

QUARTERLY FOCUS

2002 NATURAL GAS IMPORT/EXPORT TRADE: A SECOND LOOK

The Focus feature that was included in the fourth quarter 2002 *Quarterly Report of Natural Gas Imports and Exports* (“*Report*”) provided an overview of natural gas import/export activity for calendar 2002. This Focus feature, like the ones found in the *Report* issued in the first quarter of the past eight years, provides additional information on North American natural gas trade. Specifically, it provides more volume and price information on U.S. natural gas import trade with Canada; reviews volume and price trends with respect to natural gas exports to Mexico; and identifies the major importers and exporters transacting cross-border sales between the United States, Canada and Mexico.

2002 Natural Gas Trade with Canada

Canadian imports continue to be an important supplemental source of natural gas to U.S. markets. Since 1986, import volumes from Canada have almost grown by over 413 percent. **Figures 1 and 2** on page ii illustrate the significant growth over the past seventeen years (1986-2002) of Canadian gas imports into the U.S. and the significance of this trade to Canadian producers in terms of expanded markets and revenues generated from this cross-border trade.

In **Figure 1**, the first bar chart shows net Canadian natural gas exports to the U.S. as a percentage of

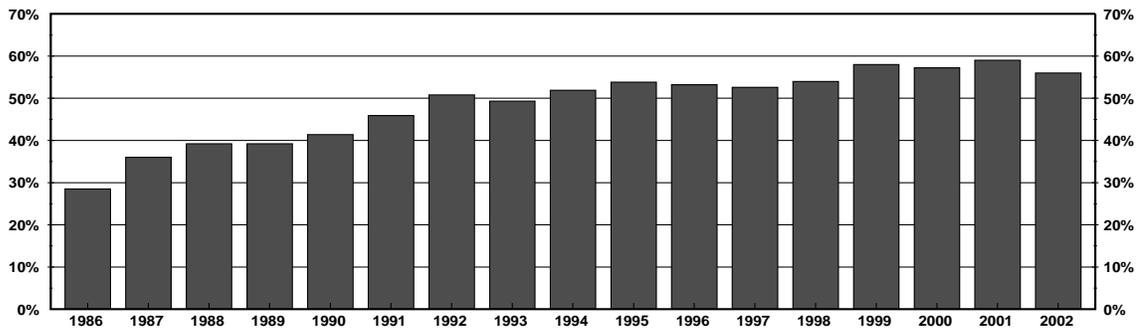
Canada’s total marketable production from 1986 to 2002. This was the ninth year in a row where gas exports to the U.S. equaled more than half of Canada’s marketable production. During the past seventeen years, the percentage has grown from 29 percent in 1986 to a high of 59 percent in 2001 [National Energy Board of Canada’s (NEB) *2002 Annual Report*]. In 2002, however, the ratio fell somewhat to just over 56 percent.

The second bar chart in **Figure 1** shows the growth in U.S. market shares for Canadian gas imports from 1986 to 2002. As illustrated, net Canadian imports as a percentage of total domestic gas demand has grown from 4.6 percent in 1986 to an estimated 17 percent in 2002.

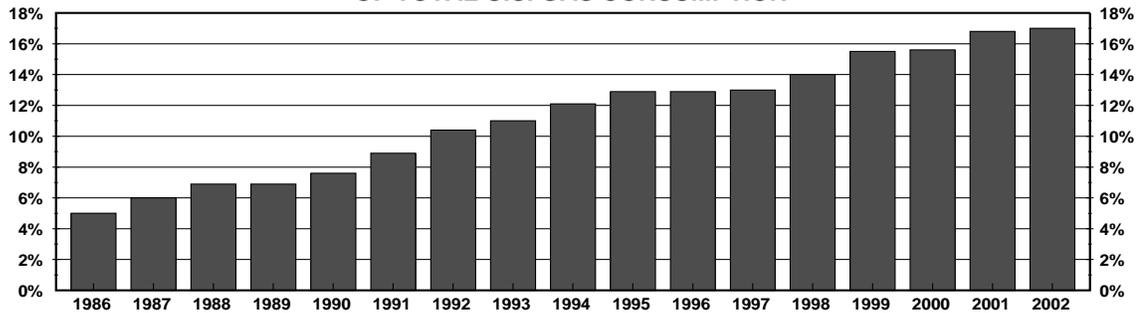
The estimated revenues accrued to Canadian natural gas exporters for natural gas sales to the U.S. over the past 17 years (1986-2002) are shown in **Figure 2**. The Office of Fossil Energy estimates that in 2002, Canadian gas exports to the U.S. generated over \$11.8 billion in revenues, down almost 28 percent from last year’s earnings of \$16.4 billion. The decline in Canadian export revenues this year is the direct result of the significantly lower prices for natural gas volumes entering the U.S. The weighted average international border price of Canadian gas imported into the U.S. during 2002 was \$3.08 per MMBtu. This is a decrease of about 29 percent over the 2001 average price of \$4.36 per MMBtu.

**NET CANADIAN NATURAL GAS EXPORTS TO THE U.S.
AS A PERCENTAGE OF CANADIAN MARKETABLE PRODUCTION**

Figure 1



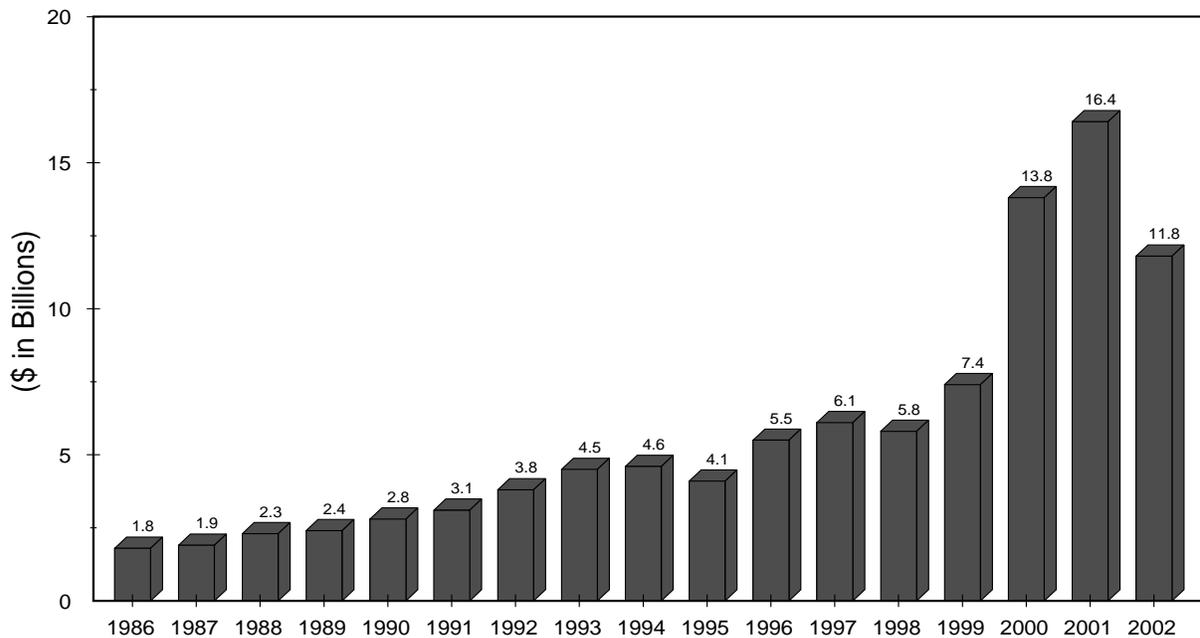
**NET CANADIAN IMPORTS AS A PERCENTAGE
OF TOTAL U.S. GAS CONSUMPTION**



Sources: National Energy Board of Canada (2002 Annual Report), EIA

Figure 2

**CANADIAN REVENUES DERIVED FROM NATURAL GAS EXPORTS TO THE U.S.
(U.S. Dollars)**



Sources: 1992 - 2002 estimates derived from company filings with FE; 1986 - 1991 estimates from *Natural Gas Monthly*, [DOE/EIA - 0130 (97/08), table SR7, page XIV].

During 2002, 118 companies imported Canadian natural gas under short-term authorizations (for gas purchase contracts of two years or less), and 67 companies used 163 gas purchase contracts to import volumes under long-term arrangements (for gas purchase contracts longer than two years). These companies imported a record volume of 3,844.8 Bcf of natural gas during the year. This represented an increase of 82.2 Bcf, or 2.2 percent over the 2001 total of 3,762.6 Bcf. Much of this increase was the result of short-term sales to customers in the Midwest.

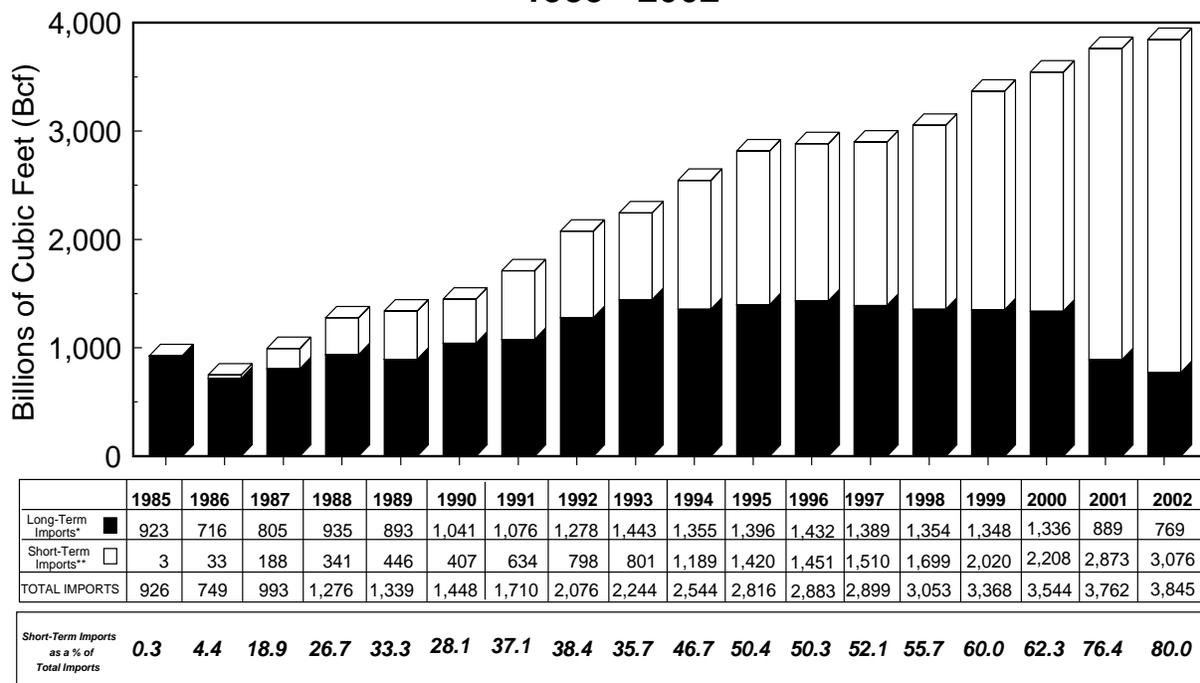
Of the 3,845 Bcf of Canadian gas imported in 2002, 80 percent (3,076 Bcf) was imported under short-term authorizations, while 20 percent (769 Bcf) was imported under long-term authorizations. This was the eighth straight year in which more Canadian natural gas was imported under short-term than under long-term authorizations. Comparing 2002 and 2001 Canadian imports by type of

authorization used, gas imported under short-term contractual arrangements rose approximately 7 percent, or by 203 Bcf, and imports this year under long-term contractual arrangements fell by 120 Bcf, or 13 percent.

Figure 3 below illustrates the dramatic growth in the use of short-term import authorizations over the past 18 years (1985-2002). From 1994-2000, gas imports under long-term authorizations remained relatively constant, with virtually all of the growth in Canadian gas imports during this period coming from increased sales under short-term authorizations. However, starting in 2001, long-term imports began to drop significantly, largely due to an increase in volumes imported under short-term arrangements on the Alliance and Maritimes pipelines. Nevertheless, there are certain importers who most likely will continue to utilize long-term contractual arrangements in the future, e.g., cogeneration facilities.

Figure 3

CANADIAN NATURAL GAS IMPORTS BY TYPE OF IMPORT AUTHORIZATION 1985 - 2002



* Imports made under gas purchase contracts longer than 2 years.
 ** Imports made under gas purchase contracts which are 2 years or less.

Under short-term authorizations, the average border price of gas supplies imported from Canada in 2002 was \$3.01 per MMBtu, which was 31 percent lower than last year's average price of \$4.36 per MMBtu. Under DOE's long-term authorizations, the average border price was \$3.33 per MMBtu, a decrease of almost 23 percent from last year's average price of \$4.31 per MMBtu.

The significant decrease in the average price for Canadian natural gas imports during 2002, particularly during the first half of the year, was consistent with what occurred in the entire industry. Based on preliminary data from EIA, the price in 2002 for Canadian supplies at the international border fell at approximately the same rate as the price for domestic supplies at the wellhead. EIA reports that the estimated average domestic wellhead price for natural gas in 2002 was \$2.95 per Mcf, which was \$1.07, or almost 27 percent less than the 2001 average price of \$4.02 per Mcf

[*Natural Gas Monthly* (April 2003), p. 10]. As mentioned on page i, this compares with an average price of \$3.08 per MMBtu for Canadian gas supplies and about a 29 percent year-to-year drop in price.

Table 1 shows the monthly international border prices for Canadian natural gas imports, by region, for 2001 and 2002. The three principal marketing regions for Canadian gas are the West, the Midwest, and the Northeast. The prices for these regions are derived by combining the international border prices at the two principal entry points serving each of the three regions. As illustrated in **Table 1**, all three regions experienced considerable price declines during 2002 compared to 2001. The price of Canadian natural gas marketed in the West fell by \$1.80 or by 38.8 percent. The Midwest experienced a decrease of \$1.00 per MMBtu or 25 percent, and the price in the Northeast fell by \$1.28 or 26.7 percent.

International Border Import Prices (\$/MMBtu)												Table 1	
Month	WEST				MID-WEST				NORTHEAST				
	Eastport, Idaho		Sumas, Washington		Port of Morgan, Montana		Sherwood, North Dakota		Niagara Falls, New York		Waddington, New York		
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	
January	\$9.28	\$2.50	\$12.13	\$3.28	\$8.78	\$2.43	\$10.07	\$2.30	\$9.44	\$2.92	\$9.66	\$2.96	
February	\$7.26	\$2.12	\$6.48	\$2.38	\$5.71	\$1.95	\$6.27	\$2.02	\$6.29	\$2.74	\$6.57	\$2.50	
March	\$5.90	\$2.34	\$5.55	\$2.66	\$4.76	\$2.28	\$5.24	\$2.48	\$5.37	\$3.03	\$5.34	\$2.83	
April	\$5.81	\$3.02	\$5.19	\$3.23	\$4.94	\$3.07	\$5.30	\$3.16	\$5.01	\$3.44	\$5.70	\$3.60	
May	\$6.05	\$2.99	\$4.92	\$2.94	\$4.42	\$3.05	\$4.67	\$3.16	\$4.55	\$3.53	\$5.01	\$3.61	
June	\$4.29	\$2.64	\$4.21	\$2.44	\$3.49	\$2.91	\$3.71	\$3.08	\$4.01	\$3.50	\$4.12	\$3.59	
July	\$2.92	\$2.29	\$2.91	\$1.93	\$2.87	\$2.86	\$3.07	\$2.91	\$3.55	\$3.32	\$3.50	\$3.40	
August	\$2.98	\$2.14	\$2.71	\$2.18	\$3.04	\$2.52	\$2.94	\$2.71	\$3.41	\$3.22	\$3.42	\$3.29	
September	\$2.49	\$2.57	\$2.34	\$2.79	\$2.67	\$2.85	\$2.32	\$3.01	\$3.07	\$3.47	\$2.77	\$3.63	
October	\$2.01	\$3.10	\$1.90	\$3.30	\$1.94	\$3.52	\$1.86	\$3.59	\$2.77	\$3.88	\$2.44	\$3.95	
November	\$2.68	\$3.69	\$3.11	\$3.90	\$2.71	\$3.98	\$2.68	\$3.96	\$3.28	\$4.25	\$3.23	\$4.40	
December	\$2.57	\$3.79	\$3.20	\$4.14	\$2.21	\$4.00	\$2.30	\$4.08	\$3.20	\$4.53	\$2.79	\$4.57	
Average at Entry Pt.	\$4.63	\$2.78	\$4.67	\$2.96	\$3.93	\$2.96	\$4.04	\$3.03	\$4.85	\$3.49	\$4.72	\$3.53	
Average for Region	Averages for West 2001: \$4.64 2002: \$2.84				Averages for Mid-West 2001: \$3.99 2002: \$2.99				Averages for Northeast 2001: \$4.79 2002: \$3.51				

Figure 4 shows the 2001 and 2002 weighted average border price for Canadian natural gas imported under short-term contracts by Census Region. Approximately 99.8 percent of all short-term Canadian gas sales to the U.S. in 2002 were concentrated in six Census Regions (1,2,3,4,8,9). The momentum in the Midwest continued this year, as gas sales to Regions 3 and 4 increased by 23 percent compared to 2001. Canadian natural gas marketed to customers in New England (Region 1) fell by 24 percent. As indicated, the average border price for **all** short-term imports from Canada in

2002 was \$3.01 per MMBtu, or 31 percent lower than the 2001 price of \$4.36.

Prices this year fell considerably in all of the major Census Regions. The largest drop in price compared to 2001 occurred in Region 9, where the average price fell \$1.85 or 39 percent. Prices also fell quite markedly in Region 2 and Region 8 (down \$1.41 and \$1.40, respectively). The lowest price of imported Canadian natural gas this year was seen in Census Region 8 (\$2.70) and the highest price occurred in Census Region 2 (\$3.48).

Figure 4
THE WEIGHTED AVERAGE PRICE IN 2001 & 2002 FOR CANADIAN NATURAL GAS IMPORTED UNDER SHORT-TERM CONTRACTS BY CENSUS REGION (\$/MMBtu)

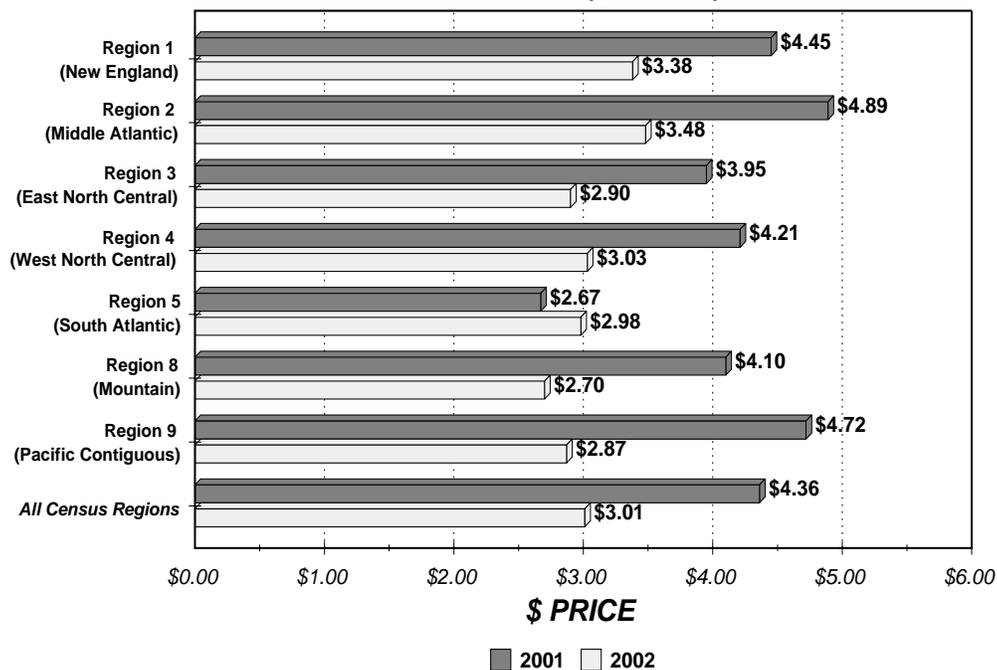


Figure 5 lists the top ten importers of Canadian natural gas for the year. These ten firms imported a total of 2,019.7 Bcf or 53 percent of the total Canadian gas imported in 2002. **Figure 5** also indicates whether the imports were made under short-term or long-term authorizations. This year, over 99 percent of the volumes imported by this group was done under short-term authority, compared to 75 percent in 2001. Six of the companies were also among the top ten companies listed for 2001. Companies that joined the list this year include Husky Gas Marketing, Inc., IGI Resources, Inc., Petro-Canada Hydrocarbons, Inc., and Encana Energy Services Inc. (Encana Energy Services Inc. is a direct subsidiary of Encana Corporation, which was created on April 5, 2002 by the merger of Alberta Energy Company Ltd. and PanCanadian Energy Corporation.) Most of the importers this year were marketers, producer affiliates or gas aggregators. Volumes imported by PG&E Corporation, however, include imports by its subsidiary, Pacific Gas & Electric Company, a combined electric/gas utility. Volumes imported by Mirant Americas Energy Marketing accounted for 15 percent of total volumes imported from Canada this year. Natural gas imports by BP Canada Energy Marketing Corporation grew by 93 Bcf or 41 percent compared to 2001.

Figure 6 lists the ten largest suppliers of Canadian gas to the U. S. in 2002. The volumes supplied by each company include both short-term and long-term sales. Taking into account many of the recent mergers, nine out of the ten companies were also on the list of top gas suppliers for 2001. This year, Husky Oil replaced Pan-Alberta Gas Ltd. from last year's roster. As shown, most of these top suppliers are gas aggregators. These ten companies supplied approximately 62 percent of all Canadian gas imports during 2001 (2,365.9 Bcf).

Figure 5
TEN LARGEST IMPORTERS OF CANADIAN NATURAL GAS IN 2002

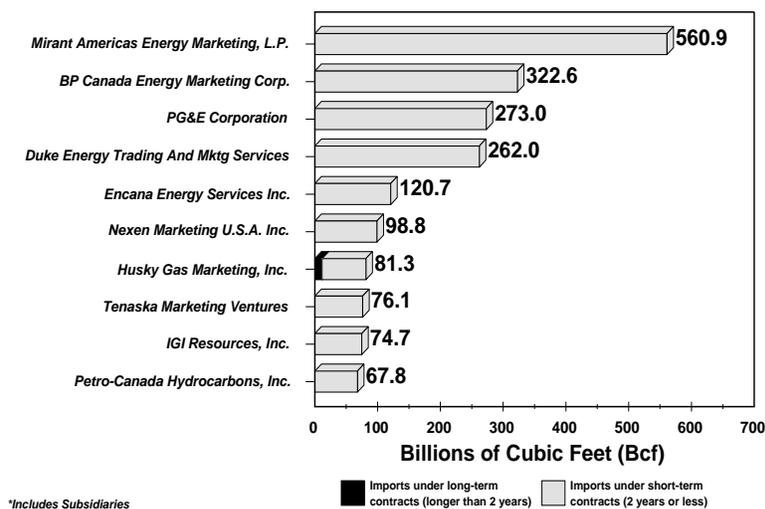


Figure 6
TEN LARGEST SUPPLIERS OF CANADIAN NATURAL GAS IN 2002

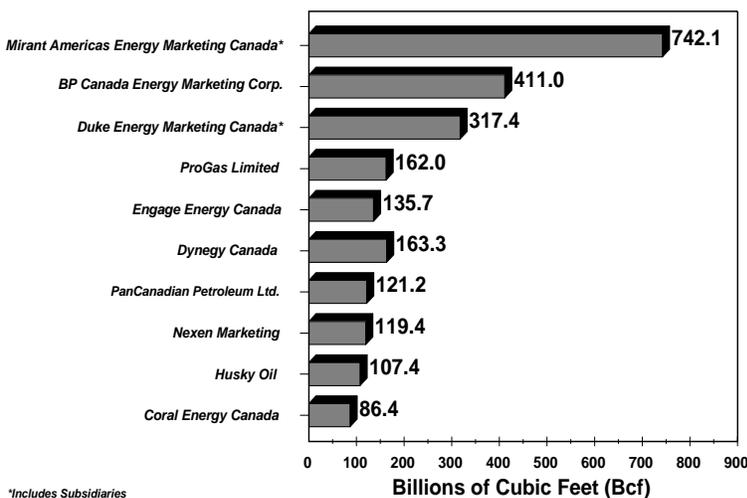
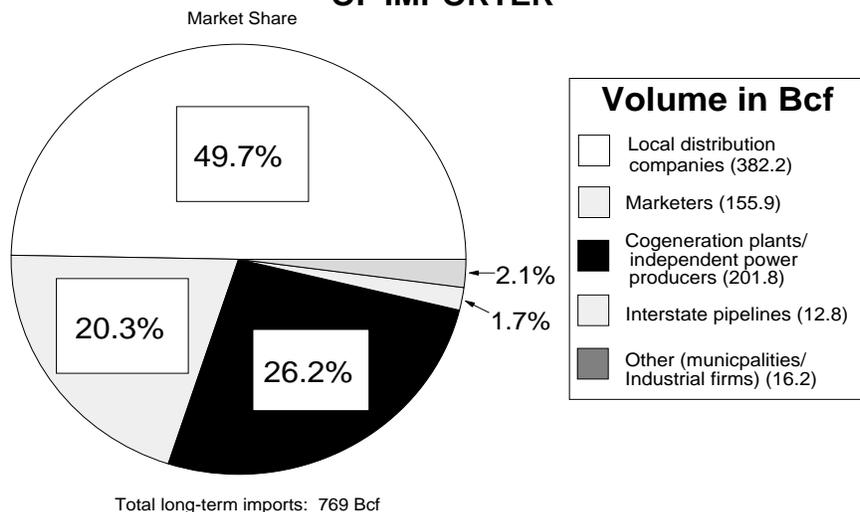


Figure 7 shows the type of importer that purchased Canadian natural gas under long-term supply contracts during 2002. Due to the continued momentum of imports under short-term arrangements this year, many long-term categories witnessed declines in volumes. Imports under the marketers category continued to lose market share this year. In 2002, volumes imported by this group fell 38 percent (155.9 v. 252.8 Bcf) and the market share for these volumes fell from 28.2 to 20.3 compared to 2001.

Purchases of Canadian gas by local distribution companies fell slightly by 2 percent this year (382.2 v. 388.4 Bcf), yet companies in this category continued to hold the largest market share of imports under long-term arrangements. Imports in the cogen/independent power producers category fell 6 percent (201.8 v. 215.7 Bcf) and imports by firms in the municipalities/industrial category fell by 7 percent (16.2 v. 17.4 Bcf). Imports by interstate pipelines this year declined by 15 percent (12.8 v. 15 Bcf).

Figure 7 2002 CANADIAN NATURAL GAS IMPORTS UNDER LONG-TERM IMPORT AUTHORIZATIONS BY TYPE OF IMPORTER



Notes:

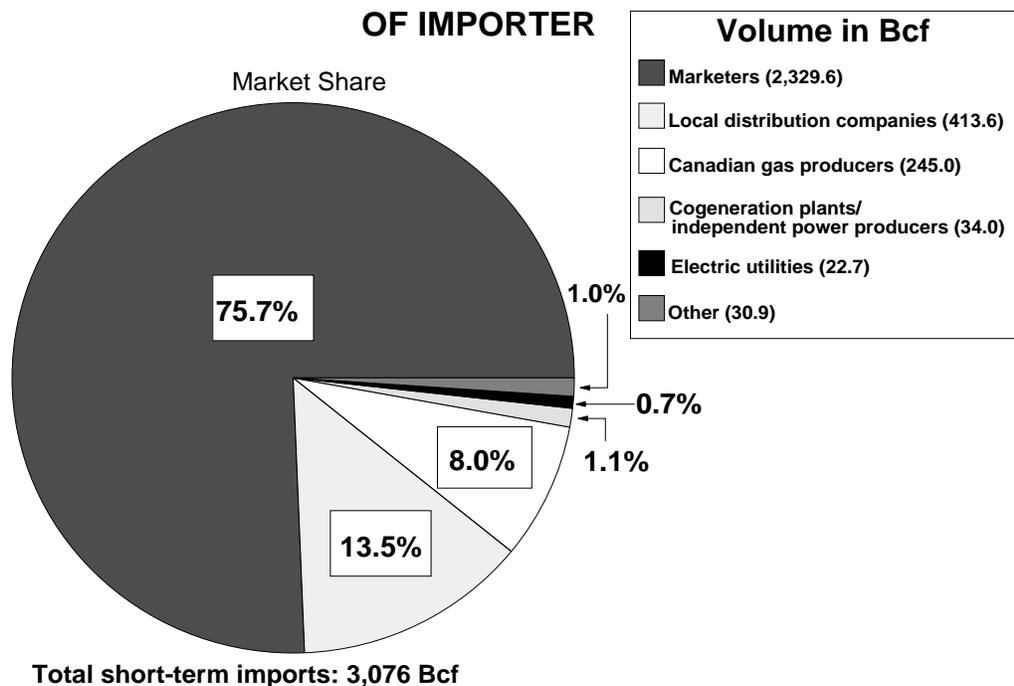
Long-term Canadian gas imports totaled 769 Bcf in 2002. Imports by Northwest Alaskan Pipeline Company were included in the "marketers" category; imports by combined gas/electric utilities were included in the "local distribution companies" category.

Figure 8 identifies, by class of importer, the market share of those who imported Canadian natural gas in 2002 under short-term authorizations. The graph shows there are three principal types of short-term importers: marketers, LDCs, and Canadian gas producers or their U.S. affiliates. These three types of importers brought in over 97 percent of all short-term Canadian gas imports in 2002. There was varied activity this year among all importer groups using short-term arrangements.

The following is a comparison of total short-term import volumes for 2002 and 2001: marketers (2,329.5 v. 2,086.2); industrial firms/other end-users (30.9 v. 25.6.); cogen plants/independent power producers (34.0 v. 29.4); and local distribution companies (413.6 v. 401.8). The categories that experienced decreases in volumes this year were Canadian gas producers (245.0 v 301.2) and electric utilities (29.1 v. 35.2).

During 2002, 22 companies exported 189.3 Bcf of natural gas to Canada at an average price of \$3.28 per MMBtu. This was an increase of 20 percent over the 2001 level of 157.5 Bcf. All of these export transactions were accomplished under gas sales contracts of two years or less. Almost all of the gas exports to Canada occurred at the international border crossings at St. Clair, Michigan (164.1 Bcf), Havre, Montana (15.9 Bcf) the Detroit, Michigan (7.4 Bcf). These volumes accounted for 99 percent of all gas exports to Canada during the year. Exports continued to increase this year at the St. Clair exit point, where volumes rose by 34.2 percent (164.1 v. 122.3 Bcf). Exports on the Vector Pipeline into Canada accounted for over 72 percent (81.5 Bcf) of the activity at St. Clair. [The 2002 natural gas exports of 189.3 Bcf reflect exports to Canada on an equity (sales) basis rather than on a custody (physical movements) basis. Total gas exports on a **custody only basis** equaled 188.8 Bcf for the year.]

Figure 8 2002 CANADIAN NATURAL GAS IMPORTS UNDER SHORT-TERM IMPORT AUTHORIZATIONS BY TYPE OF IMPORTER



Mexican Gas Trade

The last six graphs provide information on Mexican gas trade during 2002. **Figure 9** identifies the eight firms that exported a record 263.5 Bcf of natural gas to Mexico in 2002, and indicates the market share of the two largest exporters. Pemex Gas, the year's largest exporter of natural gas to Mexico, continued to increase its market share from last year (85% v. 73%). Although there were eight companies exporting natural gas to Mexico in 2002, Pemex Gas and Gasoducto Rosarito, S. de R.L. de C.V. represented over 96 percent of the Mexican import market.

Figure 10 shows the two companies that imported 1.7 Bcf of Mexican gas into the U.S. this year. Volumes from Mexico entering the U.S. this year were down 83 percent from the 2001 level (1.7 v. 10.3 Bcf). In 2002, 45 percent of the gas entered the U.S. on the Texas Eastern Pipeline, in Hidalgo, Texas; 32 percent was imported on the Tennessee Pipeline, near Alamo, Texas; and 23 percent was brought in on the Kinder Morgan Border Pipeline near McAllen, Texas. The average price of these supplies was \$2.36 per MMBtu, down 53 percent from last year's price of \$5.00 per MMBtu.

Figures 11 and 12 provide monthly volume and price information with regard to natural gas exports to Mexico over the past three years (January 2000 - December 2002). Gas exports to Mexico this year were at a record high (263.5 Bcf). The 2002 annual weighted average price for these exports was \$3.30 per MMBtu, a decline of 24 percent from last year's average price of \$4.34 per MMBtu. **Figures 13 and 14** show monthly volumes and prices for imports from Mexico from 2000 through 2002. Natural gas imports from Mexico have fallen almost 85 percent since 2000.

FIRMS THAT EXPORTED NATURAL GAS TO MEXICO IN 2002

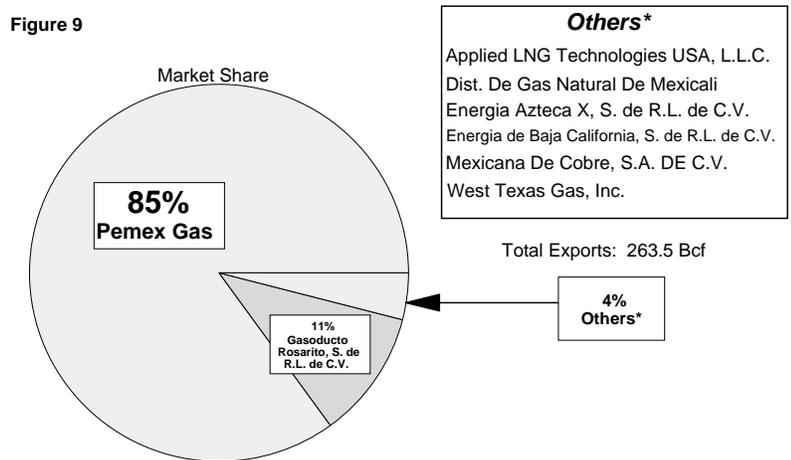


Figure 10

FIRMS THAT IMPORTED NATURAL GAS FROM MEXICO IN 2002

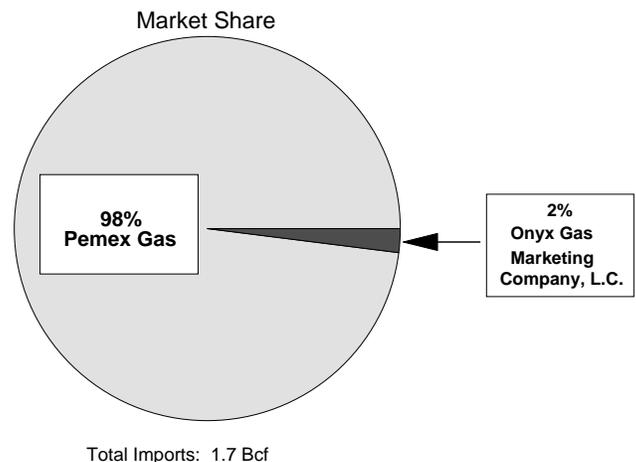
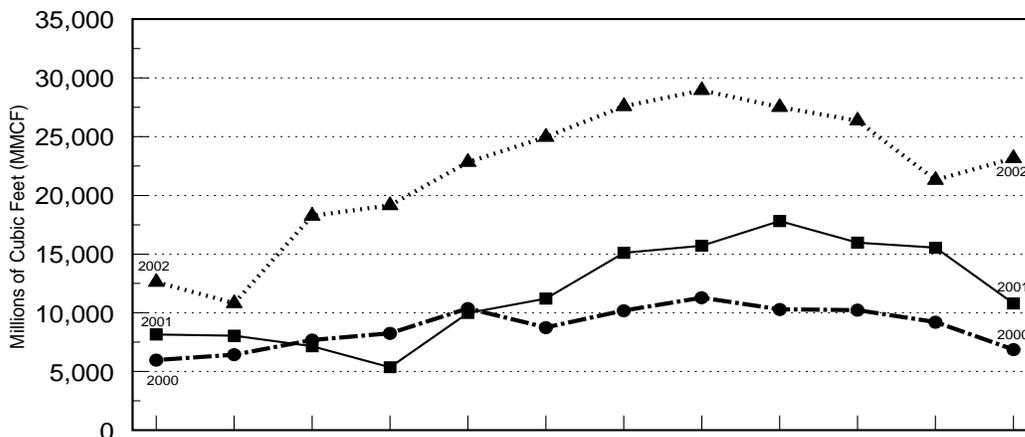


Figure 11

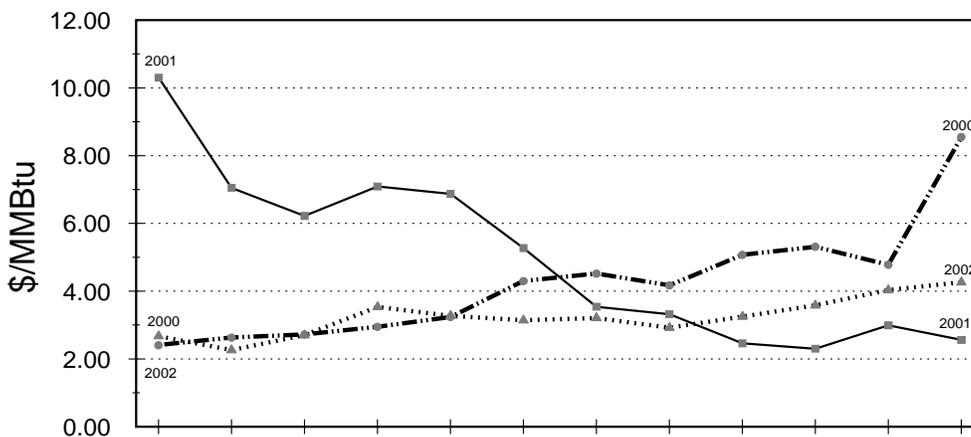
NATURAL GAS EXPORTS TO MEXICO 2000 - 2002 MONTHLY VOLUMES



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2000	5,973	6,432	7,685	8,252	10,369	8,744	10,186	11,277	10,294	10,231	9,204	6,872	105,519
2001	8,158	8,052	7,152	5,360	9,975	11,206	15,104	15,714	17,811	15,969	15,537	10,797	140,835
2002	12,612	10,807	18,252	19,148	22,829	24,974	27,589	28,946	27,509	26,357	21,302	23,156	263,481

Figure 12

NATURAL GAS EXPORTS TO MEXICO 2000 - 2002 WEIGHTED AVERAGE PRICE



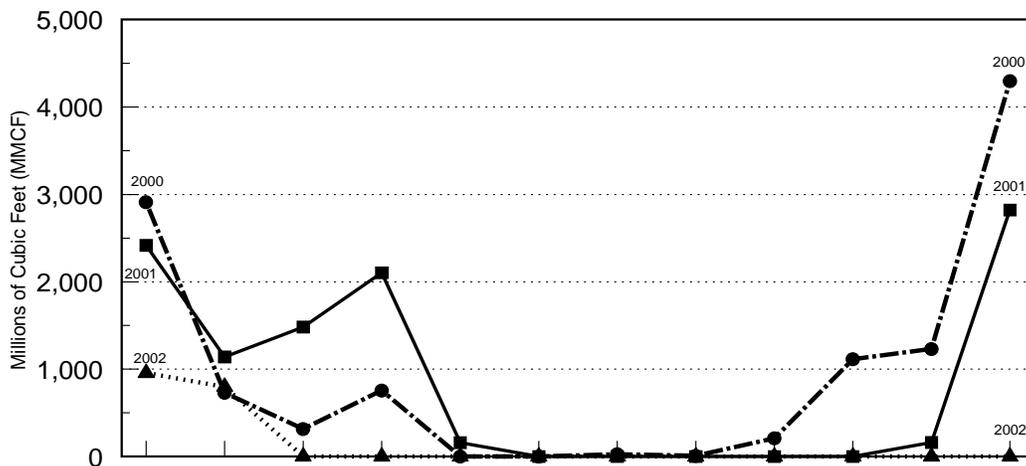
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
2000	2.41	2.63	2.72	2.95	3.24	4.30	4.52	4.17	5.07	5.31	4.78	8.55	4.27
2001	10.30	7.05	6.22	7.09	6.87	5.27	3.54	3.32	2.46	2.30	2.99	2.56	4.34
2002	2.67	2.26	2.70	3.53	3.27	3.14	3.21	2.92	3.25	3.58	4.03	4.26	3.30

Figure 13

NATURAL GAS IMPORTS FROM MEXICO

2000 - 2002

MONTHLY VOLUMES



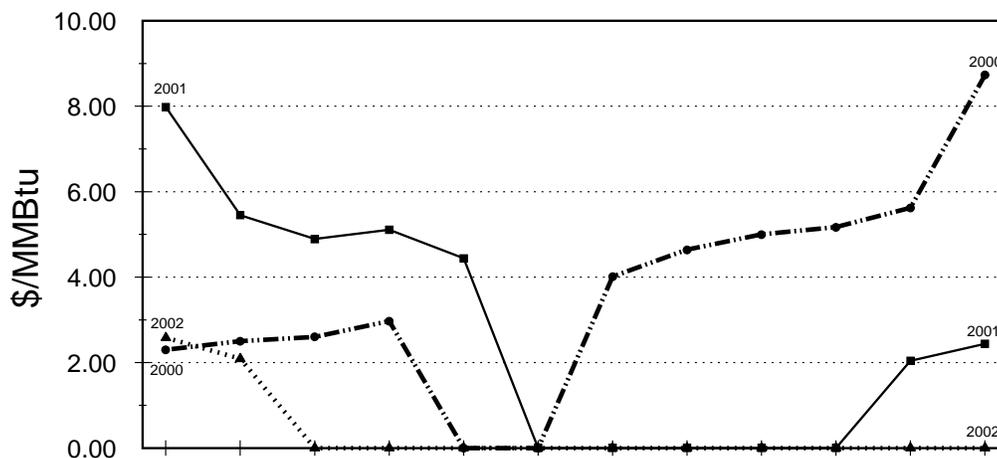
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2000	2,910	730	315	756	0	0	26	9	209	1,115	1,230	4,297	11,601
2001	2,416	1,139	1,482	2,102	157	0	0	0	0	0	160	2,821	10,277
2002	956	798	0	0	0	0	0	0	0	0	0	0	1,754

Figure 14

NATURAL GAS IMPORTS FROM MEXICO

2000 - 2002

WEIGHTED AVERAGE PRICE



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
2000	2.30	2.50	2.60	2.97	0.00	0.00	4.01	4.64	5.00	5.17	5.62	8.73	5.43
2001	7.98	5.45	4.89	5.11	4.44	0.00	0.00	0.00	0.00	0.00	2.04	2.44	5.00
2002	2.58	2.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.36