

EXPURGATED COPY

File No. CT-98/2

THE COMPETITION TRIBUNAL

IN THE MATTER OF THE *COMPETITION ACT*, R.S.C. 1985, c.C-34, as amended, and the *Competition Tribunal Rules* SOR/94-290, as amended (the "Rules");

AND IN THE MATTER OF an inquiry pursuant to subsection 10(1)(b) of the *Competition Act* relating to the proposed acquisition of ICG Propane Inc. by Superior Propane Inc.

AND IN THE MATTER OF an application by the Commissioner of Competition for orders pursuant to s. 92 and other provisions of the *Competition Act* consequential thereto.

BETWEEN:

THE COMMISSIONER OF COMPETITION

<b>COMPETITION TRIBUNAL</b> <b>TRIBUNAL DE LA CONCURRENCE</b>	
FILED	SEP 1 1999 <i>js</i>
REGISTRAR - REGISTRAIRE	
OTTAWA, ONT. #113a	
Applicant	

- and -

SUPERIOR PROPANE INC and ICG PROPANE INC.

Respondents

AFFIDAVIT OF GERRARD MATHIESON

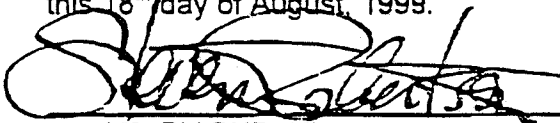
I, Gerrard Mathieson, of the City of Calgary, in the Province of Alberta, MAKE OATH AND SAY THAT:

- I am the founder and managing director of Marengo Energy Associates. Marengo was retained by the Commissioner of Competition to provide a report

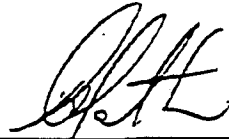
with respect to the upstream segment of the Canadian propane industry and to assess the potential implications arising from a merger between Superior Propane Inc. and ICG Propane Inc. at the wholesale/retail interface of that industry.

2. Attached hereto as Exhibit "A" is a true copy of the Report which I prepared, with some assistance from other members of my firm. The contents of Exhibit "A" and the findings and opinions expressed therein are true to the best of my knowledge, information and belief.
3. Attached hereto and marked as Exhibit "B" is a true copy of my curriculum vitae.
4. I make this Affidavit pursuant to Rule 47(1) of the Competition Tribunal Rules.

SWORN BEFORE ME at the City of  
Calgary, in the Province of Alberta,  
this 18<sup>th</sup> day of August, 1999.




A NOTARY PUBLIC



GERRARD MATHIESON

Steven T. Robertson  
Barrister and Solicitor

THIS IS EXHIBIT # A  
referred to in the Affidavit of  
Gerrard Mathieson  
Sworn before me this 18<sup>th</sup>  
day of August A.D. 1999  
  
A COMMISSIONER IN AND FOR THE  
PROVINCE OF ALBERTA

Steven T. Robertson  
Barrister and Solicitor

**CANADIAN UPSTREAM PROPANE  
BUSINESS ENVIRONMENT AND  
THE SPI/ICG MERGED COMPANY**

August 18, 1999

Prepared for:

Industry Canada  
Competition Bureau

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## Glossary

AFS	BP/Amoco Fort Saskatchewan
Bpd	Barrels per day
CFS	Chevron Fort Saskatchewan
CNR	Canadian National Railway
Co-Ed	The BP/Amoco Cochrane to Edmonton pipeline
CPR	Canadian Pacific Railway
C3+	Propane Plus, a mixture of propane, butane and pentanes plus.
C2+	Ethane plus, a mixture of ethane, propane, butane and pentanes plus.
DFS	Dow Fort Saskatchewan
Dixie Pipeline	A propane delivery system originating in Mont Belvieu, Texas and terminating at Lexington, NC
DOE	U.S. Department of Energy
EDS	Eastern Delivery System
EIA	U.S. Energy Information Agency
EPL	Enbridge Pipeline Ltd.
ICG	ICG Propane Inc.
LPG	Liquefied Petroleum Gas
Mbpd	Thousand barrels per day
NGL	Natural Gas Liquids
PAD District	Petroleum Administration for Defense District
PTC	Petroleum Transmission Company
RPP	Refined petroleum products
SPI	Superior Propane Inc.
TCM	TransCanada Midstream Ltd.
TEPPCO	Texas Eastern Pipeline Company
USGC	U.S. Gulf Coast
WCSB	Western Canadian Sedimentary Basin



## INTRODUCTION

On July 20, 1998 Superior Propane Inc. announced that it had entered into an agreement with Petro-Canada to acquire 100% of ICG Propane Inc. A review by the Competition Bureau has concluded that the merger will result in a substantial prevention or lessening of competition and is challenging the proposed acquisition before the Competition Tribunal. Marengo Energy Associates (Marengo) has been retained by the Commissioner of Competition to provide expertise related to the upstream segment of the Canadian propane industry. The provision of consulting services to the Commissioner of Competition includes the preparation and submission of this report. It examines the upstream sector of the propane industry in Canada as it presently functions, including regional production, transportation linkages to market hubs and primary distribution points, facilities ownership, market share and product pricing. From this base, the report examines the potential implications, at the wholesale/retail sector interface, arising from the operation of the merged company.

Chapter 1 provides an overview of the structure of the North American wholesale propane industry. Areas covered include supply and markets, transportation and related facility linkages, and a review of wholesale propane pricing. A major theme of the Chapter is that, at the wholesale level, North America is really one large interrelated and integrated propane market. While the Canadian industry and market have some unique characteristics based on commercial and geographic factors, in the same way that the various U.S. regions have unique situations, it still operates within the context of the overall North American marketplace.

Chapter 2 narrows the focus from the overall North American picture to a more detailed description of Western and Eastern Canadian wholesale sector propane related infrastructure. Included is a description of NGL production facilities, fractionation and related underground storage, pipeline connections, and primary distribution and storage. Each segment of the operating chain is defined in terms of capacities and ownership.

Chapter 3 reviews the supply/demand environment in Canada. Three levels of supply and demand are addressed; the Country as a whole, Western and Central/Eastern regions, and sub-regions at the end of the wholesale chain, as established by Superior's and ICG's storage facilities and supply considerations. A discussion of pricing at the wholesale levels is included. Integrating supply/demand and the infrastructure, the Chapter also looks at the wholesale sector in regards to physical and commercial constraints that may be present.

In Chapter 4 the report examines how the industry mode of operation could be influenced by the emergence of a single dominant merged company. Industry supply acquisition practices are examined and various contracting options for the merged company are considered. The analysis also examines, on a regional basis, the potential for the merged company to secure a supply acquisition cost advantage. The analysis also examines the barriers to entry for potential new participants and specifically how high the bar has been raised with the formation of the merged company.

## EXECUTIVE SUMMARY

- The merger of Superior and ICG will create a mega Canadian propane retailer with sales approaching 2.2 billion (approximately 37.0 Mbpd) in 1998 and accounting for 70 to 75 percent of domestic retail propane sales. The merged company, Superior Propane Inc., will increase its volume by over 80 percent. In addition to dominating the Canadian propane market on a national level, the merged company will have a dominant position in each of the Provinces, except for the Atlantic region.
- By doubling in size the merged company would gain increased market power in purchasing propane through strategic alliances and other contractual arrangements. The potential for the merged company to secure a supply cost advantage in most regions of Canada is increased. The ability of the merged company to enter into "keep dry" arrangements with refineries and certain gas plants at advantageous supply costs would be significantly enhanced. It would gain market power with respect to purchasing transportation and storage. It would also have enhanced control over the supply of propane to small retailers. The economies of scale that it would develop by merger could represent an effective barrier to the development of meaningful competition.
- The North American propane market is integrated, with the pricing relationship between propane and other hydrocarbons being established on the U.S. Gulf Coast primarily through its use as a petrochemical feedstock. Other propane markets are fundamentally niche markets where factors such as convenience play a major role and where demand fluctuates on a seasonal basis. This is clearly evidenced by the characteristics of the Canadian propane production and consumption chain, where the seasonality of Canadian demand for propane in combination with its geographical dispersion places a significant degree of importance on transportation and storage infrastructure.

- Propane supply to the North American market is regional and is linked to natural gas production and refinery operations. The WCSB is a major supply source for Canada, providing 85 percent, with the remainder coming from widely dispersed refineries. The two major supply hubs are Edmonton/Ft. Saskatchewan and Sarnia and are connected by pipeline. The Canadian market is approximately evenly divided between Western and Central/Eastern Canada, with Alberta and Ontario being the most important in terms of volume. Lacking a significant petrochemical component, the Canadian market displays a relatively high level of seasonality. It consumes less than 50 percent of Canadian production, with the remainder being exported to the U.S.

## CHAPTER 1

# NORTH AMERICAN WHOLESALE PROPANE MARKET OVERVIEW

The purpose of this Chapter is to provide an overview of the structure of the North American wholesale propane industry. Areas covered include supply and markets, transportation and related facility linkages, and a review of wholesale propane pricing. A major theme of the Chapter is that at the wholesale level North America is really one large interrelated and integrated propane market. While the Canadian market has some unique characteristics, in the same way that the various U.S. regions have unique aspects based on commercial and geographic factors it still operates within the context of the overall North American marketplace.

### **1.1 Regional Overview**

This section provides an overview of North American propane production, supply and demand. Gas plant and refinery sources are briefly reviewed and the role of offshore imports identified. Consumption is quantified on the basis of market segments. The section highlights the regional nature of supply, the development of market demand, regional "hubs" and the transportation linkages among these geographic areas.

#### **1.1.1 Major NGL Producing Regions**

In North America, propane and other NGLs are derived from two basic sources, extraction from raw natural gas and recovery from off-gases generated during the refining of crude oil. Both sources are important, with gas processing accounting for about 50% of U.S. propane production and about 85% of Canadian production. It should be noted that because propane production is a by-product of natural gas and refined petroleum product production, supply cannot be controlled as easily as if it were a primary product. Thus propane production cannot generally be increased or decreased

independent of increasing or decreasing natural gas and refined product production. This is a unique characteristic of propane production as compared to primary fuels such as electricity, natural gas and to some extent number 2 fuel oil, all of which are produced on purpose.

Figure 1.0 shows the location of the major natural gas producing basins in which NGL is recovered. Natural gas and associated NGL tend to be found and produced in the western regions of the continent, generally at some distance from major centers of population and consumption. Thus, there are significant logistical and transportation considerations in the structure of the upstream North American NGL industry.

In contrast, refineries in North America tend to be associated to a greater degree with centers of population and energy consumption. Figure 1.1 shows the location of key refineries and refinery "clusters" which produce appreciable quantities of propane.

A summary of propane volumes produced in the key gas producing regions and refinery clusters is shown in Table 1.0, which provides a general overview regarding locations and volumes of propane production. The data shows the Western Canadian Sedimentary Basin (WCSB) to be the largest propane producing basin in North America, followed by the Permian Basin (W. Texas/SE New Mexico) and the Mid-Continent (Oklahoma/Kansas/Parts of Colorado and Wyoming). The Texas and Louisiana Gulf Coast are also major gas and propane producing regions. Recent discoveries and drilling activity in the deep offshore Gulf of Mexico indicate that offshore Louisiana may show the largest increase in North American propane production over the medium term.

While there is refinery propane production throughout North America, by far the largest concentration is in the Texas and Louisiana Gulf Coast and lower Mississippi River area. Canadian refinery propane production is relatively small compared to the U.S.,







**TABLE 1.0**  
**North American Propane Production – 1997**

<b>Gas Plant Production (N.A.)</b>	<b>Mbpd</b>
Texas Gulf Coast	74
Louisiana Gulf Coast	81
Permian Basin	120
Rocky Mt. (Incl. San Juan Basin)	63
Mid-Continent	106
Other U.S.	85
Western CDN Sedimentary Basin	178
<b>Total North American Gas Plant</b>	<b>707</b>
<b>Refinery Production (U.S.)</b>	
PADD I (East Coast)	51
PADD II Mid West)	123
PADD III Gulf Coast)	334
PADD IV Mountain States)	9
PADD V (West Coast)	48
<b>Total U.S.</b>	<b>565</b>
<b>Refinery Production (Canada)</b>	
S. Ontario	8
Edmonton Area	7
Montreal-Quebec City	6
Other	7
<b>Total Canada</b>	<b>28</b>
<b>Total North American Refinery</b>	<b>593</b>
<b>Total North American Production</b>	<b>1300</b>

Source: Cancrude, DOE, NEB

due to much lower refinery capacity and somewhat lower propane recovery. The U.S. Northern Tier refinery propane production competes directly with Canadian imports in the Chicago, upper Midwest, East Coast and Puget Sound areas.

### **North American Propane Production**

Total North American propane production in 1997 is estimated at 1,300 Mbpd, an increase of about 270 Mbpd, or 3.4% per year, since 1990, resulting from higher North American natural gas production plus higher refinery crude runs and greater refinery LPG recovery. A major contributor to this increase has been sharply higher Canadian gas and associated propane production, the latter increasing by about 37% over the 1990-1997 period. In 1997 Canadian propane production of 207 Mbpd represented about 16% of North American production. Growth of North American natural gas and associated propane production may be lower in the medium term future, and Canadian production in particular is not likely to exhibit the high growth rates of the recent past.

#### **1.1.2 North American Propane Imports**

Propane imports into North America are another component of overall supply accounting, on average, for approximately 5% of total U.S. supply. Although offshore imports from time to time have been an important factor in North American propane supply, for the most part they have not had a major influence on North American propane balances, in Canada, where there are no receipt terminals capable of receiving offshore propane deliveries.

The average volume of offshore propane imported into the U.S. during the 1990's has been about 44 Mbpd. During that period volumes have varied significantly, from a low of 22 Mbpd in 1992 to a high estimated at about 80 Mbpd in 1998, but there has been no apparent trend. North American offshore imports tend to respond to international price differentials and periods of excess international supply, as opposed to being regular supply to specific markets. This was evident during 1998 when offshore imports surged,

as excess supplies of propane in the international market resulting from a significant decline in propane demand in the Far East moved to the U.S. The excess supply on the international market pushed international prices down to levels competitive with and at times below U.S. values. The majority of offshore imports are landed in Louisiana and Texas, primarily for petrochemical feedstock. Smaller volumes are also moved through terminals in New Hampshire, Rhode Island, and Virginia.

### 1.1.3 Regional Propane Markets

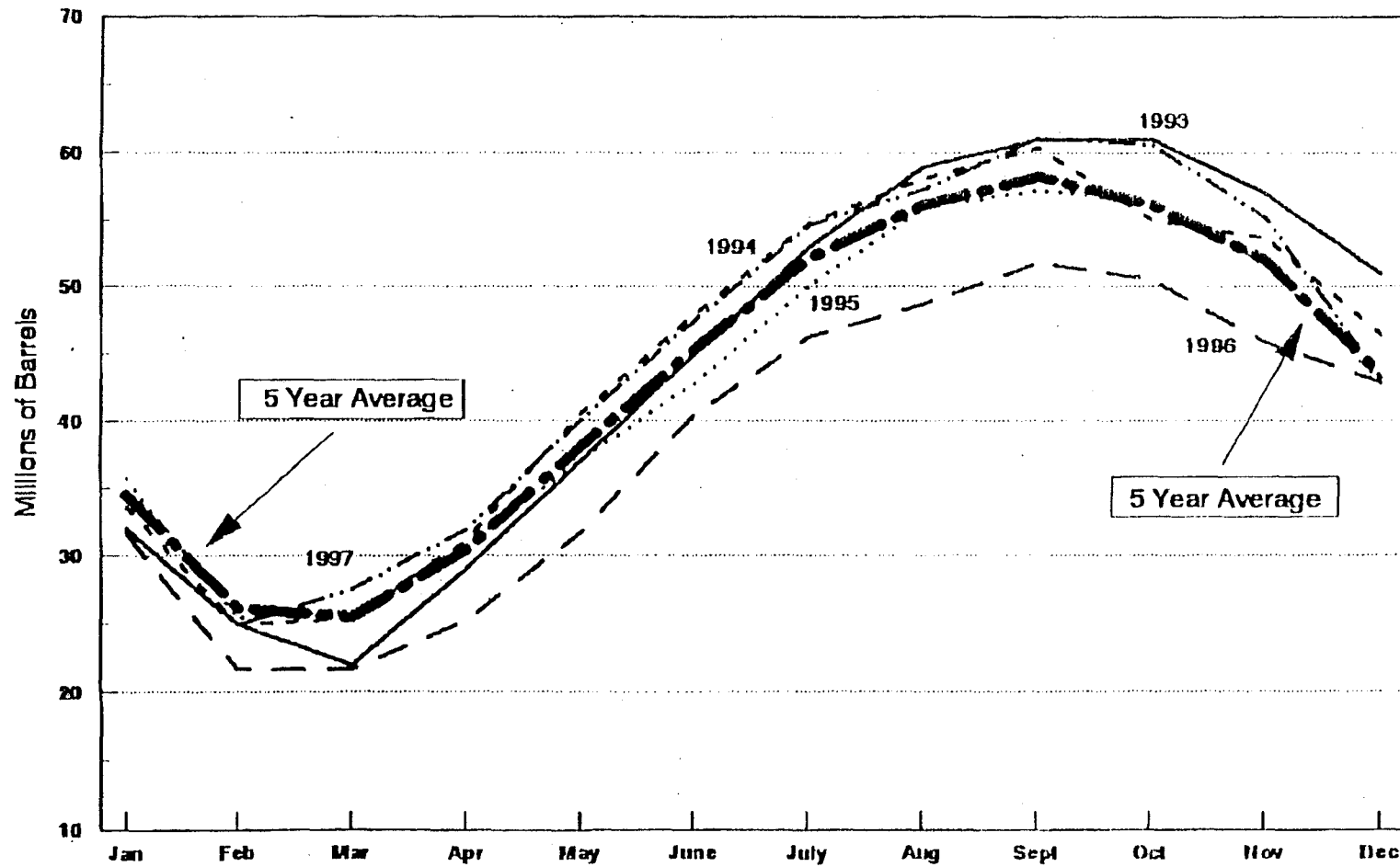
This section provides an overview of North American propane consumption. A geographic picture of consumption is provided by PAD District for the U.S. and by Western, Central, and Atlantic regions for Canada. Canadian markets are looked at in somewhat more detail, by providing information on end uses in conjunction with geographic data.

The discussion and data are based on yearly averages. While these averages illustrate the overall picture, it must be remembered that there is a substantial seasonal element associated with propane consumption, but much less with propane production. Thus during a year propane consumption volumes and prices show a cyclical trend. This is evidenced by the five-year average propane inventory level in the U.S. depicted in Figure 1.2. The average for the period is approximately 58 million barrels at the end of September and 24 million barrels at the end of March, Canadian inventory levels show a similar pattern.

#### United States

Table 1.1 below summarizes U.S. propane consumption during the 1990's by major geographical region (PAD District).

Figure 1.2  
U.S. Propane Inventory  
(Millions of Barrels)



Marenco Energy Associates

TABLE 1.1  
U.S. Propane Consumption by PAD District  
 (Mbpd)

	<u>1990</u>	<u>%</u>	<u>1997</u>	<u>%</u>
PADD I (East Coast)	158	17	194	17
PADD II (Midwest)	275	30	330	28
PADD III (Gulf Coast)	407	44	570	49
PADD IV (Mountain States)	38	4	27	2
PADD V (West Coast)	<u>40</u>	<u>5</u>	<u>49</u>	<u>4</u>
Total	917	100	1170	100

Source: U.S. Energy Information Agency

Consumption shows significant variation in the regions and is not proportional to population. The five Gulf Coast states (PAD III) account for nearly half of U.S. consumption, followed by the Midwest at nearly 30% and the East Coast at 17%. The Western part of the country uses relatively little propane. During the nineties overall consumption growth has averaged about 3.5% annually, requiring an additional approximately 250 Mbpd of supply over the period.

In addition to being the largest regional consumer, the Gulf Coast has shown the highest growth rate, at an annual average of about 5.5% per year, based primarily on the petrochemical (ethylene) feedstock market. The U.S. ethylene industry, centered on the Gulf Coast, has grown substantially during the 1990's, and propane has continued to be an important feedstock. Supporting this demand is the excellent supply position of the Gulf Coast that not only produces a substantial volume of propane but also receives large volumes from other regions. Excluding PADD III, U.S. consumption has grown by an average of about 2.3% per year, essentially all in traditional heating markets. Even though PADD II (Midwest) produces significant quantities of propane from both gas plants and refineries it must import product from other sources, primarily Canada and the Gulf Coast. PADD I is also short significant quantities and receives volumes from

the Gulf Coast and Canada. PADDs IV and V are directionally self sufficient, though volumes from Canada and the Gulf Coast provide seasonal supplements.

### Canada

Canada in total consumed about 82 Mbpd of propane in 1997 and about 80 Mbpd in 1998. Unlike the U.S., overall consumption does not appear to show a strong growth trend during the 90's, but appears to have stabilized at about 80 Mbpd since 1994. Total consumption in selected years by major end use category is summarized in Table 1.2.

**TABLE 1.2**  
**Canadian Propane Consumption**  
(Mbpd)

<u>Year</u>	<u>Residential/ Commercial*</u>	<u>Transport</u>	<u>Industrial</u>	<u>Petrochemical Feedstock</u>	<u>Total</u>
1990	28	17	16	10	71
1994	26	23	19	11	79
1997	39	20	17	6	82
1998	36	20	16	8	80

\*Includes Agricultural, Public administration and other institutional.

Source: StatsCan Quarterly Report Energy Supply and Demand in Canada

The sector that appears to have shown some real growth is the Residential/Commercial category. Road transportation, primarily auto propane, peaked in the mid 90's, and has since declined. Industrial use has been erratic but flat overall. The biggest difference between Canadian and U.S. consumption patterns is that Canada has a relatively small petrochemical consumption. While Canada has experienced strong growth in ethylene production, which will continue over the next few years, the preferred ethylene feedstock in Alberta, which by the end of 2000 will account for more than 75 percent of Canadian production, has been and will continue to be ethane. Petrochemical

development in Canada has thus not impacted the available propane supply to traditional end-use markets. Continuation of recent patterns would see some growth in the Residential/Commercial sector, perhaps offset by declines in Transportation, an erratic but flat industrial sector and an erratic and small petrochemical market.

Looking at domestic consumption on a geographical basis, Table 1.3 breaks down 1997 totals by region and end use. The western part of the country consumes the most propane, both on an absolute and a per capita basis, with Alberta consumption being the highest among the western provinces. The strong industrial use is based primarily on oil and gas drilling and related activity. Residential/Commercial is the dominant end use sector in all parts of the country. In the Central region Ontario consumption accounts for about 25 Mbpd, more than double Quebec's volume. Consumption in the Atlantic Provinces is quite small, though higher than in the Central region on a per capita basis.

**TABLE 1.3**  
**Canadian Propane Consumption by Region - 1997**  
(Mbpd)

	<b>Residential/ Commercial</b>	<b>Transport</b>	<b>Industrial</b>	<b>Petrochemical</b>	<b>Total</b>
Western (Manitoba West)	17.4	11.6	11.5	-	40.5
Central (Ontario and Quebec)	17.7	7.6	4.3	6.0	35.6
Atlantic (NS, NB, PEI, NFL)	4.3	0.3	1.6	-	6.2
Total	39.4	19.5	17.4	6.0	82.3

Source: StatsCan Quarterly Report Energy Supply and Demand in Canada

## 1.2 North American Propane Transportation Linkages

Three factors have had a major impact on the development of the physical structure, facilities, and linkages of the wholesale propane industry in North America.

- Production, particularly gas plant based production, is frequently located substantial distances from major consuming areas.
- Propane sourced from gas production is extracted as part of a C2+ or C3+ mix and must be fractionated from the mix before it can be consumed. There are significant economies of scale associated with both the transportation and fractionation links of the propane production chain. As well, it is frequently more economic to transport a mix than separate specification products.
- The majority of propane uses are seasonal, in contrast to the much more consistent gas plant and refinery production, leading to the need for large low cost storage.

These factors have led to a physical structure characterized by pipeline movement of raw NGLs to large market hubs containing fractionation facilities, large underground storage, and related terminal facilities. The raw NGL mix is processed into specification products, stored, then moved by pipeline, rail, and truck to smaller regional terminals to supply markets and consumers. Figure 1.3 shows the major raw NGL and specification product pipelines in and out of the major North American NGL hubs. Historically hubs have developed at particular locations for a number of reasons, but a necessary condition is the availability of underground salt deposits capable of being developed into large underground storage caverns. Although this capsule description of the industry represents a reasonable generalization, there are many exceptions, for example, gas plants with fractionators serving local or regional markets and refinery propane serving local markets.



### 1.2.1 Intra U.S. Propane Disposition

Raw NGL is stored and fractionated into specification products at the Gulf Coast and Conway hubs. Although significant quantities of propane are consumed as petrochemical feedstock on the Gulf Coast, because of the large movement of raw NGL to the Gulf Coast hubs, in addition to regional gas plant and refinery production, supply at Mont Belvieu and other Gulf Coast facilities exceeds regional demand. Significant volumes of propane are moved out of the Gulf Coast via major product pipelines, including the TEPPCO and Dixie pipeline systems, to consuming regions in the upper Midwest, Northeast, and Southeast parts of the country.

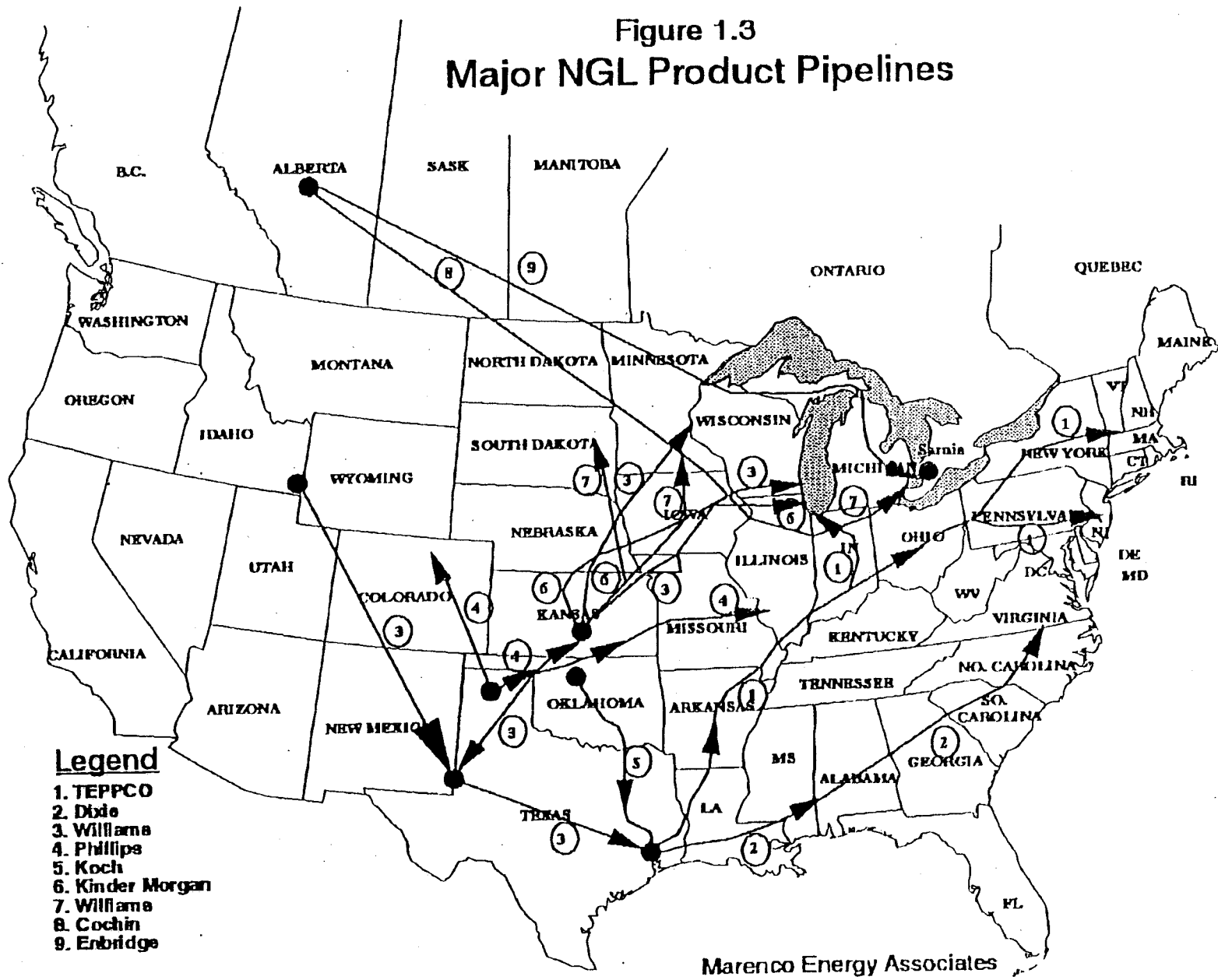
Specification propane fractionated at the Conway (Mid-Continent) area hub is generally accumulated in cavern storage through the spring and summer for distribution during the winter heating season, when it is moved via product pipelines to market terminals in the western and central parts of the Midwest. At times volumes may be transported to the Gulf Coast for petrochemical consumption. Prominent distribution pipelines include the Williams system, (formerly Mid-America Pipeline), Kinder-Morgan lines, Kaneb pipeline, Phillips and Cherokee.

Except for the Gulf Coast area, refinery propane distribution tends to be more local and regional and based more on rail and truck movement.

### 1.2.2 Intra Canadian Propane Disposition

The Canadian NGL industry exhibits a similar pattern to the U.S. though it has its own specific characteristics. Raw NGL pipelines, including the Federated, Peace, Co-ed, and other systems, move C2+ and C3+ mix from producing areas in Alberta and Northeast B.C. to the Edmonton/Ft. Saskatchewan NGL hub. After terminalling and storage some C3+ mix along with the major portion of the Empress straddle plant complex C3+ mix production is further transported via the Enbridge (formerly Interprovincial Pipelines) pipeline system east to the Sarnia/Marysville hub. At the hub

Figure 1.3  
Major NGL Product Pipelines



- Legend**
1. TEPCO
  2. Dlx
  3. Williams
  4. Phillips
  5. Koch
  6. Kinder Morgan
  7. Williams
  8. Cochin
  9. Enbridge

Marenco Energy Associates

Source ?

in the Sarnia area raw C3+ mix is fractionated to specification product for marketing. Because the propane markets in Central and Eastern Canada and the Midwestern and Eastern U.S. served from Sarnia are primarily heating markets, substantial product accumulation into storage is necessary on a seasonal basis.

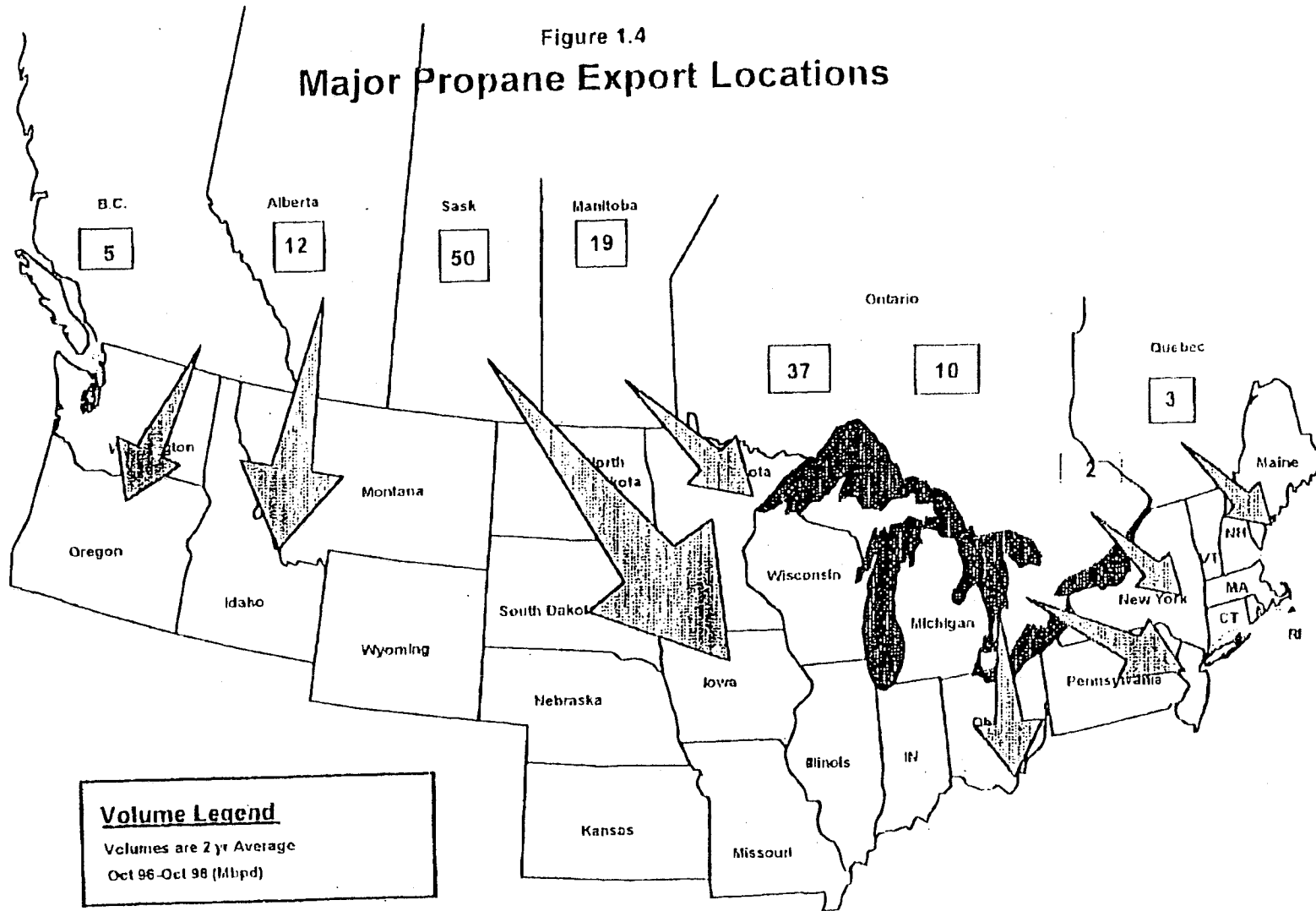
Saskatchewan and Manitoba markets are served largely by the Petro-Canada Petroleum Transmission Company (PTC) pipeline moving specification product from Petro Canada's extraction and fractionation facilities at Empress to terminals across Saskatchewan and Manitoba terminating at Fort Whyte, just outside of Winnipeg.

Substantial quantities of C3+ mix are also fractionated for the production of propane and other specification products at the Ft. Saskatchewan hub, as well as at some gas plants in Alberta. This propane is either exported to the Midwestern U.S. via the Cochin pipeline system, utilized for regional heating markets in Western Canada, or exported to markets in the Pacific Northwest. Fractionation and underground storage facilities at the Edmonton area hub are important in serving these markets.

### 1.2.3 U.S./Canadian Market Interface

There are a number of points along the U.S./Canadian border where propane is moved into the U.S., although the large majority of the export volumes enter the U.S. from Saskatchewan and Ontario. Currently about 63% of Canadian propane production is exported to the U.S. There are no offshore exports, as Canada currently does not have a propane or butane terminal capable of loading ships. Figure 1.4 is a schematic showing propane exports by province and destination, including, average propane export volumes for 1997 and 1998.

Figure 1.4  
Major Propane Export Locations



**Volume Legend**  
 Volumes are 2 yr Average  
 Oct 96-Oct 98 (Mbpd)

Source: National Energy Board  
 & US Commerce Dept.

Marengo Energy Associates

- Saskatchewan export volumes are delivered through the Cochin Pipeline and are destined for terminals along the line in the U.S. Upper Midwest agricultural, residential/commercial and industrial markets. Competition is generally with Conway volumes moving north as well as refinery supply in some locations. At times Cochin volumes may be moved to the Conway area for storage and subsequent marketing. The source of the Cochin volumes is largely specification propane produced at the Ft. Saskatchewan area fractionation and storage hub.
- Ontario exports are primarily sourced from the BP/Amoco and the Consumers Power fractionators and storage facilities in the Sarnia/Marysville area processing C3+ from Alberta delivered in the Enbridge pipeline. Propane enters the U.S. at Sarnia/Windsor, Buffalo and Ogdensburg. Markets are generally in the eastern part of the U.S. Midwest and in the mid-Atlantic states. Volumes to these markets must compete with propane moved north from the Gulf Coast via the TEPPCO Pipeline system and with product from regional refineries. Export propane is moved by rail and truck, and some is also moved through the BP/Amoco EDS and Sun pipelines into Ohio.
- Manitoba propane exports are sourced from the Petro-Canada facilities at Empress, Alberta and delivered via that company's PTC products pipeline to Winnipeg. The volumes move into the upper Midwest markets and compete with Cochin, Conway, and refinery volumes.
- Propane exported from Alberta and B.C. comes primarily from gas plants with on-site fractionators, as well as the Ft. Saskatchewan area hub. Competition is with refinery propane, particularly in the Pacific Northwest.
- Quebec propane exports are small and serve limited local New England and U.S. northeast markets. Unlike most of the other Canadian exports, they are not a significant supply factor in this local U.S. market.

### 1.3 North American Wholesale Propane Prices

As with any hydrocarbon, propane price determinants are very complex. In addition to propane supply/ demand considerations, two other general factors that play an important role in pricing at the wholesale level are propane's place in the spectrum of competing fuels and the logistical and geographical considerations affecting propane prices at specific locations. This section discusses these factors.

#### 1.3.1 Energy Product Pricing Relationships

Approximately 75% of propane consumption in North America is in the heating market, with the balance consumed in the ethylene feedstock market centered on the USGC. At the wholesale level propane is a relatively mature product and as such has reached a general equilibrium with regard to the fuel and petrochemical markets in which it competes. Propane plays only a niche role in the overall energy and feedstock spectrum and as a result reacts to changes in the price of primary fuels, crude oil and natural gas and their derivatives.

At the wholesale level propane prices generally follow crude oil prices rather than natural gas prices. While propane does not compete directly with crude oil, it does compete with crude oil based products such as naphtha, as well as other light hydrocarbon products in the USGC ethylene feedstock market. The relationship between propane and crude oil has shown a general trend, with the price of propane increasing relative to the price of crude oil over the nineties, as illustrated in Table 1.4. Thus propane has become relatively more valuable as compared to crude oil on the Gulf Coast and by extension in North America in general.

TABLE 1.4

Volumetric Price Ratios: Mont Belvieu Propane/WTI Crude

<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
0.60	0.66	0.66	0.72	0.72	0.73	0.81	0.76	0.76

Source: BPN Newsletter, U.S. Department of Energy

### 1.3.2 North American Geographical Price Relationships

While overall energy pricing is an important determinant of upstream propane prices within fairly broad limits, propane-to-propane competition among buyers at the wholesale level and logistics are key to determining propane price levels at any particular point in time. Other factors affecting wholesale propane prices may include:

- Regional supply/demand,
- Inventory levels in specific markets,
- Transportation costs and constraints, and
- Degree of competition at major market hubs.

In addition, seasonality is always a factor in propane pricing. These factors are continually changing and thus the price levels and relationships between the major pricing hubs are in a continual state of flux. A picture of 1997 wholesale prices at the four major price setting hubs, Mont Belvieu, Conway, Sarnia, and Edmonton is shown in Figure 1.5. Figure 1.6 shows that while Sarnia has had the highest price over the period, followed by Conway and Mont Belvieu, pricing for these three hubs has been fairly close, within about 2 cents U.S. per gallon over the period, while Edmonton pricing has been significantly lower. During this period there has been a fair amount of variability in the price of propane at the Hubs. However, the propane price relationship between the various Hubs has been somewhat consistent over time.

Figure 1.5  
**Propane Prices by Major Hub 1997**  
(US Cents/US Gallon)

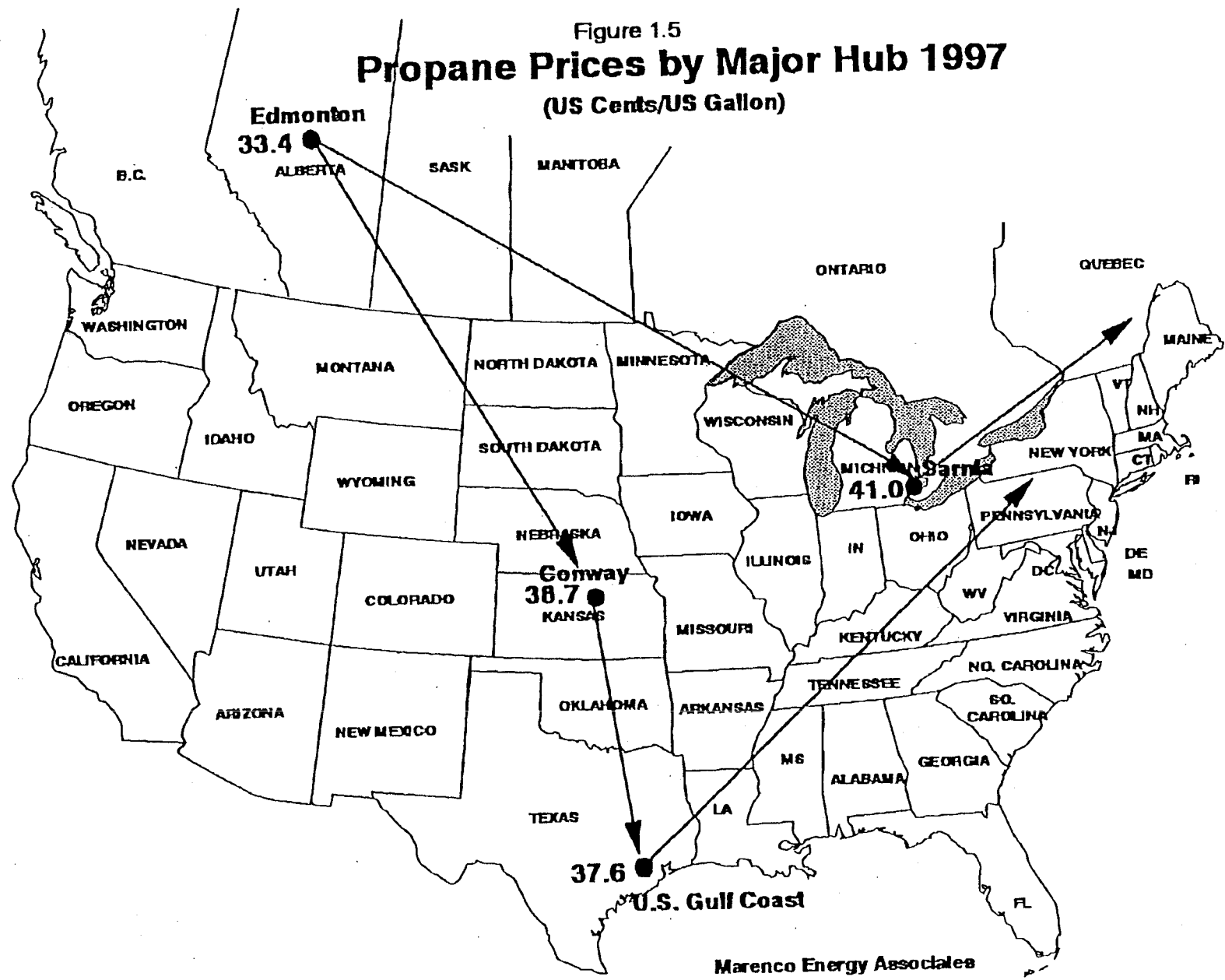
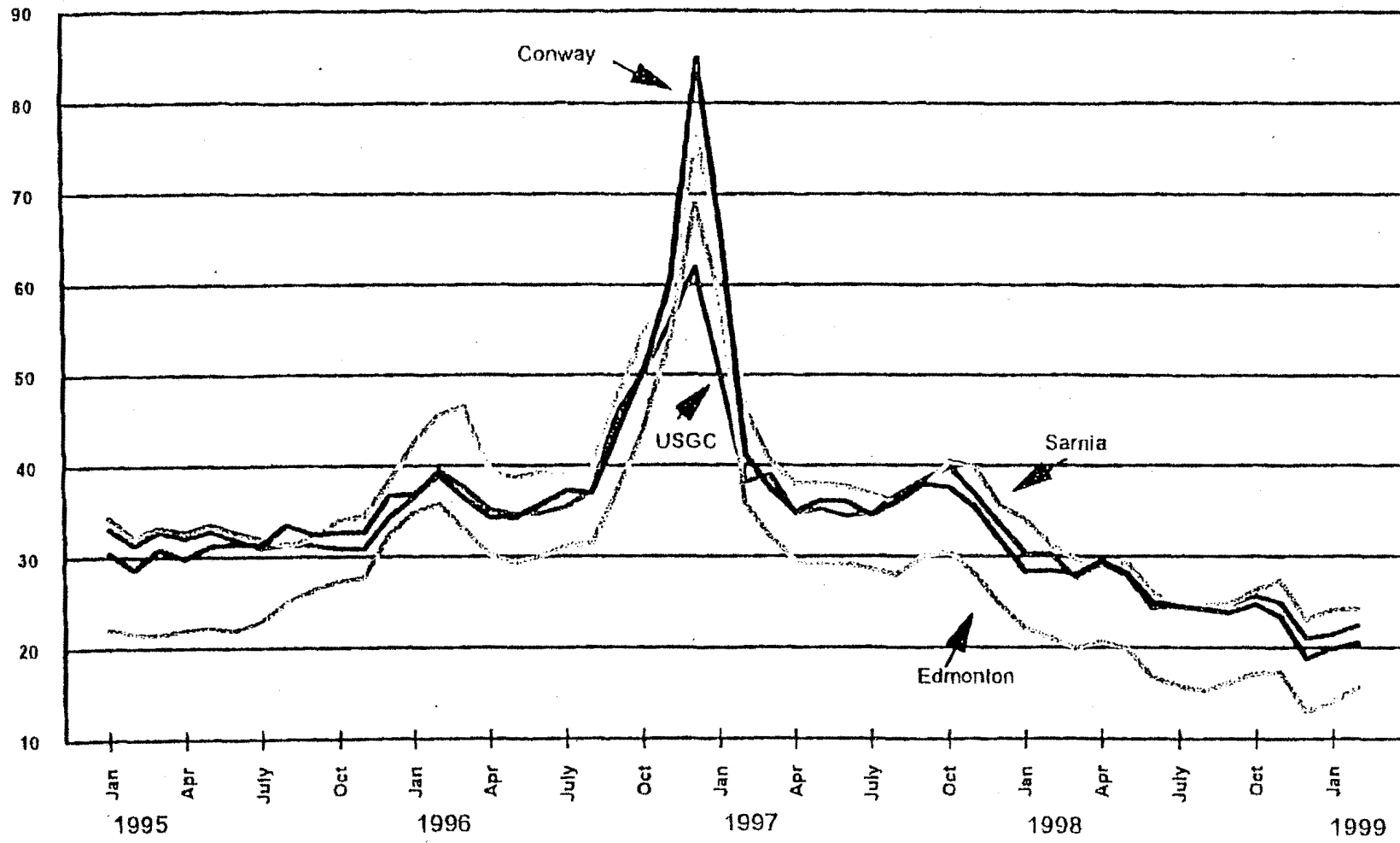




Figure 1.6  
**Propane Pricing By Major NGL Hub 1995-1999**  
 (US Cents/US Gallon)



Source

### **Mont Belvieu**

Because the Gulf Coast area, centered on Mont Belvieu, consumes by far the largest quantities of NGL and serves markets in the south, Midwest, and eastern parts of the country including the price sensitive petrochemical market, it is generally considered to set the direction and level of North American propane prices. Propane price levels on the U.S. Gulf Coast are typically below other Hubs, with the exception of Edmonton. The petrochemical feedstock market is a large market and is particularly competitive, as the petrochemical facilities on the Gulf Coast have significant flexibility to utilize a spectrum of NGL and oil based feedstocks. The Gulf Coast is also the major receipt point for offshore propane imports, which tends to put downward pressure on prices at times.

### **Conway**

Conway is more of a regional Hub, aggregating raw NGL primarily produced in the Mid-Continent and serving markets in the U.S. Midwest (PADD II). Its markets are primarily heating, as opposed to petrochemical, and so it is subject to considerable price volatility, depending on weather extremes and inventory levels. Competition with Conway volumes includes Edmonton product moving down the Cochin pipeline and Mont Belvieu product moving northward through the TEPPCO pipeline.

### **Sarnia/Marysville**

This Hub, which includes the Marysville, Michigan fractionation and storage facilities, is the principal propane supplier to central and eastern Canada, the only other supplies being refineries in Southern Ontario, Quebec and the Maritimes. Sarnia exports move into nearby upper Midwest and Mid-Atlantic markets on a favorable logistics basis, though the increased volumes into the Sarnia hub over the last few years have required Sarnia volumes to move further into the U.S., competing with TEPPCO product moving north and east from the U.S. Gulf Coast.

### **Ft. Saskatchewan/Edmonton**

Edmonton is somewhat different from the other three hubs in that significant quantities of propane move through the facilities as C3+ to be transported to and processed and marketed at the Sarnia Hub. Relatively small quantities of specification propane are consumed in the local area, requiring a large portion of specification propane to be exported by the Cochin pipeline or by rail to an ultimate market.

## CHAPTER 2

### CANADIAN PROPANE PHYSICAL PLANT

Narrowing the focus from the overall North American picture, this Chapter provides a more detailed description of Western and Eastern Canadian wholesale propane related infrastructure. Included is a description of NGL production facilities, fractionation and related underground storage, pipeline connections, and primary distribution and storage.

Superior and ICG both interface with the propane production chain through these facilities. They lease underground storage at the major NGL hubs, utilize rail and truck supply terminals at these hubs, and own and operate primary aboveground storage and related facilities.

#### **2.1 Production Facilities**

This section examines Canadian NGL and propane production facilities, including gas plants and refineries, and the gathering system necessary to move raw NGL to hubs for fractionation into specification products, terminalling and seasonal storage.

##### **2.1.1 Gas Processing Plants and Refineries**

The WCSB is a major North American NGL and propane producing region. A unique feature of NGL production in the WCSB is that most of the gas produced is processed twice for NGL recovery. The gas is processed initially in field plants of various configurations, then essentially all gas that is removed from the region, roughly 75% of total marketable gas produced, is processed again at straddle plants located on the pipelines removing gas from the region.

These facilities are very large scale and can economically reprocess the lean marketable gas to recover essentially all the remaining C3+ constituents.

The breakdown between field plant and straddle propane production in 1997 is shown in Table 2.0. Straddle plants are clearly important to overall production, providing over 40% of total propane recovered from the WCSB.

**TABLE 2.0**  
**WCSB Propane Production 1997**

	<u>(Mbpd)</u>
Field Plant	103
Straddle Plant	76
Total	179

Source: Cancrude Consultants Ltd.

The quantity of natural gas derived propane has grown substantially through the 1990s, by over 5% per year on average, based on rapidly expanding gas production, and offset to a limited degree by the decline of rich solution gas production and increased production of relatively more dry gas. Table 2.1 illustrates the increase in gas based supply. Growth in WCSB natural gas and associated propane production is expected to continue into the next decade, though at a much lower rate than through the 1990s.

The field plant system includes a large number of plants, approximately 350, producing some NGL. Most are small, with an average processing capacity of about 40 MMcfd, but there are some sizeable facilities, the fifteen largest of which produce over 50% of the total field plant propane. The majority of field based NGL production is in the western and middle to northern part of Alberta, west of the fifth meridian and north of Calgary.

**TABLE 2.1**  
**Canadian Propane Production 1990-1997**

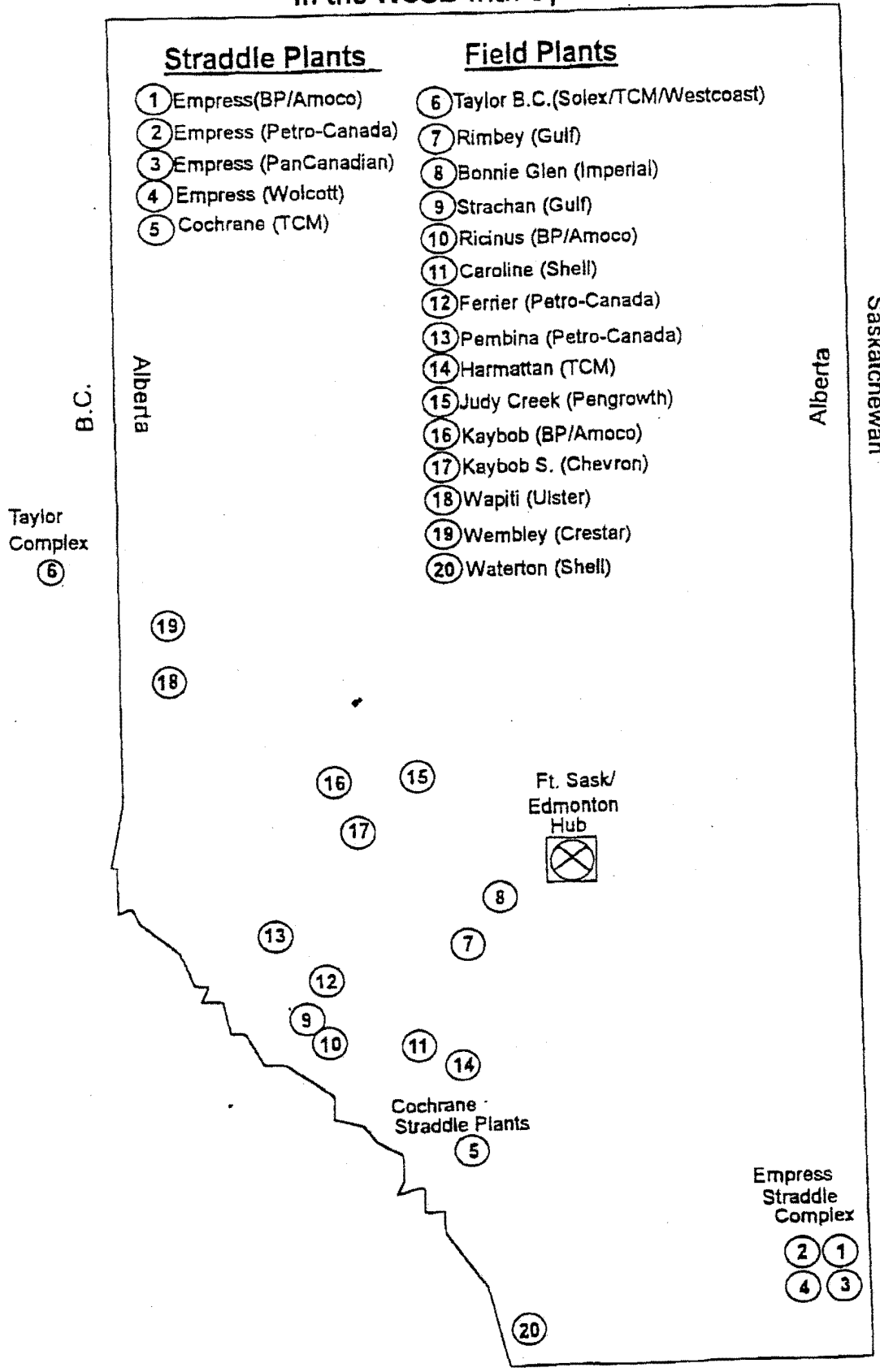
<u>Year</u>	<u>Gas Plant</u>	<u>Refinery</u>	<u>Total</u>
1990	124	25	149
1991	128	23	151
1992	140	24	164
1993	150	26	176
1994	155	24	179
1995	166	26	192
1996	175	30	205
1997	179	28	207

Source: Cancrude Consultants Ltd., NEB

Figure 2.0 provides a general picture of the locations of the fifteen field plants producing the most propane, along with the major straddle plant facilities. In addition to locations, plant operators are indicated, although it should be noted that the plants process gas for many other owners and under different commercial arrangements. Sable Island, Nova Scotia natural gas production is expected to commence during the fourth quarter of this year. The gas will be processed for NGL recovery and will be fractionated to specification products in the Point Tupper area, with initial propane production estimated at about 6 Mbpd.

Refinery propane production is relatively small in Canada, amounting to about 28 Mbpd in 1997, or about 15% of total Canadian propane production. Refinery production has been somewhat erratic but essentially flat over most of the 1990s, with some increase during the last two years. With regard to domestic propane consumption, refinery supply is more important than the numbers might suggest because in some cases refinery supply is located within major consuming regions without other indigenous supply. While refinery propane produced at Edmonton and Sarnia only provides a small increment of supply relative to the large volume of gas plant based supply available,

**Figure 2.0**  
**Major Field and Straddle Plants**  
**in the WCSB with Operators**



refineries in the Maritimes, Quebec, Oakville and Nanticoke in southern Ontario, provide the only indigenous supply available in these areas. Figure 2.1 shows the location and operators of domestic refineries producing propane.

### 2.1.2 Regional Fractionation and Storage

While there are a variety of commercial NGL extraction processes used at gas plants, all produce an NGL mix, either C3+ (propane/butane/condensate) or C2+, which adds ethane to the mix. To be utilized, the components of the mix must be separated by fractionation, a key link in the NGL chain.

For a number of reasons, including economies of scale in fractionation and terminalling and related facilities, as well as the need for large volume low cost seasonal storage, most NGL fractionation occurs at central hubs that handle NGL mixes from a number of sources. The primary domestic hubs are at Ft. Saskatchewan/Edmonton and Sarnia/Marysville. These complexes include fractionation units, underground storage caverns, and terminalling facilities for NGL pipelines as well as rail cars and trucks. They may also include, or be adjacent to major manufacturing facilities such as petrochemical plants, which may use specification NGLs as feedstock, and refineries, which both produce and consume NGL.

#### Ft. Saskatchewan/Edmonton

Since the commissioning of the TransCanada Midstream fractionator at Redwater a few miles north of the municipality of Ft. Saskatchewan in 1998, there has been excess product handling and fractionation capacity, and thus fractionation service has become available at very competitive rates. There have been some periods during which capacity has been tight and fractionation ownership has had greater value.



Figure 2.1

# Canadian Refineries

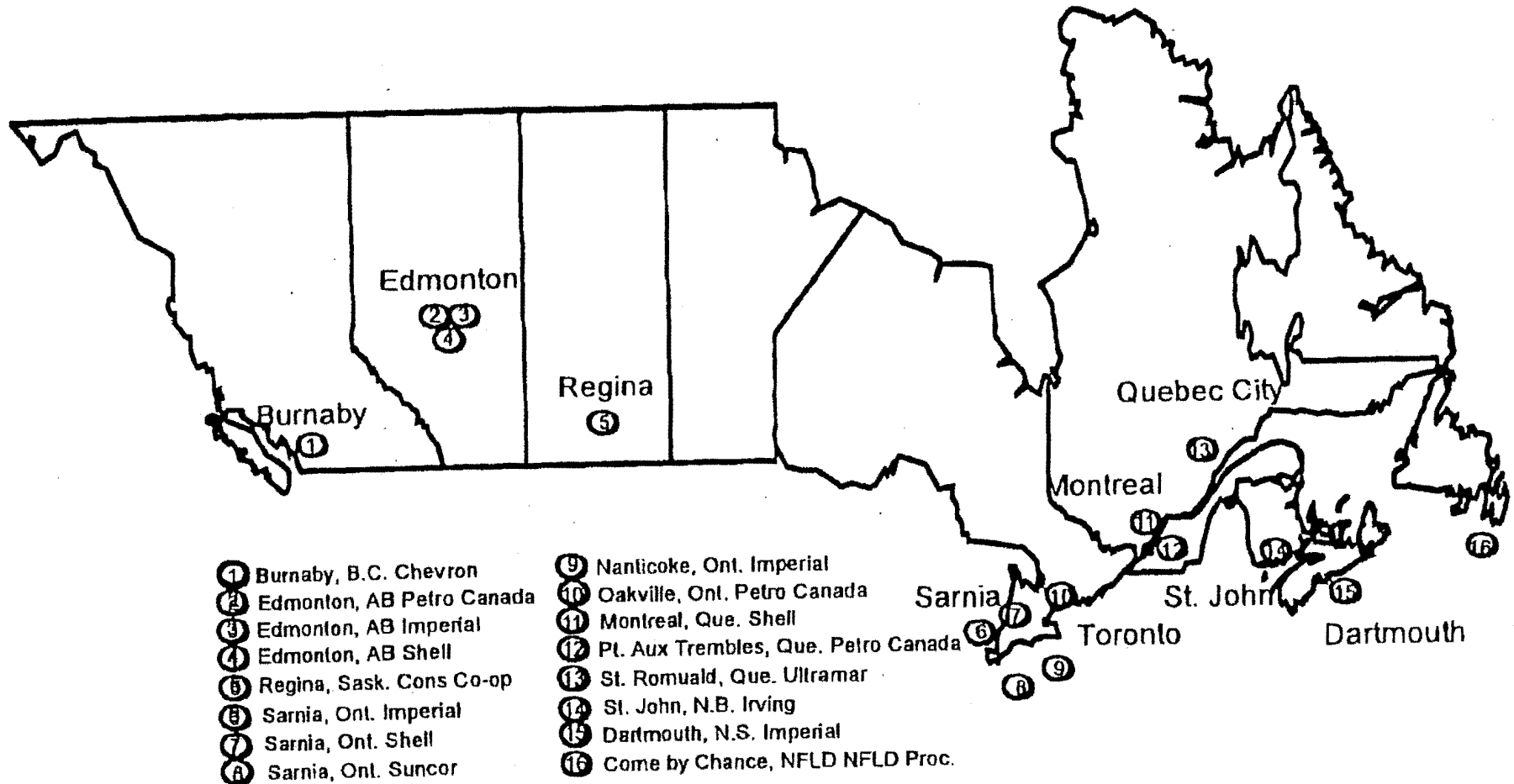


Table 2.2 presents a summary of fractionation plants in the Ft. Saskatchewan/Edmonton area. Figure 2.2 presents a schematic showing major facilities, capacities, and owner/operators for the Ft. Saskatchewan hub.

**TABLE 2.2**  
**Ft. Saskatchewan Fractionation Facilities**

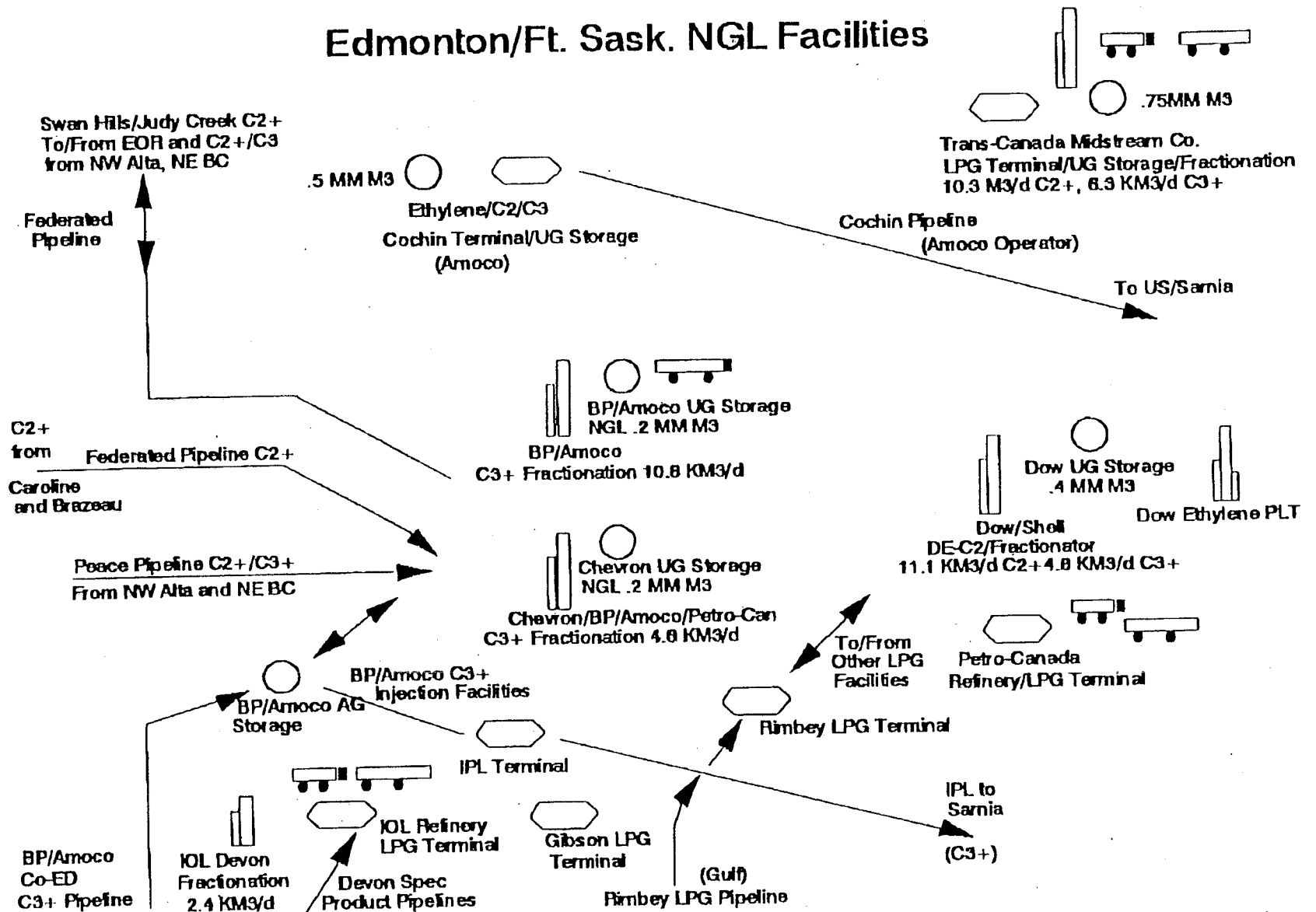
<b>Plant</b>	<b>Operator(Owners)</b>	<b>Capacity</b> (Mbpd)	<b>Underground Storage</b>
Chevron Ft. Sask (CFS)	Chevron (Chevron, Gulf, BP/Amoco, Mobil)	C3+ 30.0	Yes
BP/Amoco Ft. Sask (AFS)	BP/Amoco	C3+ 68.0	Yes
Dow Ft. Sask (DFS)	Dow (Dow, Shell, Petro-Canada)	C2+ 70.0 C3+ 30.0	Yes
Redwater	TCM	C2+ 65.0 C3+ 40.0	Yes
	<b>TOTAL</b>	C2+ 135.0 C3+ 168.0	

Source: Alberta Energy and Utilities Board (AEUB)

The Ft. Saskatchewan hub schematic shows BP/Amoco to have the largest fractionation capacity, and in addition the company has other key facility positions at the hub. The facility for injecting C3+ into the Enbridge pipeline is wholly owned by BP/Amoco, as is the Co-Ed C3+ pipeline delivering product from the Cochrane straddle plant and other production facilities to Edmonton and Ft. Saskatchewan. BP/Amoco is part owner and operator of the Cochin pipeline and associated storage. The Enbridge injection unit is particularly important, in practice giving BP/Amoco and partners priority access to Enbridge for movement of C3+ from the Edmonton/Ft. Saskatchewan hub to the Sarnia/Marysville area.

Figure 2.2

# Edmonton/Ft. Sask. NGL Facilities



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TABLE 2.3

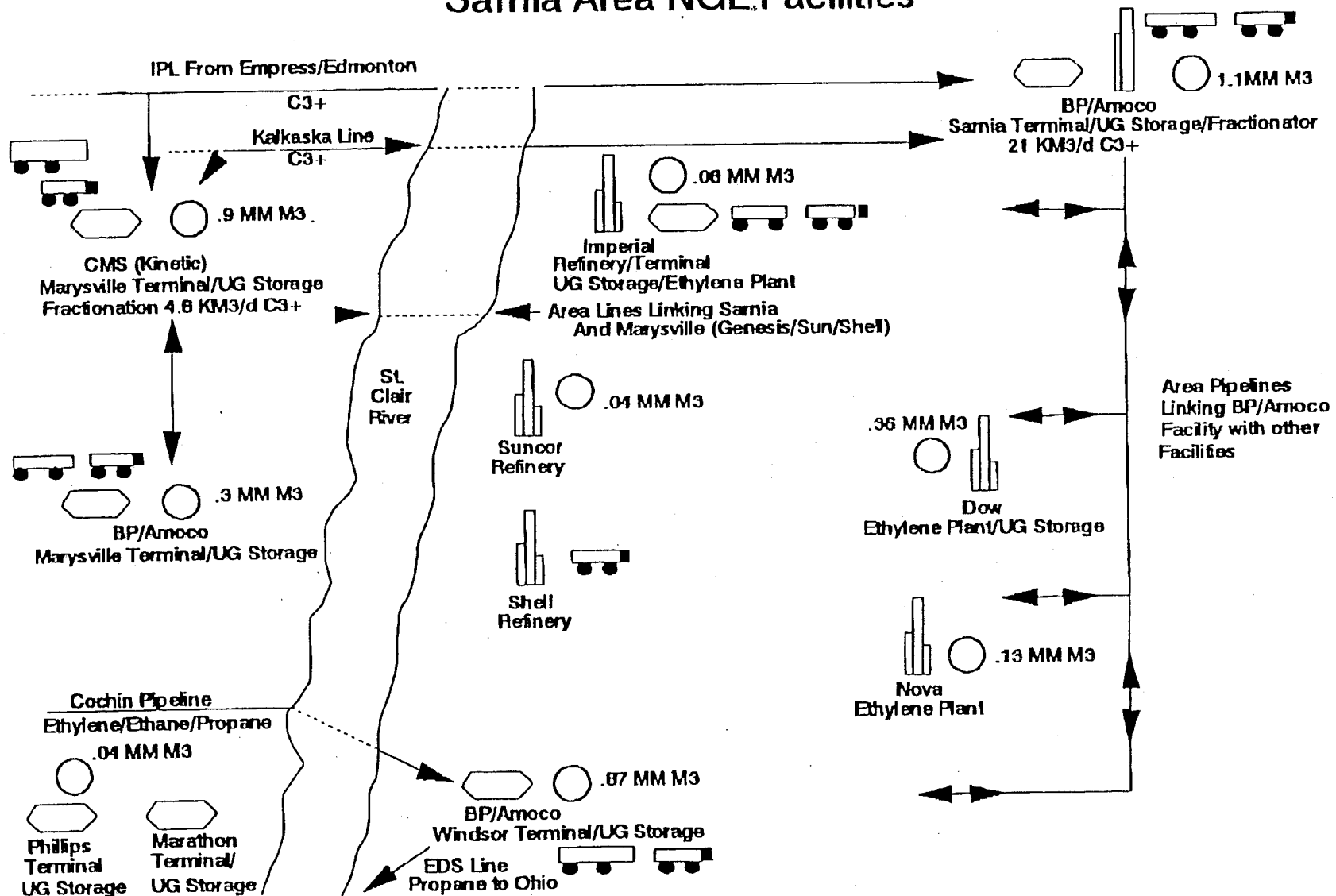
**Major WCSB Gas Plants Producing Specification Propane**

<b><u>Southern Alberta</u></b>	(Bpd)
Carstairs (Anderson Exploration)	2700
Olds (Canadian 88)	300
Harmattan (TransCanada Midstream)	2900
Jumping Pound (Shell)	1000
Waterton (Shell)	1700
Shouldice (Summit)	100
Balzac (Canadian Oxy)	750
Hussar (Husky)	250
<b><u>Central/Western Alberta</u></b>	
Caroline South (BP/Amoco)	2800
Kaybob (BP/Amoco)	2000
Gilby (Gulf Midstream)	650
Rimbey (Gulf Midstream)	7100
Bonnie Glen (Imperial)	8700
Stettler (North Star)	1250
Sylvan Lake (Ocelot)	1100
Ferrier (Petro-Canada)	1550
Brazeau (Canadian Oxy)	150
Devon (Imperial) *	6700
Kemp River (Stittco) *	345
<b><u>Northeast B.C.</u></b>	
Taylor (Solex/TCM)	5300
Taylor (Westcoast)	800
Caribou Near Taylor (TCM)	250
Highway-Near Taylor (Westcoast)	900

\* Stand Alone Fractionator

Figure 2.3

# Sarnia Area NGL Facilities



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As at Ft. Saskatchewan, BP/Amoco is the major player at the Sarnia Hub, and Kinetic also has a strong position. In addition to its large fractionator and associated storage and terminalling, BP/Amoco has leased storage terminalling and fractionation capacity at Marysville, and owns the Windsor storage/terminal facility, as well as the EDS pipeline system that includes a propane line into Ohio.

Except for production from several regional refineries, essentially all propane consumed in Ontario and as far east as the Maritimes is sourced at Sarnia.

## **2.2 NGL Delivery and Receipt System**

The principal Canadian NGL and propane delivery and receipt system is the combination of the major NGL hubs in Edmonton/Ft. Saskatchewan and Sarnia linked by pipelines, moving NGL and propane produced in the WCSB east and south to domestic markets and export points. However, wherever specification propane is produced and made available through a terminal there is a propane delivery point. This section will describe the main system and some of the smaller independent points. It is organized on a West/East basis.

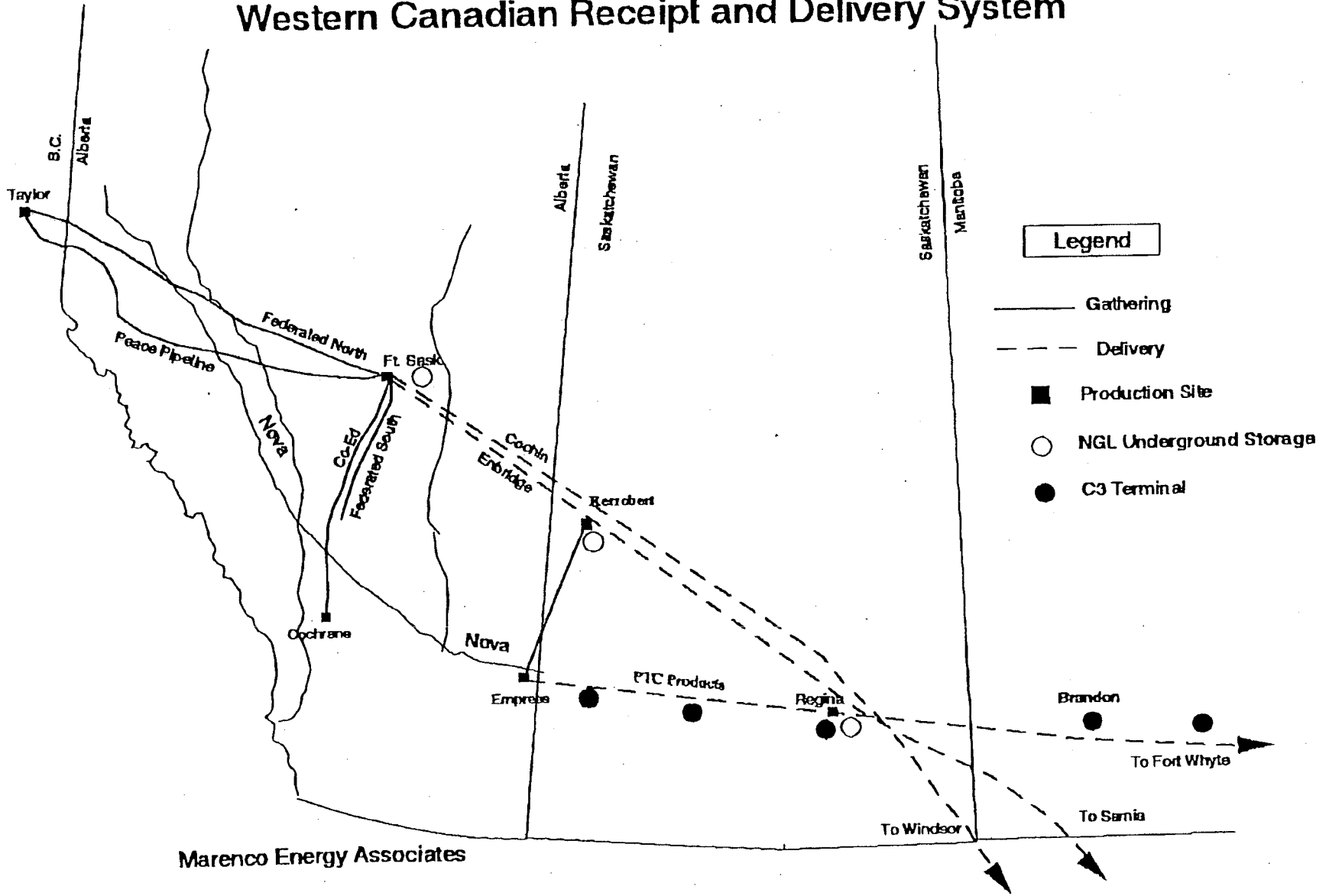
### **2.2.1 Western Canadian Receipt/Delivery System**

Figure 2.4 is a schematic showing the principal receipt and delivery points in the Western portion of the system and its linkage with the Eastern system. The main system may be summarized as follows:

- Raw NGL mix (C2+/C3+) is moved to the Ft. Saskatchewan hub from the numerous gas plants connected to major NGL gathering pipelines, including the Federated North and South, Peace, and Co-Ed/Mitswan systems. These are open access except for the Co-Ed, owned by BP/Amoco. Recent expansions of the Peace and Federated systems, including the linkage to Taylor, B.C, follow new gas producing developments.

Figure 2.4

# Western Canadian Receipt and Delivery System



- Several other Alberta lines, including the Rimbey and Devon pipelines, receive specification propane and other products and bring them to the hub from major gas plants with fractionators.
- The Ft. Saskatchewan/Edmonton hub has a number of terminal facilities which link raw mix pipelines with storage/fractionation and in turn link finished product storage with downstream product distribution, pipeline, rail cars, and trucks. In addition to terminals at the CFS, DFS and AFS fractionators, there are propane terminals at Imperial and Petro-Canada, independent terminals such as Rimbey and Gibson, and terminals at the head of the Enbridge and Cochin pipelines.
- The only receipt point on the Cochin Pipeline is at Ft. Saskatchewan where storage and injection facilities input propane, as well as ethane and ethylene, onto the pipeline. Propane delivery is primarily to Midwestern U.S. terminals and Conway, Kansas, but product is sometimes moved as far east as Windsor.
- Tank car loading facilities and truck racks are an important component in the propane delivery system in Alberta, for the distribution of propane to local and distant markets.
- C3+ enters the Enbridge system at the Edmonton hub as well as at Kerrobert, Saskatchewan. The mix is moved in batch mode with crude oil and other hydrocarbon products to the BP/Amoco Sarnia complex and the CMS Marysville complex.

In addition to the main system described above, there are several other receipt/delivery facilities of some importance. As noted, a large quantity of NGL is extracted at the Empress straddle plant complex in the form of ethane and C3+. All C3+ but the Petro-Canada volume is moved via the Kerrobert pipeline owned by BP/Amoco and



PanCanadian, to Kerrobert, Saskatchewan. Here the volumes are stored in underground caverns for subsequent receipt into the intersecting Enbridge pipeline, into the C3+ batches initiated in Edmonton.

The Petro-Canada C3+ volume is fractionated to specification propane and butane at that company's fractionator at Empress. Petro-Canada owns the PTC pipeline, which receives these products at Empress and delivers them to five terminals eastward through Saskatchewan and Manitoba, including one at Regina having underground storage. The line terminates at Ft. Whyte, near Winnipeg. Other Western propane delivery points include the Co-op refinery at Regina and the Chevron refinery near Vancouver.

### **2.2.2 Central Canada Receipt/Delivery System**

The delivery destinations of Western NGL received on the Enbridge and Cochin pipeline systems are the Sarnia and Marysville complexes and the terminals in the U.S. Midwest. Enbridge delivers C3+ directly to the BP/Amoco fractionator complex in Sarnia and to the CMS operated facility at nearby Marysville, Michigan. These supply by far the largest quantities of propane at the Sarnia hub. Enbridge also has two smaller C3+ delivery points at Superior Wisconsin and Rapid River, Michigan to serve local markets. At Superior breakout storage is utilized to manage batches taken off line 1 for reinjection into line 5 to the Sarnia/Marysville hub.

The specification propane received by Cochin at the Ft. Saskatchewan hub is delivered primarily to terminals in the U.S. Midwest located from North Dakota through Indiana and Conway, Kansas. At times some propane moves all the way to the pipeline terminus in Windsor.

There are no domestic propane or other NGL pipelines east of the Sarnia hub. Propane volumes delivered to Sarnia and destined for Central and Eastern Canadian markets are moved by rail and truck from the hub to either primary storage such as that operated

by Superior and ICG or directly to customers. There are several relatively small specification product pipelines moving some propane from the Sarnia hub to markets in Ohio and Michigan. Refinery propane outside the Sarnia area hub is an important source of supply for Central and Eastern Canadian domestic markets based on location and logistics relative to supply from Sarnia. There are five refineries along the Great Lakes/St. Lawrence system, from Southern Ontario to Quebec City. There are three refineries in the Maritimes producing propane. All these plants make important contributions to regional supply.

## CHAPTER 3

### CANADIAN PROPANE SUPPLY, DEMAND, AND PRICING

Building on discussions of the overall North American market and the domestic infrastructure in Chapters 1 and 2, Chapter 3 examines the supply/demand environment in Canada. Three levels of supply and demand are addressed: the Country as a whole, Western and Central/Eastern regions, and sub-regions as established by Superior's and ICG's storage facilities and supply considerations, at the end of the wholesale chain. A description of how pricing may be set at the wholesale level is included. Integrating supply/demand and the infrastructure, the Chapter also looks at aspects of the industry structure relating to physical and commercial constraints on the wholesale sector of the industry.

#### 3.1 Canadian Propane Supply/Demand at the Wholesale Level

On a Canada wide basis, propane production substantially exceeds consumption, and the surplus has grown larger during the 1990s. Table 3.0 summarizes the overall domestic supply/demand picture.

TABLE 3.0  
Canadian Propane Supply/Demand Balance  
(Mbpd)

	<u>1991</u>	<u>1993</u>	<u>1995</u>	<u>1997</u>
Supply: Domestic Production	150	176	192	207
Demand: Domestic Consumption	88	89	79	83
Surplus (Exports)	<u>62</u>	<u>87</u>	<u>113</u>	<u>124</u>
Total Demand	150	176	192	207

Source: StatsCan, NEB, Cancrude

The table shows volumes in excess of domestic consumption approximately doubled over the 1990's. As noted in Chapter 1, U.S. consumption has grown over the period and Canadian volumes found a ready market in the U.S. Midwest.

### **3.2 Western and Eastern Wholesale Propane Supply and Demand**

The geographical circumstances of the Canadian propane industry, with the large majority of production in the West and substantial quantities of domestic consumption and export linkages in central and eastern regions, makes it appropriate to look at supply and demand separately, on a "western" and "eastern" basis. This section summarizes such a review for the year 1997.

#### **3.2.1 Western Canadian Propane Supply and Demand Balance**

Our approach to balancing western propane is to assume that specification product will be utilized first to meet western demand, with excess specification product plus all propane in raw NGL mix deemed surplus and being removed to eastern Canada and US Midwest markets. Table 3.1 shows the estimated balancing calculation for the year 1997.

As the table shows, there is a large volume of propane excess to western needs and therefore available for eastern delivery. This excess is the basis for the large product flow from west to east.

Surplus specification propane produced in the west is moved primarily to markets in the U.S. Midwest via the Cochin pipeline. In 1997 this amounted to approximately 50 Mbpd. Occasionally some specification propane is moved all the way to Windsor, but because of high costs this is done only under special circumstances. Approximately 75 Mbpd of

**TABLE 3.1**  
**Western Canadian Propane Balance (1997)**  
 (Mbpd)

<b>Western Supply</b>	
Specification Propane (Gas Plant/Frac/Refinery)	115
Propane in C3+ Mix	75
Total Supply	190
<b>Western Demand</b>	
Domestic Demand	35
Export to Western US Markets	28
Total Western Demand	63
<b>Propane Available For Eastern Delivery</b>	
Specification Propane	52
Propane in C3+ Mix	75
Total Available	127

Source: NEB, EUB, StatsCan and Cancrude.

propane in C3+ mix was moved out of Alberta in 1997, via the Enbridge pipeline, with approximately 8 Mbpd taken off at the U.S. terminals at Superior, Wisconsin and Rapid River, Michigan and the remainder going to the Sarnia/Marysville hub.

### 3.2.2 Eastern Canadian Propane Supply and Demand Balance

Eastern propane supply is concentrated at the Sarnia area hub where Enbridge C3+ volumes and relatively small volumes of C3+ from Kalkaska, Michigan are processed to specification product at the Sarnia and Marysville fractionators, augmented by propane from three refineries at the hub. Essentially all other eastern supply is derived from the refineries spread throughout Ontario, Quebec, and the Maritimes. Starting next year, a new propane supply source will be available in Nova Scotia based on processing Sable Island gas. Initial propane production is expected to be about 6 Mbpd. An estimated propane balance for eastern Canada is summarized below in Table 3.2 for the year 1997.

**TABLE 3.2**  
**Eastern Canadian Propane Balance**  
(Mbpd)

<b>Supply</b>	
Propane from Western Canada	75
Propane Imports from U.S.	3
Less: Propane removed at Superior, Wisc/Rapid River, Mich.	9
Total Gas Plant Propane	69
Refinery Propane from Eastern Canada	17
Total Propane	86
<b>Demand</b>	
Eastern Canadian Demand	56
Exports	30
Total Propane Demand	86

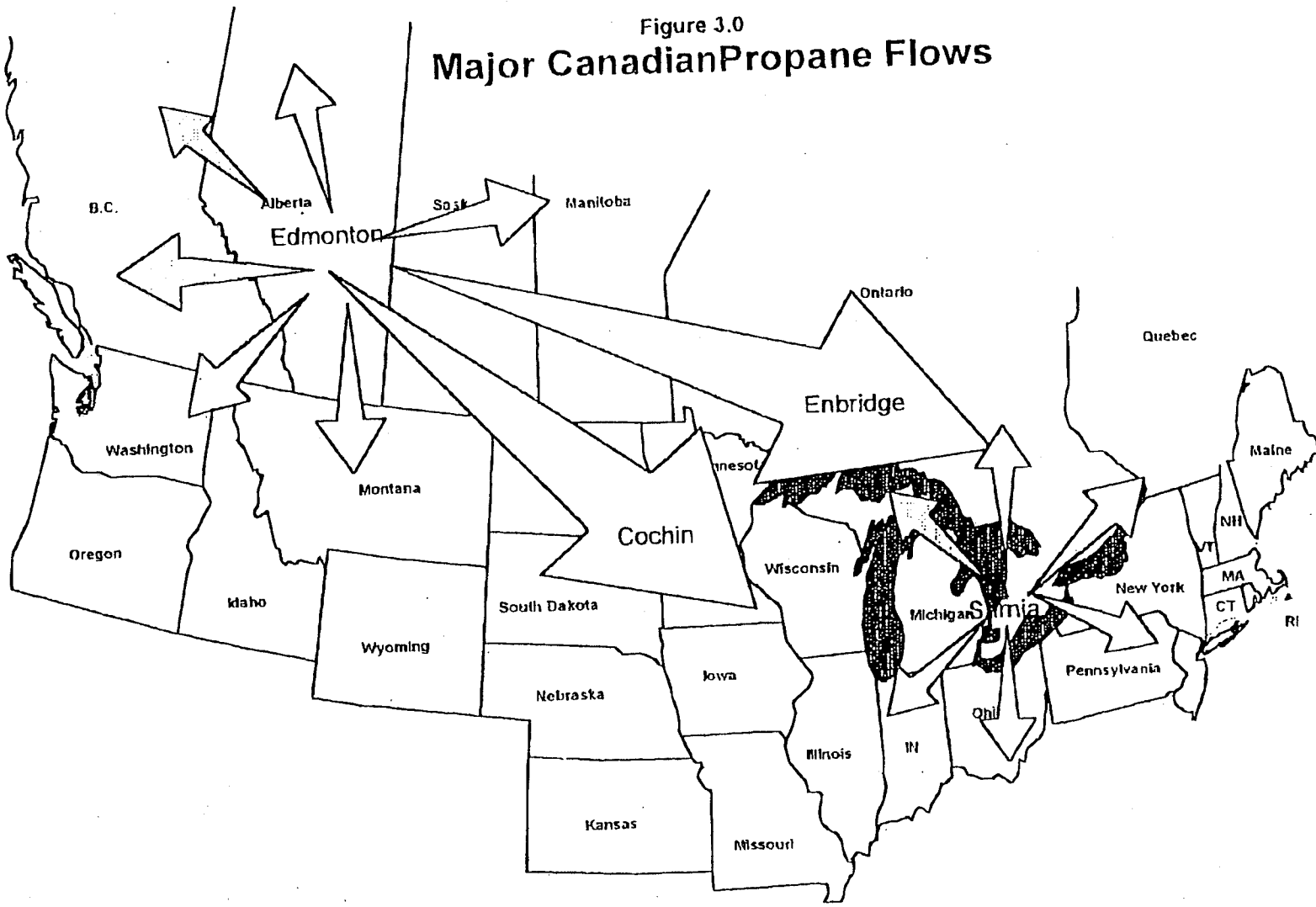
As in the west, the Eastern Canadian balance shows a significant portion of available supply, about 35% of the total, surplus to domestic demand and therefore destined for export to the US. Export volumes are sourced primarily from Sarnia and Marysville.

Figure 3.0 is a general picture of propane flows from key supply points to consumers on a nationwide basis. The generally adequate distribution linkage between hubs and the hub storage capabilities keep physical volumes appropriately balanced.

### 3.2.3 Seasonality and Inventory

Overall annual data showing propane balances on a national and regional level do not disclose the seasonality of propane demand, which is a major characteristic of the industry. Supply, both from gas plants and refineries, is relatively consistent over the year. Though natural gas demand has a seasonal element, storage is used to keep production relatively constant. Propane, as a by-product, is therefore also produced on this basis even though its demand is very seasonal. All major propane demand

Figure 3.0  
Major Canadian Propane Flows



elements are directly heating related except petrochemical feedstock. While in the US market petrochemical demand may be an important counter balance to heating demand seasonality, in Canada propane consumption in the petrochemical sector is relatively small, making demand even more seasonal.

A result of this supply/demand structure is that the flow of product is very often from production source to storage, as opposed to production to market. This in turn creates large product build-ups in the spring/summer months and drawdowns in the winter, making storage access and inventory management major factors, from both an industry and individual company perspective. Because of the large quantities of product involved, low cost underground storage is critical. The large salt deposits in Edmonton and Sarnia, which allow such storage to be developed, are the major factor behind the growth of these locations as NGL hubs.

Over the period 1995-1998 Canadian propane inventory has averaged about 7 million barrels in the summer months (July-September) and about 3.3 million barrels in the winter (January-March), illustrating the extreme seasonality of this industry. Monthly inventory levels for this period are shown on Figure 3.1 for the western and eastern regions.

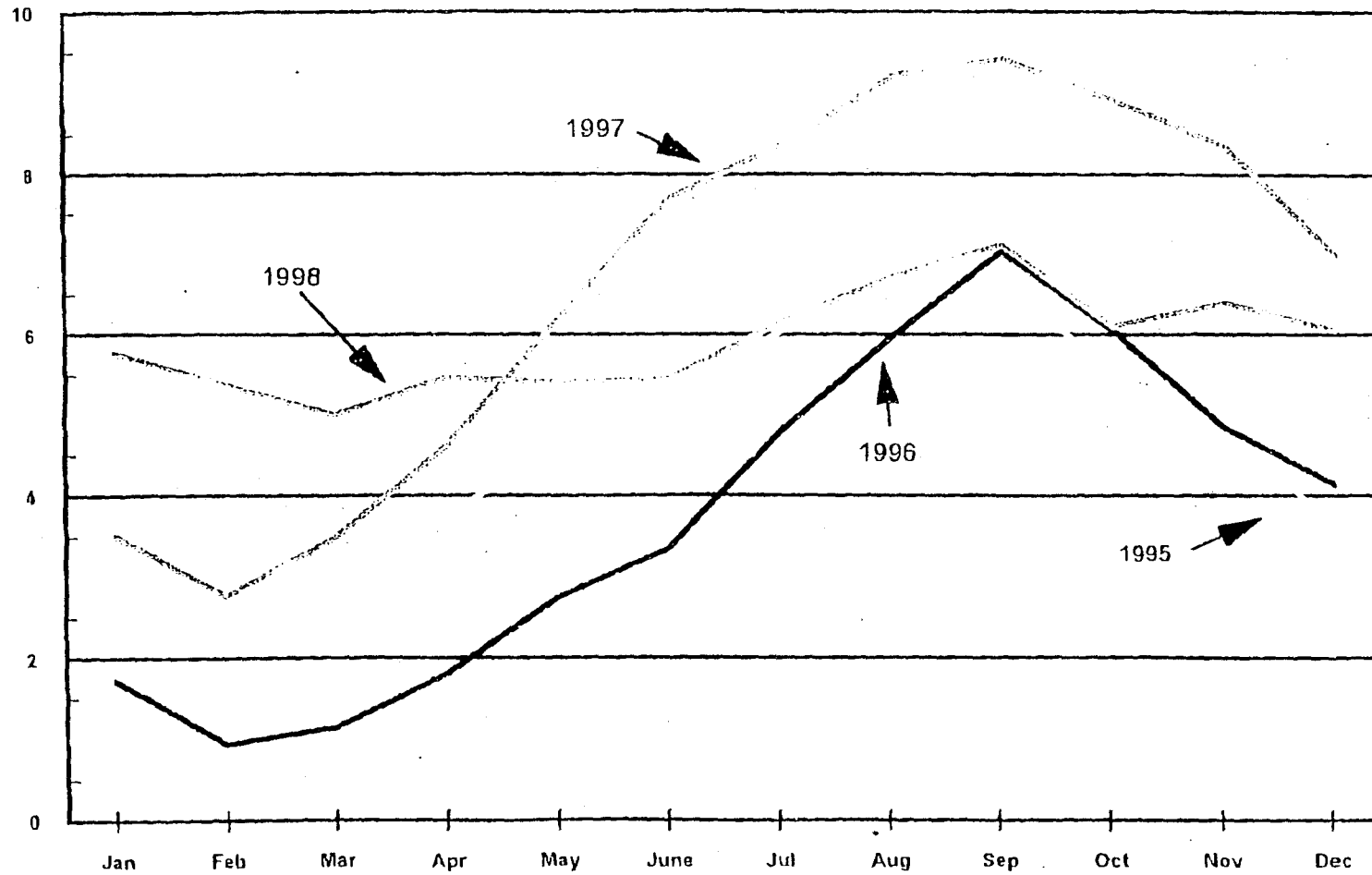
Not surprisingly, this level of seasonality impacts pricing. Other factors being equal, spring/summer prices will be lower than winter prices. Decisions regarding summer purchases and how much inventory to carry may be important determinants of profits earned by marketers. The more scope and flexibility a marketer has in this regard, the greater the opportunity to take advantage of seasonal pricing.

### **3.3 Propane Supply and Demand by Market Region**

This section further breaks down propane supply and demand to the level of sub regions within the Provinces. These sub-regions are based generally on "clustering"



Figure 3.1  
**Canadian Propane Inventory Levels 1995-1998**  
(Millions of Barrels)



Superior's and ICG's terminals and markets on a geographical basis, as defined by those companies' storage and distribution points.

The markets within each sub-region generally have similar supply considerations. A major objective of the section is to provide an overview of supply potential to the regional markets. Demand data is based on 1996 data provided by Superior to the Competition Bureau.

### 3.3.1 British Columbia Propane Supply and Demand

Overall B.C. propane production of about 8000 Bpd is short of the approximately 10,000 Bpd consumed in the Province. Further, almost all of the production is in the Northeast part of the province, distant from all but a few markets. There is no low cost underground storage in the Province, requiring the significant seasonal demand swings to be accommodated by transportation infrastructure in conjunction with Alberta supply. There are no specification propane pipelines in the Province, requiring more expensive and complex truck and rail transportation to supply all B.C. markets. The B.C. market has been grouped into three sub-regions, the North, Southern Interior, and Southwestern B.C. which includes the lower mainland and Vancouver Island.

#### Northern B.C.

This market region stretches clear across the Province, from the gas producing area of Ft. St. John to Terrace on the Pacific. The market region may be defined by specific locations including:

Ft. St. John	Burns Lake
Chetwynd	Prince George
Ft. Nelson	Terrace

Logical supply sources are gas plants located around the Taylor/Ft. St. John area, shown below with the plant operator identified and approximate 1997 propane volume.

Plant	Operator	Propane Production (Bpd)
Younger	Solex	5300
MacMahon	Westcoast	800
Caribou	TransCanada Midstream	250
Highway	Westcoast	<u>900</u>
Total		7250

Total consumption for the region is estimated at about 2500 Bpd. There is a propane rail terminal at the rail hub at Prince George, as well at locations along the B.C. Rail Line, the Williams Lake area, and Ft. Nelson and on CN Rail at Terrace/Prince Rupert, Burns Lake and Smithers. Primary truck transportation is also used in this region.

As the volumes indicate, there is substantially greater production potential than regional demand, so overall supply should not be a problem. As of last year two new NGL pipelines were connected to the Taylor/Ft. St. John area from the Edmonton NGL hub, giving producers in the area a major new option for NGL disposition.

#### Southern Interior B.C.

This sub-region covers the populated areas of the southern interior, with the primary markets being Kamloops and Kelowna. Total consumption is estimated at about 2900 Bpd. Specific market centers include:

Kamloops	Castlegar
Kelowna	Cranbrook

The Southern Interior region has no indigenous supply sources but does have relatively advantageous access to some of the Alberta supply points and corresponding suppliers. With regard to logistics, the primary supply sources are likely to be the Alberta gas plants located in the southern and western area of Alberta which have fractionation facilities for producing specification propane. The Kamloops area has two rail terminals and Cranbrook one; other receipts are by truck. Rail would probably be via CPR from Southern Alberta, though Edmonton sourced product could move via CNR. In addition to these specific sources, the Edmonton/Ft. Saskatchewan hub with truck and rail loading and large storage could also supply this market. Another potential source is volume from the northeast B.C. gas plants moving by rail or truck. In general, purchasers in this region should have adequate supply options, and at the same time most supply sources have other attractive markets.

#### Southwestern B.C.

The major market of this sub-region is the Fraser valley, or the lower mainland, but it also includes Vancouver Island. Specific markets in this region, which together are estimated to consume about 5000 Bpd, include:

Fraser Valley	Victoria
Squamish	Campbell River
Nanaimo	

The Chevron refinery in Burnaby is the only indigenous supply source. With production of about 850 Bpd it can provide coverage for only a small portion of propane demand. There are four refineries producing about 12,000 Bpd of propane in the Northwest corner of Washington State. In particular ARCO, with a large refinery at Cherry Point, Washington producing about 3400 Bpd of propane, is becoming very active in Southwestern B.C. in motor fuel marketing. The Texaco LPG terminal at Ferndale is capable of truck loading. At times significant volumes of propane are required from Alberta, particularly during the winter heating season when seasonal demands increase.

Likely sources include gas plants with fractionators noted in the discussion of the Southern Interior Markets as well as the large Edmonton area hub. Periodically some volumes may be supplied from the Northeast B.C. gas plants/fractionators. The major markets, Fraser Valley and Nanaimo, have rail terminals. The recent introduction of natural gas to Vancouver Island may reduce consumption in island markets in the future.

### 3.3.2 Alberta Propane Supply and Demand

In contrast to the other Provinces, there is both a significant excess of specification propane produced in Alberta relative to retail demand and a reasonable geographical distribution of supply to consuming locations. Specification propane generally available to the Alberta market was slightly over 90,000 Bpd in 1997, excluding Petro-Canada's Empress production which is destined for markets along the PTC pipeline, compared to an Alberta retail market of an estimated 15,000 Bpd. The above production estimate does not include the propane in the C3+ mixes moved to fractionators in the Sarnia/Marysville area and several U.S. points.

Corresponding to supply abundance, there are a significant number of major propane producers and suppliers in the province. Summarized in Table 3.3 is an estimate of major specification propane producer volumes available in Alberta for 1997.

In addition to these companies there are other important suppliers based on purchased propane or C3+. Kinetic, 75% owned by PanCanadian, is one such supplier, with a significant eastern position as well. TransCanada Midstream Services is becoming a major Alberta supplier, with a number of gas plants under its control, as well as the Redwater fractionator complex.

**TABLE 3.3**  
**Major Alberta Specification Propane Producers**  
**and Volumes Available in Alberta - 1997**

(Bpd)

	Refineries	Gas Plants (1)	Stand Alone Fractionators	Total
BP/Amoco	-	2300	20,900	23,200
Imperial	2000	8800	6700	17,500
Gulf Midstream	-	7800	4000	11,800
Shell	-	3000	4900	7900
Chevron	-	1100	5900	7000
Petro-Canada (2)	2900	1600	2000	6500
Other	-	<u>10,600</u>	<u>6400</u>	<u>17,000</u>
	4900	35,200	50,800	91,000

(1) Estimates are based on gas plant operatorship, and in reality all volumes are not necessarily controlled by the operator, so while the volume is correct the control by company may be somewhat overstated.

(2) Does not include the companies 14,000 Bpd produced at Empress but not generally available for Alberta consumption.

The importance of these key companies is not just for the Alberta market. Because they are the principal propane producers in Alberta, they also tend to be principal suppliers on a national basis, particularly because most have significant physical infrastructure in other key locations across Canada.

### Central Alberta

This is the largest Alberta market cluster and includes significant volumes of auto, commercial/residential, and industrial propane consumption related primarily to oil/gas activity. Total consumption is about 8000 Bpd. Specific markets include:

Edmonton	Rocky Mt. House
Red Deer	Red Earth
Thorsby	Wainwright
Camrose	Edson
Whitecourt	

This market is in the heart of the Alberta's propane production region, including the Edmonton/Ft. Saskatchewan hub and gas plants with fractionators.

### Southern Alberta

This market cluster centers on Calgary, with smaller market centers to the south. Estimated consumption is about 4100 Bpd. Specific markets include:

Calgary	Medicine Hat
Lethbridge	Oyen
Taber	Brooks

Supply considerations would be generally similar as for the Central market region. Logistically, favourable sources would include the gas plants with fractionations covered earlier, though volumes from the Edmonton/Ft. Saskatchewan hub or central region gas plants would also be potential supply sources.

### Northern Alberta

This market group is smaller in volume, at an estimated 2600 Bpd and larger in geographical area than the other Alberta groups. Specific markets include:

Grande Prairie	High Level
Ft. McMurray	Valleyview
Lac La Biche	

There is little specification propane produced in what is defined here as Northern Alberta market areas. The markets in the area are widespread. Volumes trucked from the Edmonton hub or from some of the gas plants noted in the Central sector are supply sources for these markets. The markets in the Western portion of the sub-region may be served in part from the Taylor B.C. facilities.

### 3.3.3 Saskatchewan/Manitoba Propane Supply and Demand

This region has only two relatively small sources of indigenous propane, both in Saskatchewan. The Consumers Co-op refinery at Regina provides about 1300 Bpd, and approximately 650 Bpd is produced at the Wolcott gas plant in Southern Saskatchewan. With less than 2000 Bpd produced, approximately 5000 Bpd must be supplied to satisfy an average demand estimated at over 6500 Bpd between the two provinces. A key supply source is the Petro-Canada PTC pipeline moving LPG from the company's extraction/fractionation complex at Empress, Alberta to Ft. Whyte, Manitoba, with several terminals along the route. There are underground storage facilities at Regina. The PTC pipeline is a private line, delivering specification propane produced by Petro-Canada at Empress, which currently amounts to something in the order of 14,000 Bpd. Volumes not utilized in Saskatchewan or Manitoba, and to a lesser extent Northwestern Ontario, are exported from the Ft. Whyte terminal into adjacent Northern Tier states. Product is also trucked directly from Alberta gas plants with fractionators or from the Edmonton NGL hub, as these sources are closer to some western Saskatchewan markets than is the Petro-Canada pipeline supply. Supply off the pipeline is delivered to local storage by truck, as there are no rail terminals at the storage sites in this region.



Manitoba

The large majority of demand in Manitoba is in the Winnipeg-Brandon market. Specific markets in Manitoba, which overall consume an estimated 3200 Bpd, include:

Winnipeg	Other Southern Areas
Viriden/Brandon	Northern Areas (including Stittco Utility)

Based on the logistics, essentially all of the propane consumed in the province could be sourced from the PTC pipeline, either at the Ft. Whyte terminal or the terminal north of Brandon.

Southern Saskatchewan

This sub-region, accounting for about 1000 Bpd, includes markets in:

Regina	Weyburn
Swift Current	Yorkton

Several supply sources are available in this area, with volumes available in excess of area requirements. Consumers Co-op refinery produces nearly 1300 Bpd and the Wolcott gas plant at Nottingham, Saskatchewan provides about 650 Bpd. In addition, the Regina, Moose Jaw, and Stewart terminals of the PTC pipeline and Regina underground storage could provide large volumes.

Central/Western Saskatchewan

This sub-region includes consumption from Saskatoon west to the Alberta border and consumes an estimated 1700 Bpd.

Kindersley/Macklin
Saskatoon
N. Battleford/Maidstone

A part of this market is served by Regina volumes and other terminals on the PTC pipeline. However, the more northern and western parts would likely be supplied from Edmonton or from terminals in Eastern Alberta.

### Northern Saskatchewan

This market sub-region is small in volume, estimated at about 600 Bpd, and large in geographical area. Specific markets include:

Prince Albert	La Ronge
Meadow Lake	Buffalo Narrows

Supply could come from both the Petro-Canada pipeline and associated terminals or from Alberta via truck.

### 3.3.4 Ontario Propane Supply and Demand

Ontario is second only to Alberta in propane consumption, with estimated 1997 volumes at slightly over 25 Mbpd. While residential/commercial heating is the largest end-use, transportation, industrial, and petrochemical consumption are also important.

Overall the Province is well supplied from a number of sources. However, because the supply is centered in the Sarnia area, on the southern periphery of the Province, distribution economics and supply logistics are very important.

The major Ontario supply sources include:

- BP/Amoco Fractionator (Sarnia): Propane is produced from C3+ feedstock, primarily from Alberta (Edmonton and Empress) via the Enbridge pipeline. This facility includes significant storage and rail and truck loading. Estimated specification propane production is about 63,000 Bpd. BP/Amoco is the operator and major owner, but several other companies including Shell, PanCanadian/Kinetic, and Imperial also have ownership in and/or access to product from this facility.
- Marysville Fractionation Partnership (Marysville, Mich.): Kinetic, primarily owned by PanCanadian, and BP/Amoco market volumes produced at this facility, located across the river from and linked to Sarnia by pipeline. The site includes substantial storage. C3+ feedstock is primarily from Alberta via the Enbridge system. The approximately 12,000 Bpd of propane produced is primarily marketed in the U.S.
- Cochin Pipeline (Windsor): Propane moved from Alberta in the line averages about 50 Mbpd. Nearly all is dropped off at U.S. terminals in the Midwest, though occasionally some volumes are moved to Windsor. The pipeline is an open access facility, though the Windsor facilities are controlled by BP/Amoco.
- Sarnia Area Refineries: Approximately 5500 Bpd of propane is supplied from the Sarnia area refineries of Sunoco, Imperial, and Shell.
- Other Ontario Refineries: The Imperial refinery at Nanticoke supplies about 900 Bpd and the Petro-Canada plant at Oakville about 1800 Bpd.

For purposes of this supply/demand picture, the Province is divided into three sub regions: eastern, southern, and northern.

Eastern Ontario

This market sub-region includes:

Ottawa Area	Peterborough
Kingston	Pembroke

There is no indigenous propane production in this region. While the nearest supply sources to this region are the Montreal refineries, this supply is primarily used for more local markets in Quebec. Thus, most of the supply for eastern Ontario is sourced from the Sarnia hub. A number of terminals in this sub region have rail sidings. A relatively small quantity of propane exports moves through this area to Ogdensburg, New York, again primarily from Sarnia.

Southern/Central Ontario

The sub-region includes:

<b>Toronto Area:</b>	Concord	Whitby
	Guelph	Markham
		Milton
<b>South West:</b>	Chatham	Strathroy
	Essex	Stratford
	Sarnia	Putnam
	Windsor	London
<b>Southern:</b>	Simcoe	Smithville
<b>Central:</b>	Barrie	Bala
	Keswick	Walkerton
	Fenelon Falls	Owen Sound

This is by far the largest consuming sub-region, accounting for over 65% of provincial consumption and including much of the industrial and all of the petrochemical consumption.

The sub-region includes all Provincial supply sources. While the Oakville and Nanticoke refineries are ideally located for Toronto and southern markets, their production volumes are well below demand, and so supply from the Sarnia hub is the primary source in the sub-region. Many of the major terminals have rail terminals as well as truck terminals.

### Northern Ontario

This sub region is very large geographically, ranging from North Bay to Kenora, and has a relatively small population. Specific markets include:

North Bay	Echo Bay
Sudbury	Porcupine
Sault Ste Marie	New Liskeard
Thunder Bay	Ft. Francis
Marathon	Dryden
Timmins	Manitouwadge
Wawa	Hearst
	Kenora

There is no propane production in this sub-region. There are two principal supply sources to this sub-region, markets in the eastern and central part of the region such as Sudbury, North Bay, Echo Bay, etc get product primarily from the Sarnia hub. Markets to the west, such as Thunder Bay, Dryden, Kenora, etc. are supplied primarily from the Petro-Canada pipeline/terminal at Ft. Whyte, Manitoba. It is also believed that there is some supply directly from Alberta. Many of the northern market terminals have rail access.

### 3.3.5 Quebec Propane Supply and Demand

Approximately 9500 Bpd of propane is consumed in Quebec. The majority is utilized for residential/commercial heating, but there is also industrial and petrochemical demand in the Province. Indigenous supply is limited to by-product production at three refineries:

- Shell (Montreal) – 600 Bpd
- Petro-Canada (Pointe Aux Trembles) – 1400 Bpd
- Ultramar (St. Romauld) – 3000 Bpd

Thus, on an average basis about 4500 Bpd is required from external sources. Because there is no low cost underground storage available in Quebec, the seasonal nature of the demand requires a significant transportation capability.

For purposes of this analysis, the Province has been broken into three sub-regions, western, central, and northern/eastern Quebec.

#### Western Quebec

This sub-region is defined to include the Montreal area, Eastern Townships, and Gatineau region to the North. It is the largest of the three sub-regions in terms of consumption. Specific markets include:

Montreal Area	Joliette
Sherbrooke	Gatineau
Drummondville	Mont Laurier
Granby	

While the Montreal area refineries, Shell and Petro-Canada, are ideally located to serve these markets, their 2000 Bpd volume is short of that required, so external supply is required, particularly on a seasonal basis. Most of this comes from Sarnia area suppliers.

### Central Quebec

This sub-region includes:

Quebec City/St. Romuald	Riviere du Loop
Thetford Mines	Les Cedres

The principal supply source, Ultramar's refinery at St. Romuald, provides more than enough propane to supply this sub-region on an average basis. Some supply is also sourced from Sarnia.

### Northern/Eastern Quebec

The remaining Quebec markets are stretched over large distances and are individually small. Specific markets in this sub-region include:

Jonquiere	Cap De La Madeleine
Rouyn	Sept Ile
Rimouski	

As there is no indigenous supply in this sub-region, it must be externally sourced. Specific sources depend to some degree on marketer supplier relationships, but the Ultramar, Shell, and Petro-Canada refineries are suppliers. The Irving refinery at St. John, N.B. appears to be well located for some of these markets and in some cases volumes come from Sarnia.

### 3.3.6 Atlantic Canada Propane Supply and Demand

For the region as a whole, propane demand is estimated to be about 6100 Bpd, based on 1997 data. The large majority is consumed for residential and commercial heating. Indigenous supply is based on by-product refinery production and is estimated to be about 4100 Bpd, on a 1997 basis, from the following plants:

- Irving (St. John, NB) – 2400 Bpd
- Imperial (Dartmouth, NS) – 1200 Bpd
- Atlantic Refining (Come-By-Chance, NFL) – 500 Bpd

On this basis, the Atlantic region is about 2000 Bpd under-supplied. The primary external source is the Sarnia hub, frequently through the Moncton terminal. However, this may change by year end when the Sable Island gas begins flowing. An extraction unit and fractionator will produce about 6.0 Mbpd of specification propane from the initial natural gas production in Nova Scotia. While relatively small from an industry perspective this will be important for markets as isolated as Atlantic Canada and Eastern Quebec. The volumes will likely replace Sarnia volumes currently supplying these areas. It is not clear who will market the product, and none of the Sable Island project participants are retail propane marketers in Canada.

#### Nova Scotia

Propane consumption is an estimated 2300 Bpd based on 1997 numbers. Key markets include:

Dartmouth	Trenton
Sydney	Truro
Port Hawkesbury	Kentville



With the Imperial refinery production at about 1200 Bpd, Sarnia volumes are currently required to balance demand, though as noted previously this may change around the end of the year when propane production from Sable Island gas commences.

### New Brunswick

At an estimated 2700 Bpd, propane consumption is close to estimated production at the Irving refinery, so on a macro basis there is a reasonable balance. However, since Irving is a direct propane marketer, its volumes are not necessarily available to other competitors. Therefore, it is understood that other marketers access supply primarily from Sarnia with some volume from Alberta. Moncton is a key terminal and market center. Other markets include Saint John, Bathurst, Fredericton and Edmundston. Moncton has a rail terminal facilitating rail shipments.

### Newfoundland and PEI

Consumption in both Provinces is quite small. Newfoundland's demand of about 700 Bpd is approximately matched by production from Atlantic Refining facility. PEI supply for its approximately 400 Bpd consumption is believed to generally come from Sarnia via the Moncton terminal.

## **3.4 Wholesale Propane Industry Constraints**

This section briefly comments on potential constraints on the wholesale side of the industry, including physical constraints and structural or commercial constraints.

There has been a significant expansion of NGL facilities over the last few years. Such projects as development of the Redwater fractionation complex, extension of both Peace and Federated NGL gathering systems and capacity increases on the Enbridge and Cochin pipelines have eliminated most physical bottlenecks and increased operational flexibility for NGL generally and propane specifically. It is believed that

utilization of the Sarnia hub fractionation capacity is quite high, and that a bottleneck could potentially develop. Similarly, it is believed that the Superior, Wisconsin breakout storage on the Enbridge system is operating close to capacity and may have to be expanded. In general we conclude that currently, and for the near future, there are no significant physical constraints on the system.

Examination of the commercial structure as it may relate to possible constraints is a good deal more complex, but there appears to be some significant commercially related constraints for most supply side players. The effect is to give a few suppliers better access to key facilities, potentially providing them with advantages not available to the industry in general.

Commercial constraints in the wholesale propane sector tend to be based on facility control, although production control is also of some importance. So while there are few facility constraints from a physical capacity perspective, commercial constraints may be exercised through facility ownership. In great part this situation stems from historical investments made by certain players in NGL facilities.

By far the major player in the wholesale sector is BP/Amoco, by virtue of facility ownership, volume control, and strategy. The joining of Amoco and Dome was a key factor in making BP/Amoco the dominant player. Other important players include Kinetic/PanCanadian, Shell, and Imperial. Petro-Canada and Gulf are also major players regionally.

A key control area is the Enbridge pipeline system. While the pipeline is a common carrier, BP/Amoco owns the only C3+ injection facility at Edmonton and, with PanCanadian, the only such facility in Kerrobert for Empress volumes. Thus, no C3+ can be put on the system without using these facilities, which are available only to the owners. Further, BP/Amoco, along with PanCanadian and Shell, own the Superior, Wisconsin breakout storage, a necessary physical facility for the transportation of high vapor pressure C3+ batches on the Enbridge system. While the NEB is attempting to

open the system with regard to C3+ injection, and FERC in the U.S. has ruled Enbridge is responsible for providing adequate breakout storage to all shippers, at this point in time these control points remain very much in effect.

Ownership of fractionation and associated storage at the Sarnia area hub is another potential commercial constraint on access to the wholesale propane market in Central and Eastern Canada. The large BP/Amoco plant is 70% owned by BP/Amoco, with smaller interests for PanCanadian and Shell. PanCanadian and BP/Amoco control a significant portion of the Marysville fractionation complex via long term lease. In general these facilities are not operated on an open fee basis but are reserved for lessee or owners' volumes. In the case of Sarnia fractionation, the control aspect is enhanced by the relatively high utilization rates.

On the production side, direct volume control is perhaps less important than in the past, as there are more gas/NGL producers. However, in some instances facility and contractual positions are still important. BP/Amoco's private Co-Ed Pipeline operates between southwestern Alberta and Edmonton to acquire C3+ volumes. Petro-Canada and BP/Amoco have very long term processing rights for gas at the straddle plants, providing significant NGL volumes over a long period. Petro Canada owns and operates on a private basis the pipeline moving its Empress propane and butane to Saskatchewan and Manitoba, providing the company with a strong position in these markets. "Keep Dry" agreements with refiners may give a propane marketer control over important regional supply sources.

Overall it appears that a few suppliers are much better positioned in the domestic market, limiting the ability of other players to compete, at least on a cost equivalent basis. Commercial constraints appear stronger in the Central/Eastern markets than in the West, where there are more sources of specification propane.

### 3.5 Pricing at the Wholesale Level

Propane pricing at the North American level has been discussed in Chapter 1. It was noted that Edmonton and Sarnia were key NGL hubs integrated into the North American NGL system. Prices at the hubs and price relationships between the hubs are based on such macro factors as weather, global and North American economic activity levels, crude prices, inventory levels, etc. This section focuses more on specific pricing mechanisms in the Canadian market. The variables considered include location, transportation costs, type of contract, volume and possible special relationships.

The basis for most Canadian propane prices is the Edmonton or Sarnia postings. While the term has a less precise meaning than the posted price for crude oil, which is a refinery buy price, it is generally a reference price used by the propane suppliers as the basis for selling on contract. Most buyers, such as SPI or ICG, purchase most of their supply on a contract basis. The contract generally specifies a volume, sometimes a range of volumes, a pricing formula, and a term, usually one year.

If the supply point is other than the Edmonton or Sarnia hubs, particularly a gas plant with fractionator, location differentials are frequently part of the pricing formula. Generally they are additive to the posted prices at the hubs. In the case of Edmonton, they generally relate to the cost of transportation from Edmonton to the supply point, as this is the supply point alternative for that buyer. In central and eastern Canada, location differentials are frequently related to transportation of product from Sarnia to the supply point, usually a refinery, as this is the alternative supply source for the buyer in this instance. A few supply points outside the hubs have their own postings, such as the Petro Canada terminal at Ft. Whyte and the gas plant at Taylor B.C. However, these are generally related to the major hubs on a transportation differential basis. It should be emphasized, however, that contract terms are generally negotiated, and may be influenced by the external environment and the particular negotiating position of the buyer and seller.

Some refineries located outside the hub areas post their own prices, which are normally higher than hub pricing because they are generally closer to the market. While directionally related to transportation costs for alternative supply from the hubs, they reflect regional supply/demand and other commercial circumstances. A recent trend in Alberta is for gas plants producing specification propane to do their own posting, similar to the above noted refinery pricing, so that contracts for their volumes are based on their posting rather than Edmonton plus pricing. It is not clear at the moment how far this trend will go, but it has the effect of making pricing less transparent and more open to specific negotiation.

Table 3.4 gives a general picture of the posted pricing at several important supply points away from the major hubs, based on posted prices over the 1995-1997 period.

**TABLE 3.4**  
**Propane Pricing at Supply Points Relative**  
**to Hub Pricing (1995-1997)**  
**(Cents per Litre)**

	Dartmouth Esso	Montreal Shell	Ft. Whyte PetroCan	Vancouver
HUB	Sarnia	Sarnia	Edmonton	Edmonton
Average Price Relative to Hub	+2.7	+1.9	+2.5	+2.2

Thus, the outlying supply points may be on the order of 10-25% higher than hub pricing. The data indicated that posted pricing at these points was quite consistent relative to hub pricing.

The above describes normal contract pricing mechanisms. There are however, other price arrangements by which major buyers, such as SPI and ICG/Petro-Canada, may purchase a portion of their supply. Examples may include:

### Pre-Buying

A buyer may be able to purchase a portion of his contract at the (usually) low summer price and lift it on a discretionary basis, usually in the winter heating season. There may be a fee associated with this, but it reduces the risk of very high winter prices and may provide lower overall supply costs.

### Limits on Location Differentials

The contract may put limits on price differentials between Sarnia and Edmonton, or between other locations. Again, this may provide some risk reduction regarding price spikes in particular markets.

### Cost Related Pricing

Contract pricing may be based on the cost of product acquisition and/or processing by the seller on a formula basis, as opposed to a posted price basis. One application of this concept may be related to volumes moved from Western Canada to Sarnia as NGL mix. Such pricing is not generally available but may be related to special relationships between buyer and seller. It is believed this approach could provide lower prices than the posted price at the supply point.

As noted previously, propane is most often bought on a contract basis, but it is also purchased on a spot basis. Spot prices are set at the hubs and reflect the short-term position of the industry regarding inventory levels, contract obligations, demand levels, etc. In periods when the market is slow, spot prices will run modestly below contract prices, and when demand is strong relative to inventory and production, spot pricing will be higher. During the occasional demand and price spikes related to weather, spot pricing may be extremely high and spot volumes very difficult to get at any price.

Because so much of propane pricing is related to posted prices, the question arises as to how representative these actually are relative to actual transactions. Suppliers will generally say that their posted prices are valid. Our experience is that while the Edmonton posted price tends to be realistic, discounting of the Sarnia price is more common. In great part this may be related to exports. As additional NGL has moved to Sarnia over the last few years, market penetration further into the U.S. has been required, increasing freight costs as well as forcing more competition with volumes from the Gulf Coast off the TEPPCO pipeline, refineries, and other U.S. supply. Such discounting may occur less with domestic volume where large alternative competitive supply is not a threat.

## CHAPTER 4

### THE MERGED COMPANY IN THE CANADIAN PROPANE INDUSTRY

The objective of this Chapter is to estimate what the merged Superior/ICG might look like and examine the potential impacts of the combination on competitive issues in the upstream parts of the industry. The analysis is done in the context of the propane industry as described in Chapters 1-3. It is emphasized that the focus is on supply and related upstream interface issues, as opposed to retail characteristics and issues.

#### **4.1 Overview of the Merged Company and Potential Competitive Issues**

This section provides a brief overview of the scope of the new company and what the most important upstream related competitive issues might be.

##### **4.1.1 Overview of Merged Company**

The merger of Superior and ICG will create a mega Canadian propane retailer with sales of about 2.15 billion liters (approximately 37.0 Mbpd) in 1998, accounting for approximately 70-75% of domestic retail propane sales. The surviving company, Superior, will increase its volume by over 80%. In addition to dominating the market on a national level, the merged company will have a dominant position in each of the Provinces, except for the Atlantic region.

This will be a major change relative to the pre-merger market structure, with respect to both retail sales and supply acquisition. Pre-merger, the major player in most regional markets held from 35-50% of the market with a second competitor nearly as strong. This is illustrated in Table 4.0 below, which shows the estimated market share of the largest player pre-merger and the estimated share of the merged company on a regional basis.



**TABLE 4.0**  
**Estimated Pre and Post Merger Market Shares**

<u>Region</u>	<u>Company</u>	<u>Pre-Merger Larger of SPI or ICG Market Share</u>	<u>SPI Plus ICG Market Share</u>
		( <u>%</u> )	( <u>%</u> )
B.C./Yukon	SPI	40	76
Alberta	SPI	40	78
Manitoba/Saskatchewan	ICG	35	65
Ontario	SPI	54	83
Quebec	ICG	37	70
Atlantic Canada	SPI	48	50

The merged company will also be more balanced geographically, as ICG was more concentrated in the west and Superior in the east. The 1998 gross profits achieved by both companies illustrate the geographical shift and balance of the merged company.

**TABLE 4.1**  
**1998 Gross Profits % By Major Region**

	<u>West (B.C.-Manitoba)</u>	<u>East (Ontario-Atlantic)</u>
	( <u>%</u> )	( <u>%</u> )
Superior	37	63
ICG	60	40
Merged Company	46	54

One advantage ICG brings to the merged company is that it is less dependent on the auto market segment, about 27% of its volume compared to 33% for Superior. While the auto market, at approximately 1 billion liters in 1998, is one of the largest segments, it appears to be in a significant decline based on technological factors and the removal of some government subsidy. It is a major factor behind the decline in propane sales

It should be noted that we do not expect the merged company to acquire its total volume on this basis, possibly only a designated core volume.

- Based on documents submitted Superior appears to believe its trucking subsidiary ETI, which moves most of the company's product in Central and Eastern Canada, provides it with the lowest cost truck transportation. Based on the gross margin differences between Superior and ICG, Superior may indeed have a significant transportation cost advantage. Therefore, it would seem plausible that the merged company would consider expanding the ETI operation to accommodate the new volume. One note of caution here, because of ICG's relationship with Petro Canada and how costs may be accounted for, it is not clear what ICG's transport costs really are.
- Superior similarly suggests that its strategic alliance with Economy Carriers provide the lowest cost propane trucking in the western markets. It would seem logical that the merged company would try to maintain this advantage for its new volume, either by expanding its alliance with Economy if that company can accommodate the volume, finding an additional trucker to partner with, or even possibly expanding ETI in the west.

If the merged company takes some or all of these steps, the overall impact would be to "integrate" the company at the upstream interface. We believe the merged company will stop its integration at the upstream interface. It appears very unlikely to attempt to move further upstream into NGL production and/or processing, thereby competing with its suppliers. The availability of propane at market prices determined by the North American marketplace and the generally adequate NGL infrastructure would make such a move unnecessary and likely unprofitable.

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#### 4.1.2 The Upstream Interface

The upstream interface, as we define it, is where the merged company comes in contact with the upstream segments of the business. These contacts are basically the functions relating to acquiring propane supply to support retail sales. Because the merged company is likely to remain focused on the retail side of the business, this interface, in our view, is as far upstream as the company is likely to go. Specific aspects of the interface are discussed in the following sections.

##### Supply Acquisition

A number of functions come under this category. The merged company will likely develop and maintain a procurement strategy for the large increase in volume. Such aspects as type and mix of supply contracts, contract terms, desired supply locations, mix of suppliers, etc. must be dealt with. Supply and pricing risk minimization is a particularly important aspect in an industry whose product supply and price is very volatile and dependent to a significant degree on non-controllable factors. Such risk mitigation may involve physical facilities and contractual transactions, as well as hedging activities.

##### Primary Transportation

This function entails moving propane from supply acquisition points to the merged company's storage locations and in some instances to market. Some aspects of this are handled by the upstream NGL players, particularly moving propane by pipeline from production locations, such as the Enbridge pipeline from Alberta to Sarnia or by PTC from Empress to terminals in Saskatchewan and Manitoba. However, the merged company will be responsible for moving most of its volumes from major supply points to its own storage and branch locations. This is a key function and how efficiently it is done will have a significant impact on gross margin, as well as potentially being a major area of capital expenditure.

### Long Term Storage

An important tool for a major propane marketer, and one that Superior currently uses, is long term bulk storage. Such storage facilitates reduction of supply risk and potentially distribution costs and may allow the company to take advantage of particular buying opportunities. These facilities, which are differentiated from the marketers' branch storage, are normally underground salt caverns allowing storage of large volumes of NGLs at low cost and are generally developed, owned, and operated by the major NGL upstream players. They are, however, sometimes available for lease. Superior leases space at both Sarnia and Edmonton, and it seems likely that the merged company would expand its bulk storage to accommodate higher volumes.

In summary, the upstream interface, including supply acquisition, primary transportation, and long term storage, is the key wholesale area to examine regarding potential competitive impact of the merger.

#### **4.1.3 Potential Anti-Competitive Impacts**

There is potential for the merged company to meaningfully impact competitive aspects at the upstream interface. This section briefly reviews this potential, and the more important aspects will be looked at in more detail over the remainder of the Chapter.

There are two factors that underlie the potential competitive advantage of the merged company at the upstream interface. One is the leverage offered by the additional volume controlled by the new company and the other is the elimination of the only significant competitor in most markets. These two factors may work together to enhance the merged company's position at the upstream interface.

### Supply

Our experience is that wholesale propane suppliers do recognize volume as a positive consideration in negotiating supply and pricing. It may be noted that on the retail side Superior at times apparently provides lower prices on a volume basis, based on documents submitted. Because the key supply/demand factors for propane tend to be regional rather than national, the significant increase in volume of the merged company, as well as elimination of the only significant competitor for much of the regional supply, may allow the merged company significant additional leverage with suppliers in some circumstances. Supply from some refineries may be an example of this.

A somewhat related advantage based on volume is the potential for setting up "strategic alliances" between major suppliers and the merged company. Superior and Shell set up such an arrangement, apparently to include supply at various locations across the country, terminal arrangements in Sarnia, access to the Marysville to Sarnia pipeline, and Superior propane sales to Shell service stations. In some regards ICG's working arrangement with Petro-Canada may be considered a type of strategic alliance. Such alliances provide many of the advantages of vertical integration in an otherwise somewhat fragmented industry. Small retail marketers are unlikely to be able to set up such alliances, so with the merger there would be only one company capable of realizing their potential advantages and that company would have enhanced potential for doing so.

### Primary Transportation

Transportation of propane from the supply acquisition point to the merged company's terminals is another interface area where increased volume may provide significant advantages. Superior, in its current configuration, has developed two particular transportation arrangements which appear advantageous and which appear to require significant volume to be practical. The company has formed a 10 year strategic alliance with Economy Carrier in Western Canada for long haul transportation.

In eastern Canada SPI owns its principal truck transporter, ETI. It is apparently the industry's largest LPG transportation enterprise, moving about 885 million liters (15.0 Mbpd) per year. SPI has noted that it has the lowest cost transportation by a substantial margin and that if ETI were sold their Ontario costs would increase significantly.

Rail transportation in recent years has become considerably more competitive, with volume discounts becoming increasingly the norm. The increased volume accruing to the merged company will provide a greater opportunity to take advantage of the volume discounts in rail transport.

Overall, it would appear that the substantial additional volumes available to the merged company will provide the opportunity to enhance the type of transportation economies developed by SPI. This could result in a de facto increase in vertical integration for the company and probably widen the cost gap between the merged company and the rest of the industry.

#### **4.2 Major Competitive Issues at the Upstream Interface**

The objective of this section is to examine in more detail several upstream related areas identified as possibly having anti-competitive implications as a result of this merger. These include demand and supply acquisition on a regional basis and pricing of supply and related contract terms.

##### **4.2.1 Regional Demand and Supply Acquisition**

The question explored here is what might be the impact of the merged company's demand on regional supply. Do the suppliers have reasonable alternative markets or does the concentration of buying power limit the seller in any disadvantageous way? This section is organized on a Provincial basis. Market share data was derived from

ICG and SPI documents and appears to be based on 1996 estimates. While the specifics may have changed slightly over the last several years, it is believed they remain valid for these purposes.

### British Columbia

B.C. retail propane market share is estimated as:

	Estimated Market Share (%)			
	SPI	ICG	Merged Company	Other Companies
Northern B.C.	49	47	96	4
Central/Coastal B.C.	37	34	71	29

The small and widely spread northern market region will in essence be exclusively served by the merged company. Supply for this market is sourced primarily from the Fort St. John area gas plants supplemented by Edmonton volumes. Until recently the merged company could have had enhanced buying power compared to the local producers, as it is the only buyer of any consequence in the region. However, a very important offsetting factor is that the area producers now have a major market alternative with the connection last year of two NGL pipelines to the Edmonton hub. This will put limits on the degree to which the merged company can use its market power with respect to supply acquisition in this region.

The merged company will hold a very significant, but not totally dominant market share in central and coastal B.C. Supply for the central region likely comes from Alberta by rail and truck. Because of the large and diversified market alternatives for Alberta supply, elimination of one competitor, even one as large as ICG, would not likely significantly impact the relative buyer/seller market power balance in this region.

The Fraser Valley and other coastal markets are supplied by the Chevron refinery at Burnaby, the refineries in northwest Washington, and supplemented by trucked or railed



product from Edmonton. The Chevron refinery might be considered the prime supply, located in the heart of the market. The merged company would likely have enough market, even in the summer, to utilize all the Chevron volume. Thus a "keep dry" arrangement currently in place will be more economical to maintain and will likely continue to put the smaller competitors at more of a pricing disadvantage, though supply availability would not likely be a problem.

### Alberta

Similar to B.C., the Alberta market will go from a structure of two large and more or less evenly balanced competitors plus a number of smaller players to one large company with nearly 80% of the retail market.

	<u>Estimated Market Share (%)</u>			
	<u>SPI</u>	<u>ICG</u>	<u>Merged Company</u>	<u>Other Companies</u>
Alberta	41	37	78	22

With regard to supply, however, it does not appear that the merged company's market position would provide a great deal of additional leverage relative to the current structure or to smaller competitors. The merged company's volume, on the order of 550-600 million liters per year (10 Mbpd) is fairly small relative to the overall amount of propane available in Alberta, infrastructure available and alternative markets. The merged company will be better able to develop other advantages which impact on the Alberta market such as strategic alliances, long term storage, and transportation.

### Manitoba/Saskatchewan

The merged company will have roughly two thirds of this regional market, from a nearly equal market structure before the merger.

	<u>Estimated Market Share (%)</u>			
	<u>SPI</u>	<u>ICG</u>	<u>Merged Company</u>	<u>Other Companies</u>
Manitoba/Sask	30	35	65	35

Supply for Manitoba and southern Saskatchewan is sourced from the Petro-Canada pipeline and terminal at Ft. Whyte, as well as the Co-op refinery near Regina and the Wolcott gas plant in southern Saskatchewan. Northern and Western Saskatchewan is supplied from Alberta. Buying leverage of the merged company in this region may be offset by Petro Canada's position as low cost supplier off their private pipeline. Because Petro Canada has the lowest cost transportation, and alternative export markets, the merged company is not likely to have significant leverage in the Manitoba/Saskatchewan market.

#### Ontario

Unlike the western markets, where pre-merger there was a rough balance between Superior, ICG, and other companies, Superior has been the major player in Ontario with a market share of over 50%. The merged company is estimated to have over 70% of the provincial market. The overall number is somewhat misleading, in that except for the large southern Ontario market the merged company will have over an estimated 80% market share.

Only in Southern Ontario is the merged company not the dominant factor in the sub-regional markets. The smaller independent suppliers have been and apparently will continue to be major players in this sub-region, perhaps based in part on the abundance of local supply (Sarnia hub) and limited supply infrastructure required. Market shares in the major regions are estimated as follows:

	<u>Estimated Market Share (%)</u>			
	<u>SPI</u>	<u>ICG</u>	<u>Merged Company</u>	<u>Other Companies</u>
Eastern	60	22	82	18
Central	61	25	86	14
Toronto/Niagara	68	13	81	19
S. Ontario	37	11	48	52
N. Ontario	51	48	99	1
Total Province	54	19	73	27

The Eastern and Central regions are supplied by truck and rail from Sarnia. Superior's apparently low cost trucking operations ETI will presumably be an important competitive advantage in these markets, though with over 80% market share competition may be modest. Toronto and the Niagara Peninsula will likely be supplied first by the regional refineries, Imperial and Petro Canada, supplemented by Sarnia volumes. With its market share, the merged company could easily absorb the refinery volumes, for example via "keep dry" arrangements, thus possibly controlling the potentially lowest cost supply. The dispersed Northern Ontario market is supplied by Ft. Whyte or Alberta volumes in the Western portion and from Sarnia in the other parts. Because there appears to be no effective competition in this region supply control is a moot point. It does however, inhibit the entry of competitors.

### Quebec

The Quebec market is another area in which the merger will transform a market characterized by two strong, relatively evenly matched competitors into one with a single dominant player plus a number of much smaller competitors.

	<u>Estimated Market Share (%)</u>			
	<u>SPI</u>	<u>ICG</u>	<u>Merged Company</u>	<u>Other Companies</u>
Northern	24	55	79	21
Central	25	42	67	33
Montreal/S. Shore	45	21	66	34
North West	53	33	86	14
Total Province	33	37	70	30

The Northern and Central markets are supplied by the Ultramar refinery near Quebec City supplemented by Sarnia rail volumes, particularly in peak months. With the volumes of the merged company, perhaps including some of its Maritimes volumes, it might be in a position to take all the Ultramar volumes, a large and favorably located supply. The Central sub-region is the largest consuming market of the Quebec sub-regions. Montreal and South Shore volumes are supplied mostly by the local refineries plus Sarnia volumes by rail. Superior has a "keep dry" arrangement with the Montreal Shell refinery. The merged company would appear to have the potential to take all of the Petro-Canada volumes as well, based on its volumes in the Montreal, Northwest, Quebec and Eastern Ontario markets.

### Atlantic Canada

Atlantic Canada is the only region where the merger will not significantly impact market share and therefore, potentially, supply patterns.

In the Atlantic region the "other" category is primarily Irving, which controls about 47% of the market and is back integrated to propane supply at its refinery. The merged company may continue to acquire Newfoundland supply primarily from the Come-By-Chance refinery, Nova Scotia supply from Imperial's Dartmouth refinery supplemented

	Estimated Market Share (%)			
	SPI	ICG	Merged Company	Other Companies
Newfoundland	75	-	75	25
New Brunswick/PEI	39	2	41	59
Nova Scotia	55	-	55	45
Total Region	49	1	50	50

by Sarnia rail volumes, and New Brunswick volumes from Sarnia and Quebec refineries and occasionally Alberta by rail. However, Sable Island propane, which will be recovered in Nova Scotia, may significantly change supply patterns in the Atlantic region, providing for a supply excess.

### Summary

There may be potential for the merged company to secure a supply cost advantage in most regions. Superior in its testimony acknowledged its ability to enter into "keep dry" agreements with certain refineries at advantageous supply costs, but suggested that costs associated with storing the product during the summer season offset the lower purchase cost. With the substantially higher volume of the merged company, such excess product movement and storage would likely be much reduced. This, combined with the elimination of the largest potential competitor for this supply, may provide incentive for both the merged company and some refiners to develop more "keep dry" type supply arrangements, on terms relatively favorable to the merged company. This could provide a competitive advantage relative to smaller competitors unable to secure local supply. Areas where this potential may exist include the Vancouver area with the Chevron refinery, the Suncor and Imperial refineries in Southern Ontario, all the Quebec refineries, Imperial at Dartmouth, Nova Scotia, and to a more limited degree the Imperial (Nanticoke) and Petro Canada (Oakville) refineries.

#### 4.2.2 Supply Acquisition: Commercial Arrangements and Costs

This section takes a brief look at commercial arrangements and pricing for propane supply for Superior and ICG and attempts to extrapolate these aspects to the merged company. In particular we examine the opportunity for and show that Superior and ICG appear to get some supply under terms more favorable than simple posted prices plus transportation adjustment, and that this is likely to be carried over to the merged company.

As with most propane supply contracts, the majority of the Superior and ICC agreements appear to be one year, with some two years. Because this is the standard for the industry in North America, the merged company will likely continue contracting the majority of its supply on a short term basis.

between Superior and Shell, which is part of the company's strategic alliance strategy. In the current circumstances the ICG supply contracts are negotiated between the seller and Petro-Canada as agent for ICG. The pricing basis for the supply agreements are generally posted prices at the Edmonton or Sarnia hub. In many instances the contracts appeared "standard" in that they reference posted prices plus appropriate transportation differentials. However, there are other instances of contracts with particular pricing variations which indicate that Superior and/or ICG in fact may have contracted price related terms which in effect may provide prices below posted and so below competitors who buy at posted prices. Several examples which illustrate this premise are:



The above discussion is based on examination of a few specific supply contracts. Obviously there are many contracts which were not included in the submission. The point is to illustrate that these two companies may indeed have access to propane supply at prices and related terms more favorable than simply the posted price at the hubs. This is not surprising given the importance of these companies and their volumes, and it would likely hold true in most industries. It may be remembered that in Superior's draft company objectives noted in the transcript (T-1776-98 pp.587/588) one of the targets was to achieve a supply price discount of 5% below posted prices. This indicates that price discounting may be a more or less standard objective and part of the business.



While we cannot be certain of the supply pricing dynamics regarding the merged company, it would seem that the merged company would continue to take advantage of special supply pricing arrangements. The merged company would have greater potential to arrange strategic alliances, dominate regional markets and take advantage of limited alternatives of some supply locations and increasing the potential for such advantages relative to the pre merger company.

#### 4.2.3 Barriers to Entry from A Supply Perspective

Submissions from Superior have sought to show how easy it is to enter the retail propane business, how few barriers to entry there are. While the principal area of concern regarding barriers to entry is associated with the retail market side, there are also some supply issues which should be considered. This section briefly looks at the upstream interface with regard to barriers to entry.

An important aspect of barriers to entry is what is meant by "competitor". In the discussion to date Superior appears to be talking about the "mom and pop" small niche player serving as an alternative in a very limited market segment and geographical area. While these companies play an important part in the industry, this is not at all the same as the type of competition which will be eliminated if Superior absorbs ICG. ICG provided an effective alternative over a long period of time on a similar scale and on a multi-regional basis. This sort of alternative requires significant volume on a multi-regional basis, supply related infrastructure in terms of transportation and storage facilities or access there to, and related financial commitment. Therefore entry or development of an effective alternative to the merged company would be substantially more complex and costly than portrayed by Superior.

With regard to supply acquisition, it is true that propane at the hubs can generally be purchased on a spot basis. However, supply on this basis is vulnerable not only to extreme price volatility but at times may be unavailable, particularly during severe winter weather, when volumes are held by suppliers for their contract customers. Small players

may also secure supply on a contract basis, though the supplier must be convinced the buyer will actually lift the volumes contracted for and has a satisfactory credit rating. Supply from some of the sources away from the hubs may be more difficult, in that availability is more limited and as has been noted, the merged company may have the volume to take the entire production from a particular source. Thus, outside the hub areas the most economical supply may tend to be tied up by the merged company and not available to any competitor. In such circumstances a competitor would be driven further afield to find product, incurring higher costs as a result. There is also the case where ICG and SPI supply propane to small retailers. The removal of competition to supply these small retailers could raise their acquisition costs substantially.

It would seem very doubtful that these small players would be able to get supply pricing based on the "special" terms noted in the previous section and which may become even more prevalent after the merger. In some cases, without multiple markets and supply points such arrangements would not have any application. It is unlikely that the small buyers could form a strategic alliance with a supplier simply because they would not be "strategic" to the major supplier. For these reasons, and despite Superior's claim that everyone buys at the same price, we believe any small new entrants will be at a disadvantage to the merged company in regard to the cost of supply acquisition.

Superior has indicated in their submissions how their strategic alliance with Economy Carriers has provided them with generally the lowest cost transportation in the western markets, and similarly how their wholly owned transport company ETI is the lowest cost propane carrier in the east. A new competitor who has one or a few trucks would, almost assuredly, have higher transport costs than the merged company. With regard to rail rates, we are aware that the railroads will negotiate rates based on volume. No new retail entrant is likely to have the volume the merged company will have, either overall or into specific regional markets. Thus, it appears likely that the merged company would have significant transportation costs advantages over new entrants of the kind envisioned. In addition, without owning or leasing its own rail cars the small new entrant risks not having cars available when they need them most, during peak winter months.

In summary, our view is that a new competitor of the small retail type would be disadvantaged to the merged company with respect to both supply acquisition cost and supply transportation costs, as they are today relative to Superior and ICG. As today, a newcomer may, by providing excellent personal service, or by focusing on a narrow localized market segment, develop a niche to the point of being able to survive. However, the characteristics supporting survival would also likely limit that player with respect to growth and expansion.