# QUARTERLY FOCUS

## *1997 NATURAL GAS IMPORT/EXPORT TRADE: A SECOND LOOK*

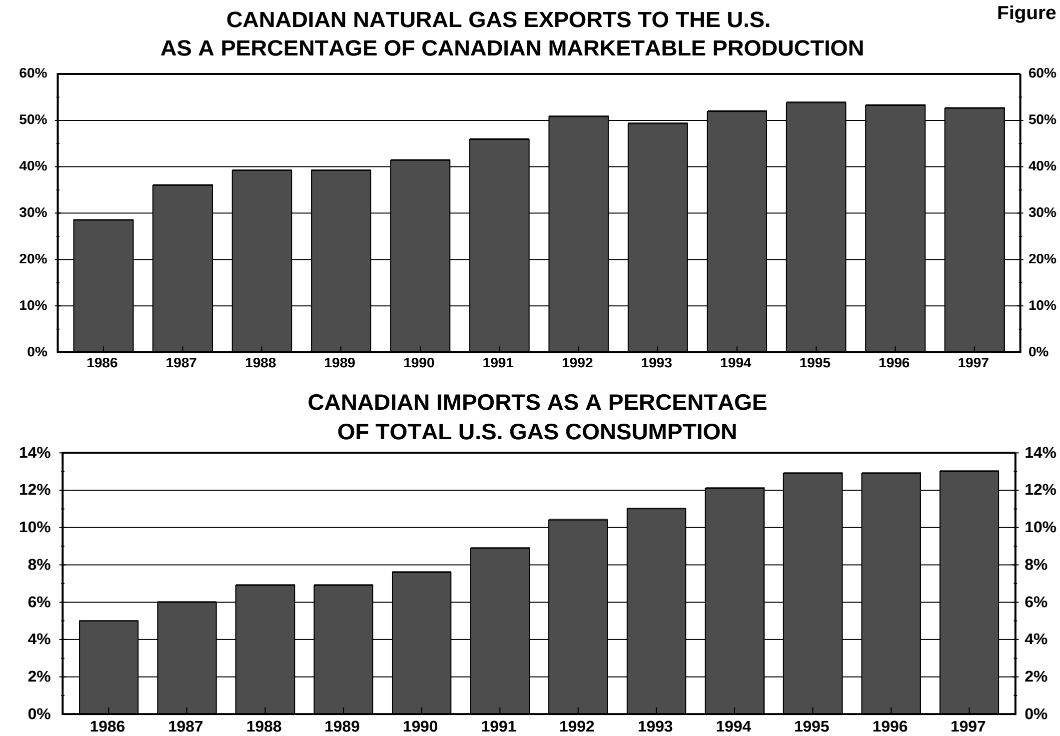
The Focus feature that was included in the fourth quarter 1997 *Quarterly Report of Natural Gas Imports and Exports* (*"Report"*) provided an overview of natural gas import/export activity for calendar 1997. This Focus feature, like the one found in the *Report* issued for the first quarter of 1997, provides more detailed information pertaining to 1997 cross-border natural gas pipeline trade between the United States, Canada and Mexico. Specifically, this Focus provides additional information on market shares, prices, specific identities of major importers and exporters, as well as updated information on Canadian natural gas sales to its largest state market, California. The Focus also provides updated information on one of the fastest growing markets for imported gas, New England.

### 1997 Natural Gas Trade with Canada

Canada continues to be an increasingly important supplemental source of natural gas to the growing market in the United States. Import volumes from Canada over the past twelve years have increased more than three-fold. Just as Canadian gas is very important to the United States in augmenting its natural gas supplies, this gas trade also is very important to Canada in providing an additional market for its gas producers and contributing a significant source of revenue for the Canadian energy industry. **Figure 1** illustrates the significant growth over the past twelve years (1986-1997) in Canadian gas exports to the United States and the growing importance of this trade to Canadian gas producers and U.S. consumers, alike. The first bar chart shows Canadian gas exports to the U.S. as a percentage of its total marketable gas production and the second bar chart shows net Canadian gas imports as a percentage of total U.S. gas consumption. Although Canadian gas exports sales represented 52.6 percent of the producers' total marketable production during 1997, these sales represented over 60 percent of the Canadian gas producers' revenue stream as the average price for gas exports was considerably higher than domestic gas sales. Both of the indicators shown in these two charts should continue their upward trend in the foreseeable future as recent projections by virtually all forecasters, including the Energy Information Administration and Natural Resources Canada, show substantial growth in Canadian gas sales to the United States over the next few years. It seems likely that Canadian gas exports as a percentage of total marketable gas production could reach 60 percent during the next few years. Similarly, net Canadian gas imports as a percentage of total gas consumption may reach the 15-16 percent range during the same time period, depending largely on the overall rate of growth in U.S. gas consumption. As shown in **Figure 2**, there has been a rather steady annual increase in revenues to Canada for natural gas sales to the United States over the past twelve years, with revenues increasing more than three-fold between 1986 and 1997 ($1.8 v. $6.1 billion). In 1997, FE estimates that Canadian gas exports to the United States generated slightly more than $6.1 billion, an historic high.

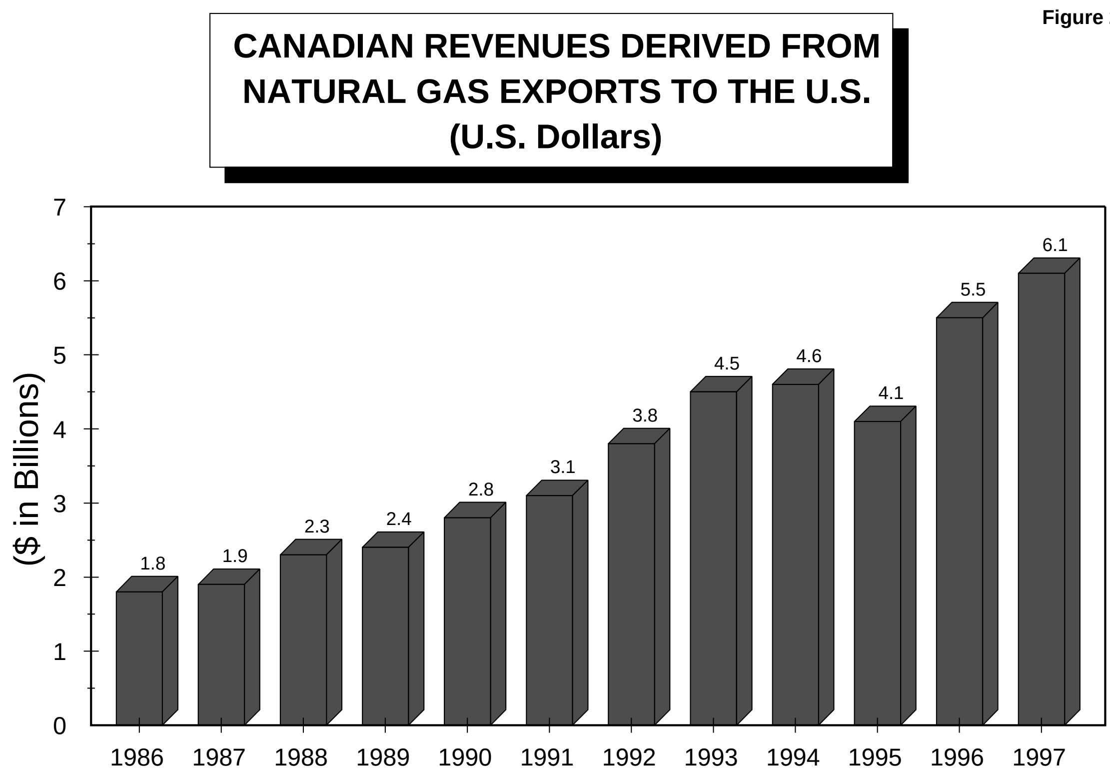
During 1997, 110 companies imported Canadian natural gas under short-term authorizations, and 109 companies used 227 gas purchase contracts to import volumes under long-term arrangements. These importers brought into the United States a record volume of 2,899 billion cubic feet (Bcf) of natural gas during the year. This represented an increase of 16 Bcf, or .5 percent over the 1996 total of 2,883 Bcf. Canadian natural gas exports to the United States have increased every year over the past eleven years (1986 - 1997). However, the rate of growth in 1997 was the lowest in the past eleven years. Although Canadian gas supplies continued to be competitively priced and supplies were ample, exports were constrained by the lack of sufficient cross-border pipeline capacity and the fact that overall gas consumption in the United States remained the same as the 1996 level due in large part to warmer weather conditions in early 1997.

Figure 1




Sources: Statistics Canada, Natural Resources Canada, company filings with FE.

Figure 2



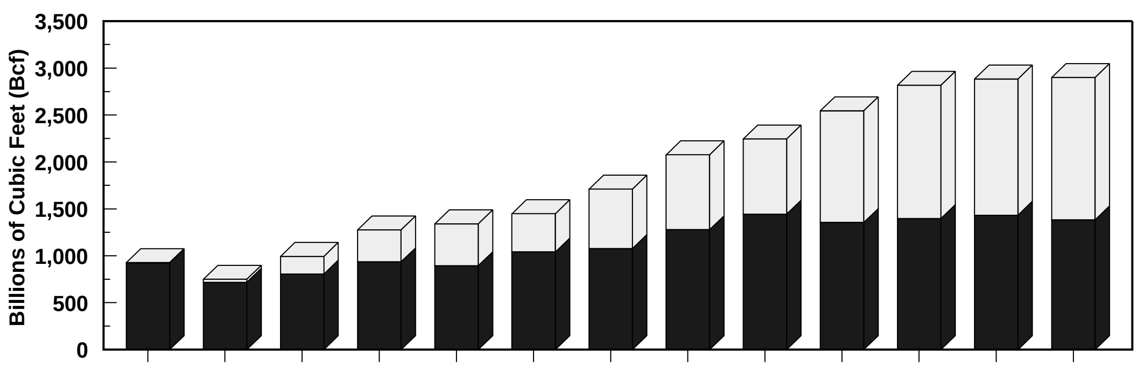

Sources: 1992 - 1997 estimates derived from company filings with FE; 1986 - 1991 estimates from *Natural Gas Monthly,* [DOE/EIA - 0130 (97/08), table SR7, page XIV].

With regard to U.S. natural gas exports to Canada during 1997, there were a total of 16 firms making sales of 57.5 Bcf of natural gas to Canada at an average price of $2.50 per MMBtu. Exports to Canada in 1997 decreased by 7 percent over the 1996 level of 61.4 Bcf. All of the natural gas export transactions were accomplished under the Department of Energy’s (DOE) two-year “blanket” export authorizations (for gas sales contracts of two years or less). Like previous years, most of the natural gas exports to Canada occurred at the Michigan exit points of Detroit (31.1 Bcf) and St. Clair (20.1 Bcf). These two exit points accounted for 89 percent of all natural gas exports to Canada during the year. [The 1997 natural gas exports of 57.5 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 56.4 Bcf for the year.]

The weighted average international border price of Canadian natural gas imported into the United States during 1997 was $2.11 per million British thermal units (MMBtu). This represented an increase of almost 10 percent over last year’s average price of $1.92 per MMBtu. Under DOE’s two-year “blanket” import authorizations (for gas purchase contracts of two years or less), the average border price of gas supplies imported from Canada in 1997 was $1.84 per MMBtu. This price represented an increase of almost 13 percent over last year’s average price of $1.63 per MMBtu for short-term Canadian imports. Under DOE’s long-term import authorizations (for gas purchase contracts longer than two years), the average border price was $2.40 per MMBtu, or an increase of 8.6 percent over last year’s average price of $2.21 per MMBtu. For the purposes of comparison, the estimated average domestic wellhead price for marketable production in 1997 was $2.23 per thousand cubic feet [*Natural Gas Monthly*, DOE/EIA-0130, May 1998, Table 4 (p. 14)], and the average NYMEX futures price for natural gas in 1997 was $2.47 per MMBtu, based on 253 trading days (EIA estimate). Therefore, the average NYMEX futures price in 1997 was $0.36 per MMBtu or 17 percent higher than the average price of $2.11 per MMBtu for Canadian gas supplies.

Figure 3

## CANADIAN NATURAL GAS IMPORTS BY TYPE OF IMPORT AUTHORIZATION 1985 - 1997




| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Long-Term Imports* | 923 | 716 | 805 | 935 | 893 | 1,041 | 1,076 | 1,278 | 1,443 | 1,355 | 1,396 | 1,432 | 1,389 |
| Short-Term Imports** | 3 | 33 | 188 | 341 | 446 | 407 | 634 | 798 | 801 | 1,189 | 1,420 | 1,451 | 1,510 |
| TOTAL IMPORTS | 926 | 749 | 993 | 1,276 | 1,339 | 1,448 | 1,710 | 2,076 | 2,244 | 2,544 | 2,816 | 2,883 | 2,899 |
| Short-Term Imports as a % of Total Imports | 0.3 | 4.4 | 18.9 | 26.7 | 33.3 | 28.1 | 37.1 | 38.4 | 35.7 | 46.7 | 50.4 | 50.3 | 52.1 |

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

Of the 2,899 Bcf of Canadian gas imported in 1997, 52.1 percent (1,510 Bcf) was imported under DOE's short-term import authority, while 47.9 percent (1,389 Bcf) was imported under its long-term authority. 1997 represented the third straight year in which more Canadian natural gas was imported under DOE's short-term import authorizations than under its long-term import authorizations. The drop in long-term imports in 1997 may be attributed in large part to the lower takes by a couple of utilities in California. Comparing 1997 Canadian imports with 1996 imports by type of DOE authorization used, volumes imported under short-term arrangements showed a 4.1 percent increase, while imports under long-term arrangements fell by 3 percent. **Figure 3** on the preceding page illustrates the steady growth in the use of short-term import authorizations over the past 13 years (1985-1997). Although the general trend of short-term import sales replacing long-term import sales is likely to continue in 1998, this trend may be reversed with the advent of new major pipelines scheduled to commence operation beginning this fall. The financing of major pipeline projects usually results in long-term transportation commitments and these, in turn, usually have underlying long-term gas purchase arrangements.

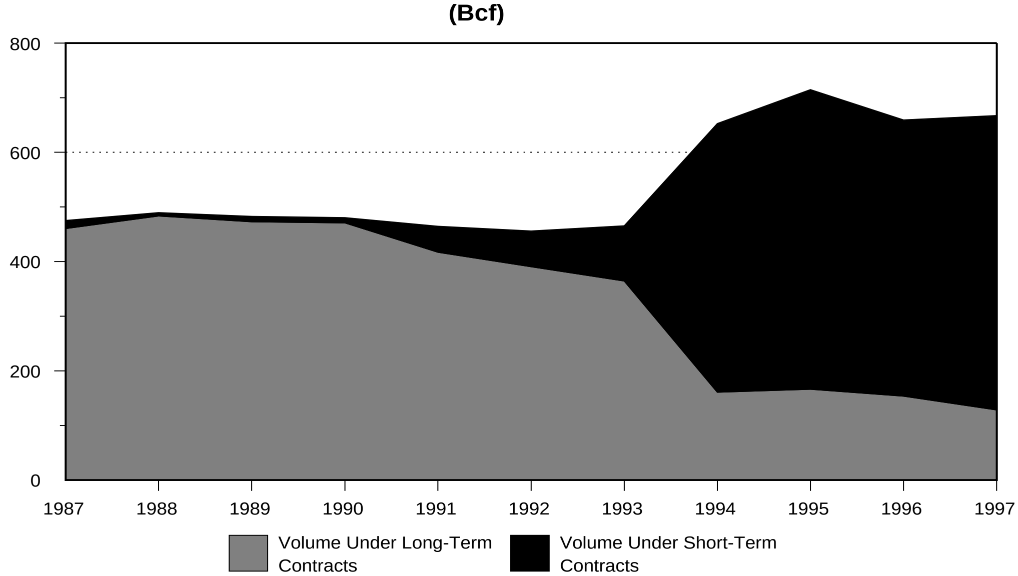
## Canadian Gas Marketed in California

**Figure 4** shows the volume of Canadian natural gas marketed in California under both short-term and long-term contracts during the past 11 years (1987 - 1997). Prior to November 1993, most Canadian gas sales were sold in California under long-term contracts; subsequently, most Canadian gas sales have been made under short-term contracts. During 1997, 667.6 Bcf of Canadian natural gas was marketed in California. Approximately 81 percent of the volume marketed in the state during the year was purchased under short-term contracts at an average international border price of $1.50 per MMBtu. The remaining 19 percent of the Canadian gas volumes was marketed under long-term contracts at an average international border price of $1.78 per MMBtu.

Based on preliminary figures published by the Energy Information Administration (EIA) in its *Natural Gas Monthly* [DOE/EIA-130 (May 1998), Tables 15-19], total natural gas deliveries to California in 1997 increased by 128.6 Bcf, or 7.5 percent from the 1996 level (1,849.8 v. 1,721.2 Bcf). The reported increase in natural gas sales in

Figure 4

**CANADIAN NATURAL GAS EXPORTS TO CALIFORNIA UNDER LONG-TERM AND SHORT-TERM CONTRACTS OVER THE PAST ELEVEN YEARS: 1987 - 1997 (Bcf)**




Notes: Long-term contracts are defined as supply contracts which are over two years in length and short-term contracts are defined as supply contracts which are two years or less in duration. The data are from filings submitted by natural gas importers to the Office of Fossil Energy.

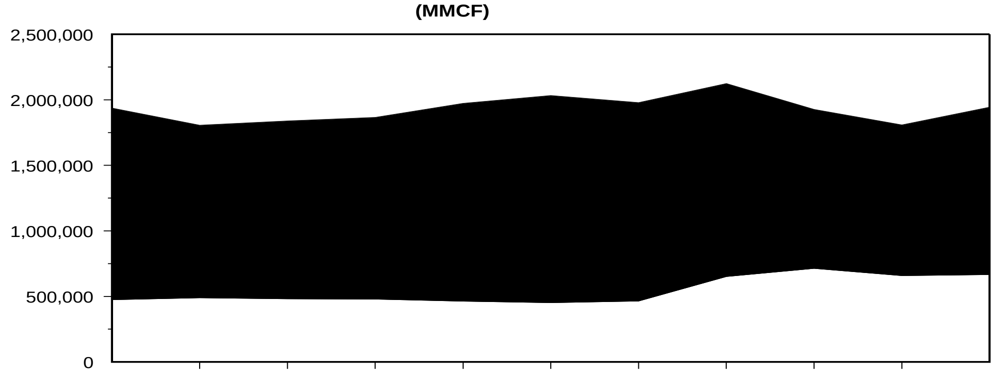
California follows two years of significant declines in gas use. During 1995 and 1996, California experienced an aggregate decline in gas consumption of over 16 percent. Virtually all consumers of natural gas in California experienced increases in gas consumption in 1997, but by far the largest increase (almost 50 percent of the growth) was the direct result of increased sales to the electric utility sector. Approximately 85 percent of the drop in natural gas demand during 1995 and 1996 was the result of reduced use of natural gas in the electric utility sector. Natural gas deliveries to electric utilities declined 34 and 19 percent in 1995 and 1996, respectively. During these two years, the California electric utility industry relied more heavily on the increased availability of less expensive hydroelectric generation caused by the abundant snows and rains which fell on the Pacific Northwest and California. In addition, gas demand in the electric utility sector also was impacted by the closing of smaller and older fossil energy plants owned by certain California utilities. During 1997 natural gas sales to the electric utility industry rebounded, increasing by almost 19 percent over the 1996 level (378 v. 318 Bcf). There were two main reasons for the increased gas sales to this sector. First, hydroelectric generation in California dropped by 10 percent in 1997 even though hydroelectric generation increased by 2 percent in the entire Pacific Contiguous Census Division [*Electric Power Monthly*, DOE/EIA-0226 (April 1998), p. 3]. Second, two nuclear power plants owned by Southern California Edison Co. (San Onofre 2 and 3) were shut down for four months each for refueling in 1997.

Consistent with the general increase in natural gas deliveries in California during 1997, Canadian natural gas supplies marketed in California, as shown in **Figure 4**, also increased over the 1996 level. Canadian gas sales in 1997 captured over 34 percent of natural gas market in California. Canadian natural gas sales to California under long-term purchase contracts (over 2 years in length) continued their general decline, while sales made under short-term arrangements (contracts of 2 years or less) continued their general upward trend. Long-term imports declined by 16.5 percent in 1997 (128.4 v. 153.7 Bcf), while short-term imports increased by 6.6 percent (539.2 v. 505.7 Bcf). Natural gas prices rose to relatively high levels during the 1996/97 winter, and continued to be high for most of the year. The Fuels and Transportation Committee of the California Energy Commission reported on February 28, 1998, in its *California Natural Gas End Use Price Forecast* [www.energy.ca.gov.] that in 1997 "natural gas production capability was more than adequate to meet demand, the ability to get production into the pipeline in major supply regions has been restricted by the capacity to gather and process the gas for delivery into the pipeline. This condition resulted in less slack supply competing for market share, and therefore, sustaining higher prices during the past year." This statement seems to be in agreement with what natural gas importers have been reporting to us in their quarterly reports. As reported by gas importers, the average international border price of Canadian natural gas destined for the California market in 1997 had an average price of $1.55 per MMBtu, or 32.5 percent higher than the 1996 average price of $1.17 per MMBtu. The average price for short-term imports increased by 31.6 percent ($1.50 v. $1.14) and the average price for long-term imports increased by 40.2 percent ($1.78 v. $1.27). Despite the fact that overall prices during 1997 were higher, prices dropped dramatically in December due in large part to El Niño causing warmer winter conditions. Comparing November 1997 gas import prices with December, the price for Canadian gas supplies under long-term import arrangements declined from $2.48 per MMBtu to $1.61 per MMBtu, or a reduction of 35 percent in one month. Similarly, the price of short-term imports during these two months also showed a large price differential. The price of short-term imports went from $1.96 in November to $1.54 in December, or a reduction of 21.4 percent.

**Figure 5** shows Canadian natural gas marketed in California as a percentage of total gas consumption for the state during the past eleven years (1987 - 1997). This figure merely displays the market shares for Canadian gas in California during this time period. With the advent of a more competitive marketplace and increased pipeline capacity serving the state, the market share for Canadian gas has grown from 24.6 percent in 1987 to over 30 percent during the past four years. In 1997, total gas consumption for the state rose by 7 percent from the 1996 level. Although Canadian gas marketed in California rose by 1.2 percent in 1997, its share of the California market dipped slightly from 36.5 to 34.4 percent.

**Figure 5**

**CANADIAN NATURAL GAS MARKETED IN CALIFORNIA AS A PERCENTAGE OF TOTAL STATE GAS CONSUMPTION (MMCF)**




| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Canadian Gas Supplies to CA | 475,449 | 489,807 | 482,935 | 480,493 | 464,676 | 452,642 | 465,561 | 652,628 | 714,695 | 659,435 | 667,615 |
| Total Gas Consumption | 1,934,909 | 1,804,452 | 1,837,831 | 1,864,057 | 1,970,709 | 2,030,564 | 1,976,397 | 2,123,310 | 1,925,110 | 1,807,314 | 1,942,310 |
| % Share of the CA Market | **24.6** | **27.1** | **26.3** | **25.8** | **23.6** | **22.3** | **23.6** | **30.7** | **37.1** | **36.5** | **34.4** |

Sources: Consumption data for 1987 thru 1996 obtained from the ***Natural Gas Annual*** (DOE/EIA-0131); 1997 consumption figure is an FE estimate based on preliminary EIA data. Canadian natural gas supplies marketed in California are from reports filed by importers with FE.

## Natural Gas Imports Into New England

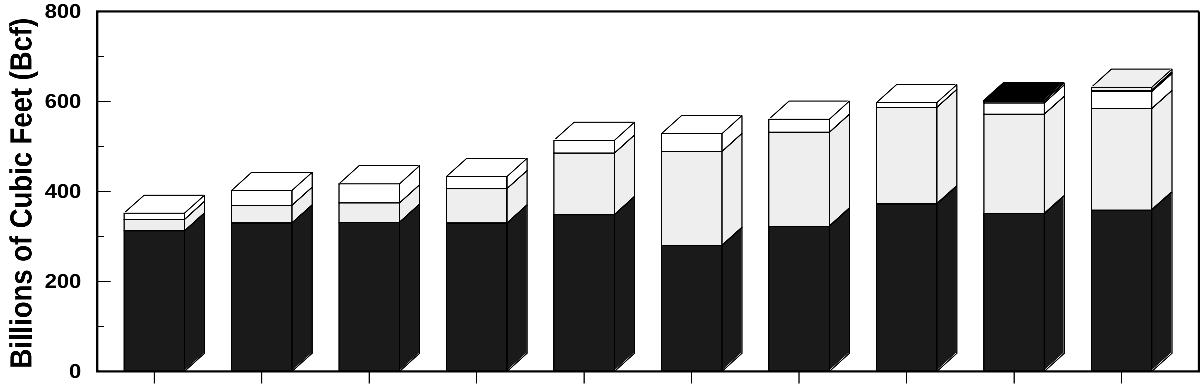
Historically, natural gas use in New England played a relatively minor role in meeting the region's energy supply needs due to the region's geographical location at the end of the domestic interstate natural gas transmission system. However, an improved and expanded gas pipeline infrastructure, particularly to allow Canadian gas to serve the area, has resulted in a dramatic increase in the use of gas in the region over the past decade. Over the past ten years (1988 - 1997), natural gas consumption in New England has grown by 279.8 Bcf, or nearly 80 percent (351.6 v. 631.4 Bcf). In comparison, natural gas consumption for the entire country grew by only 21.5 percent during the same time period. Despite the dramatic marketing inroads natural gas has made in New England over the past ten years, gas use in this region continues to lag behind that of the rest of the country. Therefore, this region will continue to be viewed by the natural gas industry as an area for expanded marketing opportunities in the foreseeable future.

During the past ten years, natural gas imports have played a critical role in supplying New England's growing gas market. From 1988 to 1997, natural gas imports marketed in New England have increased by 233.6 Bcf (39.3 v. 272.9), or almost six-fold. These imported gas supplies represented 83.5 percent of the incremental growth in gas consumption during this time period. **Figure 6** depicts the sources of natural gas marketed in new England from 1988 through 1997. The graph also highlights the increased reliance of the region on imported gas supplies during this time period. Natural gas imports as a percentage of total regional gas consumption grew from 11.2 percent to well over 40 percent in four of the last five years. This increase in 1997 was the tenth consecutive year of growth in natural gas usage in New England, totaling 631.4 Bcf (FE estimate, based on preliminary EIA data). In 1997, gas consumption for this region grew by 31 Bcf, or 5.2 percent over the 1996 level. This is an impressive rate of growth given the fact that natural gas consumption for the entire remained virtually the same as the 1996 consumption level.

***Figure 6***

## Sources of Natural Gas Marketed in New England

**(1988 - 1997)**




| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|---|---|
| Domestic Supplies | 312.3 | 329.9 | 331.4 | 329.6 | 348.2 | 279.8 | 322.6 | 372.2 | 350.5 | 358.5 |
| Canadian Supplies | 25.4 | 39.3 | 43.1 | 76.6 | 137.0 | 209.1 | 209.0 | 214.6 | 221.1 | 225.8 |
| Algerian Supplies | 13.9 | 33.0 | 42.5 | 27.1 | 28.5 | 39.6 | 29.1 | 10.5 | 25.0 | 37.6 |
| United Arab Emirates | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 2.4 |
| Australian | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 |
| TOTAL SUPPLIES | 351.6 | 402.2 | 417.0 | 433.3 | 513.7 | 528.5 | 560.7 | 597.3 | 601.0 | 631.5 |

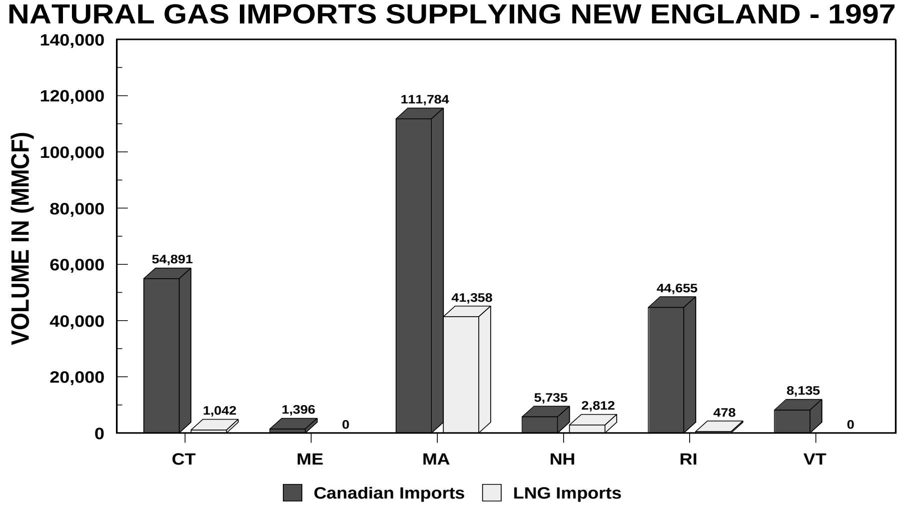
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Imports as a % of Total Consumption** | **11.2** | **18.0** | **20.5** | **23.9** | **32.2** | **47.1** | **42.5** | **37.7** | **41.7** | **43.2** |

**Sources: Natural gas consumption data from 1988 - 1996 came from EIA's *Natural Gas Annual* (DOE/EIA - 0131); 1997 consumption figure is an estimate from FE based on EIA data; Import data are derived from company filings made with FE.**

**Figure 7** shows the type and distribution of natural gas imports marketed during 1997 in the 6 states comprising New England. As shown, the bulk of the imports destined for sale in New England is sold in the state of Massachusetts. About 50 percent of the total Canadian gas import volumes and 88 percent of the liquefied natural gas (LNG) volumes imported from Algeria, Australia, and the United Arab Emirates that are marketed in New England are sold in this state.

***Figure 7***

**NATURAL GAS IMPORTS SUPPLYING NEW ENGLAND - 1997**




**Source: Quarterly filings by natural gas importers to FE.**
**These figures represent sales rather than imports; therefore, data differs slightly from import total.**

**Figure 8** lists the top ten importers of Canadian natural gas for the year. These ten firms imported a total of 1308 Bcf of natural gas, or over 45 percent of the total Canadian gas imported for the year. **Figure 8** also indicates whether the imports were made under short-term or long-term import authorizations. About 60 percent of the volumes imported by this group of importers was done under DOE's short-term import authority and 40 percent was under long-term import authority. Seven out of the top ten Canadian natural gas importers listed in 1997 were also among the top ten companies listed for 1996. This year's additions to the list were Duke Energy, Enron Capital & Trade Resources, and Northwest Natural Gas Company, replacing CanWest Gas Supply, Southern California Edison, and Washington Natural Gas Company from last year's roster. Among the top importers in 1997, there were only two end-users: a local gas distributor and a combined electric/gas utility; the rest of the importers were marketers, producer affiliates, or gas aggregators.

**Figure 9** lists the ten largest suppliers of Canadian natural gas to the United States in 1997. The volumes supplied by each company include both short-term and long-term sales. Seven out of ten of these suppliers were also on the list of top gas suppliers for 1996; however, two companies listed for the first time this year were the result of recent mergers and marketing alliances -- Engage Canada (Coastal Gas Marketing and Westcoast Gas) and Duke Energy (Duke Power Company and PanEnergy Corporation). Renaissance Energy, ninth on the list last year, was the eleventh largest importer for 1997. As shown, most of the top suppliers of Canadian natural gas to the United States in 1997 were gas aggregators. The top ten suppliers of Canadian natural gas listed in **Figure 9** supplied slightly over 64 percent of all Canadian gas imports during 1997 (1847.3 Bcf).

Figure 8

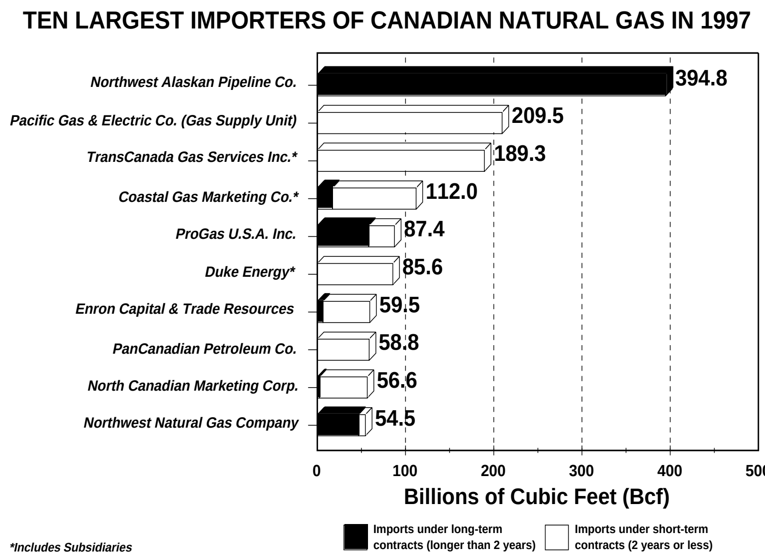
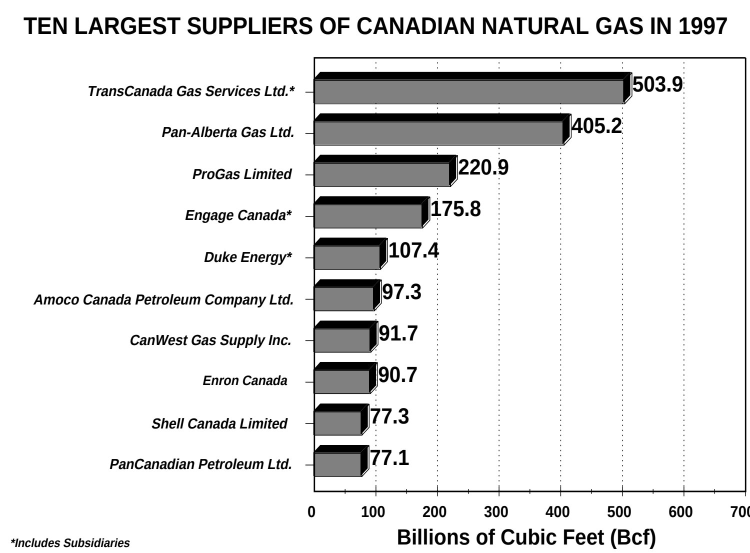
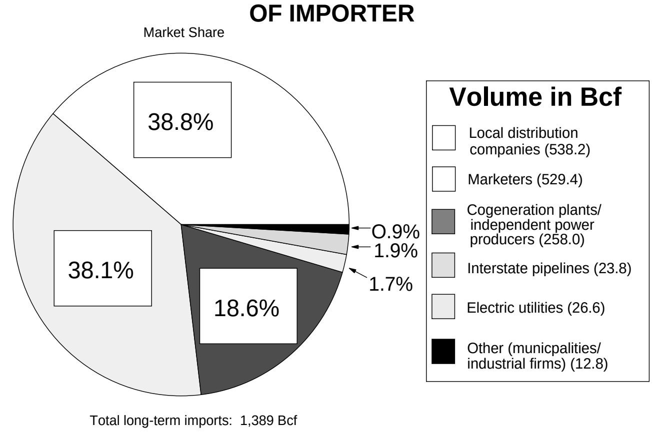



Figure 9



The next graph provides additional information pertaining to Canadian natural gas imports made in 1997 under long-term arrangements. **Figure 10** indicates what type of importer was purchasing Canadian natural gas under long-term supply contracts. The figure shows, by type of importer, the actual volumes imported and percentage of market share. As in 1996, local gas distribution companies (LDCs) and natural gas marketers continued to import the largest shares of Canadian natural gas under long-term contracts, 38.8 percent and 38.1 percent, respectively. For the most part, the volumes being imported today by LDCs and marketers have replaced those volumes imported by interstate pipelines in the past. Comparing the market share breakdown in 1997 with 1996, market shares in 1997 showed a moderate increase for marketers, and slight increases for the non-utility generation sector (NUGS) and municipalities/industrial customers. Volumes remained constant for interstate pipelines, but declined for LDCs and electric utilities. On a volumetric basis, imports by natural gas marketers in 1997 were 3 percent over the 1996 level, and imports by electric utilities fell by almost 50 percent from the previous year. This year's significant decrease in natural gas volumes imported by electric utilities can be attributed to fewer purchases of Canadian gas under Southern California Edison's (SoCalGas) long-term authorizations. All four SoCalGas contracts were terminated in May and July of this year in response to California's comprehensive restructuring of its electric marketplace. As of June 1998, SoCalGas completed the sale of all 12 of its gas-fired power plants, thereby decreasing the need for imported supplies.

Figure 10 **1997 CANADIAN NATURAL GAS IMPORTS UNDER LONG-TERM IMPORT AUTHORIZATIONS BY TYPE OF IMPORTER**




Notes:

Long-term Canadian gas imports totaled 1,389 Bcf in 1997. 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.

The next two graphs provide information on Canadian natural gas imported under DOE's short-term blanket authorizations during 1997. As mentioned earlier, Canadian natural gas imports under this type of import authority have exceeded the volume imported under long-term authority for the past three years. **Figure 11** on the next page identifies, by class of importer, the market share of those who imported Canadian natural gas in 1997 under short-term import authorizations. As displayed in **Figure 11**, there were three principal types of short-term importer: marketers, LDCs, and Canadian gas producers or their U.S. affiliates. These three types of importer brought in over 96 percent of the total short-term Canadian natural gas imports in 1997. Comparing the market share breakdown in 1997 with 1996, LDCs and electric utilities were the only two categories of short-term importer that experienced growth in market shares during the past year.

**Figure 12** shows for 1996 and 1997 the weighted average international border price for Canadian natural gas imported under short-term contracts by Census Region. As in 1996, almost 99 percent of all short-term Canadian natural gas sales to the United States in 1997 were concentrated in five Census Regions (2,3,4,8,9), with over 54 percent of the volumes marketed in Census Region 9 (Pacific Contiguous). As indicated, the average border price for **all** short-term imports in 1997 was $1.84 per MMBtu, compared with $1.63 per MMBtu in 1996, an increase of almost 13 percent.

Figure 11

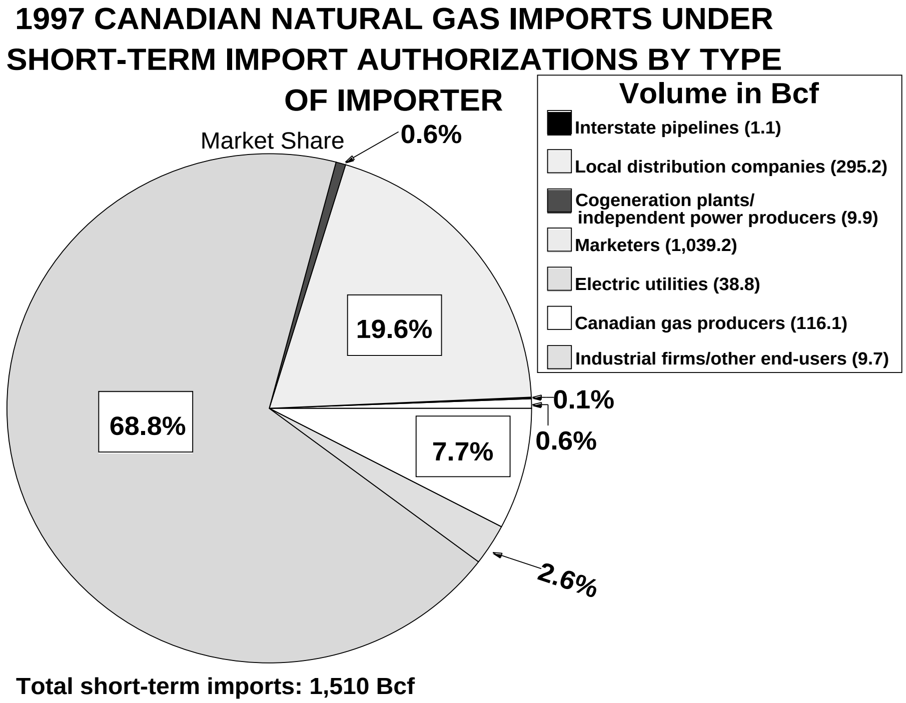
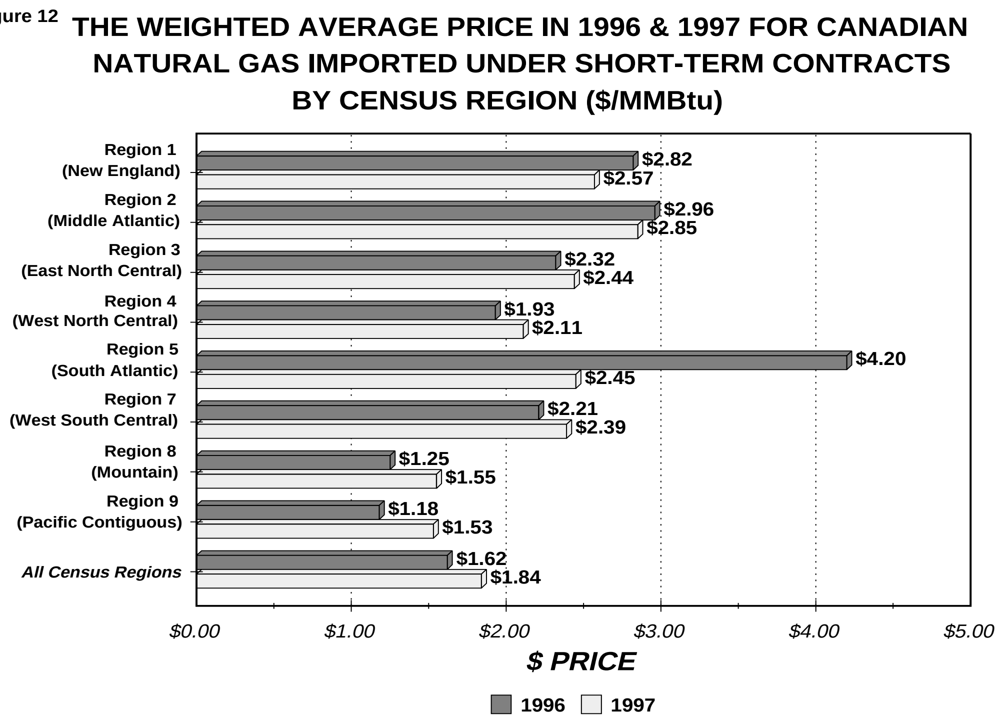



**Figure 12** also illustrates the price split among the various regions. As in 1996, there was a considerable price dichotomy this year between the natural gas prices in the Western states (Census Regions 8 & 9) and the rest of the country. However, the price split was narrowed somewhat in 1997 as a result of substantial price increases in the West and a small drop in prices in the East. Census Region 2 (Middle Atlantic) showed the highest average natural gas price Canadian supplies during 1997 at $2.85/MMBtu.

Figure 12



## Mexican Gas Trade

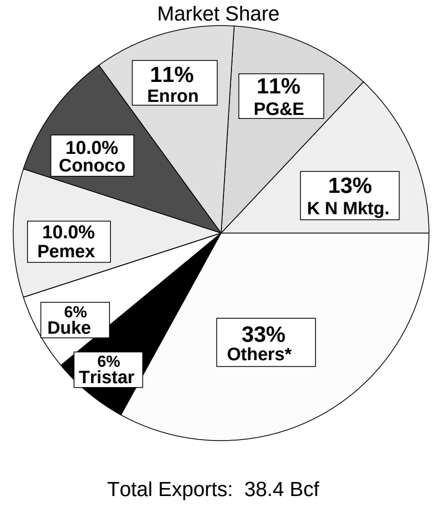
The last four graphs provide information on Mexican gas trade during 1997. **Figure 13** identifies the 25 firms that exported a total of 38.4 Bcf of natural gas to Mexico in 1997, and indicates the market share of the seven largest exporters. Although the number of companies exporting natural gas to Mexico in 1997 declined slightly from last year's record 29 firms, total volumes increased by 4.6 Bcf or 14 percent from the 1996 level. K N Marketing, L.P. was the year's largest exporter of natural gas to Mexico, replacing Amoco Energy Trading Corporation in the position it has held for the past nine years. Although there was a total of 25 exporters in 1997, K N Marketing and the other top six gas exporters represented about 67 percent of the Mexican import market.

**Figure 14** shows the 20 companies that imported a total of 17.2 Bcf of Mexican natural gas into the United States, up 24 percent from the 1996 level (13.9 Bcf). All of the gas in 1997 entered the United States at Hidalgo, Texas on the Texas Eastern Pipeline. The number of companies importing Mexican natural gas this year remained constant from the 1996 level. Mexican sources predict that exports to the United States will continue to grow; however, Mexico is expected to be a net importer of gas during the foreseeable future.

**Figures 15** and **16** provide monthly volume and price information with regard to natural gas exports to Mexico over the past three years (January 1995 - December 1997). The monthly weighted average price of natural gas exports to Mexico was the highest this decade in January 1997, when the price climbed to $4.03 per MMBtu. The 1997 annual weighted average price was $2.43, the highest since 1988.

**FIRMS THAT EXPORTED NATURAL GAS TO MEXICO IN 1997**

Figure 13

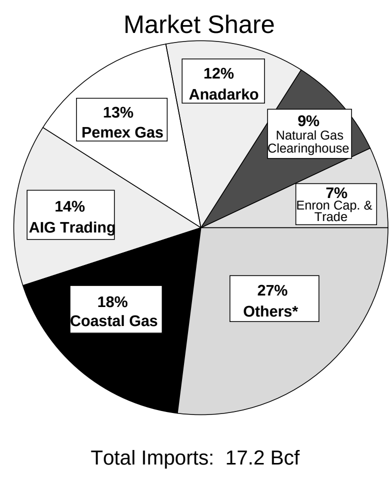



***Others****

Amoco Energy Trading Corporation
Anadarko Trading Company
Burlington Resources Trading Inc.
Coastal Gas Marketing Company
Coral Energy Resources, L.P.
Dist. De Gas Natural De Mexicali
El Paso Energy Marketing Company
Louis Dreyfus Energy Corporation
Natural Gas Clearinghouse
Noram Energy Services, Inc.
Onyx Gas Marketing Company, L.C.
Producers Energy marketing L.L.C.
Tejas Power Corporation
Union Pacific Fuels, Inc.
Valero Gas Marketing, L.P.
West Texas Gas, Inc.
Wickford Energy Marketing
Williams Energy Services Company

Figure 14

**FIRMS THAT IMPORTED NATURAL GAS FROM MEXICO IN 1997**




***Others****

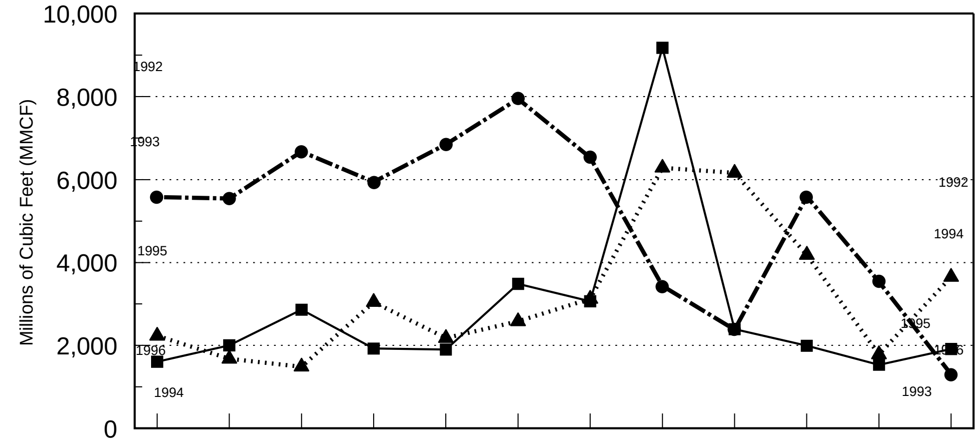
Amoco Energy Trading Corporation
Conoco Inc.
Coral Energy Resources, L.P.
Corpus Christi Gas Marketing, L.P.
Duke Energy Trading and Mktg. Svcs. L.L.C.
El Paso Energy Marketing Company
Koch Energy Trading, Inc.
Noram Energy Services, Inc.
Onyx Gas Marketing Company, L.C.
Producers Energy Marketing L.L.C.
Tejas Power Corporation
Union Pacific Fuels, Inc.
Valero Gas Marketing, L.P.
Wickford Energy Marketing

**Figure 15**

# NATURAL GAS EXPORTS TO MEXICO

## 1995 - 1997

## MONTHLY VOLUMES



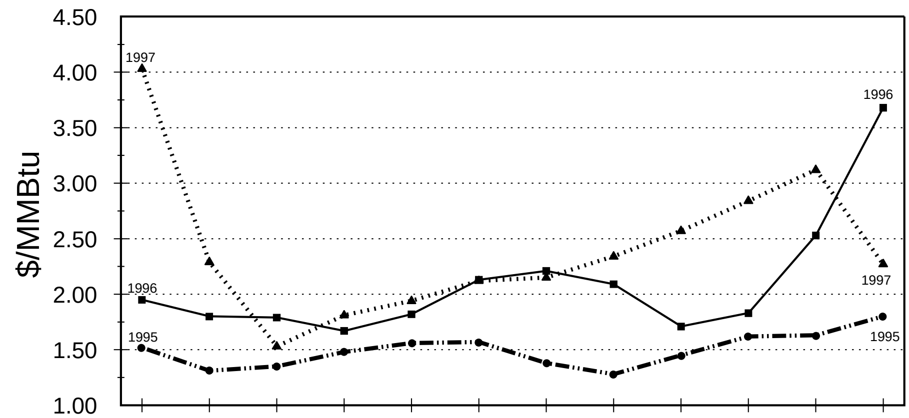

| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ***TOTAL*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | 5,576 | 5,542 | 6,670 | 5,941 | 6,848 | 7,945 | 6,526 | 3,431 | 2,378 | 5,588 | 3,535 | 1,303 | ***61,283*** |
| 1996 | | 1,607 | 2,000 | 2,860 | 1,924 | 1,899 | 3,486 | 3,062 | 9,176 | 2,389 | 1,990 | 1,533 | 1,914 | ***33,840*** |
| 1997 | | 2,231 | 1,677 | 1,486 | 3,044 | 2,177 | 2,579 | 3,122 | 6,282 | 6,159 | 4,182 | 1,782 | 3,650 | ***38,872*** |

**Figure 16**

# NATURAL GAS EXPORTS TO MEXICO

## 1995 - 1997

## WEIGHTED AVERAGE PRICE




| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ***AVG*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | ***1.48*** |
| 1996 | | 1.95 | 1.80 | 1.79 | 1.67 | 1.82 | 2.13 | 2.21 | 2.09 | 1.71 | 1.83 | 2.53 | 3.68 | ***2.09*** |
| 1997 | | 4.03 | 2.29 | 1.53 | 1.81 | 1.94 | 2.12 | 2.15 | 2.34 | 2.57 | 2.84 | 3.12 | 2.27 | ***2.43*** |