

QUARTERLY FOCUS: 1998 YEAR IN REVIEW

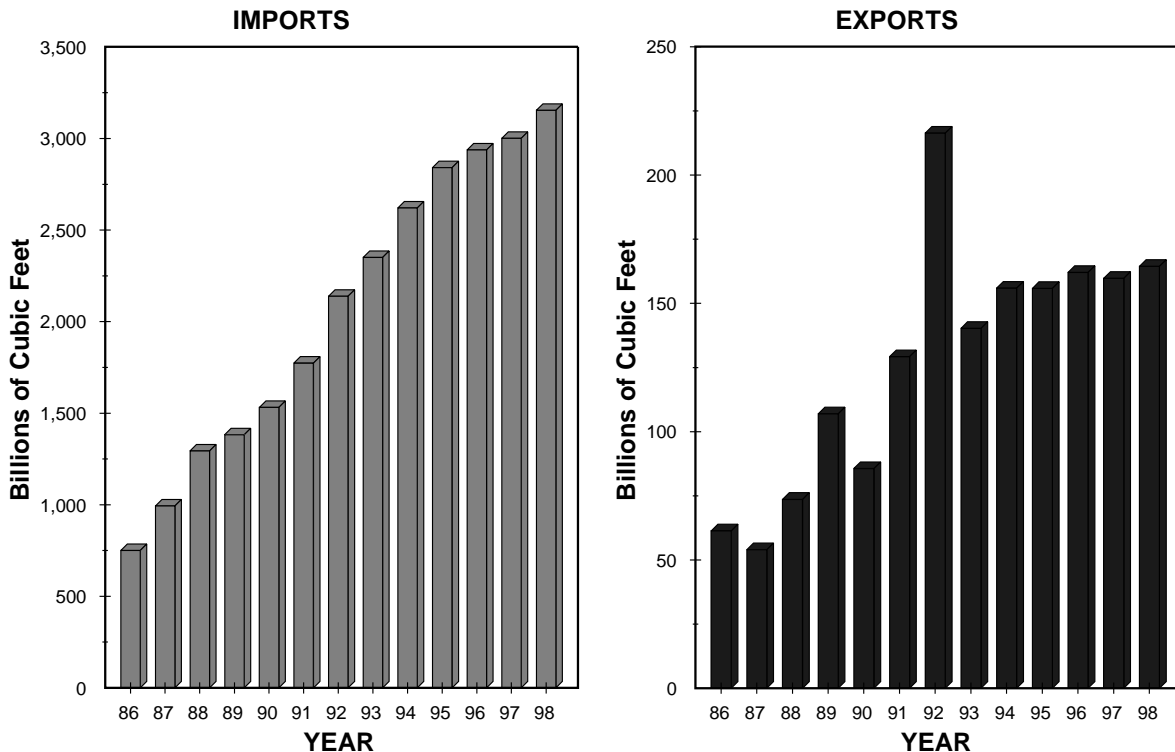
Table 1

--- YEAR AT A GLANCE ---		
<u>TOTAL IMPORTS*</u>		
<u>COUNTRY OF ORIGIN</u>	<u>BCF</u>	<u>WEIGHTED AVG. PRICE</u> <u>(\$/MMBtu)</u>
Canada	3052.5	\$1.91
Algeria	69.0	\$2.31 **
Mexico	14.5	\$2.01
Australia	11.6	\$2.84 **
United Arab Emirates	5.3	\$2.26
TOTAL	3152.9	
<u>TOTAL EXPORTS*</u>		
<u>COUNTRY OF DESTINATION</u>	<u>BCF</u>	<u>WEIGHTED AVG. PRICE</u> <u>(\$/MMBtu)</u>
Japan	66.0	\$2.87 ***
Canada	45.3	\$2.17
Mexico	53.1	\$2.02
TOTAL	164.4	
<p>* Data filed with DOE by importers/exporters.</p> <p>** Distrigas Corporation's average landed price for Algerian LNG was \$2.59 and \$3.25 for the volumes imported from Australia. Duke Energy LNG Sales, Inc.'s average tailgate price for Algerian LNG imported under long-term arrangements was \$1.96. The combined price of six additional spot cargoes received at the Lake Charles, Louisiana, facility was \$2.35. This includes one cargo imported by Enron Gas Liquids, Inc. in the fourth quarter.</p> <p>*** Delivered price.</p>		

- **Table 1** shows the volumes and prices of natural gas imports by country of origin, and natural gas exports by country of destination for 1998. The weighted average price for imports is the per unit price (MMBtu) at the point of entry into the United States. The price shown for exports is at the point of exit, with the exception of sales to Japan; the price of exports to Japan is shown as a delivered price.
- Natural gas imports, for the eleventh consecutive year, reached an historic high in 1998. The United States imported 3,152.9 Bcf and exported 164.4 Bcf of natural gas, resulting in **net** imports of 2,988.5 Bcf for the year. This represents an increase of 148 Bcf, or 5 percent over the 1997 level (2,840.5 Bcf).
- In 1998, natural gas exports increased by 4.7 Bcf, or 3 percent from the 1997 level (164.4 v. 159.7 Bcf). Exports to Mexico and Japan increased, while exports to Canada saw moderate decline.

Natural Gas Import and Export Activity 1986 - 1998

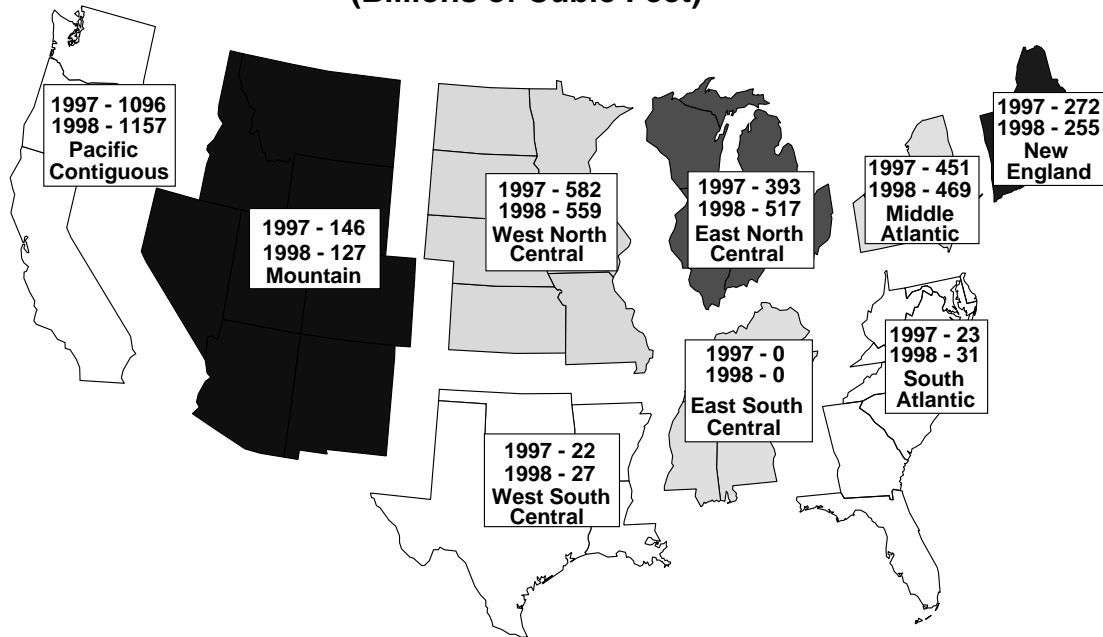
Figure 1



- **Figure 1** shows natural gas import and export activity over the past 13 years (1986-1998).
- From 1986 to 1998, imports have grown by 320 percent (750 Bcf v. 3,153 Bcf). Additionally, **net** imports as a percentage of total domestic gas demand have grown from 4.2 percent in 1986 to an estimated 14 percent in 1998. The growth in market share for gas imports in 1998 was the product of the five percent increase in net import volumes and the corresponding decline in U.S. gas demand of three percent. In 1997, **net** imports as a percentage of total gas demand was 12.9 percent, up from 12.6 percent in 1996.
- Total imports into the U.S. increased five percent this year (3,153 Bcf v. 3,000 Bcf in 1997). This represents the largest increase in imported natural gas since 1995. The largest gain in volumes came from a five percent growth in Canadian imports and a 10 percent increase in imported LNG. The rate of growth in 1998 from Canadian imports also was the highest since 1995. Imports this year from Mexico saw moderate decline (14.5 v. 17.2).
- Exports were at their highest level since 1992 totaling 164.4 Bcf. During 1998, about 40 percent (66 Bcf) of the gas exports were shipped to Japan, 28 percent of the volumes (45.3 Bcf) were exported to Canada, and 32 percent (53.1 Bcf) of the volumes were exported to Mexico. As shown in **Figure 1**, the largest volume of gas exports occurred in 1992; this historic high level of exports was the result of record export sales to both Canada and Mexico.

Estimated Sales of Imported Natural Gas By Census Division - 1997 and 1998 (Billions of Cubic Feet)

Figure 2

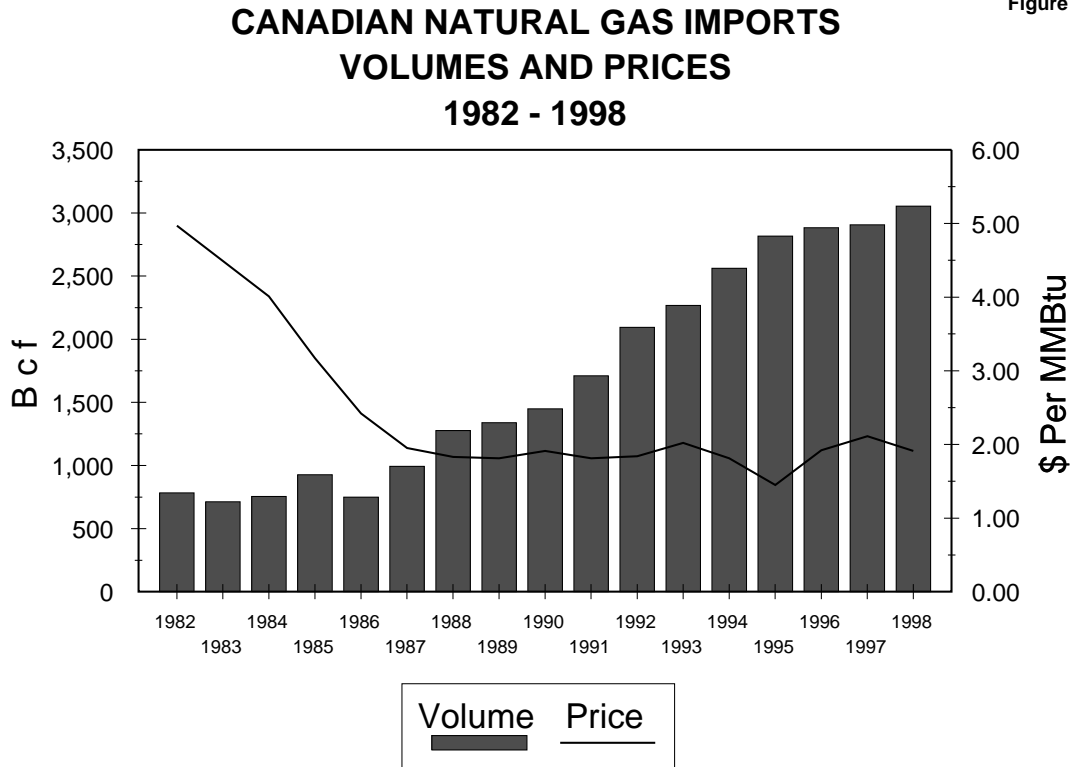


Note: Import sales do not equal imports due to fuel use, linepack, storage, imbalances and undetermined markets.

- During 1998, natural gas imports into the United States continued their historic growth. As illustrated in **Figure 2**, the two geographic areas showing the greatest growth in consumption of imported gas supplies in 1998 were Region 3 (East North Central) and Region 9 (Pacific Contiguous). On a percentage basis, the South Atlantic Region experienced the greatest growth in consumption of gas imports, nearly 35 percent. This growth is the result of increased imports of liquefied natural gas at Lake Charles, Louisiana.
- The marketing information filed by importers selling gas in Census Regions 3 (East North Central) and 4 (West North Central) are often commingled because end-use markets often are difficult for the importer to identify due to spot sales to other marketers at the end of the Northern Border Pipeline facility. However, in 1998 gas imports into these two Census Regions increased by 101 Bcf over the 1997 level. The marketing data filed by importers indicate that this growth occurred in the East North Central Region, primarily in the state of Michigan.
- As shown in **Figure 2**, the East North Central Region experienced an increase in gas import sales of 124 Bcf over the 1997 level; this parallels an 18 percent increase in volumes entering the U.S. at the Noyes, Minnesota entry point. In addition, volumes this year were up six percent (61 Bcf) in the Pacific Northwest, and small increases occurred in the Middle Atlantic Region (18 Bcf) and South Atlantic Region (8 Bcf). Import volumes fell moderately in New England, the West North Central Region, and the Mountain Region.

UNITED STATES - CANADA TRADE

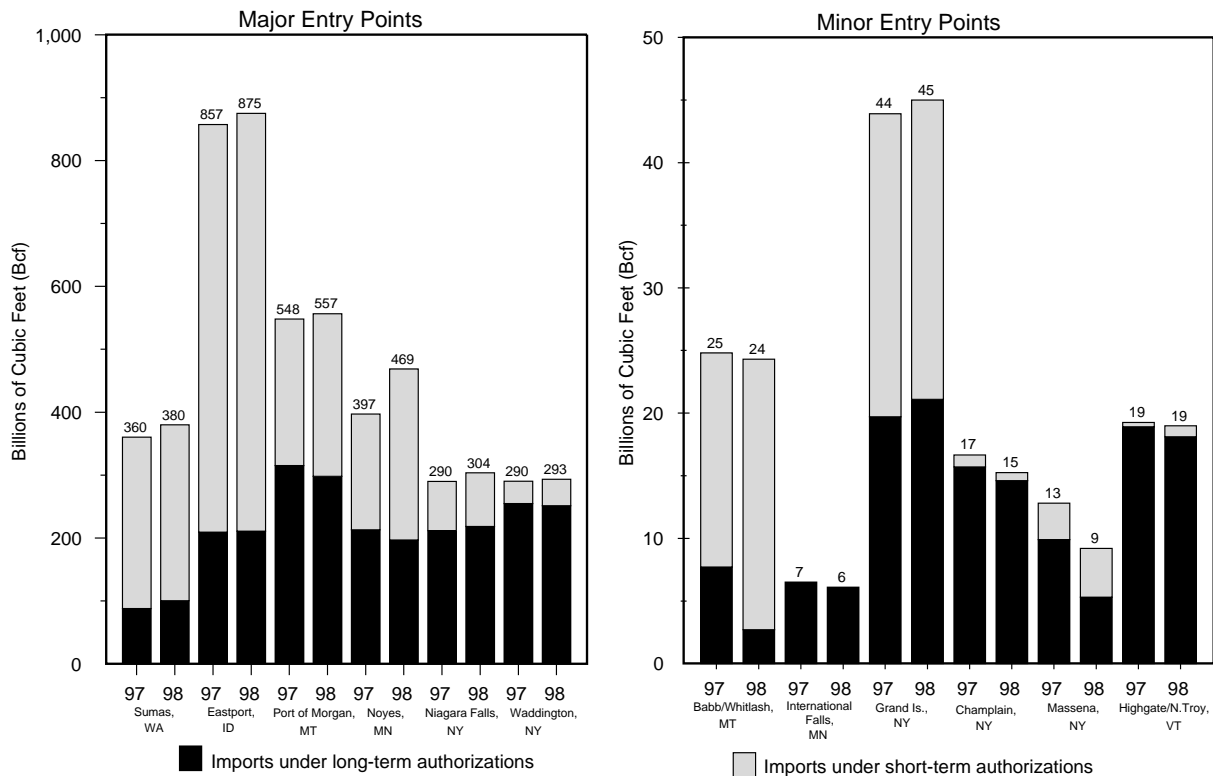
Figure 3



- **Figure 3** shows the volume and price trend for Canadian natural gas imports during the past 17 years.
- Canadian natural gas imports in 1998 grew by 147.3 Bcf and established a new record at 3,052.5 Bcf. The rate of growth from the 1997 level was 5 percent, representing the biggest gain in volumes since 1995 when Canadian imports grew by 8 percent. The average international border price for Canadian gas supplies in 1998 was \$1.91 per MMBtu. This price was 9 percent lower than last year's average price of \$2.11 per MMBtu.
- The reduced price for gas supplies has resulted in a decline in revenues for Canadian gas producers in 1998. In 1998, it is estimated that Canadian gas revenues reached \$5.8 billion; this compares with estimated 1997 revenues of \$6.1 billion.
- The average price of gas imported from Canada in 1998 was \$2.14 per MMBtu under long-term contracts (contracts longer than 2 years) and \$1.74 per MMBtu under short-term contracts (contracts of 2 years or less).
- During 1998, Canada's share of the natural gas import market in the United States was 96.8 percent. LNG imports from Algeria, Australia, and the United Arab Emirates comprised about 2.7 percent of the import market, and Mexico's share equaled about .5 percent.

**Canadian Natural Gas Imports By Point of Entry
1997 vs 1998**

Figure 4



Note: Graph does not include entry points for LNG and Mexican imports, as well as several minor Canadian entry points.

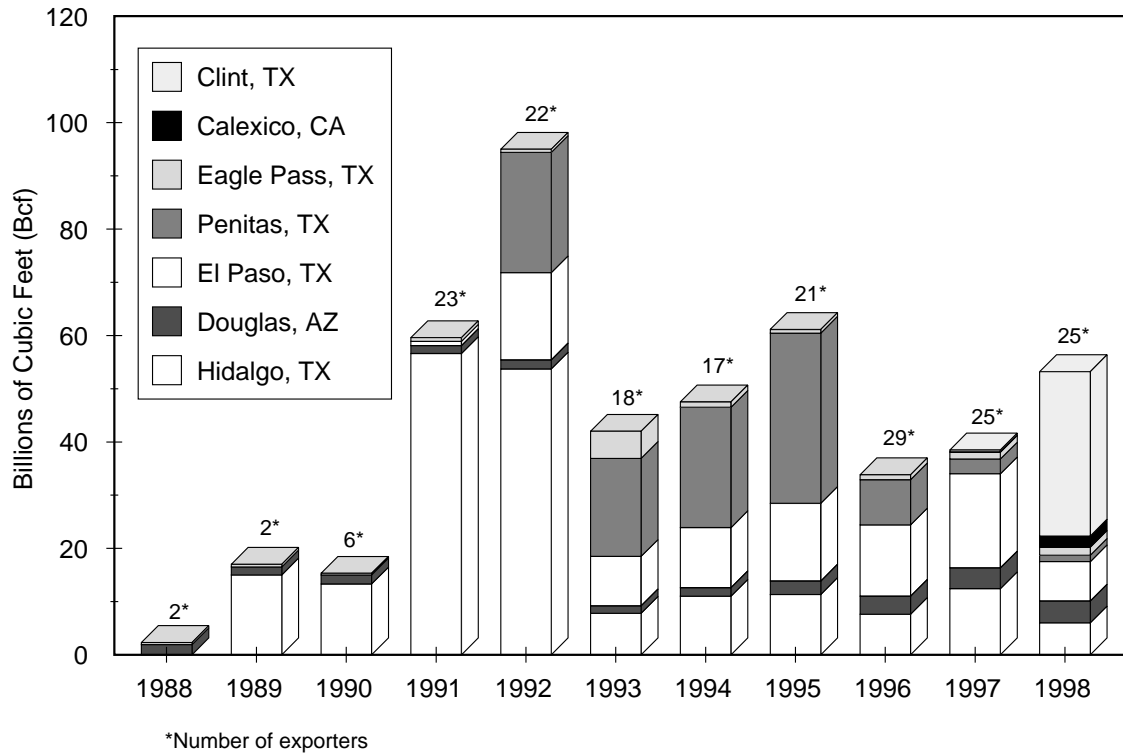
- **Figure 4** compares natural gas imports from Canada by point of entry for 1997 and 1998. The bar chart distinguishes between imports made under short-term and long-term import authorizations.
- **Figure 4** shows similar levels of imports at most major import points. During 1998, the international border point of Noyes, Minnesota, showed the most increase in activity; however, this year **all** major import points witnessed an increase in volumes. Import levels this year at most minor entry points remained stable except for a 44 percent drop in volumes at Massena, New York, and a 13 percent reduction at Champlain, New York. The huge drop in import volumes at Massena was directly the result of a long-term contract termination by a cogeneration facility in New York.
- The completion of two pipeline expansion projects in 1997 and 1998 at the Noyes, Minnesota, entry point have resulted in a substantial increase in imports at this location. In addition, some relatively minor expansion projects at Eastport, Idaho, Niagara Falls, and Waddington, New York, also have caused import volumes to increase at these entry points.

UNITED STATES - MEXICO TRADE

Natural Gas Exports To Mexico By Point of Exit

(1988 - 1998)

Figure 5

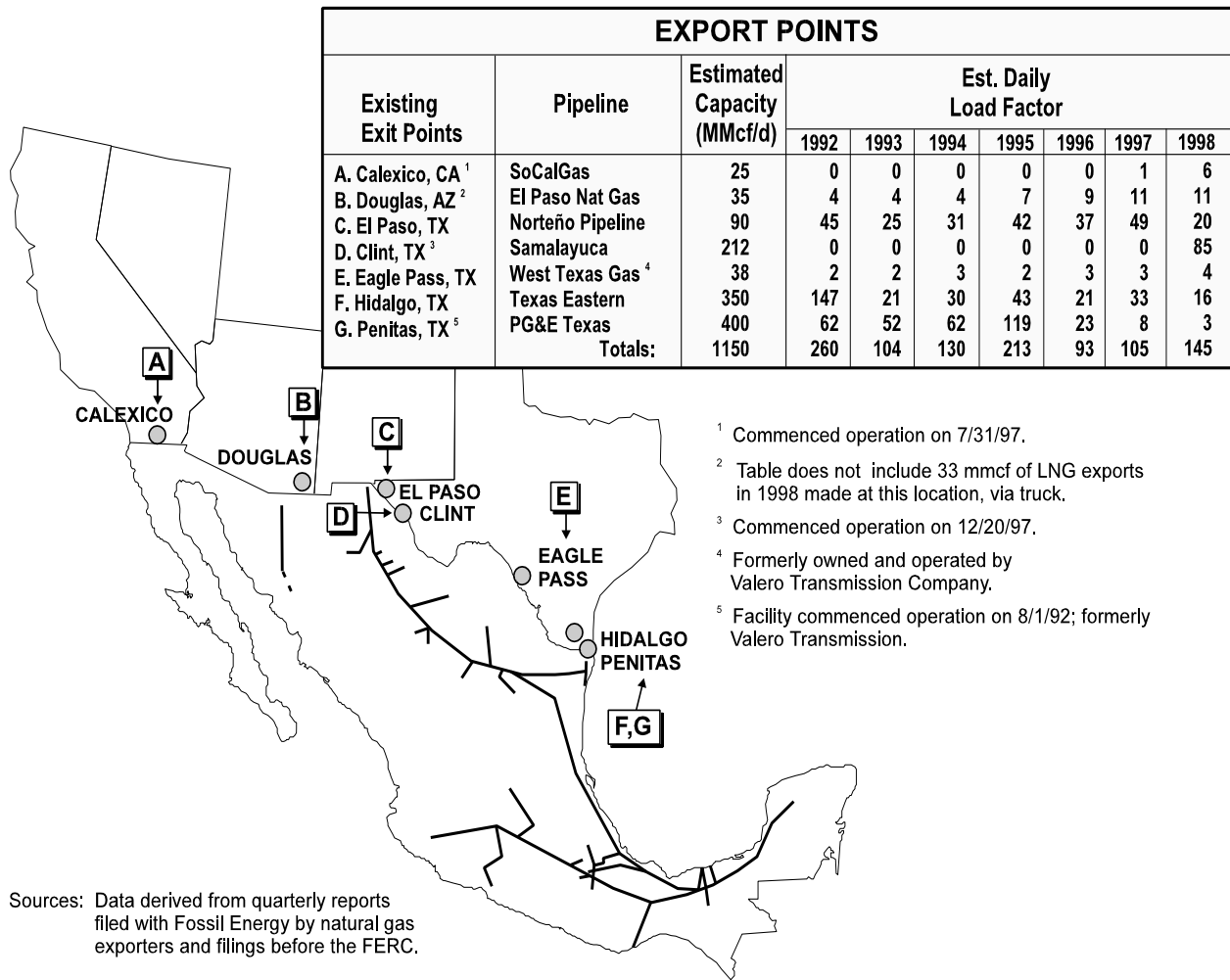


- During 1998, 25 companies exported 53.1 Bcf of natural gas to Mexico, the highest level since 1995. As shown in **Figure 5**, over half of the 1998 volumes were exported at Clint, Texas, on the Samalayuca pipeline, which commenced operation on December 20, 1997. During the fourth quarter, the volumes exported at Clint totaled an impressive 10.5 Bcf, and contributed toward making this location the year’s leading point of exit to Mexico. In addition, beginning in August 1998, 32.5 MMcf of LNG was exported, via truck, to Nogales, Sonora, Mexico. The event represents the first time in which LNG has been exported to Mexico.
- The weighted average price of 1998 exports to Mexico was \$2.02 per MMBtu. This price was 17 percent lower than last year's average price of \$2.43 per MMBtu, and dropped to its lowest level since 1995, when the price was \$1.48 per MMBtu.
- During 1998, there were two noteworthy developments with regard to cross-border gas trade:
 - **Samalayuca Pipeline:** During its first full year of operation, the Samalayuca Pipeline became the principal transporter of gas exports to Mexico, carrying more than 58 percent of all gas exports. The 45-mile, 24-inch diameter pipeline transports gas from El Paso Natural Gas Company’s Hueco Compressor Station, located east of El Paso, to the international border

near Clint, Texas, and then transports the gas to Mexican gas markets. Most of the gas exported at this exit point is used to fuel the gas-fired Samalayuca Power Plants I and II (23 miles south of Ciudad Juarez); although some of the volumes are sold to Pemex for distribution in the cities of Juarez and Chihuahua. This pipeline, with a design capacity of 212 MMcf/day, transported an average of almost 85 MMcf/day in 1998. The completion of the Samalayuca Power Plant II in September 1998 resulted in an increase in the gas flow on this pipeline. During the first 9 months of 1998, the average daily throughput was 74 MMcf/day, but it increased to almost 117 MMcf/day during the last 3 months of the year.

- **Exports of Liquefied Natural Gas:** In August 1998, Applied LNG Technologies (ALT) began exporting liquefied natural gas (LNG) to Mexico. The LNG supply came from a new liquefaction, storage and distribution facility owned and operated by ALT in Topock, Arizona. ALT states that its plant can produce 86,000 gallons of LNG per day and that it plans to market the LNG in southern California, southern Nevada and Sonora, Mexico. During the 4th quarter of 1998, ALT and another firm, Ener-son of U.S.A., exported 31.7 MMcf, using 39 trucks. The LNG exported to Sonora, Mexico, was sold to various industrial customers.
- During 1998 imports from Mexico declined 16 percent over the 1997 level (14.5 Bcf v. 17.2 Bcf). The average international border price for Mexican gas supplies was \$2.01 per MMBtu. This price was 12 percent lower than last year's average price of \$2.28 per MMBtu.
- During 1998 almost all of the natural gas imports occurred on the Texas Eastern Pipeline in Hidalgo County, Texas. However, a small volume also was shipped on the PG&E Texas Pipeline at Penitas, Texas.
- **Figure 6** is a map showing the identity and location of the seven existing natural gas pipelines enabling cross-border trade between the United States and Mexico. The Table included with Figure 6 estimates the daily design capacities in millions of cubic feet (MMcf) for all seven of the pipelines and provides their actual average daily throughput from 1992 through 1998. As shown, our Office currently estimates that the average aggregate throughput capacity of these seven pipelines totals 1150 MMcf per day, or 420 billion cubic feet (Bcf) per year.
- It seems likely that another cross-border pipeline will be built this year in Hidalgo County near McAllen, Texas, by the Tennessee Gas Pipeline Company (Tennessee). On October 20, 1998, Tennessee filed an application (CP99-28) with the Federal Energy Regulatory Commission (FERC) seeking approval to build and operate a 486-foot, 24-inch diameter pipeline which would be constructed at the end of its Donna lateral in Hidalgo County, cross the international border near McAllen, Texas, and connect to Pemex's existing facilities in Reynosa, Mexico. The proposed pipeline would have a design capacity to import or export up to 185,000 MMBtu per day. Tennessee indicated in its application that on September 30, 1998, it had entered into a 10-year transportation service agreement with Pemex for up to 185,000 MMBtu per day of firm capacity. On March 10, 1999, the FERC approved Tennessee's pipeline project.

Figure 6. Natural Gas Pipeline Interconnects on the United States and Mexican Border

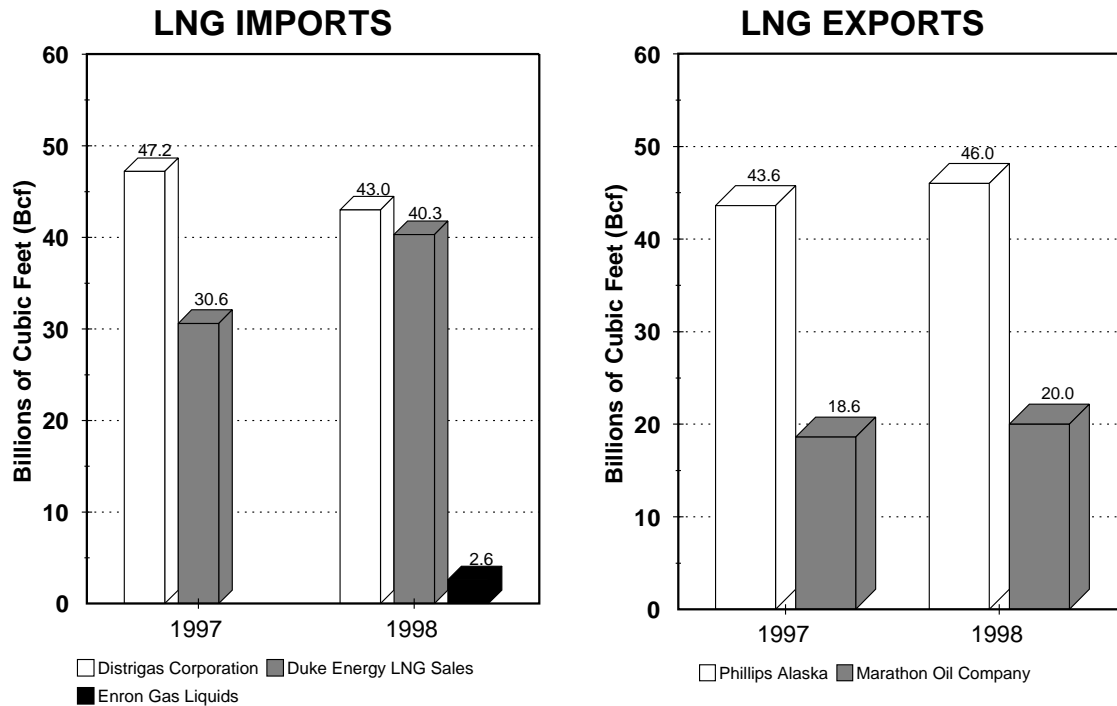


LNG TRADE

Figure 7

LNG TRADE

1997 vs 1998



- **Figure 7** compares imports and exports of liquefied natural gas (LNG) for 1997 and 1998.
- During 1998, Distrigas Corporation (Distrigas), Duke Energy LNG Gas Sales, Inc. (Duke Energy), and Enron Gas Liquids, Inc. (Enron), imported an aggregate 85.9 Bcf of LNG into the United States. These volumes represent the highest level of imported LNG since 1983, or 15 years ago. In 1983, the last year in which LNG was imported for baseload supplies, 131.1 Bcf of LNG was brought into the United States at an average price of \$6.41 per thousand cubic feet (Mcf) (*Natural Gas Monthly*, DOE/EIA-0130, May 1984). Almost 97 Bcf of this 1983 LNG supply was imported by Trunkline LNG Company (TLC), which began importing Algerian LNG at Lake Charles, Louisiana, in September 1992 and continued importing until mid-December 1992, when imports were unilaterally suspended by TLC because the supplies could not be marketed.
- As shown in **Figure 7**, total LNG imports in 1998 increased by 10.4 percent from the 1997 level (85.9 v. 77.8 Bcf). Imports by Distrigas into its Everett, Massachusetts, terminal declined by almost 9 percent (43.0 v. 47.2), but imports by Duke Energy into its Lake Charles, Louisiana, terminal increased by almost 32 percent (40.3 v. 30.6). Enron, importing LNG for the first time, made a spot market purchase of 2.6 Bcf of LNG from the United Arab Emirates (UAE) in December at Duke Energy’s Lake Charles terminal. This import represents the first

time in which a marketer unaffiliated to the owner of the LNG receiving terminal, has imported LNG into the United States.

- During 1998, a total of 34 cargoes of LNG were imported into the United States. Distrigas imported a total of 17 cargoes; it purchased 15 cargoes from Algeria under its long-term import authorizations and 2 spot cargoes from Australia. In 1998, Distrigas took two fewer cargoes than in 1997; it took the same number of shipments under its long-term import arrangement with Algeria, but took two fewer spot cargoes -- one less from Australia and none from the UAE. Duke Energy imported a total of 16 cargoes in 1998, up 5 cargoes from the previous year. This year Duke purchased 12 cargoes from Algeria (11 under its long-term authorization and 1 under its short-term authorization), 3 cargoes from Australia under its short-term authorization and 1 cargo from the United Arab Emirates under a short-term authorization. Additionally, in December, Enron purchased 1 cargo from the UAE its short-term import.
- The average landed price of LNG imported in 1998 by Distrigas under its long-term authorization was \$2.59 per MMBtu, a five percent decrease over the 1997 price of \$2.73 per MMBtu. With respect to Duke Energy's purchases of Algerian LNG under a long-term contract, the average tail-gate price in 1998 was \$1.96 per MMBtu, down four cents from last year's price of \$2.00 per MMBtu. The average prices paid by Distrigas, Duke Energy and Enron for spot purchases of LNG in 1998 were \$3.25, \$2.38, and \$2.08 per MMBtu, respectively.
- According to The Institute of Gas Technology's (IGT) February 1999 report entitled "An Overview of the Global Baseload LNG Industry," spot purchases of LNG for import into the U.S. have been made to meet shortages caused by cold weather and by delays in Algerian volumes imported under long-term arrangements. Although 1998 experienced a growing number of spot purchases of LNG (8 cargoes), it is difficult to predict whether this trend will continue. Distrigas is expected to begin importing approximately 83 Bcf per year of LNG from Trinidad in April 1999, making the need for spot purchases unlikely. Any short-term LNG imports into the Lake Charles, Louisiana facility will depend on prices and the availability of surplus LNG production and LNG tankers. The IGT report states that there are currently only 7 LNG tankers available worldwide for spot purchases and that very few, if any, new LNG tankers are expected to come on the market in the foreseeable future.
- In 1998, the development of new facilities for the import and export of LNG continued to advance. Provided is a review of two important efforts:
 - Trinidad and Tobago: The Atlantic LNG Company of Trinidad and Tobago (Atlantic LNG), was formed by consortium of companies comprised of Amoco Trinidad LNG (34%), British Gas LNG (26%), Repsol International Finance B.V. (20%), the National Gas Company of Trinidad and Tobago LNG Limited (10%), and Cabot Trinidad LNG Corporation (10%). Atlantic LNG is developing the natural gas resources off the east coast of Trinidad and building a liquefied natural gas (LNG) export facility in the Point Fortin area in the southwest of Trinidad. The liquefaction facilities and terminal have been under construction since the second quarter 1996, with completion scheduled for April 1999. The first LNG export is

scheduled for April 17, 1999. The LNG facility will have a design capacity of about 385 MMcf per day, or 135 billion cubic feet (Bcf) per year. Distrigas Corporation, a wholly-owned subsidiary of Cabot LNG corporation, will purchase 60 percent of the volumes (83 Bcf/year), with the remaining 40 percent (57 Bcf/year) going to ENAGAS, the largest importer and wholesaler of natural gas in Spain. In November 1995, the Office of Fossil Energy granted Distrigas authority to import up to 100 Bcf of LNG per year for 40 years from Trinidad and other countries (Order 1115, FE Docket No. 95-100-LNG).

- EcoElectrica: In April 1995, the Office of Fossil Energy issued an Order authorizing EcoElectrica, L.P. (EcoElectrica) to import up to 130 Bcf of LNG per year over a 40-year period. EcoElectrica is a limited partnership consisting of Enron Development Corp. and Edison Mission Energy, an affiliate of Edison International. The LNG supply is going to be used to fuel a 461-MW combined-cycle cogeneration plant being built on the south coast of Puerto Rico near the city of Ponce. EcoElectrica has entered a 22-year power sales agreement with the Puerto Rico Electric Power Authority. Significant progress has been made by EcoElectrica on its construction project, with the plant and related facilities scheduled for commercial start-up in the fall of 1999. Initially, LPG and distillate will be used to fuel the facility, but sometime between June and August 2000, imported LNG is expected to take over as the primary fuel to the plant. In July 1997, EcoElectrica signed a long-term gas purchase contract with Cabot LNG Corporation for acquiring 10 cargoes per year of LNG (approximately 29 Bcf) from Trinidad over a 20-year period.
- Changes also are occurring at the two existing U.S. LNG import facilities. Distrigas has completed the expansion of its Everett, Massachusetts facility's revaporization capacity which will provide an extra 150 MMcf per day in capacity (up from 300 to 450 MMcf per day). This project's completion comes just in time for its first deliveries of LNG imports from Trinidad which are due to begin in April. CMS Energy Corporation announced last November that it had agreed to acquire Panhandle Eastern Pipe Line Company and Trunkline Gas Company from Duke Energy. This agreement includes the Trunkline LNG Company terminal at Lake Charles, Louisiana. The acquisition was recently approved by the U.S. Federal Trade Commission and is expected to be final by the end of March.
- **Figure 7** shows the volume of LNG exported by Phillips Alaska Natural Gas Corporation (Phillips) and Marathon Oil Company (Marathon) from Kenai, Alaska, to Japan during 1997 and 1998.
- LNG exports to Japan increased 6 percent over the 1997 export level (66.0 v. 62.2 Bcf). The weighted average delivered price for these volumes in 1998 was \$2.87 per MMBtu, which represents a 25 percent drop from the 1997 price of \$3.81 per MMBtu. This year's price was the lowest since 1979, when the average annual sales price for LNG delivered to Japan was \$2.32 per thousand cubic feet (EIA/DOE-0130, *Natural Gas Monthly*, Table SR9, page xxxii). The sharp drop in the price is directly attributed to the overall decline in world oil prices, as the price of this LNG supply is based on the weighted average cost of all crude oil imported by Japan. In addition, LNG was exported to Mexico for the first time this year. Volumes totaling 32.5 MMcf were exported to Nogales, Sonora, Mexico, via truck, beginning in August 1998.

Note: Data used in this report are from company filings made with the Office of Fossil Energy (FE). All 1997/98 year-to-year comparisons utilize FE data. One should be mindful of the fact that FE data is collected on an equity (sales) basis, rather than on a custody (physical movements) basis, as employed by the Energy Information Administration (EIA) in its reports. As a consequence, the data may have some minor variances.