

QUARTERLY FOCUS:

1995 NATURAL GAS IMPORT/EXPORT TRADE: A SECOND LOOK

The Focus feature included in the *Fourth Quarter 1995 Natural Gas Imports and Exports Report* provided an overview of natural gas import/export activity during calendar 1995. A number of parties subsequently have requested the Office of Fuels Programs to provide additional information on market shares, prices, and the specific identities of major importers and exporters. This Quarterly Focus attempts to respond to these queries pertaining to the 1995 cross-border natural gas trade between the United States, Canada, and Mexico.

1995 Natural Gas Imports from Canada

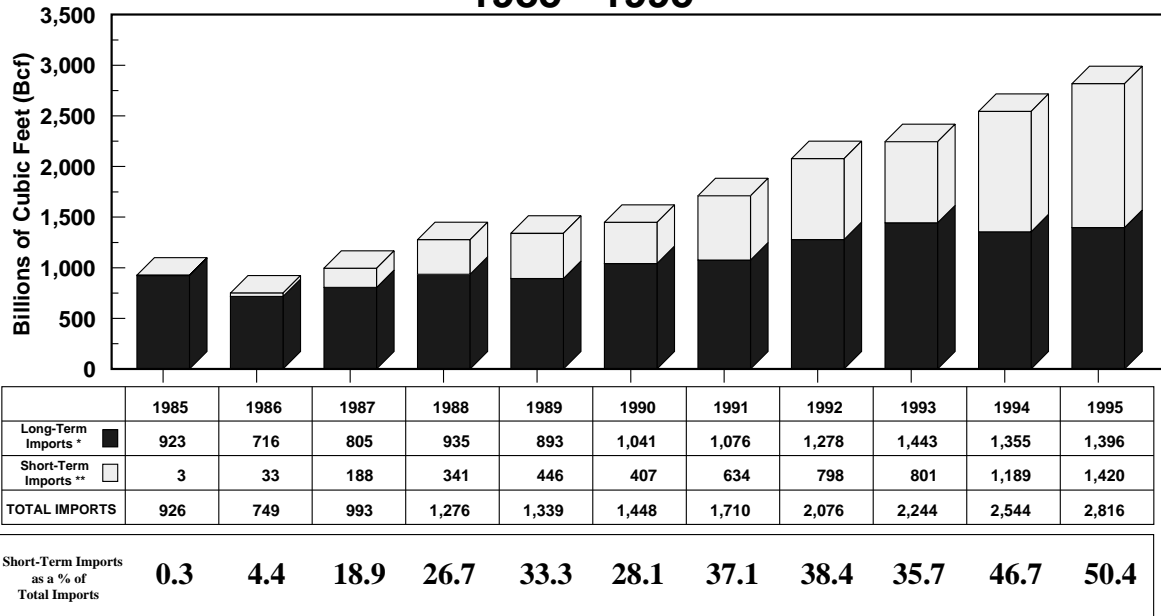
During 1995 there were a total of 191 importers of Canadian natural gas. These 191 importers brought into the United States a total of 2,816 Bcf of natural gas during the year. The weighted average international border price of Canadian natural gas imported into the United States during 1995 was \$1.45/MMBtu. This was a new record low price and represented more than a 19 percent decline from the previous record low set in 1994 at \$1.80/MMBtu. Under the Department of Energy's (DOE) two-year "blanket" import authorizations (for gas purchase contracts of two years or less), the average border price for the year was \$1.16/MMBtu. In comparison, under DOE's long-term import authorizations (for gas purchase contracts longer than two years), the average border price was \$1.75/MMBtu. Of the 2,816 Bcf of Canadian gas imported in 1995, 1,420 Bcf (50.4%) was imported under DOE's short-term import authority, while 1,396 Bcf (49.6%) was imported under long-term authority. 1995 was the first year in which more Canadian natural gas was imported under DOE's short-term import authorizations than under its long-term import authorizations.

The fact that Canadian short-term imports exceeded long-term imports for the first time in 1995 is seen as the continuation of a long-time industry trend toward the use of more short-term gas purchase arrangements. A decade ago, virtually all Canadian gas supply arrangements were long-term in nature. In 1985, the rapid development of natural gas spot and short-term markets led the DOE to approve a new type of import/export arrangement known as the two-year "blanket" authorization. This new type of authorization allowed importers and exporters to participate in the growing natural gas spot market without the normal regulatory constraints and delays associated with long-term authorizations. Today, these blanket authorizations allow gas importers and exporters to negotiate individual spot or short-term sales for up to a two-year period without having to request specific regulatory approval of each sale in advance.

The first import of Canadian natural gas under one of these two-year blanket import authorizations occurred in October 1985. **Figure 1** on the next page shows the steady growth in the use of these short-term import authorizations over the past 11 years (1985-1995). As recently as 1993, long-term imports from Canada comprised about 64 percent of the volumes imported, with 36 percent coming from short-term imports. Canadian gas imports under long-term authorizations have remained relatively stable over the past several years, thanks largely to the growth in long-term sales to the non-utility generation sector (NUGS); however, short-term imports have climbed dramatically during the same period. Over this two-year period short-term imports have increased by over 77 percent (801 Bcf in 1993 v. 1,420 Bcf in 1995). Essentially, the entire incremental growth in Canadian gas sales to the United States during the past two years has been the result of increased short-term sales.

Figure 1

CANADIAN NATURAL GAS IMPORTS BY TYPE OF IMPORT AUTHORIZATION 1985 - 1995



* Imports made under gas purchase contracts longer than 2 years.

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

Figure 2

TEN LARGEST IMPORTERS OF CANADIAN NATURAL GAS IN 1995

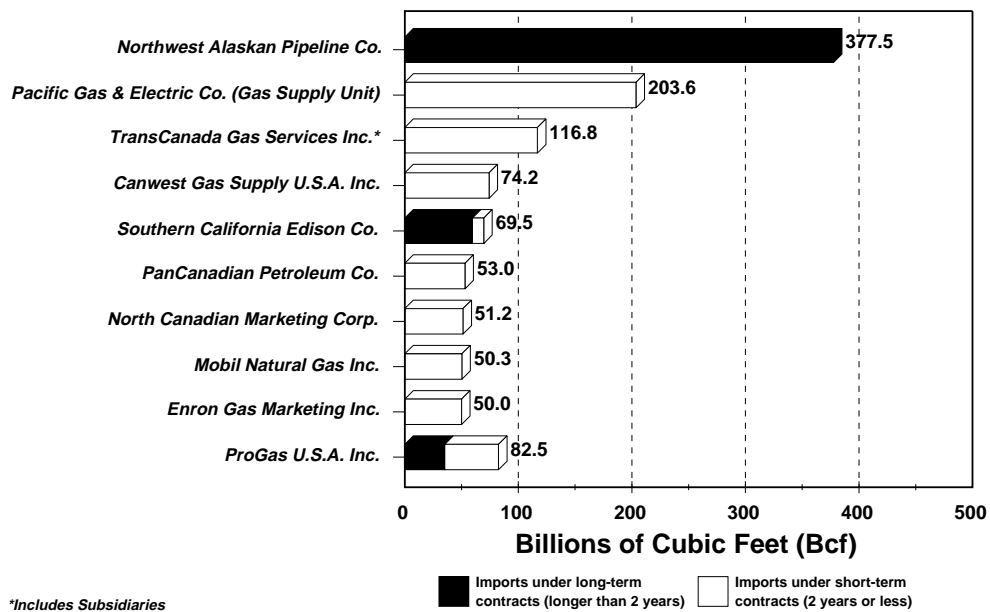


Figure 1 shows that short-term imports from Canada grew by 231 Bcf in 1995 over the 1994 level. During the past year, the state of California was the geographic market which experienced the largest growth in the purchase of Canadian natural gas supplies under short-term import arrangements. Deliveries of short-term Canadian natural gas supplies to California in 1995 increased by 57 Bcf over the level of the preceding year (548 v. 491 Bcf), and the weighted average international border price of these supplies declined by almost 38 percent (\$0.92 v. \$1.48/MMBtu). Total imports of Canadian natural gas for sale in the California market reached 715 Bcf in 1995. The increased use of Canadian gas in California during 1995 (up 9.5%), coupled with the reduced total demand for gas in California during the year (down 9.9%), increased the Canadian gas suppliers market share in the state from about 32 percent in 1994 to almost 39 percent last year.

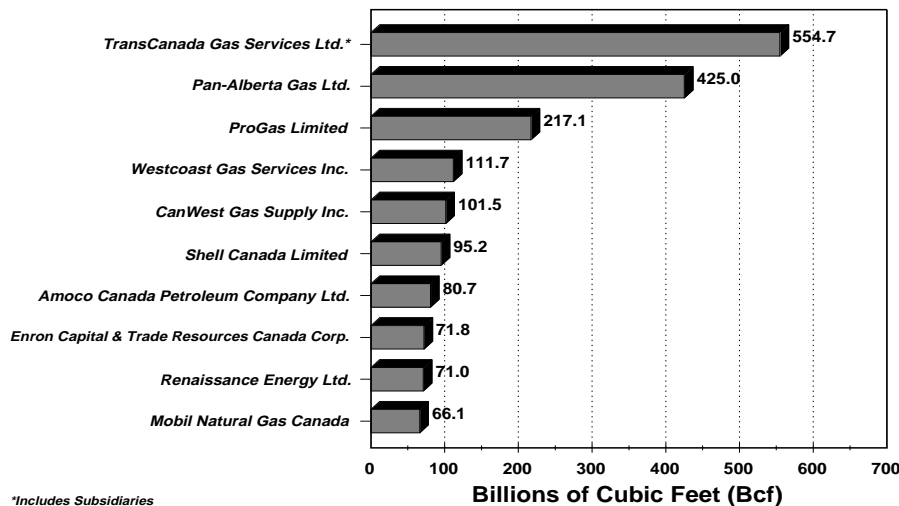
Figure 2 shown on the previous page lists the top ten gas importers for the year. These ten firms imported 1,093.4 Bcf of natural gas, or almost 39 percent of the total Canadian gas imported for the year. **Figure 2** also indicates whether the imports were done under short-term or long-term authorizations. It is interesting to note that seven

of the largest importers had no long-term import transactions during the year. Among the top importers last year, there were only two end-users: a combined electric/gas utility and an electric utility; the rest of the importers were marketers, producer affiliates, or gas aggregators. For example, Northwest Alaskan Pipeline Company, the largest importer of Canadian gas, purchases all of its supplies from Pan-Alberta Gas Ltd., under long-term purchase contracts and resells about 77 percent of these supplies to Pan-Alberta Gas (U.S.) Inc. for markets in the Midwest. The other 23 percent of these supplies are sold to Pacific Interstate Transmission Company for resale to Southern California Gas Company. Although the imports by this company are made under a long-term import authorization, all of the downstream sales by Pan-Alberta (U.S.) Inc. in the Midwest are short-term sales arrangements.

Figure 3 lists the ten largest suppliers of Canadian natural gas in 1995. The volumes supplied by each company include both short-term and long-term sales. As shown, the top suppliers of gas to the United States in 1995 were gas aggregators. These ten companies supplied almost 64 percent of all Canadian gas imports during 1995.

Figure 3

TEN LARGEST SUPPLIERS OF CANADIAN NATURAL GAS IN 1995



The next three graphs provide information pertaining to Canadian natural gas imports made in 1995 under long-term import authorizations. **Figure 4** indicates what type of importer was purchasing Canadian natural gas under long-term purchase contracts. A decade ago, virtually all imports were brought in under long-term purchase arrangements, and almost all were negotiated by interstate pipelines. Today, as depicted in **Figure 4**, only a small percentage of the long-term import volumes are transacted by interstate pipelines. In 1995, local distribution companies (LDCs) imported the largest volume of gas under long-term arrangements (539.5 Bcf), followed fairly closely by marketers (471.0 Bcf). For the most part, the volumes being imported today by the LDCs and marketers have replaced those volumes previously imported by the interstates. The largest new type of long-term importer of gas that has surfaced over the past six years has been the NUGS. The NUGS is now the third largest importer of Canadian gas under long-term contracts. Long-term imports from NUGS have grown from zero imports in 1989 to over 238 Bcf during 1995. The growth of imports from NUGS is the principal reason that the level of long-term imports has remained relatively unchanged over the past few years.

Figure 5 illustrates the differences in average commodity prices paid by the various types of long-term importer in 1995. In 1995, the average commodity price paid by **all** importers of Canadian natural gas under long-term contracts was \$1.20/MMBtu. The **Figure** shows that there was a large dichotomy in the commodity prices paid among the different types of importer. LDCs and marketers, on average, paid less than the aggregate average price for the year, while interstate pipelines and NUGS, on average, paid more than the aggregate average price.

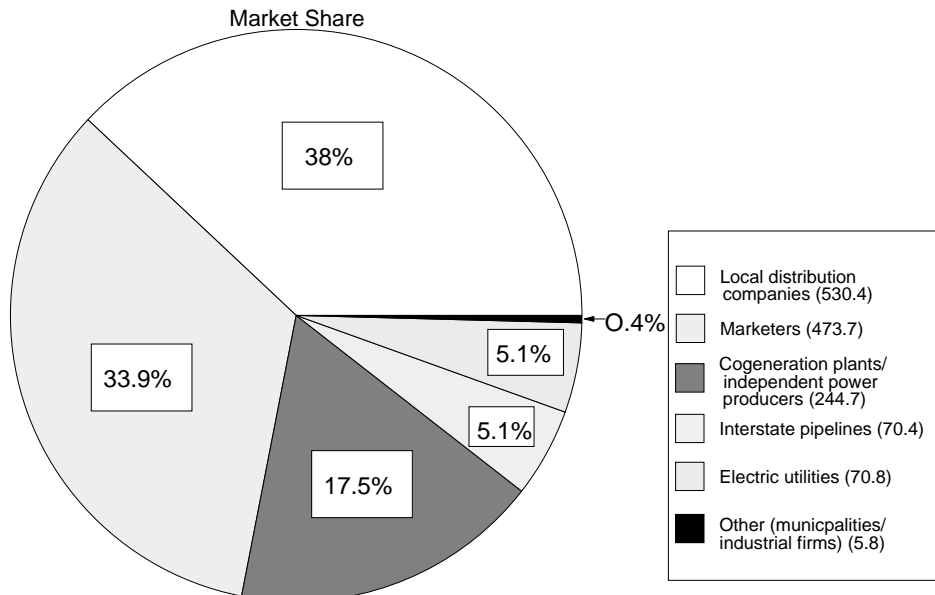
As shown in **Figure 5**, the greatest price differential occurred between the NUGS and LDCs. The NUGS had an average commodity price of \$1.55/MMBtu, and the LDCs paid, on average, \$0.93/MMBtu. The wide price differential in commodity costs paid by various types of long-term importer are a new

phenomenon. The average commodity price of \$1.55/MMBtu paid by the NUGS in 1995 was 29 percent above the average aggregate price of \$1.20/MMBtu paid by **all** importers, while the average price paid by LDCs was 22.5 percent lower than the aggregate average price. As recently as 1994, the largest price differential among types of importer was only \$0.13/MMBtu, and in 1993 the average commodity price paid by the NUGS actually was 6.2 percent lower than the average price paid by **all** types of importer.

There appears to be two main factors which contributed to the widening price differential among various types of importer in 1995. Last year experienced a dramatic decline in natural gas and oil prices; for example, the average commodity price under these long-term Canadian contracts declined by 19 percent from the 1994 level (\$1.20 v. \$1.48/MMBtu). This overall decline in prices generally were reflected in many of the long-term Canadian supply contracts; however, there were some long-term contracts which contained price adjustment clauses that were not directly pegged to these market swings. Most of the underlying long-term supply contracts negotiated by the LDCs and marketers have great price elasticity because they track closely to changes in the natural gas and oil markets. Therefore, the prices under these contracts dropped significantly during the past year to reflect the dramatic decline in oil and gas prices. However, for those contracts which were not directly tied to changes in the marketplace, such as those associated with the NUGS, the prices have remained almost constant over the past few years.

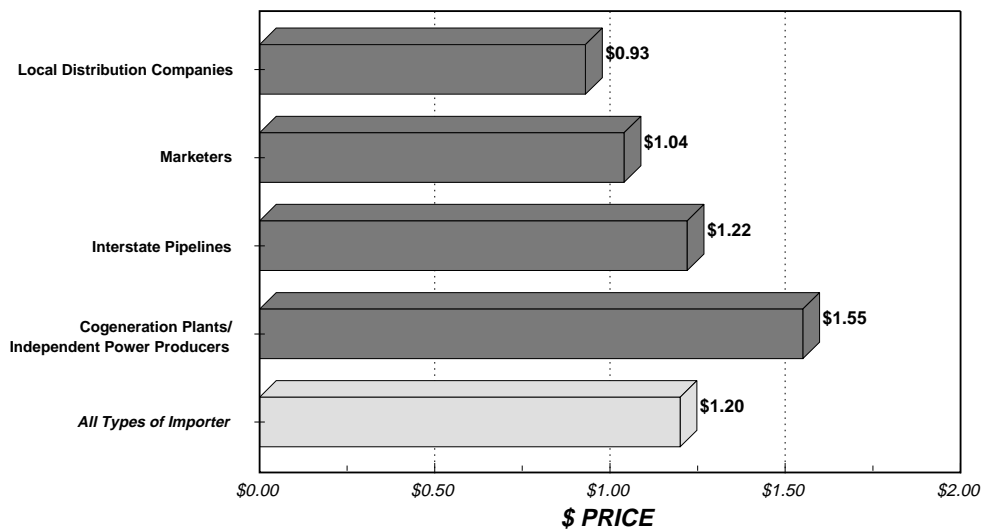
Figure 6 shows the different commodity prices, by Census region, paid for Canadian natural gas imported under long-term contracts during 1995. It shows that there were major differences in the commodity price for Canadian natural gas marketed in the various Census regions. The commodity prices were the least expensive in Census Regions 9 and 8 which cover the Western and Mountain states, with prices ranging from \$0.82 to \$1.08/MMBtu. In contrast, the commodity prices were the highest in Census

Figure 4 1995 CANADIAN NATURAL GAS IMPORTS UNDER LONG-TERM IMPORT AUTHORIZATIONS BY TYPE OF IMPORTER



Notes: Long-term Canadian gas imports totaled 1,396 Bcf in 1995. 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.

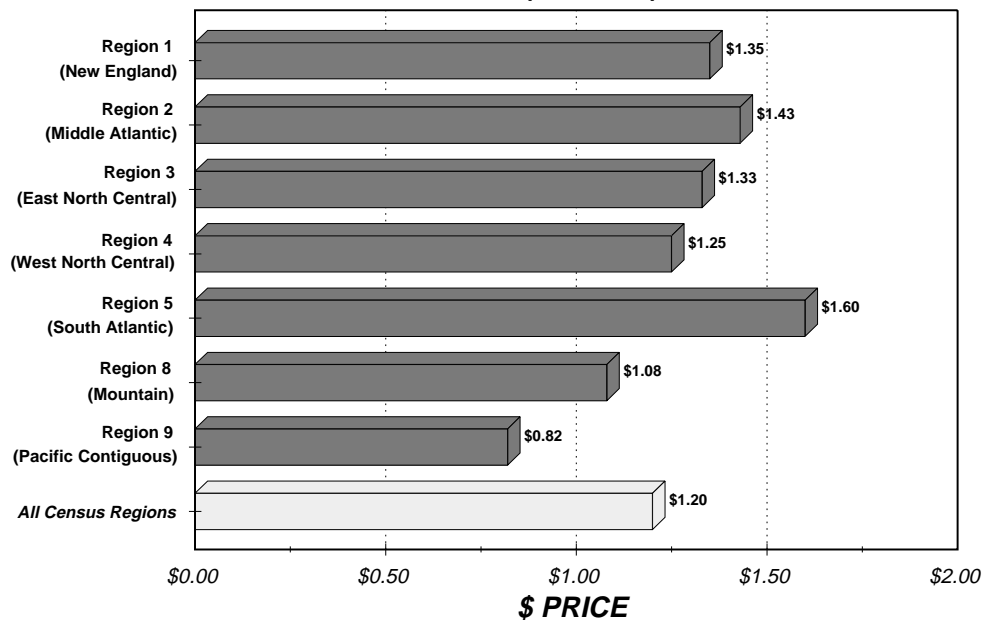
Figure 5 THE WEIGHTED AVERAGE COMMODITY PRICE IN 1995 FOR CANADIAN NATURAL GAS IMPORTED UNDER LONG-TERM CONTRACTS BY TYPE OF IMPORTER (\$/MMBtu)



Note: The commodity prices for electric utilities and industrial firms were \$1.08 and \$2.20/MMBtu, respectively; however, data in these categories were too small for inclusion in the graph.

Figure 6

THE WEIGHTED AVERAGE COMMODITY PRICE IN 1995 FOR CANADIAN NATURAL GAS IMPORTED UNDER LONG-TERM CONTRACTS BY CENSUS REGION (\$/MMBtu)



Regions 1, 2, and 5, representing the East Coast States. The prices in these Census regions ranged from \$1.35 to \$1.60/MMBtu. The relatively high commodity price of \$1.60/MMBtu shown for Census Region 5 is influenced by a small database and a NUGS contract. As shown in **Figure 5**, NUGS contracts normally had higher commodity costs in 1995 than other types of long-term importers. The prices in Census Regions 3 and 4, representing the North Central States, were slightly above the national average of \$1.20/MMBtu.

The huge difference in prices for Canadian natural gas sold on the East Coast vis-a-vis the West Coast in 1995 was due largely to the plummeting gas prices in the Western markets, particularly California. For instance, the largest long-term importer of natural gas into the California market had its commodity price decline by 77 percent from the previous year. Although the average commodity price for **all** Census regions dropped 19 percent in 1995 from the 1994 level (\$1.20 v. \$1.48/MMBtu), the average commodity price dropped 44 percent in Census Region 9 (\$0.82 v.

\$1.47/MMBtu) and 23 percent in Census Region 8 (\$1.08 v. \$1.40/MMBtu). There seem to be a number of factors which contributed to this large price differential between the Western/Mountain states and the East Coast states. First, there currently exists a large surplus of natural gas production in both western Canada and western United States fighting for the same western markets, with limited or no access to Midwestern and Eastern markets because of insufficient pipeline capacity. Second, there is a large surplus of natural gas pipeline capacity serving the western markets, particularly to California. Third, the pipeline transportation system used to deliver Canadian natural gas to the California market in Census Region 9 is relatively expensive compared with the costs associated with delivering southwest U.S. natural gas to the same market [Energy Information Administration (EIA), *Energy Policy Act Transportation Study: Interim Report on Natural Gas Flows and Rates*, DOE/EIA-0602 (Oct. 1995), p.49]; therefore, the commodity costs must be lower in order to keep Canadian natural gas competitive in this market. Fourth, there was almost a 10 percent drop in

natural gas demand (201 Bcf) in California in 1995 [EIA, *Natural Gas Monthly*, DOE/EIA-0130 (96/04), pp. 41-43]. This drop in demand was caused in part by weather conditions, and the increased availability of hydro-electric generation capacity. For example, natural gas demand by California's electric utilities sector in 1995 slumped by over 34 percent, or 206.6 Bcf from the 1994 level. Finally, the East Coast markets have a disproportionately large number of long-term Canadian natural gas contracts serving the NUGS market, and most of these contracts contain price provisions that are not tied to the changes in the marketplace.

The next two graphs provide information on Canadian natural gas imported under DOE's short-

term blanket authorizations during 1995. As mentioned earlier, Canadian natural gas imports under this type of import authority, as of 1995, now exceed the volume imported under long-term import authority. **Figure 7** identifies, by class of importer, the market share of those who imported Canadian natural gas in 1995 under short-term import authorizations. As shown in **Figure 7**, there were three principal short-term importers: marketers, LDCs, and Canadian gas producers, or their U.S. subsidiaries. These three types of importer brought in over 96 percent of the short-term volumes in 1995. Almost two-thirds of these imports were brought into the United States by some 80 gas marketers. In addition to the marketers, 19 LDCs and 8 Canadian producers imported about 19 and 12 percent, respectively.

Figure 7

1995 CANADIAN NATURAL GAS IMPORTS UNDER SHORT-TERM IMPORT AUTHORIZATIONS BY TYPE OF IMPORTER

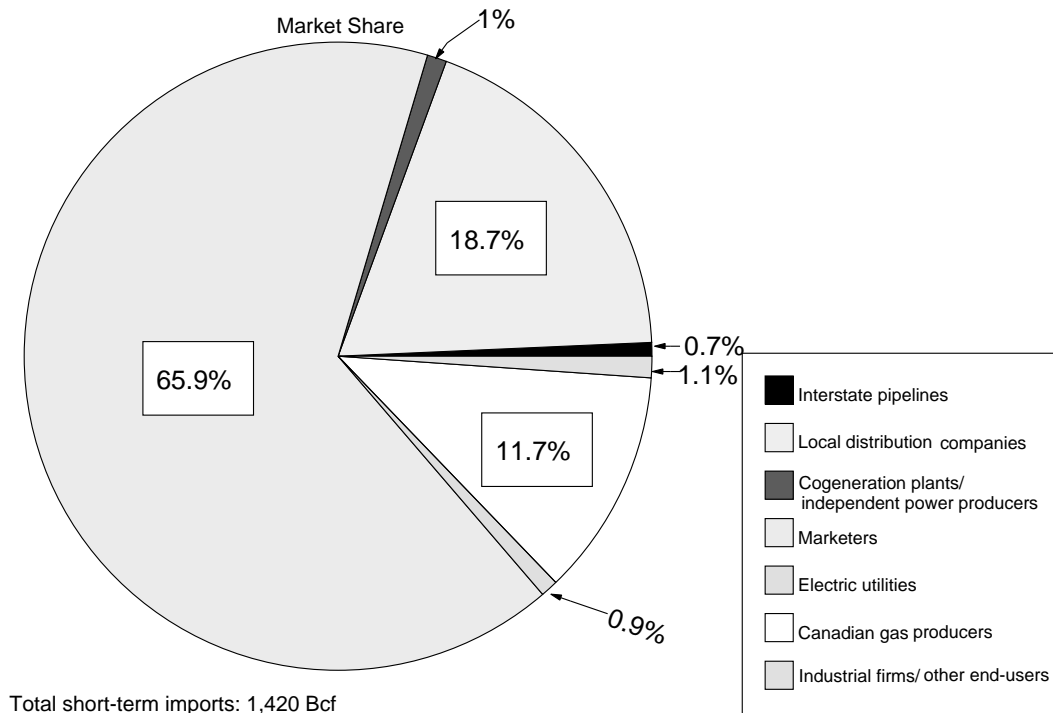
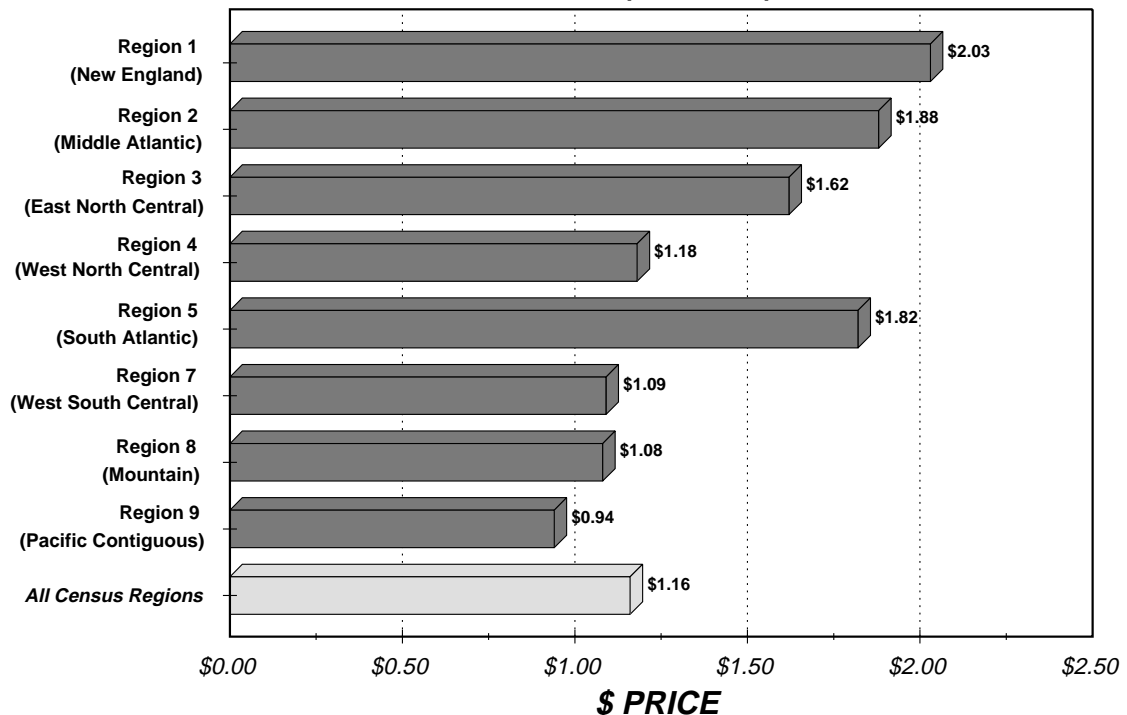


Figure 8 shows for 1995 the weighted average international border price for Canadian natural gas imported under short-term contracts by Census region. As indicated, the average border price for **all** short-term imports in 1995 was \$1.16/MMBtu. It is noteworthy to mention that this price is only slightly lower (\$0.04/MMBtu) than the average commodity price paid in 1995 for imports under long-term contracts. This is a reflection of how closely the pricing terms in long-term contracts are tied now to changes in the marketplace. During 1995, international border prices for short-term Canadian gas imports were remarkably similar to the commodity prices shown by Census region for imports made under long-term contracts

as shown in **Figure 6**. Like the long-term import prices, **Figure 8** illustrates the East-West continental split in prices. The price differential between Census Regions 3 and 4 is considerably higher for short-term imports than shown for commodity prices under long-term import contracts for the same Census regions (**See Figure 6**). This anomaly was caused, in part, by the higher proportion of short-term imports flowing into Census Region 4 at the Port of Morgan, Montana, international entry point. This entry point has historically had less expensive prices than other border crossings serving these two Census regions; for example, Noyes, Minnesota.

Figure 8

THE WEIGHTED AVERAGE PRICE IN 1995 FOR CANADIAN NATURAL GAS IMPORTED UNDER SHORT-TERM CONTRACTS BY CENSUS REGION (\$/MMBtu)



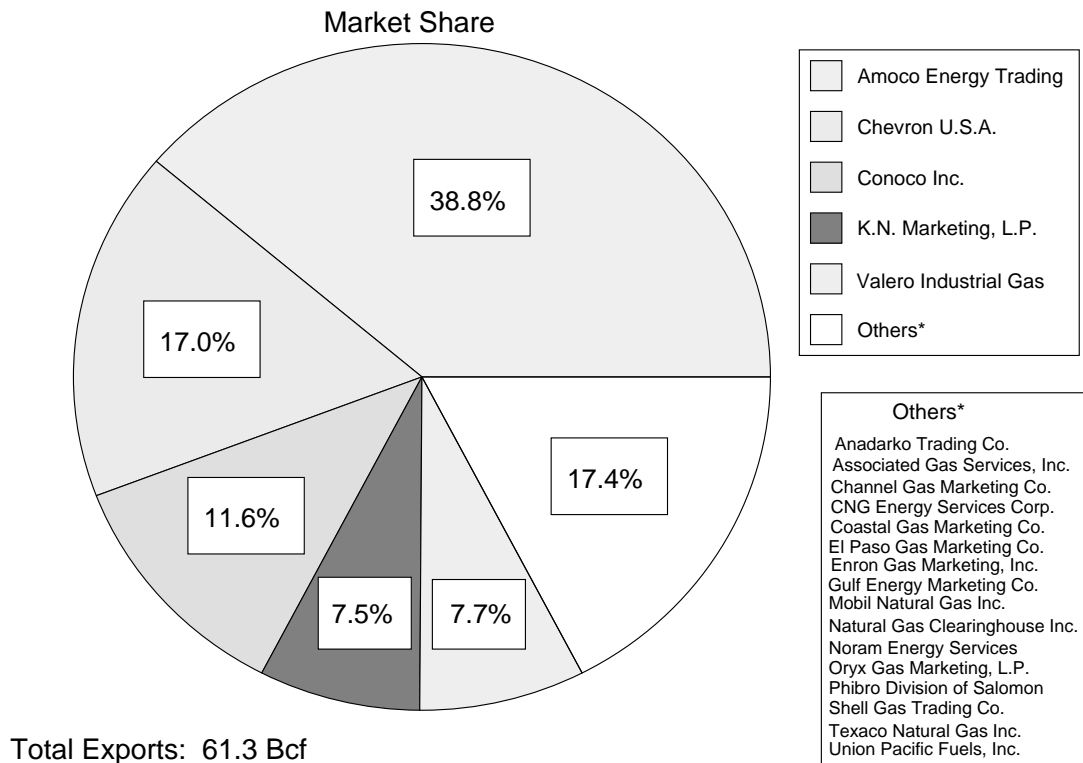
1995 Natural Gas Exports to Mexico

The last three graphs provide information on natural gas export trade during 1995. **Figure 9** identifies the 21 firms that exported a total of 61.3 Bcf of natural gas to Mexico in 1995, and indicates the market share of the five largest exporters. Amoco Energy Trading Corporation

continues to be the largest exporter of natural gas to Mexico, controlling almost 39 percent of the Mexican import market. Although there were quite a few exporters in 1995, Amoco and the other top four gas exporters represented about 83 percent of the Mexican import market.

Figure 9

FIRMS THAT EXPORTED NATURAL GAS TO MEXICO IN 1995



Figures 10 and **11** provide monthly volume and price information with regard to natural gas

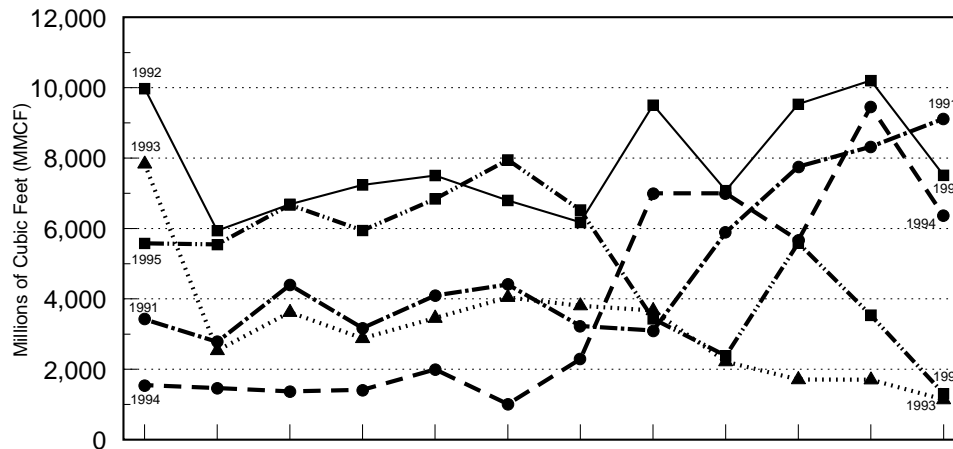
exports to Mexico over the past five years (January 1991 - December 1995).

Figure 10

NATURAL GAS EXPORTS TO MEXICO

1991 - 1995

MONTHLY VOLUMES



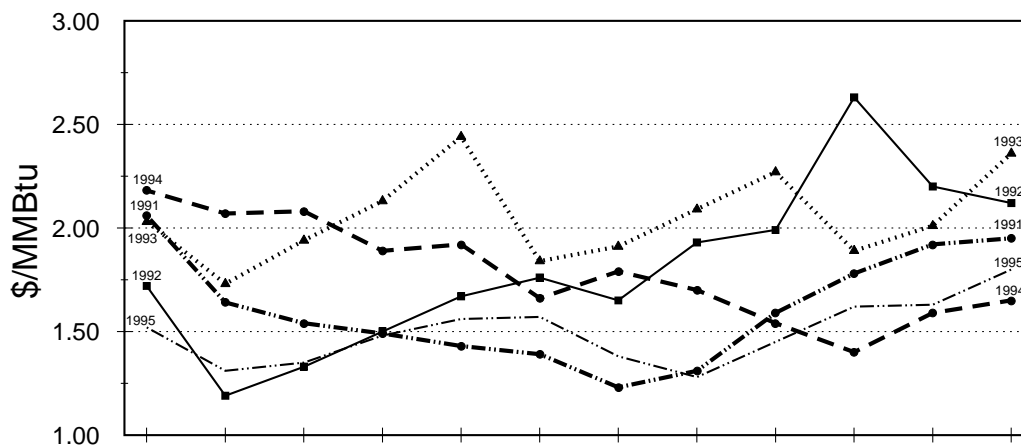
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1991	3,419	2,783	4,392	3,169	4,095	4,408	3,229	3,101	5,885	7,755	8,318	9,120	59,674
1992	9,973	5,939	6,688	7,237	7,506	6,797	6,175	9,506	7,076	9,531	10,200	7,510	94,138
1993	7,833	2,531	3,617	2,875	3,453	4,042	3,806	3,668	2,214	1,708	1,698	1,134	38,579
1994	1,546	1,459	1,367	1,411	1,993	1,007	2,285	6,996	7,001	5,663	9,458	6,362	46,548
1995	5,576	5,542	6,670	5,941	6,848	7,945	6,526	3,431	2,378	5,588	3,535	1,303	61,283

Figure 11

NATURAL GAS EXPORTS TO MEXICO

1991 - 1995

WEIGHTED AVERAGE PRICE



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1991	2.06	1.64	1.54	1.49	1.43	1.39	1.23	1.31	1.59	1.78	1.92	1.95
1992	1.72	1.19	1.33	1.50	1.67	1.76	1.65	1.93	1.99	2.63	2.20	2.12
1993	2.03	1.73	1.94	2.13	2.44	1.84	1.91	2.09	2.27	1.89	2.01	2.36
1994	2.18	2.07	2.08	1.89	1.92	1.66	1.79	1.70	1.54	1.40	1.59	1.65
1995	1.52	1.31	1.35	1.48	1.56	1.57	1.38	1.28	1.45	1.62	1.63	1.80