

1 **A1. INTRODUCTION**

2 **Q1. What information is contained in this Appendix?**

3 **A1.** Section 2 provides information on TransCanada's existing Mainline suite of
4 services and flexibility features. Section 3 describes how Mainline services are
5 used in meeting the requirements of existing gas markets in Ontario.

6 **Q2. Why is TransCanada providing this information?**

7 **A2.** This information to provides an overview of the existing suite of services on the
8 Mainline to facilitate a better understanding of, and to provide context for,
9 TransCanada's proposed new transportation services, FT-SN and SNB.

10 **A2. EXISTING MAINLINE SERVICES**

11 **Q3. What transportation services are currently available on the Mainline?**

12 **A3.** Four primary transportation services are available. These services are listed in
13 Table A1.

Table A1: Primary Transportation Services on the Mainline

Attributes	Firm Transportation (FT)	Storage Transportation Service (STS)	Short Term Firm Transportation (STFT)	Interruptible Transportation (IT)
Priority	Firm	Firm; from market to storage in summer; from storage to market in winter	Firm	Interruptible
Term	Minimum 12 months	Minimum 12 months	7 to 364 days	1 day
Access	Open season. Shipper bids term of service.	Opens season. Shipper bids term of service.	Open season. Shipper bids price and term.	Daily auction. Shipper bids price.
Will TCPL build to provide service?	Yes. Must be supported by long term contracts.	Yes. Must be supported by long term contracts.	No.	No.
Toll Type	Monthly demand and commodity	Monthly demand and commodity	Daily demand	Commodity
Toll	Distance based; as approved by NEB.	Distance based; as approved by NEB.	Auction; Floor price equals 100% load factor FT toll.	Auction; Floor price equals 1.1 times the 100% load factor FT toll.
Renewal Rights	Yes. Renewal for 1 year upon 6 months prior notice.	Yes. Renewal for 1 year upon 6 months prior notice.	No.	No.
Other Conditions		Linked to long-haul FT contract.		

1 Six additional transportation services are also available on the Mainline. These
2 services are:

- 3 • Firm Backhaul Transportation (FBT);
- 4 • Interruptible Backhaul Transportation (IBT);
- 5 • Firm Service Tendered (FST);
- 6 • Storage Transportation Linked (STS-L);
- 7 • Firm Transportation Non-Renewable (FT-NR); and
- 8 • Long Term Winter Firm Service (LTWFS).

9 **Q4. What flexibility features are provided to shippers on the Mainline?**

10 **A4.** The flexibility features offered with the primary transportation services are
11 summarized in Table A2.

Table A2: Flexibility Features

Service Features	Firm Transportation (FT)	Storage Transportation Service (STS)	Short Term Firm Transportation (STFT)	Interruptible Transportation (IT)
Daily Nomination Windows	4 (NAESB*)	8 (4 NAESB* windows plus 4 additional STS windows)	4 (NAESB*)	4 (NAESB*)
Assignments	Yes	No	No	No
Diversions to alternate Delivery Points	Yes. Secondary priority.	No	No	No
Alternate Receipt Point (ARP)	Yes. Secondary priority.	No	No	No
Risk Alleviation Mechanism (FT-RAM)**	Yes. Credits to IT invoices for unutilized FT entitlements (long-haul or 'linked' short-haul FT contracts only).	No	No	No
Great Lakes Capacity Release (CR)	Yes, subject to capacity.	No	No	No
Enhanced Great Lakes Capacity Release (ECR)	Yes, subject to capacity.	No	No	No

* NAESB is the North American Energy Standards Board.

** FT-RAM expires October 31, 2007.

- 1 **Q5. How are these transportation services and flexibility features used by**
- 2 **Mainline shippers?**
- 3 **A5. Firm Transportation (FT) Service:**

1 FT service provides firm transportation service year-round with the right of
2 renewal for a minimum one-year term upon six months prior notice. This service
3 is useful to shippers that require assured transportation service each day on a long
4 term basis.

5 Given that capacity is reserved year-round for FT shippers, there is a demand
6 charge (or capacity reservation charge) that is payable regardless of the quantity
7 of gas actually transported. In addition, FT shippers must pay a commodity
8 charge for each unit of gas transported to cover variable costs incurred.

9 TransCanada provides FT shippers with a number of flexibility features that
10 enables them to mitigate the risk of unutilized demand charges and capture other
11 market opportunities that arise. Diversion and Alternate Receipt Point (ARP)
12 features allow shippers to access gas at alternate receipt points and deliver to
13 alternate markets on a secondary firm basis. Enhanced Capacity Release (ECR)
14 and Capacity Release (CR) provide FT shippers access to markets and storage
15 locations on the Great Lakes Gas Transmission System. Assignments enable
16 shippers to temporarily or permanently assign all or part of their contract rights to
17 a third party. Firm Transportation - Risk Alleviation Mechanism (FT-RAM)
18 provides shippers with dollar credits towards their Interruptible Transportation
19 (IT) service invoice to the extent that they do not fully utilize their full FT service
20 contract entitlements during the month.

21 Storage Transportation Service (STS):

22 STS provides for firm service from market to storage in summer and firm service
23 from storage to market in winter. STS is only available to shippers that hold a
24 long-haul FT Service contract to the same market.

25 STS serves two main purposes. First, it enables customers with seasonal
26 variations in consumption to maintain high utilization rates and low unit costs on

1 their long-haul FT contract. In summer, when heating markets are low, gas is
2 delivered to storage on a firm basis. In winter, when heating markets are high,
3 STS is used to deliver gas from storage to market on a firm basis. In combination
4 with storage, STS enables shippers to meet winter peaking markets while
5 maintaining high utilization on their long-haul FT contract and low unit
6 transportation costs.

7 The second use of STS is for daily load balancing. Shippers on the Mainline are
8 required to balance nominated deliveries to actual metered deliveries on a daily
9 basis. STS is ideally suited to meet this requirement through the provision of four
10 additional nomination windows over the standard four NAESB windows, as well
11 as the ability to adjust deliveries to or from storage at each nomination window.

12 Similar to FT Service, STS has a fixed demand charge for capacity reservation
13 plus a commodity toll for each unit of gas actually transported. However, STS is
14 not afforded the same number of flexibility features as FT service. In part, there
15 is reduced flexibility because STS tends to be a short-haul service (between
16 storage and market) so that the demand charge exposures are lower than those for
17 FT service. Additionally, STS is designed and tolled to serve a particular market
18 and must be linked to specific FT service contracts that deliver to that market. As
19 such, alternate receipt and delivery point rights and assignment rights would not
20 be appropriate for STS.

21 Short Term Firm Transportation (STFT) Service:

22 STFT is used by shippers to meet shorter-term, firm transportation requirements.
23 Access to STFT cannot be assured since TransCanada will not build facilities for
24 STFT and prospective shippers must compete for available capacity through a
25 price-bid auction process. Further, there are no renewal rights for STFT, making
26 the service unsuitable for meeting longer-term firm requirements. STFT also does

1 not have the same flexibility features as FT service since the term of service is
2 shorter and demand charge risks are correspondingly lower.

3 **Interruptible Transportation (IT) Service:**

4 IT Service is a daily transportation service that is accessed through a price-bid
5 auction at each of the four nomination windows during the gas day, subject to the
6 availability of unutilized firm services capacity. As such, IT Service may not be
7 suitable in meeting firm market requirements, unless supplemented by storage or
8 backstopping services. Given the short term nature of the service, there is
9 minimal cost risk to the shipper. Therefore, no flexibility features are offered
10 with IT service.

11 **Q6. Does TransCanada provide a balancing service on the Mainline?**

12 **A6.** Yes. TransCanada currently provides Parking and Loan Service (PALS) at all
13 locations on the Mainline. PALS allow a shipper to store or borrow natural gas
14 for any term anywhere on the Mainline, subject to availability. PALS has the
15 lowest priority of any service or service attribute and is provided at
16 TransCanada's discretion based on its ability to provide the requested service.
17 The toll for PALS is negotiated for distinct daily energy amounts.

18 **Q7. Does TransCanada provide any flexibility features, other than those**
19 **summarized in Table A2?**

20 **A7.** Yes. TransCanada provides shippers the following additional flexibility features.

21 Title Transfers:

22 Title transfers are available to all shippers at all locations on the Mainline system
23 and provide a simple means for shippers to manage their gas purchases and sales
24 transactions. TransCanada does not charge a fee for title transfers.

1 Daily Balancing Flexibility:

2 Each shipper is afforded a free tolerance zone for variances between its authorized
3 delivery nomination and its actual measured deliveries. The daily free tolerance
4 is equal to +/- 2 % of the shipper's authorized delivery nomination. The
5 cumulative free tolerance is equal to +/- 4 % of the shipper's authorized delivery
6 nomination. Fees are charged for drafts or packs in excess of these limits.

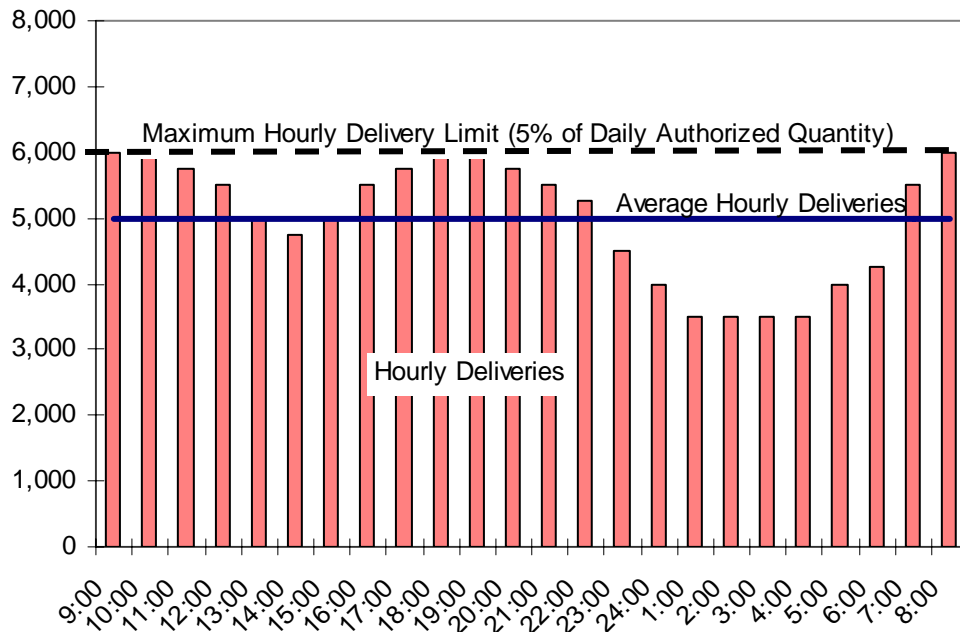
7 Hourly Take Flexibility:

8 A shipper can take up to 5 % of its daily authorized quantity in any hour during
9 the Gas Day. This enables a shipper to take up to 120% of its average hourly
10 consumption in any given hour.

11 Figure A1 illustrates the hourly delivery flexibility afforded to Mainline shippers.
12 In this example, the shipper has an authorized daily quantity of 120,000 GJ and
13 the average hourly flow rate over the day is 5,000 GJ/hour (i.e., 120,000
14 GJ/24 hours = 5,000 GJ/hour). Pursuant to the Mainline Tariff, the shipper could
15 deliver in any hour up to 5 % of its authorized daily quantity, or 6,000 GJ/hour
16 (i.e., 120,000 GJ x 5 % = 6,000 GJ). This maximum hourly limit of 6,000
17 GJ/hour is 20 % higher than the shipper's average hourly nomination of
18 5,000 GJ/hour.

FIGURE A1: EXAMPLE OF HOURLY FLOW IN COMPLIANCE WITH FT SERVICE MAXIMUM HOURLY FLOW ENTITLEMENT (GJ/HOUR)

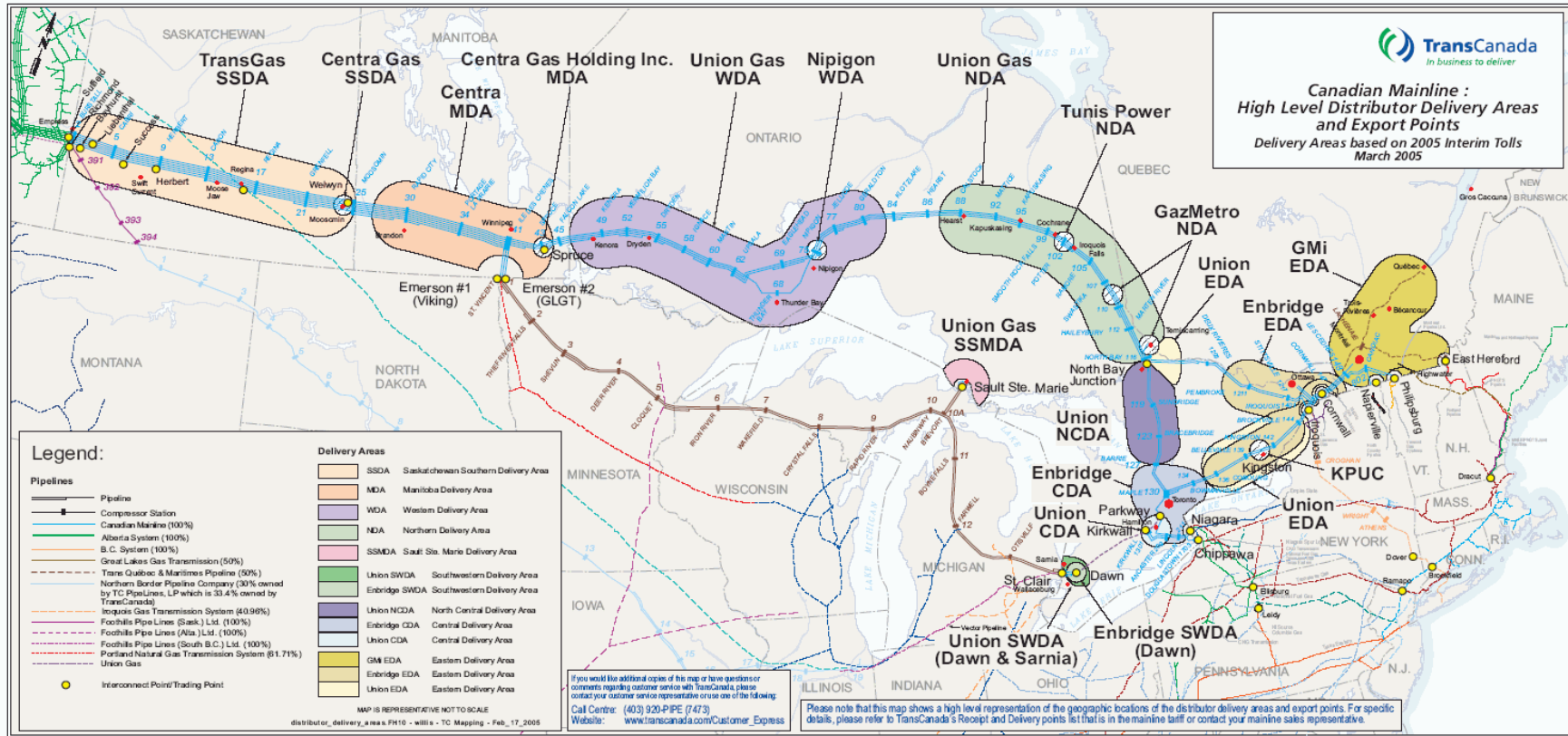
Daily Authorized Quantity = 120,000 GJ



1 Delivery Area Flexibility:

2 TransCanada delivers gas to domestic customers at 244 existing meter stations on
 3 the Mainline. For purposes of contracting and daily processes (nominations and
 4 allocations), these meter stations are grouped geographically and by
 5 interconnecting operator into 20 Distributor Delivery Areas, as shown in
 6 Figure A2.

Figure A2: Delivery Areas on TransCanada's Mainline System



1 Customers such as local distribution companies (LDCs) that have a requirement
 2 for gas at multiple meter stations within a single Distributor Delivery Area need
 3 only hold one transportation contract and submit one nomination in order to
 4 schedule gas deliveries to meet their total requirement at all of the meter stations
 5 within that Distributor Delivery Area. This enables these customers to offset
 6 increasing demand at some meters by lowering demands at other meters. In such
 7 situations, if net demand in the Delivery Area has not changed, the customer does
 8 not need to change its single nomination.

9 **Q8. What nomination flexibility does TransCanada offer shippers?**

10 **A8.** The majority of natural gas pipelines in North America have adopted the timelines
 11 established by the North American Energy Standards Board (NAESB) for
 12 nominations, scheduling and confirmations to ensure grid-wide alignment of
 13 supply, transportation and deliveries. The standard Gas Day is 09:00-09:00
 14 Central Clock Time (CCT). There are four NAESB nomination windows with
 15 three effective times as set out in Table A3.

Table A3: NAESB Timelines (CCT)

Nomination Window	Nomination Deadline	Effective Time
Timely	11:30 – Day 1	09:00 – Day 2
Evening	18:00 – Day 1	09:00 – Day 2
Intra-Day 1	10:00 – Day 2	17:00 – Day 2
Intra-Day 2	17:00 – Day 2	21:00 – Day 2

16 TransCanada uses the established NAESB timelines for Mainline services with
 17 one minor exception; it provides an extra half-hour for shippers to submit their
 18 Timely nominations (i.e., TransCanada’s deadline for the Timely window is 12:00
 19 CCT instead of the NAESB 11:30 CCT deadline).

1 TransCanada also provides an additional four nomination windows for STS
 2 shippers as shown in bold in Table A4. As discussed previously, STS provides
 3 flexibility for shippers in delivering gas to storage and/or market depending on
 4 market requirements. This access to storage, combined with additional
 5 nomination windows, makes STS an excellent service for shippers to balance
 6 supply to consumption levels throughout the Gas Day.

Table A4: TransCanada's Timelines (CCT)

Nomination Window	Nomination Deadline	Effective Time
Timely	12:00 – Gas Day 1	09:00 – Gas Day 2
Evening	18:00 – Gas Day 1	09:00 – Gas Day 2
STS-11:00	09:00 – Gas Day 2	11:00 – Gas Day 2
Intra-Day 1	10:00 – Gas Day 2	17:00 – Gas Day 2
STS-17:00	15:00 – Gas Day 2	17:00 – Gas Day 2
Intra-Day 2	17:00 – Gas Day 2	21:00 – Gas Day 2
STS-01:00	23:00 – Gas Day 2	01:00 – Gas Day 2
STS-05:00	03:00 – Gas Day 2	05:00 – Gas Day 2

7 **Q9. How does TransCanada allocate capacity to nominations?**

8 **A9.** Starting with the day-ahead timely nomination window, capacity is allocated to
 9 services based on their service priority. The priorities are generally as follows,
 10 from highest to lowest:¹

¹ The listing is a simplification of the service priority rules. Section XV of the General Terms and Conditions of TransCanada's Mainline Tariff and Section 4 of the PALS Toll Schedule provide a complete description of service priorities.

- 1 1. Firm Services (FT, STS in season, FST, LTWFS, STFT);
- 2 2. FT Diversions and ARP;
- 3 3. Interruptible (based on price bid); and
- 4 4. PALS.

5 Any capacity not utilized by a firm shipper is made available to lower priority
6 diversion, interruptible and PALS services. At subsequent nomination windows
7 (e.g., Evening, Intra-day 1 and Intra-day 2), no previously scheduled nomination
8 can be bumped by new nominations, regardless of service priority. In other
9 words, IT Service nominations that are authorized in the Timely Window cannot
10 be bumped to make room for an increased FT Service nomination at an intra-day
11 Window. As such, TransCanada is characterized as a “no-bump” pipeline. This
12 means that capacity for firm service is only assured at the Timely Window. A
13 firm shipper that attempts to increase its firm service nomination at an intra-day
14 window is not assured capacity or service.

15 All nominations are for a “Daily Quantity” or the quantity of gas to be delivered
16 over the course of the entire Gas Day. The nomination does not provide any
17 indication of actual flow rate at any particular time during the Gas Day.

A3. USE OF EXISTING MAINLINE SERVICES IN MEETING CURRENT NATURAL GAS MARKETS IN ONTARIO

18 **Q10. How do shippers use TransCanada’s Mainline services to meet natural gas**
19 **requirements in Ontario?**

20 **A10.** TransCanada delivered over 1.3 billion GJ of natural gas to Delivery Areas in
21 Ontario in 2005. This equates to over 3.6 million GJs of natural gas per day on
22 average. A breakdown of deliveries by service class is provided in Table A5.

Table A5: 2005 Mainline Deliveries to Ontario by Service Class

Service Class	Annual Total (GJ)	Average Daily (GJ/d)	Percent of Total
FT ¹	605,218,401	1,658,133	44.9%
FT Injections ²	74,827,937	205,008	5.6%
STS ³	60,777,384	166,513	4.5%
STFT	168,388,770	461,339	12.5%
FT Diversion	189,765,943	519,907	14.1%
IT ⁴	<u>248,886,298</u>	<u>681,880</u>	<u>18.5%</u>
Total	1,347,864,733	3,692,780	100.0%

¹FT includes ECR;

²FT Injections include FT Injection Overrun;

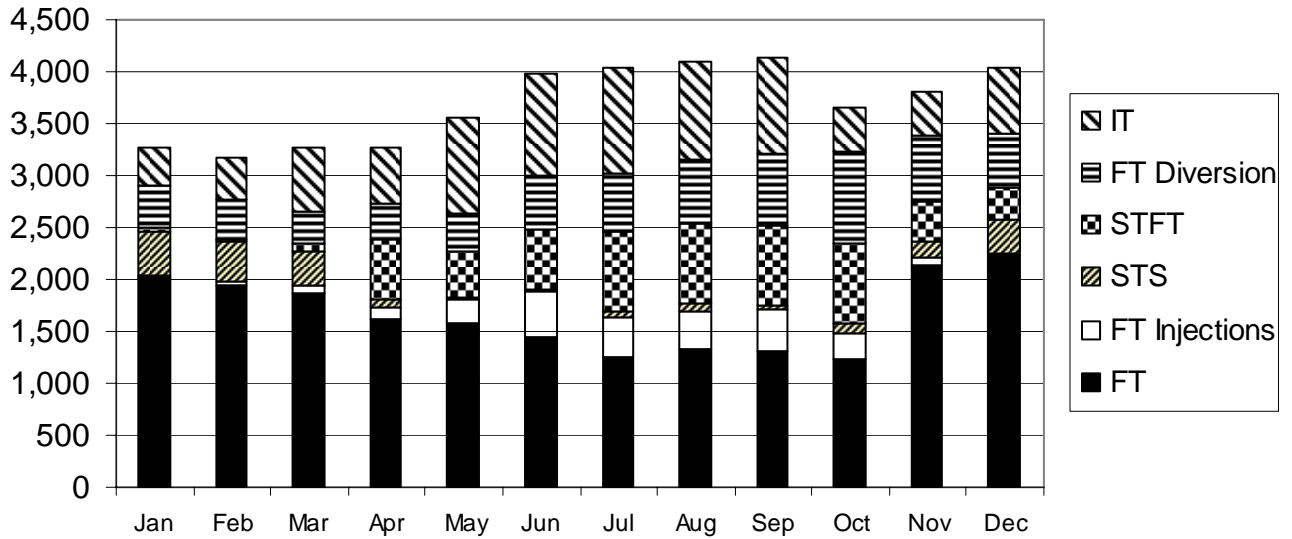
³STS includes STS Overrun;

⁴IT includes IT Backhaul.

1 Approximately 50% of deliveries to Ontario were made under FT and FT
 2 injections services contracts in 2005. Over 30% of deliveries to Ontario were
 3 made under non-firm, discretionary services (FT Diversions and IT), with over
 4 12% delivered using discretionary STFT Service.

5 Figure A3 provides the breakdown of deliveries to Ontario locations by month
 6 and service class. It illustrates that FT service is supplemented by STS
 7 withdrawals from storage in winter. In summer, there is greater use of
 8 discretionary services, particularly STFT and FT Diversions. There is substantial
 9 use of IT service throughout the year.

**Figure A3: Average Daily Deliveries to Ontario
(Thousand GJ/day)**



1 Table A6 sets out Mainline deliveries to Ontario in 2005 broken out by long-
 2 haul service from western Canada locations and short-haul service from eastern
 3 Canada receipt locations.

Table A6: 2005 TransCanada Deliveries to Ontario by Receipt Location

Receipt Location	Annual Total (GJ)	Average Daily (GJ/d)	Percent of Total
Long-Haul from western locations	920,724,864	2,522,534	68.3%
Short-Haul from eastern locations*	<u>427,139,869</u>	<u>1,170,246</u>	<u>31.7%</u>
Total	1,347,864,733	3,692,780	100.0%

* Eastern locations include the receipt points of St. Clair, Dawn and Parkway located in Ontario.

- 1 **Q11. How many Mainline meters and delivery areas are located in Ontario?**
- 2 **A11.** TransCanada delivers gas to customers in Ontario at 159 individual meter
- 3 stations. These have been grouped into 14 Distributor Delivery Areas, which are
- 4 listed in Table A7 below, and illustrated earlier in Figure A2.

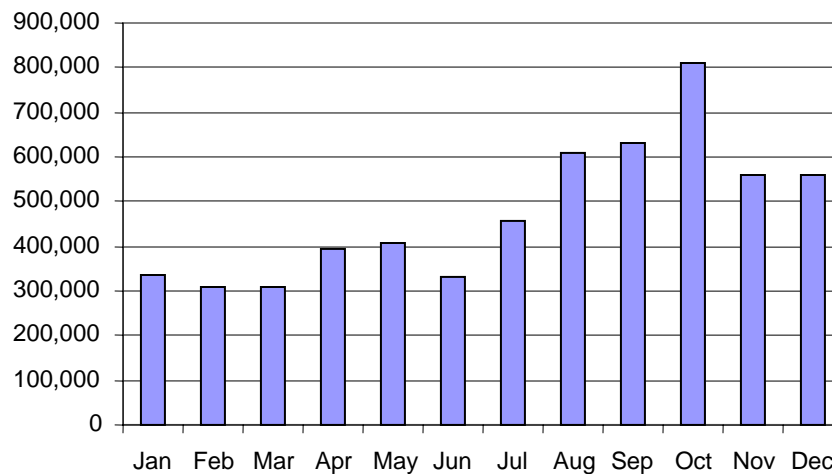
Table A7: Distributor Delivery Areas in Ontario

Distributor Delivery Area	Number of Meter Stations
Union Western Delivery Area (Union WDA)	15
Nipigon Power Western Delivery Area (Nipigon WDA)	1
Calstock Power Northern Delivery Area (Calstock NDA)	1
Union Northern Delivery Area (Union NDA)	37
Tunis Power Northern Delivery Area (Tunis NDA)	1
Union Sault Sainte Marie Delivery Area (Union SSMDA)	2
Enbridge Southwestern Delivery Area (Enbridge SWDA)	1
Union Southwestern Delivery Area (Union SWDA)	2
Union North Central Delivery Area (Union NCDA)	16
Enbridge Central Delivery Area (Enbridge CDA)	23
Union Central Delivery Area (Union CDA)	5
Union Eastern Delivery Area (Union EDA)	39
Enbridge Eastern Delivery Area (Enbridge EDA)	15
Kingston PUC Eastern Delivery Area (Kingston EDA)	1

1 **Q12. To what extent do Mainline shippers with FT service to Ontario take**
 2 **advantage of FT Diversions?**

3 **A12.** In 2005, an average of 478,465 GJ/d was diverted to alternate delivery points
 4 under FT service contracts with primary delivery points in Ontario. The monthly
 5 usage of Diversions is provided in Figure A4.

Figure A4: 2005 Average Daily Diversions to Alternate Delivery Points Using FT Service Contracts with Primary Delivery Points in Ontario (GJ/d)



1 **Q13. Do shippers with FT service contracts to Ontario distributor delivery areas**
2 **take advantage of FT-RAM?**

3 **A13.** It is not possible to determine usage of FT-RAM under individual FT service
4 contracts since FT-RAM credits are accumulated and used at a shipper level.
5 However, there has been substantial usage of FT-RAM by FT service shippers on
6 the Mainline system as a whole. In 2005, approximately \$140 million in
7 FT-RAM credits was applied to reduce the IT invoices of FT service shippers.

8 **Q14. To what extent do shippers with FT service contracts to Ontario Distributor**
9 **Delivery Areas take advantage of assignments?**

10 **A14.** In 2005, shippers with FT service contracts to Distributor Delivery Areas in
11 Ontario transferred some or all of their FT service contract rights to other shippers
12 through 1,517 assignments.

1 **Q15. To what extent did shippers draft or pack gas on a daily basis at Distributor**
2 **Delivery Areas in Ontario in 2005?**

3 **A15.** As noted earlier, shippers are afforded a 2 % daily and 4 % cumulative free
4 tolerance for variances between nominated and measured quantities at each
5 delivery point. A balancing fee is charged for variances in excess of these free
6 tolerances. In 2005, approximately \$1.5 million in balancing fees was charged for
7 drafts and packs at Delivery Areas in Ontario.

8 **Q16. Do shippers utilize Title Transfers at Mainline locations in Ontario?**

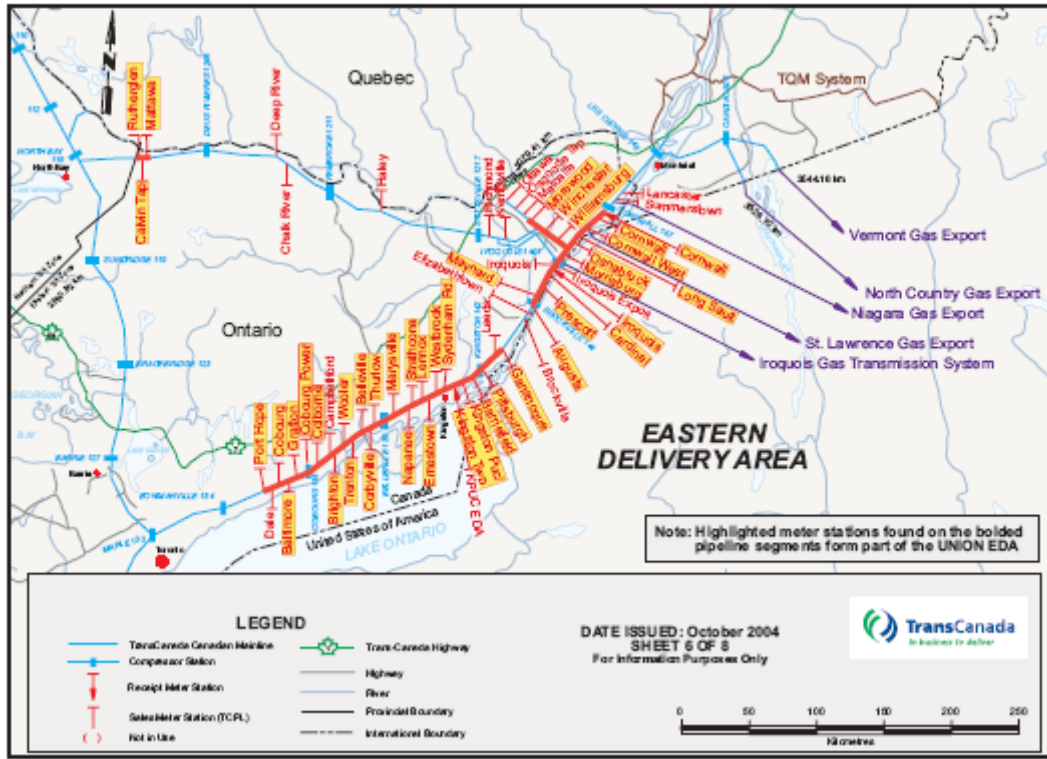
9 **A16.** Yes. In 2005, there was an average of 470,000 GJ/d traded in Ontario through
10 TransCanada's free title transfer service.

11 **Q17. DPlease explain how shippers utilize Mainline services to serve existing**
12 **markets in Ontario, including gas-fired power generation markets?**

13 **A17.** An illustrative example using the Union Gas Eastern Delivery Area (Union EDA)
14 can be used to explain how shippers utilize Mainline services to meet Ontario
15 market requirements.

16 The Union EDA is comprised of 39 individual meter stations in eastern Ontario,
17 as shown in Figure A5.

Figure A5: Union Eastern Delivery Area*



1 The Union EDA includes two cogeneration facilities, Kingston and Cardinal, as
 2 well as Lennox, which is the largest gas-fired generation facility in Ontario.
 3 Details on these power generation facilities are provided below.

4 *Kingston Cogen Limited Partnership (Kingston Cogen):*

- 5 - 110 MW gas fired cogeneration facility
- 6 - provides steam to Celanese
- 7 - located in Bath, Ontario
- 8 - supplied through TransCanada’s Ernestown meter station

9 *Cardinal Power of Canada Limited Partnership (Cardinal):*

- 10 - 156 MW combined cycle gas fired cogeneration facility
- 11 - steam supplied to Canada Starch

- 1 - located in Cardinal, Ontario
- 2 - supplied through TransCanada's Cardinal meter station
- 3 Lennox:
- 4 - 2,140 MW
- 5 - until 1998, Lennox ran solely on residual fuel oil
- 6 - in 1998 the facility was converted to dual fuel
- 7 - in 2001, 80% of Lennox electricity was generated using natural gas;
- 8 20% using residual fuel oil
- 9 - located near Kingston
- 10 - supplied through TransCanada's Lennox meter station

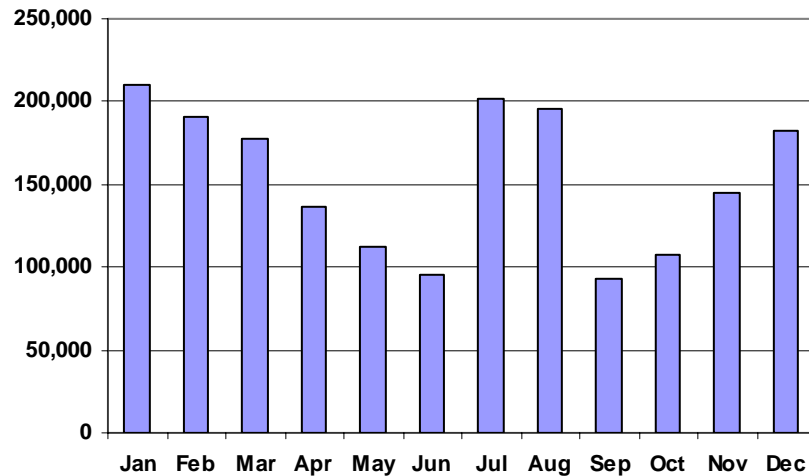
11 **Q18. How much gas did TransCanada deliver to the Union EDA in 2005?**

12 **A18.** In 2005, TransCanada delivered approximately 61 million GJ to the Union EDA,
13 at an average daily rate of 168,000 GJ.

14 **Q19. Are there seasonal variations in gas consumption in the Union EDA?**

15 **A19.** Yes. The Union EDA has historically demonstrated both a winter peak for
16 residential and commercial heating requirements and a summer peak in supply to
17 the Lennox facility. This pattern is illustrated in Figure A6.

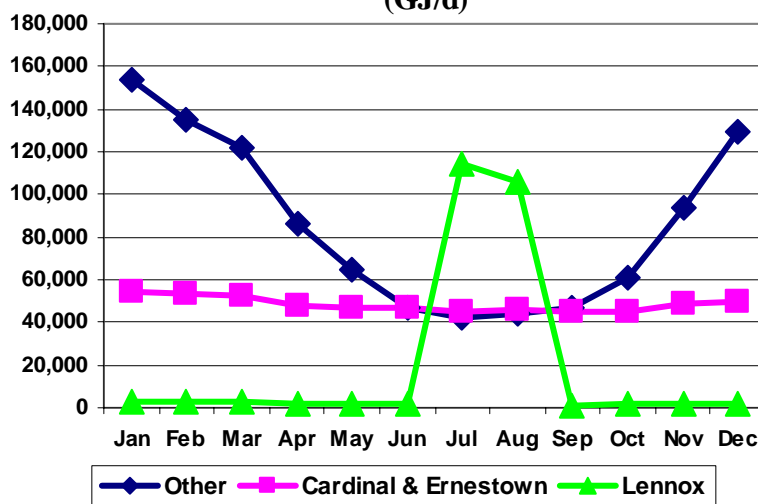
Figure A6: 2005 Average Daily Metered Deliveries to the Union EDA (GJ/d)



1 **Q20. Can TransCanada provide a breakdown of total consumption in the**
2 **Union EDA by market segment?**

3 **A20.** Yes. An analysis of meter station flows in 2005 provides a strong indication of
4 market segment consumption. Figure A7 shows 2005 monthly consumption data
5 for the Lennox meter station, the two meter stations serving Cardinal and
6 Kingston Cogen (i.e., the Cardinal and Ernestown meter stations), and all other
7 remaining meter stations in the Union-EDA, which are serving a typical mixed
8 market.

Figure A7: 2005 Average Daily Metered Deliveries to the Union EDA by Market Segment (GJ/d)



1 As illustrated in Figure A7, very little gas flowed through the Lennox meter
 2 station except during the July and August peak air conditioning season. In July
 3 and August, an average in excess of 100,000 GJ/d was delivered.

4 Gas flowed through the meter stations for Cardinal and Kingston Cogen on a
 5 relatively steady basis throughout the year, with approximately 48,000 GJ/d
 6 delivered.

7 The remaining 36 meter stations in the Union EDA demonstrated a typical mixed
 8 residential, commercial and industrial consumption pattern with significant winter
 9 heating peaks up to 154,000 GJ/d and a summer base load of just over
 10 40,000 GJ/d.

11 **Q21. How have shippers contracted for Mainline transportation services to meet**
 12 **gas demands in the Union EDA?**

13 **A21.** In January 2006, a total of 227,000 GJ/d of firm service was contracted for
 14 delivery to the Union EDA, as shown in Table A8. This total comprises 158,000

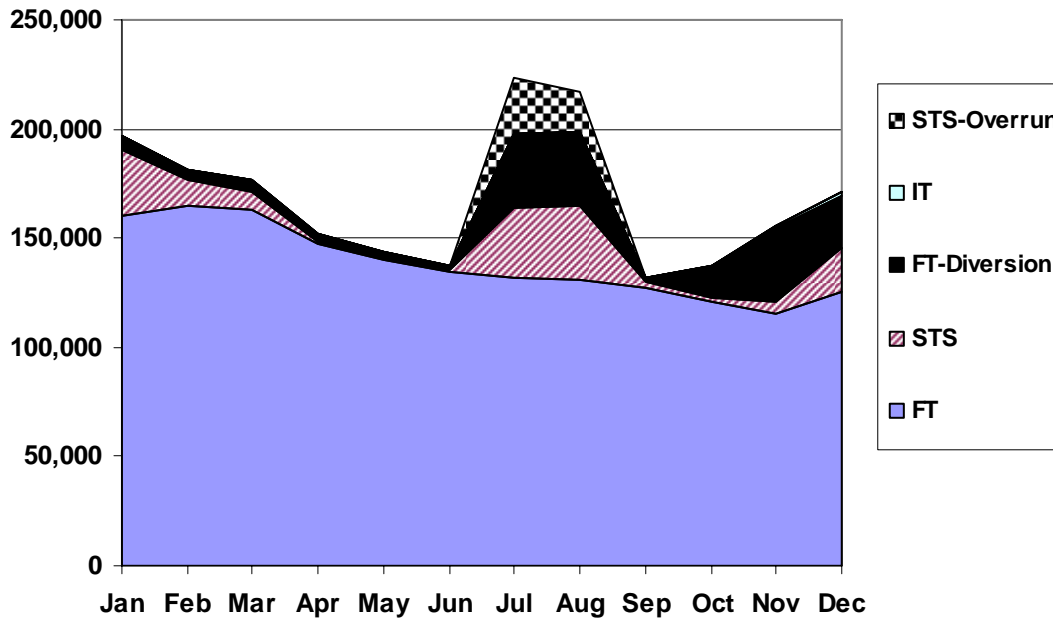
1 GJ/d of annual FT Service (mostly long-haul FT) and 69,000 GJ/d of firm winter
 2 season STS from storage (Parkway) to the market.

**Table A8: Long-Term Firm Contracts to the Union EDA
 (As of January 27, 2006)**

Shipper	Type	Receipt Point	Daily Quantity (GJ/d)
Domtar Inc.	FT	Empress	2,825
Husky Energy (Cardinal Cogen)	FT	Empress	33,563
IKO Industries	FT	Empress	762
Kingston Cogen	FT	Empress	21,045
Nitrochem Corp.	FT	Empress	1,885
OPG (Lennox)	FT	Empress	10,666
Union Gas	FT	Empress	52,481
Union Gas	FT	Empress	4,985
Union Gas	FT	Empress	5,709
Union Gas	FT	Empress	13,320
Union Gas	FT	Empress	3,616
Union Gas	FT	Empress	5,878
Canada Starch	FT	Dawn	1,020
Canada Starch	FT	Dawn	490
Union Gas	STS	Parkway	<u>68,520</u>
TOTAL			226,765

3 Actual deliveries to the Union EDA in 2005 by class of service are shown in
 4 Figure A8.

**Figure A8: Union-EDA - 2005 Average Daily Deliveries
by Contract Type (GJ/d)**

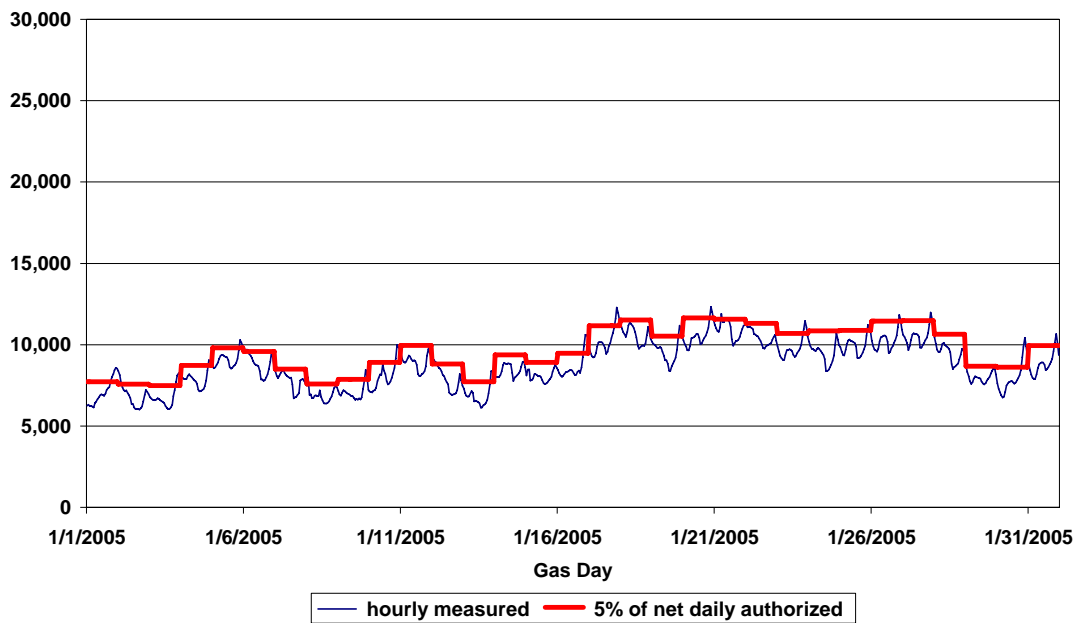


1 As illustrated in Figure A8, the FT service contracts to the Union EDA operated
 2 at an average level of 138,000 GJ/d over the course of 2005. To meet winter
 3 peaks, FT service was supplemented by STS and a small amount of non-firm
 4 Diversion transportation. In summer, the higher demands associated with Lennox
 5 were met through FT service, STS (non-firm in summer), Diversions, and STS-
 6 Overrun (lowest priority transportation service). There was very little IT service
 7 to Union EDA in 2005.

8 **Q22. How did consumption in the Union EDA vary over the course of the day**
 9 **during 2005?**

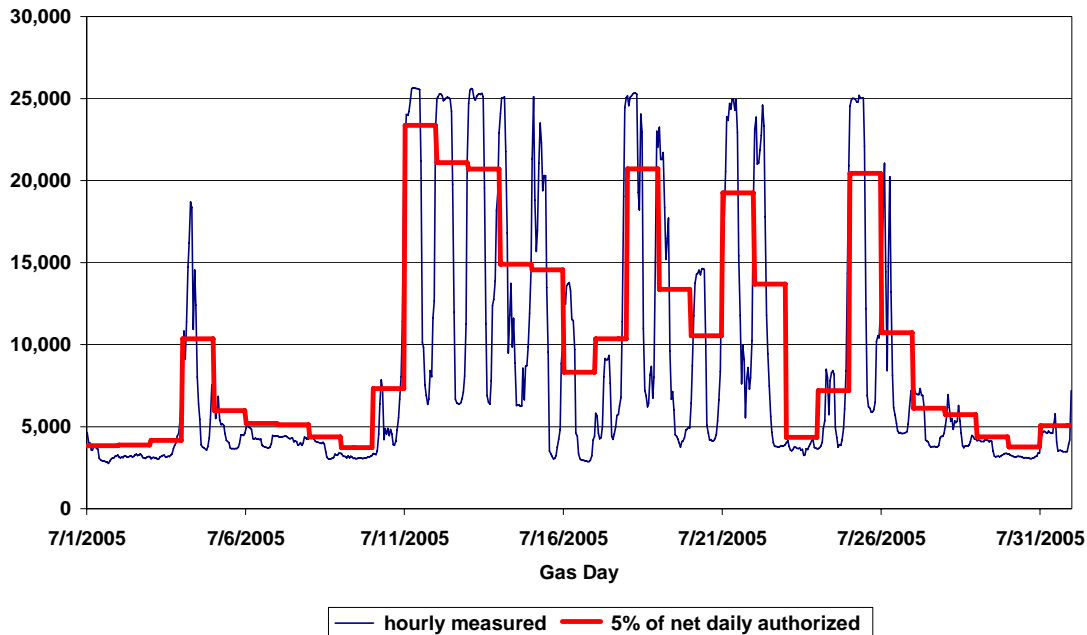
10 **A22.** Hourly takes in the Union EDA in January 2005 are shown in Figure A9. Hourly
 11 takes varied by approximately 7,000 GJ/hour, from a low of approximately 6,000
 12 GJ/hour to a peak near 13,000 GJ/hour.

**Figure A9: Union EDA Hourly Measured vs
5% of Daily Net Authorized Quantities
January 2005 (GJ/hour)**



1 Hourly fluctuations in consumption are more significant in summer, as shown in
2 Figure A10. In July 2005, hourly consumption varied from a low of
3 approximately 4,000 GJ/hour to a peak of 26,000 GJ/hour. Swings of
4 20,000 GJ/hour over the course of a single day were not uncommon.

**Figure A10: Union EDA Hourly Measured vs
5% of Net Daily Authorized Quantities
July 2005 (GJ/hour)**



1 **Q23. Have deliveries to the Union EDA exceeded the 5% hourly limit?**

2 **A23.** Yes. As TransCanada explained previously in Section 2 of this appendix, a
 3 shipper may not, without TransCanada's consent, take delivery of gas at an hourly
 4 rate of flow in excess of 5 %of the daily authorized nomination. Figure A10
 5 shows that actual hourly takes far exceeded the 5 %hourly limit on many
 6 occasions during July 2005. To date, TransCanada has been able to accommodate
 7 these high hourly flow rates since there is often unutilized capacity in that part of
 8 the Mainline system in the summer.

1 **Q24. What conclusions can be drawn from the information presented for the**
2 **Union EDA, about shippers' use of TransCanada's existing services and meet**
3 **market requirements?**

4 **A24.** The three distinct market segments in the Union EDA – (cogeneration; typical
5 mixed residential, commercial and industrial markets; and Lennox) – have unique
6 needs that are met by TransCanada's portfolio of services. Each segment is
7 discussed below.

8 Cogeneration:

9 From a transportation cost perspective, markets that take at a relatively uniform
10 level, such as the Cardinal and Kingston cogeneration facilities, are ideal. The
11 shipper can hold a long-haul FT service contract and operate the contract at close
12 to 100% load factor. This means that associated pipeline facilities are utilized, at
13 high levels fixed monthly demand charges are spread over a large volume, and
14 unit transportation costs are minimized.

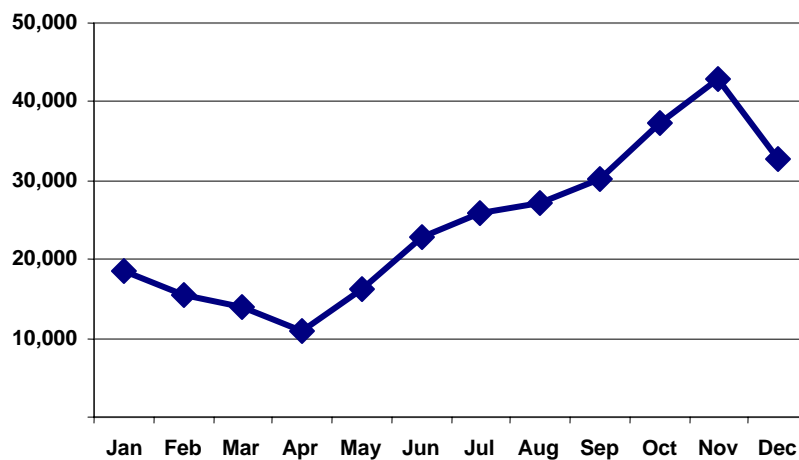
15 Typical Mixed Residential, Commercial and Industrial Markets:

16 At the other end of the spectrum, residential/commercial winter peaking markets,
17 such as those in the Union EDA, can be expensive to serve from a transportation
18 cost perspective. Pipeline facilities must be constructed to meet peak winter day
19 requirements even though flows may only hit that peak level a few days per year.
20 Absent any other factors, utilization levels for firm contracts serving these
21 markets would be low and unit transportation costs would be high.

22 To assist shippers in avoiding low FT contract utilization and high unit
23 transportation costs, TransCanada offers FT service shippers a number of
24 flexibility features. To the extent that long-haul or 'linked' short-haul FT
25 contracts are not fully used, shippers are provided with FT-RAM credits towards

1 the cost of IT service anywhere on the Mainline system at any time during the
 2 month. FT shippers also have the ability to use diversion flexibility to access
 3 other delivery points on the system in order to increase contract utilization. In
 4 2005, an average of approximately 25,000 GJ/d was diverted from the
 5 Union EDA to other markets as shown in Figure A11.

Figure A11: Average Daily Diversions from the Union EDA (GJ/d)



6 Union has also taken advantage of the Mainline's STS which is specifically
 7 designed to meet seasonal and daily fluctuations in takes on a cost-effective basis.
 8 As shown in Table A8, Union holds approximately 86,000 GJ/d of long-haul FT
 9 service to the EDA, along with 69,000 thousand GJ/d of STS from Parkway to the
 10 Union EDA. In summer, when market demand is typically low, STS affords
 11 Union the ability to deliver excess gas under its long-haul FT service contracts on
 12 a firm basis to Dawn or Parkway for storage injection. In winter when heating
 13 loads peak, deliveries are made to the Union EDA on a firm basis under long-haul
 14 FT contracts that are supplemented by 69,000 GJ/d of firm STS from Parkway. In
 15 combination with storage, STS affords Union the ability to maintain very high
 16 utilization rates and low unit costs on its long haul FT service contracts.

1 STS also assists Union in meeting hourly fluctuations in demand. STS has a total
2 of eight nomination windows each day. At each window Union may nominate to
3 adjust deliveries to or from storage to meet changes in consumption. This has
4 enabled Union to generally operate within the free imbalance tolerance zone.

5 Lennox:

6 The combination of a summer load for power generation with a winter heating
7 load is ideal in terms of maximizing annual use of transportation capacity and
8 minimizing unit transportation costs. Because core market heating loads
9 generally do not exist in the summer, there may be unutilized FT Service contract
10 rights available in the summer that can be used to meet demands at Lennox.
11 Given that FT Service demand charges are sunk (i.e., demand charges must be
12 paid in full each month regardless of contract utilization), increased use of these
13 contracts results in only a relatively small commodity charge.

14 Availability of unutilized capacity in summer also means that Lennox can
15 frequently be served using non-firm transportation services such as FT Diversions
16 and STS Overrun. These service features are charged on an “as-used” basis.

17 In addition, the availability of excess capacity in summer is essential in obtaining
18 increased nominations at intra-day windows. As noted earlier, even FT service
19 nomination increases cannot be assured at intra-day windows due to the
20 “no-bump” rule. However, unutilized capacity is often available in the summer to
21 the Union EDA, which increases the likelihood that capacity will be available for
22 increased nominations at intra-day windows.

23 It is important to note that Lennox also has the capability to switch to fuel oil.
24 This means that Lennox can use non-firm gas transportation service to the extent
25 that it is available and simply switch to fuel oil if gas transportation is unavailable
26 or interrupted. By doing so, Lennox avoids the high unit transportation costs that

1 would result from low annual usage of an FT service contract with fixed monthly
2 demand charges.

3 TransCanada's Delivery Area approach may also help to facilitate the
4 optimization of transportation service to the various market segments in the
5 Union EDA. Under the Delivery Area approach, shippers do not need to contract
6 for service to a particular meter within the Union EDA. Rather, they contract to
7 the Delivery Area as a whole, which gives them access to all 39 meters within the
8 Union EDA. This means that contracts intended to meet winter peaking loads in
9 Ottawa, Cornwall and other locations in the Union EDA may, subject to capacity
10 availability, be redirected to the Lennox meter station in summer.