compressor at station 110 in Henry County, Illinois, and the construction of two new pipeline looping segments in Illinois, totaling a little over 76 miles.

Length/Diameter: 9.7 miles of pipeline looping in Iowa/36-inch
76.1 miles of pipeline looping in Illinois/36-inch
New 9,000 HP compressor in Henry County, Illinois

Projected In-Service Date: Spring of 1998

Daily Pipeline Capacity: 345 MMcf/day (increased capacity from Harper, Iowa, to Chicago terminus)

Capital Costs: \$85.4 million

Supply Source(s): Canada and the United States (Williston Basin gas)

Proposed Market(s): Illinois

Status: On August 1, 1996, the FERC issued an order in Docket CP96-27, making a preliminary determination (PD) on the non-environmental issues of Natural's application to expand the capacity of its facilities on the Amarillo line between Harper, Iowa, and Chicago. The PD conditionally approved Natural's construction proposal, concluding that the project is complementary to Northern Border's project, the facilities were designed properly, and that incremental shippers were fully subscribed to Natural's expansion capacity under long-term agreements. The FERC noted in its PD that Natural's project is premised on the release of 180 MMcf/day of existing capacity by MidCon Gas Service Corporation, an affiliated marketer of Natural. The FERC also stated that its acceptance of Natural's back-up release agreement with MidCon is subject to Natural conducting a new open season. The FERC also directed Natural to seek rolled-in rate treatment for costs associated with these planned facilities in its next general rate case, unless conditions materially change.

NORTHERN BORDER EXPANSION PROJECT

Owner(s): Northern Border Pipeline Company (Northern Border)
(Northern Border is a general partnership comprised of subsidiaries of: Enron Corp., The Williams Companies, PanEnergy Corp., and TransCanada PipeLines Limited)

Location/Description: Northern Border's existing system consists of 969 miles of pipeline originating on the United States/Canada border at Port of Morgan, Montana, and terminating at Harper, Iowa. Northern Border's capacity is presently 1,675 MMcf/day from Port of Morgan to Ventura, Iowa and 386.5 MMcf/day from Ventura to Harper. The proposed expansion project would substantially increase the system's capacity and extend the pipeline approximately 243 miles from the existing Harper terminal to Manhattan, Illinois (just south of Chicago).

Summary: The expansion project would increase Northern Border's pipeline capacity by 700 MMcf/day between Port of Morgan and Ventura (1,675 vs. 2,375), 961 MMcf/day between Ventura and Harper, and involve the building of a 243 mile, 684 MMcf/day pipeline extension from the present Harper terminus to Manhattan. In order to accomplish this expansion, Northern Border would construct 243 miles of 30-36" diameter pipeline between Harper and Manhattan, construct 147 miles of 36" diameter looping between Ventura and Harper, construct 35 miles of 42" diameter looping in Montana and the Dakotas, and construct 293,000 horsepower of new compression at 12 compressor sites.

Length/Diameter: 243 miles/30 to 36-inch (pipeline extension)

Daily Pipeline Capacity: 700 MMcf (U.S./Canada Border)

Projected In-Service Date: November 1998

Capital Costs: Approximately \$793 million

Supply Source(s): Canada, possibly some domestic supplies

Proposed Market(s): Midwest, primarily northern Illinois

Status: On October 13, 1995, Northern Border filed an amendment to its February 2, 1995, section 7(c) application with the FERC (CP95-194) to expand and extend its pipeline system. This amendment represents a significant increase in facilities, shippers and volumes from its original application. The significant increase in proposed facilities is the result of a successful open-season held in July/August 1995. Twenty-one expansion/extension shippers signed 30 precedent agreements for new capacity, including 663 MMcf/day on the proposed extension from Harper to Manhattan. On August 1, 1996, FERC gave a preliminary determination approving the non-environmental aspects of the project, including rolled-in rate treatment.

NORTHWEST PIPELINE CORPORATION
1995 EXPANSION PROJECTS

Sponsor: Northwest Pipeline Corporation (Northwest)

Location/Description: Northwest owns and operates a transmission system that extends from Sumas, Washington, on the United States - Canada border to New Mexico. On August 2, 1993, and August 18, 1993, Northwest filed applications with the FERC in Docket Nos. CP93-613 and CP93-673, respectively, requesting authority to construct and operate certain expansion and enhancement facilities on its existing system.

Summary: **Northwest Natural Expansion Project:** In its August 2 application (CP93-613), as amended in 1994 and 1995, Northwest requested authority to build and operate facilities from its existing Stanfield, Oregon, interconnect with the Pacific Gas Transmission system to 14 delivery points on the Grants Pass Lateral near Portland, Oregon, in order to provide additional firm transportation of up to 102 MMcf/day for Northwest Natural Gas Company (Northwest Natural). Northwest Natural is a local distribution company (LDC) located in Portland, Oregon, which provides natural gas sales and distribution services to customers in northwest Oregon and southwest Washington. Specifically, the project involved 13.2 miles of 20-inch pipeline loop deviating from the Grants Pass Lateral near Gresham, Oregon (east of Portland), and 1.3 miles of 20-inch pipeline loop on the Grants Pass Lateral near Salem, Oregon; and 5,700 horsepower of additional compression at the Goldendale and Washougal Compressor Stations.

Northwest's Expansion II Project: In its August 18 application (CP93-673), as amended in 1994 and 1995, Northwest proposed to construct and operate facilities to provide firm transportation of up to 42 MMcf/day for eleven shippers. Specifically, the project called for 42.2 miles of pipeline looping in Idaho, Washington, and Oregon; several laterals in Washington and Oregon; and an additional 7,879 horsepower of compression in Washington and Idaho. The customers include electric generation, industrial users and LDCs. Among the eleven customers of the proposed facility, Weyerhaeuser Corporation, a forest industry firm, was scheduled to be the largest shipper. According to Northwest's application with the FERC, about 60 percent of the natural gas required for this expansion was coming from domestic sources, while 40 percent was coming from Canadian gas suppliers.

In-Service Date: Both projects were placed into service on December 1, 1995. However, Northwest did not place into service the Springfield and Weyerhaeuser pipeline laterals.

Capital Costs: Northwest Expansion II Project: \$51.0 million
Northwest Natural Expansion: \$53.2 million

Supply Source(s): Canada and United States Rocky Mountains

Market(s): Oregon, Washington, and Idaho

Status: On April 19, 1995, the FERC issued a final certificate order granting Northwest authority to construct and operate both pipeline expansion projects. On December 20, 1995, the FERC issued an order amending the certificate issued in April based on project revisions submitted in July 1995 by Northwest. The same order also granted Northwest's request for rolled-in rate treatment for the costs and services associated with the expansion facilities. In an order issued April 1, 1996, the FERC denied rehearing of its earlier decision approving rolled-in treatment of the expansion costs.

NORTHWEST PIPELINE TENASKA LATERAL

Owner(s): Northwest Pipeline Corporation (Northwest)

Location/Description: Northwest plans to construct a small lateral pipeline off of its mainline system in Washington State. The lateral would transport natural gas to a planned electric powerplant located in the Frederickson Industrial Area of Pierce County, Washington.

Summary: The proposed Tenaska Lateral (in Pierce County, Washington) would serve the powerplant owned by Tenaska Washington Partners II, L.P. (Tenaska). The Tenaska powerplant is a proposed 248-MW natural gas-fired, combined-cycle generating facility. Tenaska has signed gas supply contracts with Husky Gas Marketing Inc. and Shell Canada Ltd. to fuel this plant. The Tenaska plant would sell electricity to the Bonneville Power Administration (BPA).

Length/Diameter: 1200 feet/12-inch

Projected In-Service Date: September 1997

Daily Pipeline Capacity: 62.1 MMcf

Capital Costs: \$1,235,400

Supply Source(s): Canada

Proposed Market(s): Washington State (electric powerplant)

Status: Northwest filed its application with FERC for the Tenaska (Docket No. CP94-276) project on March 10, 1994. The FERC issued orders in Docket No. CP94-276 approving the construction and operation by Northwest of the Tenaska facilities on September 20, 1994.

On January 5 and 24, 1994, DOE issued Order Nos. 909 and 912 (Docket Nos. 93-132-NG and 93-131-NG, respectively) granting Tenaska two authorizations to import Canadian natural gas for a term of 20 years, beginning on the date that Tenaska's powerplant is placed in commercial operation. Tenaska anticipates purchasing the gas from Husky Gas Marketing, Inc. and Shell Canada Limited. In October 1994 Tenaska signed an agreement requiring the firm to provide \$500,000 for a reforestation project near the proposed 248 MW cogeneration plant to offset carbon dioxide emissions from its plant. The company will provide in total \$1 million for various projects to slow global warming as part of its power-purchase agreement with BPA.

In 1995, BPA said it would not honor a 20-year agreement to buy power from the Tenaska powerplant. Construction of the Tenaska plant was suspended in June 1995 and remains "on hold" pending dispute resolution of a suit Tenaska partners filed against BPA in the U.S. Court of Federal Claims.

On September 9, 1996, Northwest filed with FERC a Motion for Extension of Time requesting authorization be extended through September 20, 1997, to complete and place into service the Tenaska lateral and meter station.

NOVAGAS CLEARINGHOUSE LTD.'S PESH CREEK PIPELINE PROJECT

Owner(s): Novagas Clearinghouse Ltd. (NCL) is owned equally by NOVA Corporation of Calgary, Canada and NGC Corporation of Houston, Texas

Location/Description: NCL's project involved the construction and operation of new gas gathering and processing facilities and a transmission line (Pesh Creek Pipeline) that transports natural gas from production fields located about 93-miles northeast of Fort Nelson, British Columbia, and connects with NOVA Gas Transmission Ltd.'s (NGTL) pipeline system at the Alberta border. The new gathering and processing facilities handles gas from the Midwinter, Helmet, Tooga, and Peggo fields of northeastern B.C. The overall purpose of the project is to afford producers in these fields an opportunity to transport their gas to markets in North America.

Summary: The 10.2-mile, 10.75-inch diameter Pesh Creek Pipeline transports sweet dry gas from Novagas Clearinghouse Limited Partnership's new separation, compression and metering facility in northeastern B.C. (referred to as the "Peggo Facility") to a new metering station owned by NGTL in northwestern Alberta. NGTL has built 53.4-miles of new pipeline from this new metering station to connect the Pesh Pipeline with its existing pipeline system. In addition to the Peggo Facility, Pesh Creek Pipeline, and additional NGTL facilities, certain upstream facilities also were required to transport gas from these four gas fields to NGTL's system. These include a 40.4-mile gathering pipeline to the Midwinter field as well as gathering pipelines to the Peggo and Tooga fields and eventually to the Helmet field.

Length/Diameter: 10.2 miles/10.75-inch (Pesh Creek Pipeline)
87 miles/diameter unknown (upstream gathering facilities)

In-Service Date: May 1996

Daily Pipeline Capacity: 60 MMcf (Pesh Creek Pipeline)

Capital Costs: \$18.2 million (includes \$2.2 million for Pesh Creek Pipeline)

Supply Source(s): Canada (British Columbia)

Proposed Market(s): Eastern Canada and U.S. Midwest

Status: On January 22, 1996, the National Energy Board of Canada approved NCL's proposed construction project (Docket GH-1-96). The facilities were built and have been in operation since early May 1996. Currently, the new facilities are moving about 32 MMcf/day to Alberta for the following producers: Beau Canada Exploration Ltd., Gulf Canada Resources Ltd., and Ohio Resources Corporation.

PALLISER PIPELINE PROJECT

Owner(s): PanCanadian Petroleum Ltd. (PanCanadian) and Westcoast Energy Inc. (Westcoast)

Location/Description: The two sponsors of the Palliser Pipeline Project (Palliser) plan on constructing and operating a new 155-mile, large-diameter mainline pipeline system, and almost 435-miles of pipeline laterals in the Province of Alberta. The proposed pipeline would originate in southwest Alberta in the Carbon region (about 30-miles northeast of Calgary) and terminate at the Alberta/Saskatchewan border (near Empress, Alberta), receipt points of the TransCanada PipeLines Limited pipeline system and the McNeill receipt point of the Foothills Pipe Lines Ltd. pipeline system. The proposed Palliser is planning on initially transporting up to one Bcf/day. Under the announced plans, Palliser would not be a conventional cost of service pipeline; the sponsors will be at risk for the capital employed and currently are soliciting long-term contract commitments with customers.

Summary: PanCanadian and Westcoast, the two sponsors to Palliser, see their project as a competitive alternative to NOVA Gas Transmission Ltd.'s (NOVA) System in Alberta due to NOVA's current use of a "postage stamp" rate methodology. PanCanadian argues that the southern portion of NOVA unfairly subsidizes gas producers located in British Columbia and northern Alberta who pay the same flat/postage stamp rate as downstream shippers who move gas a much shorter distance. PanCanadian, which has most of its gas production in the south, thinks that the construction of Palliser would save it and other producers located in southern Alberta about half the present transportation rate of about \$0.25/Mcf charged by NOVA. The postage stamp rate used by NOVA was established in 1980 to bolster gas production in the northern parts of the province. If this rate methodology were abandoned, the value of gas supplies in the north would diminish somewhat, while gas supplies in the south likely would increase in value.

Length/Diameter: 155 miles/unknown (mainline)
435 miles/unknown (laterals)

Projected In-Service Date: July 1998

Daily Pipeline Capacity: 1 Bcf

Capital Costs: \$219 million

Supply Source(s): Canada (Alberta, British Columbia)

Status: PanCanadian and Westcoast plan to file an application with the NEB by November 15, 1996. Palliser has indicated that the system design has been completed and that final transportation agreements have been forwarded to prospective shippers.

PORTLAND NATURAL GAS TRANSMISSION SYSTEM (PNGTS)

Sponsor(s): Bay State Gas Company [through its subsidiary Granite State Gas Transmission, Inc. Granite State]
Tenneco Energy, a unit of Tenneco Inc. MCN Investment Corporation
Gaz Metropolitan and Company, L.P. TransCanada PipeLine Ltd.
U.S. Generating Company

Location/Description: Since 1987 Granite State has been leasing a converted 18-inch oil-to gas pipeline from the Portland Pipe Line Corporation. The initial certificate was issued to Granite State by the FERC on August 4, 1987, in Docket CP87-37. This pipeline is 166-miles long and runs from the United States/Canada border near North Troy, Vermont, to Portland, Maine. Because this pipeline is being recalled back into oil service in 1998, the proposed PNGTS is intended in part to replace the service provided by this leased oil pipeline. A portion of the PNGTS will be built in the same right-of-way as the existing converted oil pipeline.

Summary: The proposed PNGTS, like the existing leased oil pipeline, would extend from the international border near North Troy, Vermont, to Portland. From Portland, the pipeline would travel in a southwesterly direction through southern Maine and New Hampshire to Haverhill, Massachusetts, where it would connect with Tennessee Gas Pipeline Company's facilities. In addition to the mainline, PNGTS plans on constructing two laterals and four metering facilities. Both planned laterals will connect with the existing facilities of Granite State in the states of Maine and New Hampshire. PNGTS' initial system will have no compression facilities.

Length/Diameter: 242 miles/20-inch

Proj. In-Service Date: November 1998

Daily Pipeline Capacity: 178 MMcf

Capital Costs: \$271 million (1998 dollars)

Supply Source(s): Canada

Proposed Market(s): New England/Northeast

Status: On March 14, 1996, PNGTS filed with FERC an application (CP96-249) for a certificate of public convenience and necessity under section 7(c) of the Natural Gas Act for the construction and operation of its proposed pipeline. On July 31, 1996, the FERC granted preliminary approval of the project, subject to completion of its environmental review. However, the FERC encouraged PNGTS to work with the sponsors of the Maritimes & Northeast Pipeline Project (see page xii) to find a way of building one pipeline system south of Portland, or building two systems in the same right-of-way in this congested and environmentally sensitive area.

PNGTS has executed binding precedent agreements with 5 shippers for a total of 172 MMcf/day of firm transportation services over a term of 20 years. These shippers include: Bay State Gas Company; Northern Utilities, Inc. (a Bay State subsidiary); TransCanada Gas Services, Inc.; CoEnergy Trading Company (a subsidiary of MCN Investment Corporation) and Wausau Papers of New Hampshire Inc. PNGTS states that TransCanada will seek authorization from the National Energy Board (NEB) of Canada to construct and operate facilities to interconnect with PNGTS as a part of its 1998/1999 facilities application in late 1996.

SABLE TRANSCANADIAN PIPELINE PROJECT

Sponsor(s): Gaz Metropolitan and Company, Limited Partnership, through Trans Quebec & Maritimes (TQ&M) Pipeline and Company, Limited Partnership.
[Partners in TQ&M Pipeline are Gaz Metropolitan (50%) and TransCanada Pipelines, Ltd. (50%)]

Location/Description: The Sable TransCanadian Pipeline Project (STCP) would consist of 650 miles of 24 and 20-inch pipeline from Country Harbour, Nova Scotia to Bernieres, Quebec, passing through Moncton, Fredericton and Edmundston, New Brunswick with laterals to Saint-John, New Brunswick and Halifax/Dartmouth, Nova Scotia.

Summary: STCP involves the construction of a 650-mile pipeline that would transport offshore natural gas from the Sable Offshore Energy Project (just east of Nova Scotia) to Bernieres, Quebec, where it would interconnect with TQ&M's pipeline system. The sponsors to STCP maintain that their proposal is the most economic means for transporting offshore Nova Scotia gas to the regional markets in Canada and the United States. The STCP differs from the proposed competing project of Maritimes & Northeast Pipeline Project to deliver gas to the United States in that the pipeline would travel through the Province of Quebec, and connect with the existing facilities of TransCanada and TQ&M. The sponsors of STCP want the costs associated with building this pipeline to be "rolled-in" with TQ&M/TransCanada's cost-of-service for toll determination purposes. The sponsors maintain that "rolled-in" costs would keep the supplies competitive, and improve the netbacks to the producers. As far as supporting exports to the United States, STCP would utilize TransCanada's downstream interconnection at the existing import point with the Iroquois Pipeline in Upstate New York, and the proposed interconnection with the Portland Natural Gas Transmission System near North Troy, Vermont. In either case, STCP's ability to serve markets in the United States would involve the displacement of western Canadian gas supplies.

Length/Diameter: 650 miles/20-24 inch

Projected In-Service Date: November 1999

Daily Pipeline Capacity: 400 MMcf

Capital Costs: Approximately \$876 million

Supply Source(s): Canada (Nova Scotia offshore)

Proposed Market(s): Nova Scotia, New Brunswick, Quebec, Ontario and the U.S. Northeast

Status: Gaz Metropolitan is completing a feasibility study to support its proposal, but has not made application to Canada's National Energy Board (NEB).

On September 10, 1996, the NEB appointed a five person panel to conduct a joint review of the Sable Gas Projects. The Panel was established pursuant to the July 17, 1996, Agreement for a Joint Public Review of the Sable Gas Projects. Parties to the Agreement include the Federal Ministers of Environment and Natural Resources, the Nova Scotia Ministers of Environment and Natural Resources, the NEB and the Canada Nova Scotia Offshore Petroleum Board.

See illustration for Maritimes and Northeast Pipeline Project for route of proposed project.

TRANSCANADA PIPELINES EXPANSION PROJECTS

Owner(s): TransCanada PipeLines Ltd. (TransCanada)

Location/Description: TransCanada's pipeline starts at Empress, Alberta, where it receives western Canadian gas from the NOVA system. From Empress, it travels across Saskatchewan, Manitoba, and Ontario, with its terminus located at the Quebec/Vermont border. TransCanada recently has filed three applications with the NEB to expand its existing facilities.

Summary: In the **first project** (GH-2-96), TransCanada requested authority to build a one-quarter mile long interconnection between its metering facility at the St. Clair River (separating Michigan and Ontario) and Great Lakes Transmission, and install a pig receiver at the Dawn-Tecumseh sales meter facility. The facilities will provide 118 MMCF/day of additional capacity on TransCanada's Dawn Extension and provide additional security in the event of loss of one the existing crossings (see description of companion request by Great Lakes on page x). In the **second project** (GH-3-95), its 1996-1997 Expansion, TransCanada requested authority to construct 184 miles of new pipeline loop in Saskatchewan, Manitoba, and Ontario. In addition, the project would add three new compressors totaling 85-megawatts of new compression, two meter stations, manifolding at eight compressor stations and associated construction. The new facilities will allow TransCanada to meet domestic and export requirements by adding 99.6 MMcf/day of new firm capacity, of which about 50 MMcf/day would be for increased exports at Niagara Falls, New York. In the **third project** (GH-3-96), its revised 1997-1998 Expansion, TransCanada would construct and install 127.4 miles of pipeline, 13 new compressors, three after-coolers and manifolding pipe at five compressor stations. The revised expansion will increase the long-haul firm transportation capacity by 286.7 MMcf/day, including 168.6 MMcf/day for exports. The exports (168.6 MMcf) will be distributed as follows: Noyes, MN (56.4); Grand Island, N.Y.(48.2); Niagara Falls, N.Y. (39.1); and Waddington, N.Y. (24.9).

Length/Diameter: St. Clair River Project -- .25 miles/24-inch
 1996-1997 Expansion -- 185 miles of looping
 1997-1998 Expansion -- 127.4 miles of looping

Projected In-Service Dates: St. Clair River: operational
 1996-1997 Expansion: November 1996
 1997-1998 Expansion: November 1997 (majority of facilities)

Daily Pipeline Capacity: St. Clair River: 118.0 MMcf
 1996-1997 Expansion: 50.0 MMcf (increased exports)
 1997-1998 Expansion: 168.6 MMcf (increased exports)

Capital Costs: St. Clair River: \$3.1 million
 1996-1997 Expansion: \$357.0 million
 1997-1998 Expansion: \$656.3 million

Supply Source(s): Canada

Proposed Market(s): Eastern Canada, United States (Midwest & Northeast)

Status: 1996-1997 Expansion (GH-3-95): Approved by NEB in November 1995
 St. Clair Expansion (GH-2-96): Approved by NEB in June 1996
 1997-1998 Expansion (GH-3-96): NEB hearing on October 7, 1996