QUARTERLY FOCUS:

Planned Pipeline Construction Designed to Foster Increased Gas Trade Between the United States and Canada

INTRODUCTION

As a part of its regulatory oversight responsibilities, the Office of Natural Gas & Petroleum Import and Export Activities (Import/Export Office) performs various analytical studies related to the import and export of natural gas. This *Quarterly Focus* looks at some of the planned pipeline construction projects which, if built, would increase the ability to transport additional volumes of natural gas between the United States and Canada. For the most part, these proposed projects are being designed to increase the importation of natural gas. A similar review of proposed construction projects was the subject of the *Quarterly Focus* written for the *Quarterly Report* issued in the second quarter of 1996; this report merely updates the status of some of the projects reviewed earlier and examines some of newer proposals that have been introduced subsequently. In the two years that have transpired, numerous additional gas pipeline projects have been proposed to serve the U.S. import market and a few of the projects discussed in the 1996 study have become operational. This report covers projects scheduled to become operational sometime between the fall of 1998 and the fall of 2000. These pipeline projects, taken together, will enable Canadian gas imports to increase by 1.2 Tcf, or 41 percent by the year 2001.

The report surveys all of the construction projects designed to increase pipeline capacity at the U.S - Canada border through the year 2000. Although the principal focus of the report is to review the planned capacity growth at the international border, it also looks at some of the major upstream pipeline projects in Canada, as well as some of the downstream pipeline projects that are critical to moving Canadian natural gas to developing markets. Although minor incremental import capacity additions are expected to occur in the Pacific Northwest, the bulk of the gas pipeline capacity additions are projected to occur in the Midwestern and Northeastern corridors. Most of the planned capacity additions provide improved access to western Canadian supplies; however, several of the projects are being built to transport Canadian natural gas reserves located offshore Nova Scotia from Sable Island.

The Import/Export Office has obtained information about these individual projects from various sources, including regulatory filings made with the Federal Energy Regulatory Commission (FERC), Department of Energy (DOE), company representatives and Internet Web sites, and various trade journals. The review of proposed projects include a number of projects recently announced by the sponsoring companies which have not advanced much beyond the conceptual stage in development. For these projects, no regulatory filings have been made and therefore some of the information about these projects are necessarily sketchy. Certain of the proposed projects discussed and summarized in this report undoubtedly never will be completed due to financing, environmental considerations, more competitive alternatives, or changes in the marketplace. It also is likely that the sponsors of some of these projects will team-up and reconstitute their plans as the companies realize that several of these emerging markets can only support one pipeline project at this time and they would prefer a smaller share of a project than none at all. Therefore, the project status, sponsors, and the estimated schedule for project completions are subject to change, particularly with regard to the proposed pipelines designed to move gas downstream of the international border.

This report is divided into three parts. **Part I** provides a brief overview of U.S. demand for Canadian natural gas during the past decade and examines DOE's recent gas demand and import forecast. **Part II** gives an overview of planned facilities construction and the markets which they

are intended to serve. **Part III** provides 25 individual project descriptions of proposed pipeline projects. The project descriptions found in **Part III** are sorted into two categories: (1) projects that would increase pipeline capacity at the border and (2) those projects that would provide new or expanded capacity either upstream or downstream from the border.

PART I

CANADIAN NATURAL GAS IMPORT TRADE

During the past twelve years (1986 - 1997), there has been substantial growth in the natural gas imports from Canada. During this period, Canadian natural gas imports have grown from 749 billion cubic feet (Bcf) in 1986 to 2,899 Bcf in 1997, or an increase of 287 percent. The enormous growth in natural gas imports from Canada is the direct result of a more deregulated North American natural gas marketplace, the availability of competitively priced supplies, an improved transportation infrastructure to accommodate such increased trade, and a steadily increasing demand for natural gas in the United States.

From 1986 through 1997, domestic natural gas consumption grew by 5,770 Bcf (16,221 v. 21,991). The 1997 consumption figure is from the Energy Information Administration's (EIA) *Natural Gas Monthly*, DOE/EIA-0130 (July 1998). This growth in gas consumption represents a 35.6 percent increase in twelve years. During the same time period, **net** imports (imports minus exports) of Canadian natural gas grew by 2,152 Bcf (689 v. 2,841 Bcf), or an increase of 312 percent. The fact that natural gas imports grew at a faster rate than the growth in U.S. natural gas consumption during this twelve year period has resulted in substantial market share growth for Canadian gas supplies. The growth in **net** Canadian natural gas imports during this period represented over 37 percent of the incremental growth in total U.S. natural gas consumption during this time period (1986-1997). During 1997, **net** Canadian natural gas imports represented about 12.9 percent of total U.S. natural gas consumption; in comparison, **net** Canadian imports in 1986 equaled about 4.6 percent of total U.S. gas consumption.

1997 was the eleventh consecutive year of growth for Canadian natural gas imports, and the tenth year in which imports from Canada established a new record level. The trend of increased reliance on Canadian natural gas imports to meet this country's growing gas demand is likely to continue during the foreseeable future. In EIA's reference case found in its *Annual Energy Outlook 1998 with Projections Through 2020* (AEO98) (DOE/EIA-0383, December 1997), natural gas consumption grows by 2.09 Tcf between 1996 and the year 2000. Most of the expected incremental demand during this period is forecasted to come from increased gas use in the "industrial" and "electric generation" sectors. The expected combined growth in demand for these two sectors is forecasted to reach 1.76 Tcf, or 84 percent of the total growth in the next few years. During the same forecast period, Canadian natural gas imports are projected to play a very important role in supplying this incremental growth in demand. **Net** Canadian natural gas imports are expected to grow from 2.76 Tcf in 1996 to 3.86 Tcf by the year 2000. In other words, the 1.1 Tcf in growth in **net** imports will represent an almost 40 percent increase over the 1996 import level and supply almost 53 percent of the anticipated incremental growth in consumption through the year 2000.

Although EIA forecasts demand for natural gas growing in all end-use sectors, most of the growth, as mentioned above, is expected to come from "...rising demand for electricity, including industrial cogeneration." (AEO98, p.62). The AEO98 also states that the "restructuring of the electric utility industry is expected to open up new opportunities for gas-fired generation. In addition, growth is spurred by increased utilization of existing gas-fired power plants in the forecast and the addition of new turbines and combined-cycle facilities, which are less capital-intensive than coal, nuclear, or renewable electricity generation plants." The EIA's AEO98 further maintains that despite the fact that coal prices for the electricity generation sector are expected to decline over the forecast period, market share for natural gas will grow nearly six times as fast as coal (1.1% vs. 6.8%). EIA states that natural gas generated electricity is expected to be competitive with new coal generated electricity because of lower capital costs, longer in-service life for the plants and projected improvements in gas turbine heat rates.

In light of this forecasted growth in natural gas demand, EIA sees this demand outpacing existing pipeline capacity over the next few years. As a result, EIA states that most of the proposed pipeline construction projects currently center around bringing additional gas supplies from Canada and the Gulf Coast to market in the eastern half of the country.

PART II

OVERVIEW OF PLANNED FACILITIES CONSTRUCTION

During the past three years (1995-1997), the aggregate growth in **net** Canadian natural gas imports was only about two percent. The small growth in U.S. natural gas imports from Canada during this time period was due primarily to pipeline capacity constraints at the international border. The 25 projects surveyed in this study are designed to alleviate the current bottlenecks at the border, as well as downstream transportation to the various marketing hubs. This section examines some of the efforts undertaken by the natural gas industry to improve and expand its pipeline infrastructure in order to accommodate the forecasted increase in demand for Canadian gas supplies during the next few years. Although not all of the projects reviewed in this section will be built, the 25 proposed projects surveyed here represent a huge capital investment by the natural gas industry. The total capital investment for all the projects would represent over $10 billion and the building of over 6,000 miles of new pipeline. The tremendous number of proposed projects designed to serve the same or similar markets seem to indicate that the natural gas transportation sector is very competitive, and that the marketplace ultimately will determine which of these projects will survive.

Increasingly, Canadian natural gas production is being diverted to the growing U.S. markets. In 1997, natural gas export sales to the United States accounted for 52 percent of Canada's marketable production (5.6 Tcf); these sales represented over 60 percent of the Canadian gas producers' revenue stream during the year as the average price for gas exports was considerably higher than domestic gas sales. Another factor that makes export sales attractive to Canadian producers is the general fall in the value of the Canadian dollar vis-a-vis the U.S. dollar. Inasmuch as most gas export sales contracts are negotiated in U.S. dollars, the change in currency value over the past decade has increased the value of export sales to the United States. As an indicator of the growth in the export market for Canadian gas producers, gas export sales were less than 30 percent of marketable production in 1986. The Import/Export Office estimates that of the 2.9 Tcf of gas exported to the United States in 1997, 42 percent was delivered to the Western region, 34 percent to the Midwest, and 24 percent to the Northeast region. However, this demand scenario should tilt substantially toward the Midwest and Northeast by the year 2000. The pipeline projects identified by the Import/Export Office as coming on-line between 1997 and 2000 are expected to increase Canadian gas sales to the western region by over 8 percent. However, the lion's share of the projected growth in capacity is dedicated to more export sales in the Midwest or Northeast. For example, the capacity additions for pipelines delivering gas to the Midwest will almost double and capacity additions for pipelines serving the Northeast will grow by 31 percent. Once these pipeline projects become operational, the Midwest will replace the West as the largest market for Canadian gas.

New border pipelines and interconnecting upstream/downstream pipeline projects are expected to bring major competitive pressure to the U.S. Midwestern and Northeastern markets. As more specifically detailed in project descriptions found in **Part III** which follows, the Midwest will begin receiving an additional 700 MMcf per day of Canadian gas with the scheduled completion of Northern Border Pipeline's expansion from Iowa into the Chicago area in December 1998. By the year 2000, a mega pipeline project known as the "Alliance Pipeline" and sponsored by an international consortium of energy companies, will be capable of importing an additional 1.3 Bcf per day into the Chicago area. There is a general consensus that the Chicago gas market cannot absorb these huge additional volumes of Canadian gas during this short period of time; therefore, there have been numerous competing downstream projects which would either move the gas from the Chicago marketing hub to the Northeast, or short distance pipelines to the growing gas markets in

Indiana, Wisconsin and Michigan. The proposed projects which would take excess gas at the terminuses of the Alliance and Northern Border Pipeline include the Vector Pipeline, Tri-State Pipeline, Millennium Pipeline, Independence Pipeline, Crossroads Pipeline and the Tennessee Express 2000. There are additional third-tier pipelines being proposed to support the many downstream projects such as ANR's "Supply Link" and Transco's "Market Link" projects that are proposed to interconnect with the Independence Pipeline. While the Millennium Pipeline (sponsored by Columbia Gas) would compete with Independence for moving the same surplus Chicago area imports to the East, Millennium itself has plans to develop two downstream pipelines to serve New York and Connecticut. Although Millennium plans to connect with TransCanada PipeLine's system, the project is dependent on yet another upstream facility - the Vector Pipeline which would provide a link between Chicago and TransCanada's system in Ontario.

As described above, it is clear that certain of these projects will never be built because they are not "stand alone" projects and their utility is based on the successful completion a companion project. However, some of these proposed ancillary pipelines have merit on their own and may be built even if the sponsors' principal pipeline proposal goes by the wayside. There also is no shortage of competing proposals to move Canadian gas into the Midwest and from transporting gas from the Midwest to other markets, such as the Northeast. A number of proposed projects announced over the past couple of years have already been downsized, consolidated, or eliminated. For example, TransCanada PipeLine's Viking Voyageur Pipeline Project, which was competing head-on with the Alliance Project, withdrew its application before the FERC to build and operate its proposed facility in late August. Nevertheless, TransCanada already has indicated that intends to file with the FERC an application for a substantially downsized alternative pipeline to serve its customers in Wisconsin. On the downstream pipeline front, there is some indication that the Vector and Tri-State Pipelines, two competing projects, may be considering consolidation.

Table I on the next page shows the Import/Export Office's best estimate of current pipeline design capacity for Canadian gas imports at the U.S./Canada border for 1997 and the forecasted growth in this capacity over the next few years if all the proposed projects discussed in the next section were built and became operational as planned. As illustrated, it is estimated that the year-end 1997 crossborder design capacity is approximately 3.4 Tcf and that it is expected to grow to 4.7 Tcf by year-end 2000, or an increase of 38 percent. We believe that these annual design capacity figures are high due to operational realities of the pipelines and should be reduced by about 10 percent to take into account the fact that some of these facilities are customer-dedicated, bidirectional, used primarily by exporters, or are tied to diminishing indigenous production fields. After applying a 10 percent reduction, it estimated that the actual 1997 annual "operational" capacity for imports would be about 3.1 Tcf and the anticipated year-end annual "operational" capacity by 2000 would be about 4.3 Tcf. This forecasted annual increase of 1.2 Tcf in pipeline capacity by the year 2000 for Canadian gas imports seems to correlate closely with EIA's forecast of increased imports of 1.1 Tcf during this same time frame.

EIA's projected increase in Canadian natural gas imports by the year 2000 would require almost a 20 percent increase from the 1997 Canadian gas production level and this figure does not take into account any incremental gas demand in Canada. Although industry experts believe this increase in production is feasible, they acknowledge that accomplishing this higher production goal in such a short time period constitutes a challenge to the Canadian gas producing industry.

TABLE I

ESTIMATED CURRENT AND PROJECTED PIPELINE CAPACITY TO IMPORT CANADIAN NATURAL GAS (1997 - 2000)

(Annual Capacity in Bcf)

	1997	1998	1999	2000
Western Region				
Northwest Pipeline	389.1	389.1	407.3	498.6
Ferndale Pipeline	38.3	38.3	38.3	38.3
Sumas International Pipeline [1]	97.1	97.1	97.1	97.1
Sumas Energy - U.S.A.	16.4	16.4	16.4	16.4
Sumas Cascade Pipeline	43.8	43.8	43.8	43.8
PG&E Gas Transmission - NW	912.5	933.3	933.3	933.3
Montana Power Co. (3 sites) [2]	46.3	46.3	46.3	46.3
Total for Western Region	**1543.5**	**1564.3**	**1582.5**	**1673.8**
Midwestern Region				
Northern Border Pipeline	611.4	866.9	866.9	888.1
Williston Basin Pipeline [3]	3.6	3.6	3.6	3.6
Portal Municipal Gas Pipeline	0.8	0.8	0.8	0.8
Interenergy Sheffield	1.2	1.2	1.2	1.2
Viking/Great Lakes Pipelines	415.4	461.4	471.6	581.1
Centra MN Pipeline	12.8	12.8	12.8	12.8
Bluewater Pipeline	73.0	73.0	73.0	73.0
Panhandle Eastern Pipeline [4]	14.6	14.6	14.6	14.6
Alliance Pipeline	0.0	0.0	0.0	483.6
Total for Midwest Region	**1132.8**	**1434.3**	**1444.5**	**2058.8**
Eastern Region				
Tennessee Gas/National Fuel Pipelines	331.2	335.4	335.4	335.4
Empire State Pipeline [5]	39.2	39.2	39.2	39.2
Iroquois Pipeline	314.2	327.2	327.2	327.2
St Lawrence Gas	22.5	22.5	22.5	22.5
North Country Pipeline	25.6	25.6	25.6	25.6
Vermont Gas	16.1	19.0	19.0	19.0
Portland Pipeline [6]	14.6	0.0	0.0	0.0
Portland Natural Gas Trans.	0.0	65.0	76.5	76.5
Maritimes & Northeast Pipeline	0.0	0.0	160.6	160.6
Total for Eastern Region	**763.4**	**833.9**	**1006.0**	**1006.0**
Total for All Regions	**3439.7**	**3832.5**	**4033.0**	**4738.6**

1. Bi-directional pipeline
2. Capacity constrained by declining production fields in Alberta.
3. Bi-directional pipeline.
4. Bi-directional pipeline.
5. Actual capacity is 191.6 Bcf; however, majority of capacity is dedicated for transporting domestic supplies.
6. Assumes pipeline will return to transporting oil once Portland Natural Gas Transmission becomes operational.

DESCRIPTION OF PROPOSED PIPELINE PROJECTS

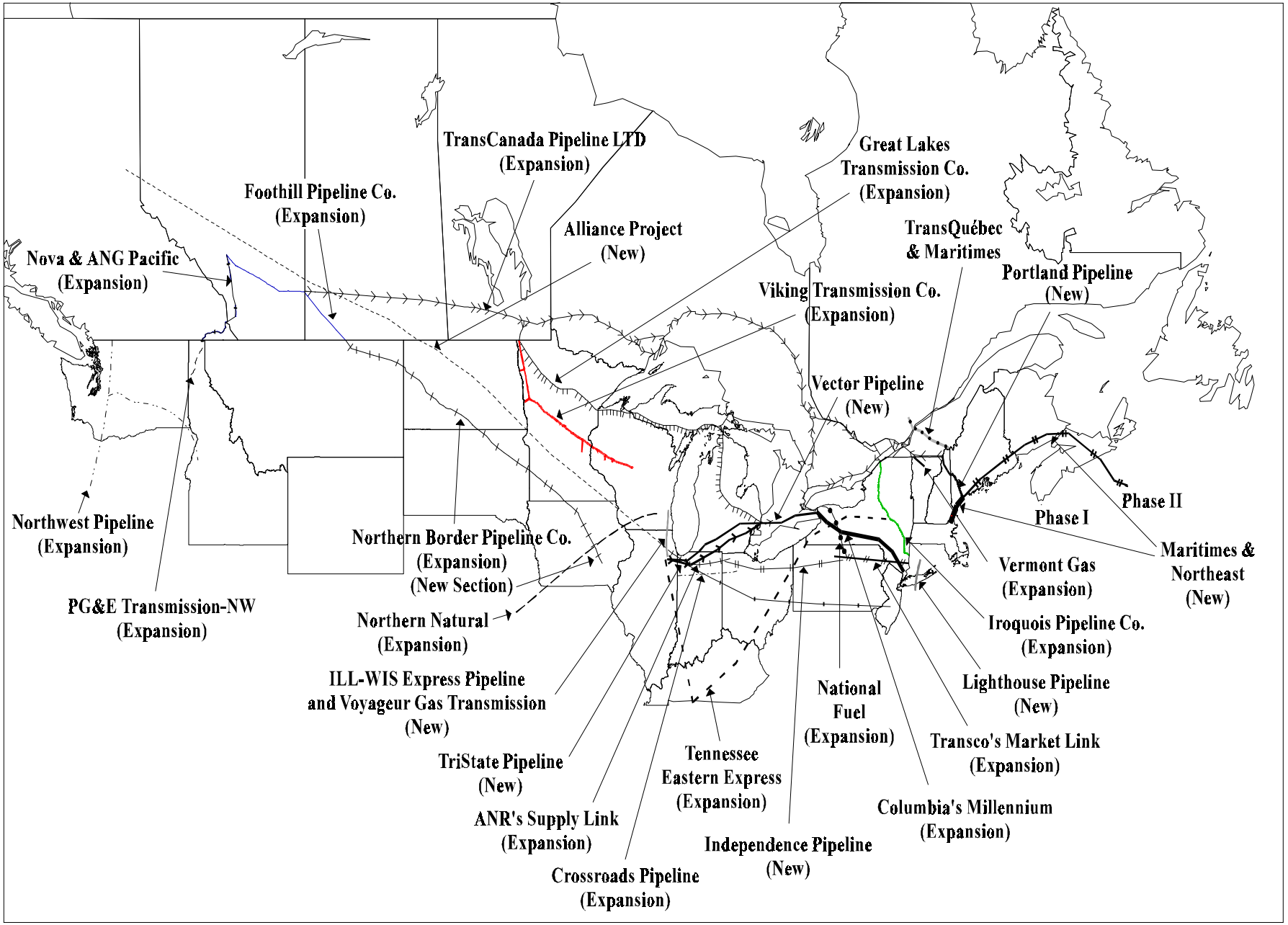
This section includes brief descriptions of 25 proposed natural gas pipeline projects which are being designed in whole, or in part, to facilitate trade between the United States and Canada. All of the projects described in this section have tentative commercial start-up dates of no later than November 2001. The projects included in this section are, for the most part, those planned for in the United States; however, there are several projects described here that necessitate companion pipeline construction projects in Canada. Several of these Canadian projects also are discussed.

The first group of project descriptions listed below are those that would actually add pipeline capacity at the U.S.-Canada international border. The second group of proposed projects are designed to improve the downstream transportation of both Canadian and domestic natural gas. The 25 project descriptions contain information with respect ownership, location, pipeline size and capacity characteristics, date of anticipated commercial start-up, estimated capital costs, most likely supply sources, markets to be served, and project/regulatory status. [The next page includes a map showing the general route of the pipelines discussed in this section.]

Proposed Projects Adding Pipeline Capacity at the International Border

Proposed Projects Adding Downstream Pipeline Capacity

Planned Projects Related to Imports of Canadian Gas, 1998-2000



Source: Energy Information Administration (EIA), EIAGIS-NG Geographic Information System, Natural Gas Pipeline Construction Database, as of March 1998.

Proposed Projects Adding Pipeline Capacity

At the International Border

ALLIANCE PIPELINE PROJECT

Sponsor (s): Alliance Pipeline, L.P., a limited partnership of 7 companies with interests in the energy business. Limited partners include affiliates of:

- Coastal Corporation (14.4%)
- Fort Chicago Energy Partners LP (26.0%)
- Duke Energy Corporation (9.8%)
- IPL Energy Inc. (21.4%)
- The Williams Companies Inc. (4.8%)
- Unocal Corporation (9.1%)
- Westcoast Energy Inc. (14.5%)

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 near Sherwood, 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 the largest effort in recent years to increase Canada's ability to increase gas exports to the United States. 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 markets.

Length/Diameter: 1862 miles (975 miles in Canada and 887 miles in the U.S.)/36-42 inch

Proj. In-Service Date: Late 2000

Daily Pipeline Cap: 1325 MMcf (could be expanded to 2000 MMcf with additional compression)

Capital Costs: $2.7 billion

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

Proposed Market(s): Chicago, Illinois market area, as well as other possible Midwestern and Northeastern markets through pipeline interconnects.

Status: The Alliance Project is subject to regulatory approval in both Canada and the United States. On July 3, 1997, Alliance filed an application with the National Energy Board of Canada (NEB). The NEB concluded extensive hearings on the proposed project on May 21, 1998. In the United States, Alliance filed an application (CP97-168-000) with the Federal Energy Regulatory Commission (FERC) on December 24, 1996. On August 1, 1997, the FERC issued a preliminary determination approving the project on non-environmental issues. On August 24, 1998, the FERC issued a final Environmental Impact Statement (EIS) stating that the pipeline would have "limited adverse environmental impact." Both the NEB and the FERC are expected to issue final decisions on this project by the fall 1998.

In May 1998, Alliance secured $2.6 billion for the construction of its proposed pipeline system. Alliance wants to begin construction by mid-1999.

GREAT LAKES GAS TRANSMISSION -- 1998 EXPANSION AND 300 EXPANSION

Owner(s):	Great Lakes Gas Transmission Company (Great Lakes) is owned equally by The Coastal Corporation and TransCanada PipeLines Limited (TransCanada).
Location/Description:	Great Lakes operates a 2000-mile pipeline system that transports Canadian natural gas for delivery to markets in the Midwest, Northeast and eastern Canada. The pipeline system, with a capacity of over 2 Bcf per day, extends from an interconnection with TransCanada at the Manitoba/Minnesota border (near Noyes, MN) and traverses northern Minnesota and northern Wisconsin, and the upper and lower peninsulas of Michigan to reconnect with TransCanada at St. Clair, Michigan. A spur line in Michigan's Upper Peninsula connects with TransCanada at Sault Ste. Marie. About 35 percent of the gas entering the United States on the Great Lakes system is returned to Canada for use in eastern Canada; the other 65 percent is marketed in the U.S. Great Lakes has proposed two pipeline expansions; they are known as the **1998 Expansion Project** and the **Great Lakes 300 Expansion**. The projects would add 126 MMcf per day and 300 MMcf per day of firm transportation capacity from Noyes, Minnesota, to St. Clair, Michigan, respectively.
Summary:	The **1998 Expansion Project** consists of building 71.5 miles of 36-inch mainline loop segments, installing two 7,400 horsepower compressor stations and constructing other ancillary facilities. The **Great Lakes 300 Expansion** would involve the construction of 258.5 miles of 36-inch diameter pipeline consisting of eleven loop segments, including a new underwater crossing of the Straits of Mackinac. The proposed project also would involve the installation of seven new compressor units at existing compressor stations totaling about 180,000 horsepower. Under the **300 Expansion** proposal, Great Lakes held an open season for additional firm transportation service between December 1997, and January 1998. TransCanada was the only party to execute a precedent agreement for new transportation service beginning after the in-service date of the proposed facilities. TransCanada plans on using this additional 300 MMcf per day of firm transportation capacity to serve its growing markets in eastern Canada and the U.S. Northeast.
Length/Diameter:	71.5 miles/36-inch (**1998 Expansion Project**) 258.5 miles/36-inch (**Great Lakes 300 Expansion**)
Daily Pipeline Capacity:	126 MMcf increase at international border (**1998 Expansion Project**) 300 MMcf increase at international border (**Great Lakes 300 Expansion**)
Projected In-Svc. Date:	November 1998 (**1998 Expansion Project**) November 2000 (**Great Lakes 300 Expansion**)
Capital Costs:	$149.3 million (**1998 Expansion Project**) $620 million (**Great Lakes 300 Expansion**)
Supply Source(s):	Western Canada
Proposed Market(s):	U.S. Midwest and Northeast, as well as eastern Canada
Status:	On October 21, 1997, the Federal Energy Regulatory Commission (FERC) issued a certificate (CP96-647) to Great Lakes approving its **1998 Expansion Project**. The expansion is currently under construction. On March 27, 1998, Great Lakes filed an application (Docket CP98-309) with FERC requesting approval to build and operate the **300 Expansion**. On August 11, 1998, Great Lakes notified the FERC in a letter that it is considering a downsizing of the 300 expansion and that a decision on capacity should be known in the fall 1998.

IROQUOIS GAS TRANSMISSION SYSTEM EXPANSION PROJECTS

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%), The Brooklyn Union Gas Company (19.4%) and CNG Transmission Corporation (16%).]
Location/Description:	The Iroquois extends 375 miles 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 **first 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 per day. The shippers will be Coastal Gas Marketing Company (14 MMcf per day) and ProGas U.S.A., Inc. (16.16 MMcf per day). The new compressor station will increase the existing capacity of the Iroquois at the international border by about 35.5 MMcf per day (825.2 MMcf to 860.9 (excluding compressor fuel). In the **second proposed project**, the Eastchester Expansion would extend the pipeline 27 miles from Northport, Long Island to Eastchester, New York, where it would interconnect with the facilities of Consolidated Edison. Two additional compressor stations also would be added along the mainline. The proposed expansion would add an additional 150 MMcf per day of firm transportation capacity to serve markets in New York and Connecticut.
Specifications:	Athens Compressor Station: 9,500 HP (**First Proposed Project**) Eastchester Expansion: 27-mile/24-inch (**Second Proposed Project**)
Projected In-Service Date:	Athens Compressor Station: November 1998 (**First Proposed Project**) Eastchester Expansion: November 2000 (**Second Proposed Project**)
Daily Pipeline Capacity:	Athens Compressor Station: 35.5 MMcf (increase at international border) Eastchester Expansion: 150 MMcf (increase in downstream capacity -- not at intl. border)
Capital Costs:	Athens Compressor Station: $22 million (**First Proposed Project**) Eastchester Expansion: $150 million (**Second Proposed Project**)
Supply Sources:	Athens Compressor Stations: Canada (**First Proposed Project**) Eastchester Expansion: Canada/U.S. (**Second Proposed Project**)
Proposed Markets(s):	Athens Compressor Station: U.S. Northeast (**First Proposed Project**) Eastchester Expansion: New York and Connecticut (**Second Proposed Project**)
Status:	**Athens Compressor Station**: 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. On June 27, 1997, the FERC issued a certificate approving the construction and operation of the compressor station. FERC also allowed Iroquois to roll in the costs of the compressor into its system-wide rates, subject to certain conditions. The compressor is currently under construction and should be operational by November 1998. **Eastchester Expansion**: An open season began May 14, 1998, and was completed in July. Iroquois currently is evaluating the bids to justify proceeding with the potential expansion.

MARITIMES & NORTHEAST PIPELINE

Owner(s):	Westcoast Energy (37.5%), Duke Energy (37.5%), and Mobil Oil Corporation (25%).
Location/Description:	The Maritimes & Northeast Pipeline (Maritimes) will transport gas from the Sable Island Offshore Energy Project, a new natural gas basin offshore Nova Scotia, to markets in the Atlantic Provinces and New England. The entire pipeline system, including numerous laterals, extending from the gas plant at Goldboro, Nova Scotia, to Wells, Maine, is approximately 795 miles long (347 miles in Canada and 448 miles in the U.S.). Maritimes extends from Goldboro, travels in a northwesterly direction crossing the Nova Scotia-New Brunswick, border near Tidnish, and reaches the international border near St. Stephen, New Brunswick and Woodland, Maine. From the international border, Maritimes travels to Westbrook, Maine (near Portland), where it interconnects with pipeline facilities of the Granite State Gas Transmission System and the pipeline jointly owned by Maritimes and the Portland Natural Gas Transportation System (PNGTS). From Westbrook, the jointly owned pipeline travels approximately 100 miles to an interconnection with Tennessee Gas Pipeline in Dracut, Massachusetts and the upstream portions of the PNGTS. PNGTS primarily will serve markets in Maine, New Hampshire and Massachusetts.
Summary:	The Maritimes project was planned to be developed in two phases, or segments. However, both segments now are scheduled to be operational at the same time. **Segment I** involves facilities extending 66 miles from Dracut, Massachusetts, to Wells, Maine. **Segment II** involves 247 miles of pipeline from Wells, Maine, to the international border near Woodland, Maine.
Length/Diameter:	582 miles of mainline pipeline/24-30 inches
Proj. In-Svc. Date:	November 1999
Daily Pipeline Capacity:	440 MMcf at international border (440 MMcf delivered to U.S.; 90 MMcf delivered in Canada to New Brunswick Power)
Capital Costs:	$ 975 million (U.S)
Supply Source:	Canada (Nova Scotia)
Proposed Market(s):	Atlantic Provinces and New England
Status:	On October 31, 1996, DOE issued Maritimes an authorization to import up to 626 Bcf of Canadian gas over a two year term from date of first delivery in Docket FE96-64-NG. On July 31, 1997 Maritimes received FERC approval to build **Segment I** of its project in Docket CP96-178 and on July 31, 1998, FERC granted to it the final certificate, subject to environmental and other conditions, to construct and operate the pipeline facilities in connection with the second and final segment of its larger U.S. project in Docket CP97-238. Maritimes had received previous approval from the State of Maine for the U.S. portion of **Segment II** in July 1997. On August 13, 1998, Maritimes filed an application with the FERC to build and operate a half-mile, 16-inch diameter lateral pipeline to provide gas service to Gorham Energy Limited Partnership' s proposed 800 MW gas-fired electric generating plant in Gorham, Maine.

NORTHERN BORDER PIPELINE EXPANSION PROJECTS

Owner(s):	The Northern Border Pipeline Co. is a general partnership owned by subsidiaries of Enron, Duke Energy, TransCanada PipeLines, The Williams Cos., and Northern Border Partners L.P. Northern Plains Natural Gas Co., an Enron subsidiary, is system operator.
Location/Description:	Northern Border's existing system consists of 969 miles of pipeline originating on the U.S./Canada border at Port of Morgan, Montana, and terminating at Harper, Iowa. Northern Border's pipeline capacity is currently 1,675 MMcf per day from Port of Morgan to Ventura, Iowa and 386.5 MMcf per day from Ventura to Harper. The first proposed expansion, referred to as "**The Chicago Project**", would increase substantially the system's capacity and extend the pipeline approximately 243 miles from the existing Harper terminal to Manhattan, Illinois (just south of Chicago). The second proposed expansion, referred to as "**Project 2000**", would extend the pipeline 35 miles from Manhattan, Illinois, to North Hayden, Indiana, and add additional compression.
Summary:	**The Chicago Project** will increase Northern Border's pipeline capacity by 700 MMcf per day between Port of Morgan and Ventura (1,675 v. 2,375) , 961 MMcf per day between Ventura and Harper and involves the building of a 243-mile, 684 MMcf per day pipeline extension from the present Harper terminus to Manhattan. In order to accomplish this expansion, Northern Border is laying 243 miles of 30-36" diameter pipeline between Harper and Manhattan, 147 miles of 36" diameter looping between Ventura and Harper and 303,500 horsepower of new compression at 12 compressor sites. **Project 2000** would afford shippers on the Northern Border system access to Northern Indiana Public Service Company (NIPSCO), a large local distribution company with a large industrial load requirement, including steel mills in northern Indiana. The pipeline capacity would be increased by 58 MMcf per day in the segment from Port of Morgan to Ventura; by 195 MMcf per day in the Iowa-Illinois segments; and by 545 MMcf per day in the extension to North Hayden, Indiana, where it would interconnect with NIPSCO.
Length/Diameter:	**Chicago Project**: 243 miles/30-36 inch (pipeline extension) **Project 2000**: 35 miles/30-inch (pipeline extension)
Daily Pipeline Capacity:	700 MMcf increase at international border (2,325 v. 1,675) (**Chicago Project**) 58 MMcf increase at international border (2,383 v. 2,325) (**Project 2000**)
Projected In-Svc. Date:	**Chicago Project**: December 1998 **Project 2000**: November 2000
Capital Costs:	**Chicago Project**: $837 million **Project 2000**: $165 million
Supply Source(s):	Canada, possibly some domestic supplies
Proposed Market(s):	Primarily northern Illinois for the Chicago Project & northern Indiana for Project 2000
Status:	On July 30, 1997, the Federal Energy Regulatory Commission (FERC) issued a certificate in Docket CP95-194 to Northern Border approving its expansion and extension known as **The Chicago Project**. The project is currently under construction and is expected to be completed by December 1998. On May 29, 1998, Northern Border announced that will file an application with the FERC sometime in the fall of 1998 seeking approval of **Project 2000**.

NORTHWEST PIPELINE EXPANSION

Owner(s):	Northwest Pipeline Corporation (Northwest) is a subsidiary of the Williams Companies, an energy resource and pipeline holding corporation.
Location/Description:	Northwest owns and operates a transmission system extending from points in New Mexico, through Colorado, Utah, Wyoming, Idaho, Oregon and Washington to the Canadian border near Sumas Washington, where it interconnects with the facilities of both Westcoast Energy, Inc. and the Sumas International Pipeline, Inc (SIPI). Northwest has plans to expand its mainline system between Sumas, Washington, and Stanfield, Oregon by up to 300 MMcf per day. **Phase I** of the expansion would add 50 MMcf per day between Sumas and Stanfield and **Phase II** would provide an additional 250 MMcf per day on the same Sumas to Stanfield route. **Phase I** would add 10,870 HP to Northwest's system by constructing and operating new, upgraded or modified facilities at four existing compressor stations on its mainline in the Columbia River Gorge area of Washington.
Summary:	**Phase I** of the proposed project will increase Northwest's mainline transmission by 50 MMcf per day from PG&E Transmission-Northwest near Stanfield, Oregon, to Northwest's interconnection with SIPI at the international border. SIPI has a design capacity of 260 MMcf per day and less than 100 MMcf per day is currently being utilized. The proposed project is designed to accommodate Duke Energy Trading and Marketing, LLC's (Duke) long-term gas supply agreement with BC Gas Utility Ltd. (BC Gas). Since SIPI is a bi-directional pipeline, Duke plans to export gas for its seasonal deliveries to BC Gas, as well as import gas during off-peak periods to help serve industrial and electric generation loads in the Pacific Northwest. **Phase II** would involve additional compression and pipeline looping along existing rights-of-way in the same Columbia River Gorge area.
Specifications:	**Phase I** one new compressor; upgrades for three units **Phase II** added compression; pipeline looping
Proj. In-Svc.Date:	**Phase I** November 1999 **Phase II** November 2000
Daily Pipeline Capacity:	**Phase I** 50 MMcf **Phase II** up to 250 MMcf
Capital Cost(s):	**Phase I** $17 million **Phase II** to be determined
Supply Source(s):	U.S. and Canada
Proposed Market(s):	British Columbia and Pacific Northwest
Status:	On May 15, 1998, Northwest made a filing with the Federal Energy Regulatory Commission (FERC) in Docket No. CP98-554 seeking approval of its **Phase I** proposed expansion. Northwest requested the FERC to issue a final certificate by April 1999 in order for it to install the facilities by November 1, 1999, which is the in-service date required by Duke to meet its delivery commitments to BC Gas. It also completed an open-season for the 250 MMcf per day of **Phase II** volumes in May 1998.

PG&E GAS TRANSMISSION - NORTHWEST

Owner(s):	PG&E Gas Transmission - Northwest (formerly Pacific Gas Transmission) a subsidiary of Pacific Gas & Electric
Location/Description:	PG&E Gas Transmission-Northwest (PG&E-Northwest) owns and operates a 612-mile interstate pipeline system that begins at the British Columbia-Idaho border, extends through northern Idaho, southeastern Washington and central Oregon, and ends at the Oregon-California border. The pipeline system interconnects with Alberta Natural Gas at Kingsgate, British Columbia; Northwest Pipeline at Spokane, Washington and Stanfield, Oregon; and Pacific Gas and Electric (PG&E) and Tuscarora Gas Transmission (Tuscarora) at Malin, Oregon. PG&E-Northwest seeks to expand the capacity on the northern portion of its delivery system from Eastport, Idaho, to Stanfield, Oregon by 57 MMcf per day and offer additional winter season capacity of 20 MMcf per day downstream of Stanfield to the California border at Malin, Oregon. About 23 MMcf per day would be dedicated to Northwest Pipeline at its Stanfield interconnection while the remainder would be delivered to its two affiliated pipelines, PG&E and Tuscarora south of Malin, Oregon.
Summary:	PG&E-Northwest proposes to upgrade three compressors on the northern portion of its system between Eastport and Stanfield. It currently has greater capacity downstream of Stanfield and hopes to equalize its long-haul capability from Eastport to its system terminus at Malin by eliminating the existing bottleneck between Eastport and Stanfield.
Specifications:	Upgrade three compressor stations (stations 4, 7 and 9)
Daily Pipeline Capacity:	57 MMcf at international border
Projected In-Service Date:	November 1998
Capital Costs:	$6 million
Supply Source(s):	Alberta and British Columbia
Proposed Market(s):	Pacific Northwest/California
Status:	On December 30, 1997, PG&E-Northwest filed an application (CP97-167) with the Federal Energy Regulatory Commission seeking a certificate allowing the upgrade of three compressors on the northern end of its system.

PORTLAND NATURAL GAS TRANSMISSION SYSTEM (PNGTS)

Sponsor(s):	International consortium of energy companies including subsidiaries of: Bay State Gas Company; El Paso Energy Corporation; Gaz Metropolitain and Company, Limited Partnership; MCN Energy Group; NIPSCO Industries; and TransCanada PipeLines Limited.
Location/Description:	The proposed PNGTS will interconnect with facilities to be built by Trans Québec & Maritimes Pipeline, Inc., an affiliate of TransCanada PipeLines Limited, at the international border near East Hereford, Quebec, and Pittsburg, New Hampshire, and will consist of about 142 miles of 24-inch diameter pipeline from the border to Westbrook, Maine. The PNGTS is intended, in part, to replace a pipeline owned by the Portland Pipe Line Corporation (Portland), which owns a 166-mile converted oil-to-gas pipeline which runs from North Troy, Vermont, to Portland, Maine. This facility is being recalled back into oil service. The PNGTS will parallel Portland's pipeline for 42 miles.
Summary:	In addition to the 142 miles of mainline from Pittsburg, New Hampshire, to Westbrook, Maine, PNGTS also will have two laterals: a 0.7 mile long, 8-inch diameter lateral near Groveton, New Hampshire, to serve Wausau Papers of New Hampshire, Inc., and a 43.5 mile long, 12-inch diameter lateral at mile post 111.2 in Maine to serve the Mead Corporation and Androscoggin Energy, L.L.C. At Westbrook, Maine, the PNGTS will connect with the joint facilities proposed by PNGTS and Maritimes and Northeast Pipeline, L.L.C. (Maritimes). The proposed jointly-owned pipeline will consist of 101 miles of 30-inch diameter pipe, including a 66-mile Dracut-to-Wells segment and a 35-mile Wells-to-Westbrook segment. In addition to the proposed joint main line, the joint facilities include three laterals: one at Westbrook, Maine, to connect with Granite State Gas Transmission, Inc.; one at Newington, New Hampshire, to an interconnect with Granite State and Public Service Company of New Hampshire; and one at Haverhill, Massachusetts, to an interconnection with Tennessee Pipeline.
Length/diameter:	292 miles/mainline(24-inch); laterals(8-20 inches)
Projected In-Service Date:	November 1998
Daily Pipeline Capacity:	178 MMcf
Capital Costs:	$256 million
Supply Source(s):	Canada
Proposed Market(s):	New England States (Maine, New Hampshire, Massachusetts)
Status:	On September 24, 1997, the Federal Energy Regulatory Commission (FERC) issued a certificate (CP96-248) approving the construction and operation of the PNGTS project. On April 3, 1998, Canada's National Energy Board (NEB) approved the application by Maritimes to construct and operate new natural gas pipeline facilities that will connect PNGTS with the Canadian pipeline grid. On May 6, 1998, PNGTS announced that it had successfully secured financing for the project and on June 11, 1998, it announced that full-scale pipeline construction activities had begun.

TRANSCANADA 1998 - 1999 EXPANSION PROJECTS

Owner(s):	TransCanada PipeLines, Ltd. (TransCanada)
Location/Description:	TransCanada plans a two-phased expansion of its system beginning in 1998 when it will add 192 miles of pipeline looping including 11 new compressors for the transport of up to 417 MMcf per day of incremental natural gas supplies on its system which runs from Empress, Alberta to Quebec and Canada's Maritime provinces. For the **1998 Expansion**, only about 14% of the new gas supplies will go to domestic customers while the remainder, or 358 MMcf per day will be exported to the U.S. Midwest and Northeast. For its **1999 Expansion**, TransCanada stated it will add about 98 miles of pipeline loop and add four compressor units. These additions will enable TransCanada to increase deliveries on its system by 208 MMcf per day by November 1999. The 1999 expansion filing with the National Energy Board (NEB) was substantially downsized to reflect a weaker than expected outlook for gas demand. It indicated in its revised application that just over 39 MMcf per day would go to U.S. export markets.
Summary:	Should incremental facilities be approved by the NEB for the 1999 expansion, TransCanada will have expanded its delivery capability by about 1.1 Bcf per day since 1996.
Length/Diameter:	**1998** - 192 miles of looping/11 new compressors **1999** - 98 miles of looping/4 new compressors
Daily Pipeline Capacity:	**1998 Expansion** - 358 MMcf at the international border (total system: 417 MMcf) **1999 Expansion** - 39 MMcf at the international border (total system: 208 MMcf)
Projected In-Svc. Date:	**1998 Expansion** - November 1998 **1999 Expansion** - November 1999
Capital Costs:	**1998 Expansion** - $573 million **1999 Expansion** - $271 million
Supply Source:	Western Canada
Proposed Markets:	Canada/U.S. Midwest and Northeast
Status:	**1998 Expansion** -- Received NEB approval in December 1997 **1999 Expansion** -- Originally filed with the NEB in April 1998, but made an amended filing downsizing the project on July 22, 1998, in Docket GH-2-97.

TRANS QUÉBEC & MARITIMES PIPELINE

Owners:	Trans Québec & Maritimes Pipeline Inc. (TQM) is a subsidiary of equal partners Gaz Metropolitain and TransCanada PipeLines Ltd (TransCanada).
Location/Description:	The TQM system, which became operational in 1982, extends from the TransCanada system at the Ontario border to Québec City. Under the proposed pipeline extension, TQM would connect with the Portland Natural Gas Transmission Pipeline (PNGTS). The PNGTS Extension involves the construction of 132 miles of 24-30" diameter pipeline from Lachenaie, Québec, to the Canada/U.S. border near East Hereford, Québec and Pittsburg, N.H., on the U.S. side of the border. Beginning November 1998, TQM will deliver up to 152 MMcf per day of gas to PNGTS which it expects to increase to 210 MMcf per day in the second year of operation with the addition of a new compressor unit.
Summary:	Since 1982, TQM has operated at 222 mile, 24" pipeline mainly serving areas between Montreal and Québec City. The project in-service date of November 1998 is set to coincide with the opening of the PNGTS extension, a 24", 243 mile (plus 50 miles of laterals) pipeline running from Pittsburg, New Hampshire, through Maine and terminating at an interconnection with Tennessee Gas Pipeline at Dracut, Massachusetts. Beginning in November 1998, TQM will deliver up to 152 MMcf per day of gas to PNGTS for markets in the U.S. Northeast and 34 MMcf per day will be delivered at Waterloo to supply markets in the Eastern Townships of Québec. In the second year of operation it is proposed that the deliveries will increase to 210 MMcf per day for U.S. Northeast markets and 49 MMcf per day for markets in Québec. Initially, the gas supplies being transported on this new facility will be from Western Canada; however, in a couple of years gas supplies from the Sable Island Offshore Project may also be used.
Length/Diameter:	133 miles, 24 - 30" diameter
Proj. In-Svc. Date:	November 1998
Daily Pipeline Capacity:	**1998** 152 MMcf at international border **1999** 58 MMcf increase at international border
Capital Costs:	$274 million
Supply Source(s):	Western Canada, possibly Sable Island production in the future
Proposed Market(s):	Québec, Canada, and New England
Status:	On April 3, 1998, the Canadian National Energy Board (NEB) approved the general route for the PNGTS Expansion following a public hearing held in November and December 1997. On August 14, 1998, the NEB approved the detailed pipeline route for the extension to the PNGTS. PNGTS had previously received approval from the Federal Energy Regulatory Commission on September 24, 1997, to build its interconnecting facility to TQM.

VERMONT GAS EXPANSION PROJECT

Sponsor(s):	Vermont Gas, a Vermont corporation, is the successor to Vermont Gas Systems, Inc. Gaz Métropolitain of Montréal, Québec owns Northern New England Gas Corporation, which in turn owns Vermont Gas.
Location/Description:	Vermont Gas, established in 1965, is the only natural gas distributor in the State and all of its supplies come from Alberta, Canada. Under the expansion proposal, Vermont Gas wants the Federal Energy Regulatory Commission (FERC) to approve the construction of additional pipeline and the installation of metering, valve, and pressure-control facilities at the United States-Canada border near Highgate Springs in order for it to increase its pipeline's import capacity from 42.8 MMcf per day to 52 MMcf per day.
Summary:	Vermont Gas forecasts that peak-day demand in the winter of 1997–98 will be 51,500 Mcf per day; as a result, there is a need for it to loop its pipeline system and seek authority to expand the border crossing to accommodate the increased demand on its capacity. Without this project, Vermont Gas maintains that it may not be able to meet such demand. Vermont Gas contends that, when completed, its project will increase sources of capacity to transport natural gas from Canada, improve system reliability, and not impair service to its existing customers.
Length/Diameter:	44 feet / 8-inch diameter pipe
Proj. In-Service Date:	November 1, 1998
Daily Pipeline Cap.:	9.2 MMcf additional capacity at the intl. border (from 42,800 52,000 Mcf)
Capital Costs:	Unknown
Supply Source:	Canada
Proposed Markets(s):	Vermont
Status:	On April 1, 1997, Vermont Gas filed an application (Docket CP97-324) with the FERC seeking authority to expand its existing border-crossing facilities near Highgate, Springs, Vermont. On July 1, 1997, the FERC granted Vermont's request. On February 10, 1998, the Department of Energy issued FE/DOE Order 1361 authorizing Vermont Gas to import up to 8,000 Mcf per day from Canada for a ten-year term beginning on November 1, 1998.

Proposed Projects Adding Downstream

Pipeline Capacity

ANR PIPELINE COMPANY "SUPPLYLINK"

Owner(s):	ANR Pipeline Company (ANR), a subsidiary of Coastal Corporation
Location/Description:	ANR's proposed "SupplyLink" project would require constructing 73 miles of mainline looping and added compression between Joliet, Illinois, and Defiance, Ohio. At Defiance, ANR would deliver up to 750 MMcf per day of natural gas to the proposed Independence Pipeline which would further transport the gas to a major gas distribution hub at Leidy, Pennsylvania.
Summary:	The ANR SupplyLink is one of several pipeline proposals before the Federal Energy Regulatory Commission (FERC) that seeks to redeliver Canadian imported gas to the East that is being transported into the Chicago, Illinois, region through the proposed Alliance Pipeline and Northern Border Pipeline Expansion. Between the Chicago area and western Ohio, ANR would add 15,000 HP of new compression and add 73 miles of pipeline looping. The looping would be along two existing segments of its system that ANR refers to as its "Michigan Leg South" (roughly 42 miles of 42" loopline) and its "Tieline" (just over 30 miles of 22-30" looping) which would interconnect with the proposed Independence Pipeline at Defiance. ANR estimates that SupplyLink will cost $124.8 million and has targeted November 1999 for startup. The SupplyLink in-service date was set to coincide with the opening of the Independence Pipeline, a general partnership consisting of ANR, Transcontinental Gas Pipe Line (Transco) and the National Fuel Gas Corporation. However, Independence made a request to the FERC to delay service until November 2000.
Length/Diameter:	73 miles of pipeline looping would be added to two segments of ANR's system between Joliet, Illinois, and Defiance, Ohio. A 15,000 HP compressor also would be installed.
Proj. In-Svc. Date:	November 1999
Daily Pipeline Capacity:	750 MMcf
Capital Costs:	$124.8 million
Supply Source(s):	Canada, possibly domestic sources
Proposed Market(s):	Midwest and Mid-Atlantic states
Status:	On March 31, 1997, ANR filed an application with the FERC in Docket CP97-319 requesting that the FERC issue a final order authorizing this construction project by July 1998. ANR indicated in its application that, if approved, it intends to begin construction in June 1999.

CROSSROADS PIPELINE

Owner(s):	Crossroads Pipeline (Crossroads) is an affiliate of Northern Indiana Public Service Company and subsidiary of NIPSCO Industries, a utility holding company. Crossroads plans to deliver Canadian gas from delivery points in Chicago to eastern markets in conjunction with Consolidated Natural Gas (CNG) subsidiaries CNG Transmission and East Ohio Gas Co (East Ohio).
Location/Description:	Crossroads plans to build a 20 mile pipeline which would interconnect with Natural Gas Pipeline of America (Natural). Crossroads intends to deliver up to 150 MMcf per day from Chicago via. Natural to its system in Indiana and to points further east by way of East Ohio's and CNG Transmission's existing facilities to Leidy, Pennsylvania.
Summary:	Crossroads currently only serves the Chicago/northern Indiana region. Under its proposal, the new 20 mile lateral interconnecting with Natural would provide it the option of selling Canadian gas in Ohio and markets east of Pittsburgh, Pennsylvania in 1999.
Length/Diameter:	20 miles (diameter unknown)
Proj. In-Svc. Date:	November 1999 (estimated)
Capital Costs:	Unknown
Supply Source(s):	U.S./Canadian
Proposed Market(s):	Indiana, Ohio, Pennsylvania
Status:	Regulatory status unknown.

ILLINOIS-WISCONSIN EXPRESS PIPELINE PROJECT

Sponsor (s):	The Illinois-Wisconsin Express Project is a joint venture between El Paso Energy Corporation (27.5%), Peoples Energy Corporation (27.5%), Enron Corporation (22.5%), and Northern Border Pipeline (22.5%).
Location/Description:	The proposed 36-inch diameter, 150 to 200-mile pipeline would extend north from Joliet, Illinois, to just north of Milwaukee. The system is designed to move gas from Western Canada and the major U.S. supply basins to customers in Northeast Illinois and Central and Southeast Wisconsin.
Summary:	The Illinois-Wisconsin Express Project will not only serve traditional residential, commercial, and industrial users in Wisconsin and northern Illinois, but will also target the rapidly emerging need for gas-fired power generation in this region. In addition, the sponsors state that it will bring pipeline competition to the region. The project sponsors also state that the proposed project could be easily expandable to serve up to 1.2 Bcf per day to meet the long-term growth needs of this area.
Length/Diameter:	150-200 miles/36-inch
Proj. In-Service Date:	November 2001
Daily Pipeline Capacity:	650 MMcf
Capital Costs:	$220- 280 million
Supply Source(s):	United States and Western Canada
Proposed Market(s):	Northern Illinois and southern Wisconsin
Status:	No regulatory filings have been made. The partners plan to hold an open season in the fall of 1998.

INDEPENDENCE PIPELINE

Sponsor(s):	Independence Pipeline Project (Independence) is a general partnership between affiliates of Transcontinental Gas Pipe Line Corporation (Transco) and ANR Pipeline Company (ANR), and National Fuel Supply Corporation (One-third each).
Location/Description:	Independence proposes to construct a 370-mile, 36" diameter pipeline, including a 30,000 HP compressor, that will interconnect between ANR at Defiance, Ohio, and Transco at Leidy, Pennsylvania, a major gas hub. The project would provide up to 943 MMcf per day of gas beginning November 2000. Independence will be downstream from ANR's proposal "Supply Link" pipeline which would span between Joliet, Illinois, and Defiance, Ohio. Supply Link is intended to tie-in with one of the two major Canadian pipeline projects delivering gas to Chicago, Alliance Pipeline and the Northern Border Pipeline extension. Downstream of Independence, Transco's planned "Market Link Expansion" would add 154 miles of looping and 62,400 HP of compression to transport as much as 700 MMcf per day gas from Independence at Leidy to gas end-users in the New York/New Jersey region.
Summary:	Sponsors want construction of the pipeline to begin in the spring 1999. At the Leidy hub, in addition to delivering gas to Transco, Independence can also deliver gas to National Fuel and CNG Transmission Companies' systems. Independence currently is in competition with at least three other projects bringing Canadian gas from the Chicago area to the Northeast: Columbia Gas' Millennium Project; Texas Eastern's Spectrum and Excelsior Projects; and Tennessee Pipeline's "Express 2000" project.
Length/Diameter:	370 miles/36" (Defiance, Ohio, to Leidy, Pennsylvania plus a 30,000 HP compressor.
Proj. In-Service Date:	November 2000
Daily Pipeline Cap:	943 MMcf
Capital Costs:	$678 million
Supply Source:	Western Canada
Proposed Market(s):	Mid-Atlantic States
Status:	Independence filed application with the Federal Energy Regulatory Commission (FERC) on March 31, 1997 in Docket CP97-315-000 for in-service by November 1999. In April, 1998, Independence filed with the FERC to amend its application to push back its in-service date to November 2000 in recognition it needed more time to develop its customer base.

LIGHTHOUSE PIPELINE SYSTEM

Owner(s):	Iroquois Gas Transmission System, L.P. (Iroquois), Duke Energy Corporation (Duke) and Williams Companies. Each company will own approximately one-third of the new pipeline.
Location/Description:	The proposed Lighthouse Pipeline System will consist of approximately 35 miles of new 16-inch diameter pipeline in southern Long Island, and approximately 60 miles of new 24-inch diameter pipeline in southern Connecticut. The Long Island segment will extend from a connection with the recently announced Cross Bay Pipeline at Long Beach, N.Y., to a connection with Iroquois at South Commack, N.Y. The Connecticut segment will originate at an interconnection with Iroquois near Milford and extend to the Millstone area near New London.
Summary:	The Lighthouse Pipeline System is designed to extend under Long Island Sound to transport U.S. and Canadian natural gas from Williams' Transco pipeline, Duke's Algonquin and Texas Eastern pipelines and the Iroquois system to southern Connecticut. The proposed project will supply natural gas to electric generating facilities built along its route in southern Connecticut and will facilitate the development of low-cost power generation on Long Island.
Length/Diameter:	35 miles/16-inch (southern Long Island) 60 miles/24-inch (southern Connecticut)
Projected In-Service Date:	Late 2000/Early 2001
Daily Pipeline Capacity:	350 MMcf (increase in downstream capacity -- not at international border)
Capital Costs:	$240 million
Supply Sources:	U.S. and Canada
Proposed Markets(s):	New York, Connecticut and Rhode Island
Status:	The sponsors of the project currently are conducting a market evaluation for the potential project and plan to hold an open season later this year. No regulatory filings have been made for this project.

MILLENNIUM PIPELINE PROJECT

Sponsor(s):	Millennium Pipeline Company, L.P. (Millennium), a Fairfax, Virginia, limited partnership. The partnership is led by Columbia Gas Transmission Corporation (Columbia), a 47.5% interest, TransCanada PipeLines Limited (TransCanada) 21%, Westcoast Energy (U.S.), Inc. (Westcoast) 21%, and MCN Energy Group Inc. (MCN) 10.5%.
Location/Description:	The Millennium Pipeline System would consist of 442.5 miles of natural gas pipeline starting from the U.S./Canadian border at Lake Erie County, Pennsylvania, extending in an easterly direction through the southern tier of New York State and terminating in Westchester County, New York, which borders New York City. As proposed, Millennium would transport up to 700 MMcf per day of natural gas on behalf of nine shippers. The project sponsors state that through connections with the TransCanada and Great Lakes pipeline systems, Millennium Pipeline will offer an efficient and direct route for moving western Canadian supplies to the U.S. Northeast and Mid-Atlantic States. Millennium also would provide an outlet for gas in the Chicago market to move east via existing pipeline systems in Michigan and Ontario.
Summary:	The proposed Millennium Pipeline is one of several pipeline construction projects designed to facilitate the transport of natural gas from western Canada and domestic natural gas from various supply areas, via the Chicago market area, to the U.S. Northeast. In June 1998, the sponsors to the Millennium Pipeline announced a revised construction plan and in-service date. Construction of certain segments of the pipeline now are planned to begin in July 1999, with an in-service date of November 2000.
Length/Diameter:	376.4 miles of 36" diameter pipeline (international border to Rampo, N.Y.) 46 miles of 24" diameter pipeline (Rampo, N.Y. to Mt. Vernon, N.Y.) 20.1 miles of 10-12" diameter pipeline (points in Orange County, N.Y. & Pike County, PA.)
Proj. In-Svc. Date:	November 1, 2000
Daily Pipeline Capacity:	700 MMcf
Capital Costs:	$684 million
Supply Source:	Western Canada and various U.S. supply areas
Proposed Market(s):	U.S. Northeast, primarily the Mid-Atlantic States
Status:	Millennium Pipeline filed an application with the Federal Energy Regulatory Commission (FERC) on December 22, 1997, in Docket CP98-150. In June 1998, it submitted a letter to the FERC requesting that it issue a preliminary determination on non-environmental aspects of the project by September 1998. In addition, Millennium Pipeline also requested that the FERC issue a final certificate authorizing construction by April 30, 1999, in order to ensure that construction can began by July 1999.

NATIONAL FUEL GAS SUPPLY CORPORATION NIAGARA EXPANSIONS

Owner(s):	National Fuel Gas Supply Corporation (National Fuel), a subsidiary of the National Fuel Gas Company
Location/Description:	National Fuel owns and operates a 3,171 mile pipeline network that extends from the New York-Canadian border near Niagara Falls, New York, to southwestern Pennsylvania. In April 1997 National Fuel announced it would revise its application made to the Federal Energy Regulatory Commission (FERC) in July 1996 for its "1997 Niagara Expansion." Subsequently, on January 30, 1997, it amended its filing for what it touted as the "1998 - 1999 Niagara Expansion Project." The proposal was to be completed in two phases.
Summary:	**Phase I**, which National Fuel's last amended application was filed with the FERC on April 3, 1997 (Docket CP96-671), sought approval to create an additional 25 MMcf per day of firm winter capacity, and 21.34 MMcf per day of interruptible capacity . The **Phase I** Niagara Expansion is intended to provide new service between National Fuel's Niagara Falls, New York, import point and its interconnection with Transcontinental Gas Pipe Line (Transco) at Leidy, Pennsylvania -- for a combined total of 46.34 MMcf per day of new delivery capability. It proposed to accomplish the added capacity by upgrading compressors at its Concord Compressor Station from 9.950 HP to 11,250 HP and raising operating pressure by 600 psi. This phase of the project was estimated to be about $5.5 million. **Phase II** of the Niagara Expansion was filed with FERC on November 17, 1997 (Docket CP98-94) seeking to add winter-only capacity to deliver up 23 MMcf day to Renaissance Energy (U.S) from its Niagara import point to its interconnection with Transco at Leidy (through National Fuel's Line X). The seasonal delivery would be achieved by raising compression through the replacement of four compressor units at its Ellisburg Compressor Station totaling 1,290 HP with one 3,200 HP compressor. This second phase of the Niagara Expansion is estimated to cost $5.1 million.
Proj. In-Service Date:	**Phase I** - November 1998 **Phase II -** April 1999
Daily Pipeline Capacity:	**Phase I -** 46.34 MMcf **Phase II** - 23 MMcf
Capital Costs:	**Phase I** - $5.5 million **Phase II** - $5.1 million
Supply:	Canadian -- linked to the TransCanada PipeLines' Expansion
Proposed Market(s):	U.S. Northeast
Status:	**Phase I** - was approved by the FERC on July 16, 1997. **Phase II** - was approved by the FERC on April 21, 1998.

NORTHERN NATURAL GAS PEAK DAY 2000 PROJECT

Sponsor (s):	Northern Natural Gas Company (Northern), a subsidiary of Enron Corporation.
Location/Description:	The Northern Natural system consists of 16,969 miles of pipeline that transports approximately 4.4 billion cubic feet per day to markets in the upper Midwest. The proposed project is an expansion of Northern's existing system designed to serve growing markets in Eastern Nebraska, Western Iowa and Minnesota. The gas supplies for these new markets will be sourced mostly from Northern Border Pipeline at Ventura, Iowa. **Phase I** consists of the construction of 18 miles of mainline loop, 27 miles of branch line facilities, two compressor stations and 31 town border stations. Under **Phase II**, Northern plans to construct and operate five miles of mainline loop and one compressor station. The proposed facilities will be located in Kansas, Nebraska, Iowa, Minnesota, and Wisconsin.
Summary:	Northern proposes to construct and operate additional pipeline, compressions, and measuring station facilities in order to expand the capacity of their mainline. This project was designed to facilitate a comprehensive, cost effective, 5-year system expansion to accommodate growing winter markets and certain industrial end users in eastern Nebraska, western Iowa and Minnesota. The impetus behind this planned system expansion was the severe winter experienced in the first two months of 1995 and subsequent discussions between Northern and its shippers.
Specifications:	A number of relatively short pipe loops and new compression as well as branchline and TMS upgrades will be accomplished over the life of the project.
Proj. In-Service Date:	**Phase I** 11/1/97 **Phase II** Between 11/98 and 11/2001
Daily Pipeline Capacity:	267.2 MMcf (additional peak day capacity)
Capital Costs:	Approximately $110 million
Supply Source(s):	Mostly Canadian gas off of Northern Border Pipeline and Great Lakes Gas Transmission
Proposed Market(s):	Eastern Nebraska, Western Iowa, and Minnesota
Status:	On June 6, 1997, the Federal Energy Regulatory Commission (FERC) issued a certificate in Docket CP97-25 to Northern approving its expansion and extension for the Peak Day 2000 project. **Phase I** of this project was completed and placed in service on 11/1/97. A portion of **Phase II** is scheduled to be completed by November 1, 1998. In addition, incremental firm entitlement capacity will be phased in annually on November 1 over the next three years.

TENNESSEE'S EASTERN EXPRESS PROJECT 2000

Sponsor(s):	Tennessee Gas Pipeline Co. (Tennessee), division of El Paso Energy Corp.
Location/Description:	The Tennessee pipeline system operates the eastern half of El Paso Energy's 26,600 mile transmission system and includes East Tennessee Natural Gas and Midwestern Gas Transmission (Midwestern). Tennessee obtains most of its gas supplies from Texas, Louisiana and the Gulf of Mexico and markets its supplies in 20 different states in the Midwest and Northeast, including Chicago, Boston, and New York. Under the planned expansion, Midwestern, which currently transports gas from Portland, Tennessee to the Chicago area, would be reversed enabling about 500 MMcf per day of Canadian gas to be transported from Chicago to Portland, Tennessee. From Portland, Tennessee, where Midwestern interconnects with the Tennessee system, the gas would flow northeasterly to the Ellisburg/Leidy storage and marketing hub in Pennsylvania. In addition, the project also would involve some expansion of Tennessee's existing facilities from Niagara Falls, New York, to the Ellisburg/Leidy area. The Project also involves expansion of Tennessee's facilities where its system will interconnect with the planned Portland Natural Gas Transmission/Maritimes & Northeast Pipeline (PNGTS/M&N) at Haverhill and Dracut, Massachusetts for increased deliveries into New England.
Summary:	This proposed project, similar to several others being proposed by other companies, would carry more natural gas from the Chicago area to markets in the East. The project is designed to supply the incremental growth in demand in the U.S. Northeast created largely by the development activity in the power generation market.
Length/Diameter:	unspecified pipeline looping and added HP compression
Proj. In-Service Date:	November 2000
Daily Pipeline Cap.:	up to 1Bcf/d
Capital Costs:	$350 million to $400 million
Supply Source:	Western and Eastern gas supplies in Canada, possibly U.S. supplies
Proposed Markets(s):	New England and Mid-Atlantic States
Status:	Tennessee has not filed any applications with the Federal Energy Regulatory Commission (FERC) with regard to the proposed construction project. However, Tennessee states that it will file an application sometime in the latter part of 1998. As a result of an open season which closed in March 1998, Tennessee states that it has signed precedent agreements for 900 MMCF per day for new deliveries into New England. Most of the shippers have signed up for gas to be delivered into the Tennessee system at the planned interconnects with the PNGTS/M&N, and from Niagara Falls at the interconnection with TransCanada PipeLine. Shippers include power generators, marketers and local gas distribution companies.

TRANSCO "MARKETLINK" PROJECT

Owner(s):	Transcontinental Gas Pipe Line Corporation (Transco), a subsidiary of The Williams Companies Inc.
Location/Description:	The proposed project would add approximately 152 miles of pipeline looping in Pennsylvania and New Jersey and 62,400 HP of compression at three existing compressor stations along Transco's Leidy Line and mainline system. The expansion would increase firm capacity by 700 MMcf per day to serve increased consumer demand in the mid-Atlantic and South Atlantic regions of the United States.
Summary:	The company states that the proposed project will provide a link in the transportation of Canadian and Midwestern natural gas supplies, from expansion projects currently under development and proposed, to markets in New York, New Jersey, Pennsylvania and upstream markets along the Atlantic Seaboard, which are accessible through backhaul arrangements on Transco's system. The project sponsor also states that the proposed effort would also provide shipper access to diverse gas supplies at the developing market hub at Leidy, Pennsylvania, including gas supply sources on any of the six interstate natural gas pipelines that interconnect with Transco at Leidy (including the pipeline system proposed by Independence Pipeline Company) or gas supplies delivered form storage at the Leidy hub.
Specifications:	152 miles/36-42 inch
Daily Pipeline Capacity:	700 MMcf
Proj. In-Svc.Date:	November 2000
Capital Cost(s):	Approximately $529 million
Supply Source(s):	Canada and United States
Proposed Market(s):	U.S. (Mid-Atlantic and South Atlantic states)
Status:	On May 13, 1998, the company filed on application (CP98-540) with the Federal Energy Regulatory Commission for authorization to construct and operate the "MarketLink" facilities.

TRISTATE PIPELINE PROJECT

Sponsor (s):	The TriState Pipeline Project is a partnership between CMS Gas Transmission and Storage Company (66 2/3%) and Westcoast Energy (U.S.) Inc., a subsidiary of Westcoast Energy Inc. (33 1/3%).
Location/Description:	The proposed pipeline would originate near Joliet, Illinois, where it would interconnect with Natural Gas Pipeline Company of America, the proposed Northern Border Pipeline Extension, and the new Alliance Pipeline, and extend to the Union Gas hub near Dawn, Ontario. From Illinois, the system would proceed northeasterly through northern Indiana to the Consumers Energy gas system near White Pigeon, Michigan. At that point, the proposed system would incrementally expand the Consumers Energy system so that Canadian and U.S. gas can be delivered to various Michigan markets and to the Union Gas storage complex at Dawn, Ontario.
Summary:	The TriState Pipeline would provide new natural gas transportation service from the Chicago area to Michigan and the province of Ontario and through existing connecting pipelines to eastern U.S. markets.
Length/Diameter:	145 miles/30-inch (Joliet, Illinois to White Pigeon, Michigan) Various (downstream of White Pigeon)
Proj. In-Service Date:	November 2000
Daily Pipeline Capacity:	500 MMcf (to Dawn, Ontario)
Capital Costs:	Approximately $500 million
Supply Source(s):	Western Canada, United States
Proposed Market(s):	Michigan, Northeast United States, and Eastern Canada
Status:	No regulatory filings have yet been made. An open season was conducted from November 5, 1997, through December 10, 1997. Design and capacity details for the pipeline currently are being finalized in preparation for a fourth quarter 1998 filing to the Federal Energy Regulatory Commission for project approval.

VECTOR PIPELINE PROJECT

Sponsor (s):	Vector Pipeline Limited Partnership (Vector). The project is a joint venture of four energy companies: IPL Energy Inc. (35%), TransCanada PipeLines Limited (35%), MCN Energy Group Inc. (17.5%), and Columbia Gas Transmission Corporation (12.5%).
Location/Description:	The proposed 343-mile pipeline would originate at Joliet, Illinois, and proceed through Indiana and Michigan to the international border at the St. Clair River in northern Michigan. The Ontario portion would end at the Dawn hub near Sarnia, Canada. The pipeline will use existing utility corridors and rights-of-way for 96% of the route and will include two 30,000 HP compressor stations. The pipeline will connect with the proposed Alliance Pipeline, the Northern Border Pipeline Extension at Joliet, Illinois, and both providing gas from the Western Canadian sedimentary basin.
Summary:	The Vector Pipeline Project is designed to deliver natural gas supplies produced domestically and in Western Canada to the growing markets in the Upper Midwest and the Northeastern states.
Length/Diameter:	In the U.S.: (Joliet, Illinois, to international border at St. Clair, Michigan) 269 miles/42-inch (new construction) 59 miles/36-inch (existing pipeline leased from MichCon) In Canada: (Int. Border at St Clair River crossing to Dawn, Ontario) 15 miles/42-inch
Proj. In-Service Date:	November 1999
Daily Pipeline Capacity:	1 Bcf, expandable to 1.5 Bcf with additional compression
Capital Costs:	$35.4 million
Supply Source(s):	United States, Western Canada
Proposed Market(s):	U.S. (Northeast and Mid-Atlantic states), Eastern Canada
Status:	On December 15, 1997, the partners filed applications (CP98-131, CP98-133) with the Federal Energy Regulatory Commission requesting authority to construct and operate the proposed U.S. segment of the new facilities. On July 6, 1998, the companies filed an application with Canada's National Energy Board for authority to construct and operate the Canadian portion of the pipeline.

VIKING GAS TRANSMISSION COMPANY 1999 EXPANSION PROJECT

Sponsor(s):	Viking Gas Transmission Company (Viking), a subsidiary of Northern States Power Company.
Location/Description:	The Viking system is a 500-mile interstate gas pipeline located in Minnesota, North Dakota and Wisconsin. The pipeline originates at an interconnect with TransCanada Pipeline at the U.S.-Canadian border near Emerson, Manitoba, and continues in a southeasterly direction to its terminus at an interconnect with ANR Pipeline Company near Marshfield, Wisconsin. Viking also has interconnects with Northern Natural Gas and Great Lakes Gas Transmission Company. The proposed 45-mile expansion project would add approximately 28 MMcf per day of firm transportation capacity.
Summary:	The Viking system currently delivers over 182 Bcf per year of Canadian natural gas to the U.S. for markets in the upper Midwest. The proposed expansion would consist of 45 miles of 24-inch mainline looping constructed over five spreads in northern and central Minnesota. Viking plans on using the additional 28 MMcf per day of firm transportation capacity to serve its existing markets in Minnesota and western Wisconsin.
Length/Diameter:	45 miles/24-inch
Projected In-Service Date:	November 1999
Daily Pipeline Capacity:	28 MMcf
Capital Costs:	Approximately $21.3 million
Supply Source(s):	Western Canada
Proposed Market(s):	Minnesota, western Wisconsin
Status:	An open season was completed in June 1998. On September 3, 1998, Viking filed an application (CP98-761) with the Federal Energy Regulatory Commission seeking approval to construct and operate the new pipeline facilities.

VOYAGEUR GAS TRANSMISSION PROJECT

Sponsor(s):	TransCanada PipeLines Limited (TransCanada) and Nicor Inc. (Nicor). The companies are equal partners in the project.
Location/Description:	The proposed project would begin at the Chicago market hub in Joliet, Illinois, where it would interconnect with Northern Border, Alliance, and other pipelines, and extend 150 miles north, ending just southwest of Milwaukee, Wisconsin.
Summary:	The proposed project is an amended version of the large-scale Viking Voyageur project, proposed last year with support from a third sponsor, Viking Gas Transmission. The original proposal included a 773-mile, 1.4 Bcf per day pipeline that would interconnect with TransCanada at the Manitoba border and transport gas through Minnesota, Wisconsin and into the Chicago market hub. An application for this expansive effort was submitted to the Federal Energy Regulatory Commission (FERC) on October 31, 1997. On April 22, 1998, Viking formally withdrew from the partnership, stating they would expand their existing system to serve midwest markets. The two remaining partners, TransCanada and Nicor, reaffirmed their commitment to serving the upper Midwest, and opted to revise the original proposal. The companies announced they planned to pursue the southern portion of the original project (from southern Wisconsin to Joliet, Illinois), but would forego the northern section (from the Manitoba-Minnesota border to central Wisconsin) at this time. Subsequently, the partners withdrew the old Viking Voyageur application on August 19, 1998.
Length/Diameter:	130-150 miles/36-inch
Projected In-Service Date:	December 2000
Daily Pipeline Capacity:	1.05 Bcf
Capital Costs:	$260 - 270 million
Supply Source(s):	U.S. and Canada
Proposed Market(s):	Northern Illinois and Southern Wisconsin
Status:	An Open Season began on August 18, 1998, and will be extended through September 11. If enough market support is obtained, the companies plan to file with the FERC this fall.