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July 30, 2012

Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Filed electronically

Attention: Ms. Kirsten Walli
Board Secretary

Dear Ms. Walli:

Subject: Union Gas Limited – Distribution Rates for 2013
OEB File No. EB-2011-0210
TransCanada PipeLines Limited (TransCanada)
Response to Undertaking

Please find attached TransCanada's response to Undertaking J10.1 in this proceeding.

Sincerely,
TransCanada PipeLines Limited

Original Signed by

Elizabeth Swanson
Associate General Counsel
Law and Regulatory Research

Enclosure

Enbridge Working Committee on System Reliability

* revised slides 4, 5, 36 & 39 *

February 25, 2010

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Agenda

- Risk Factors
- Capacities on TransCanada
- Cold Snap – January 2009
- Capacity & Services Options to Serve Enbridge Markets
- Summary

Risk Factors – Things to keep in mind when assessing risk

1) Upstream grid

- Not just TransCanada; Need to think about risks and capacity constraints on any upstream pipeline…… Union, GLGT, Vector…
- Are the risks evenly spread across upstream pipes?

2) Service Priority

- Interruptible, Diversions, Short Term Firm, Long Term Firm…

3) Higher risks of broad Distributor Delivery Areas "DDAs"

- localized constraint = broad impacts

4) Capacity on Average day

5) Risks are higher on "extreme" days

- Impact of extreme cold weather; impact of flow volatility

6) Not just a question of <u>how much</u> capacity; also a question of <u>who</u> gets the capacity that is available.

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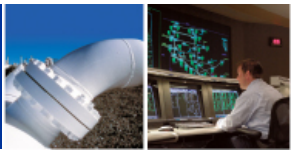
Firm Contracts



Contracts *	Enbridge CDA (GJ/day)	Enbridge EDA (GJ/day)
TransCanada	633,855	406,099

Pipeline	Path	Quantity **
Union Gas	Dawn to Parkway • TCPL connection • Enbridge connection	2,157,173 GJ/d • ~382,000 GJ/d • ~1,775,000 GJ/d
	Dawn to Kirkwall	67,929 GJ/d

TransCanada also holds 1825 TJ/d of capacity on Union

Notes:

* **Total of all long term firm contracts (held by Enbridge & others) effective February 1, 2010, and includes the FT-SN contract for 85,000 GJ/d to Victoria Square #2 CDA held by Enbridge, but excludes the 3 FT-SN contracts held by power generators to Goreway CDA, Thorold CDA & Victoria Square #2 CDA.**

** **Capacity held by Enbridge. Source: OEB Proceeding EB-2008-0219, Exhibits HD1.1 page 3 & TCU2.4 page 1.**

TransCanada

Enbridge is highly dependant on Union

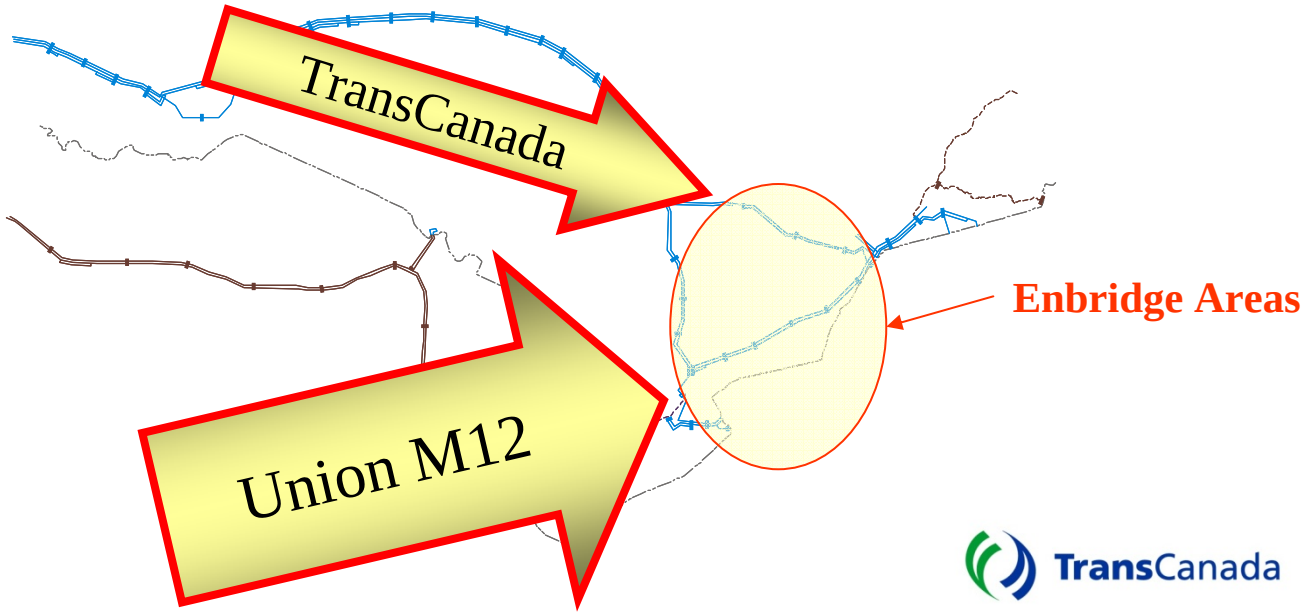
- Potential for significant restriction if Union outage / linebreak

Firm Contracts:

TransCanada*: 1,040 TJ/d (32%)

Union: 2,225 TJ/d (68%)

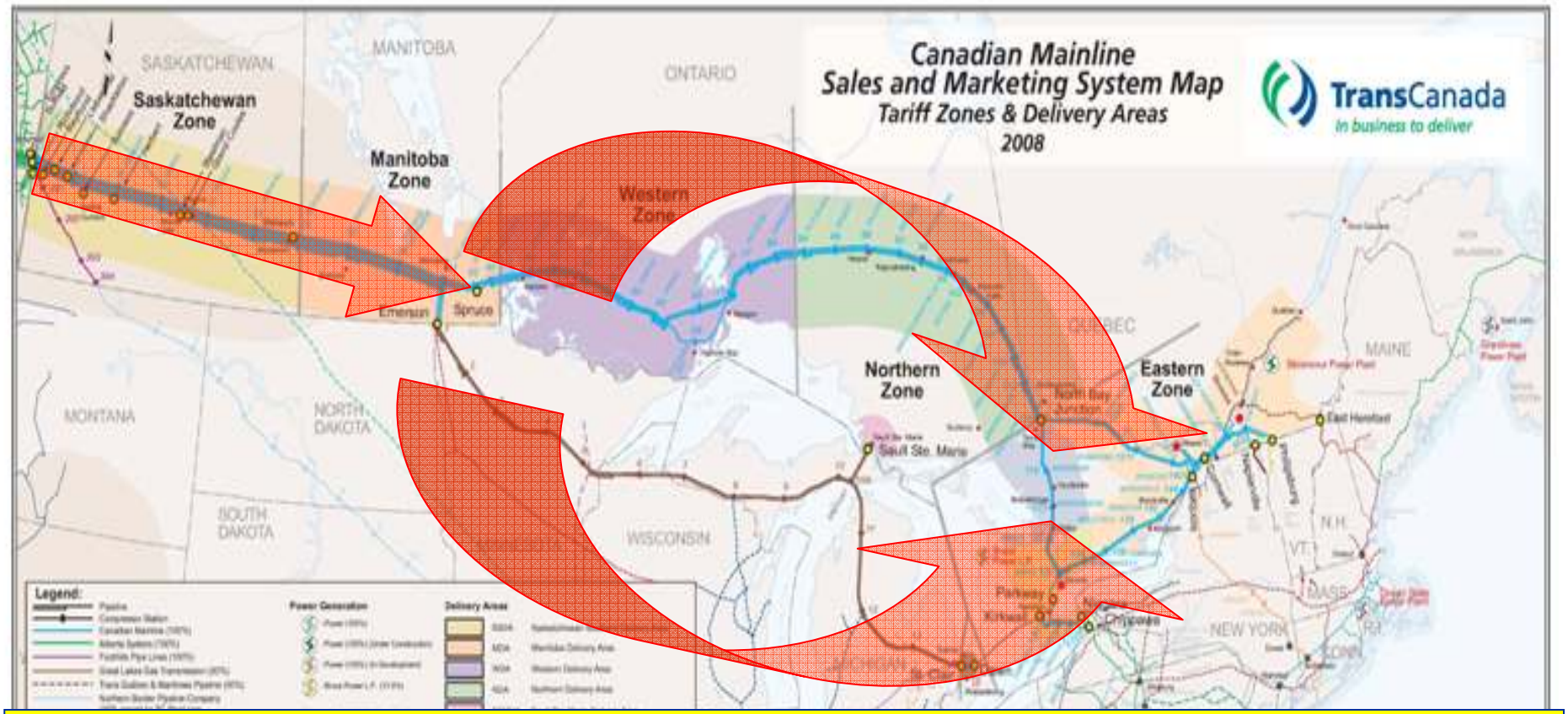
TCPL TBO on Union: 1,825 TJ/d



Notes:
*** Total of long term firm contracts held by Enbridge & others. Please also refer to slide 4.**

TransCanada

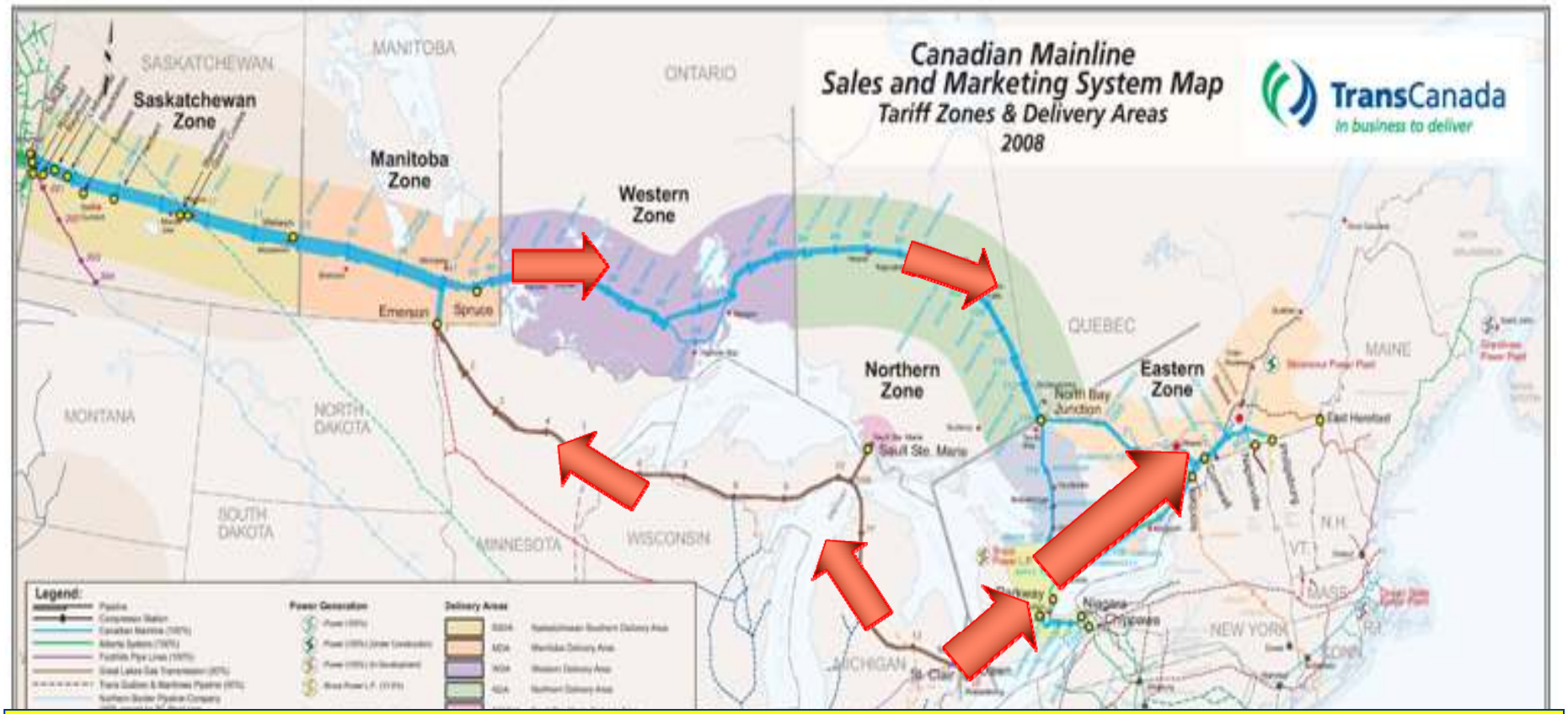
"Long-Haul" TransCanada Deliveries to Enbridge



TransCanada can meet Enbridge Firm Contracts via 2 paths

TransCanada

"Short Haul" TransCanada Deliveries to Enbridge



Firm Shipper Contracts on TransCanada are less susceptible to Union outage: TransCanada can shift volumes to the North

TransCanada

Service Priorities

Highest Priority

1) Firm: FT, STS, STFT, Upstream Diversions
- Capacity allocated on prorata basis

2) Downstream Diversions
- Capacity allocated on prorata basis

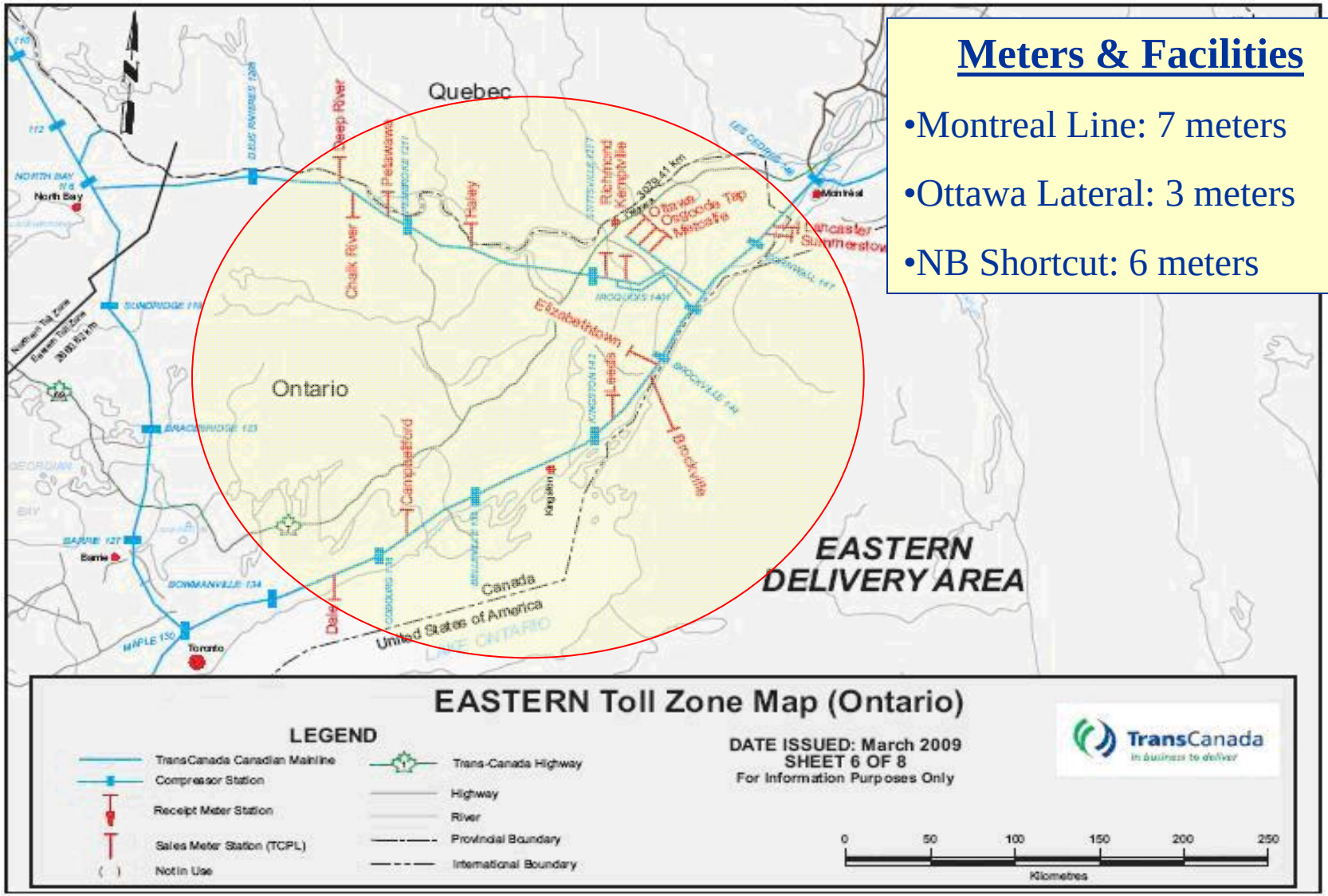
Lowest Priority

3) Interruptible
- Capacity allocated based on bid price

Note:
•This is a simplification of the service priorities. Please refer to Section XV of the General Terms & Conditions of TransCanada's Tariff for a complete description.

TransCanada

Enbridge's Markets Served by TransCanada:
- Enbridge EDA



Meters & Facilities

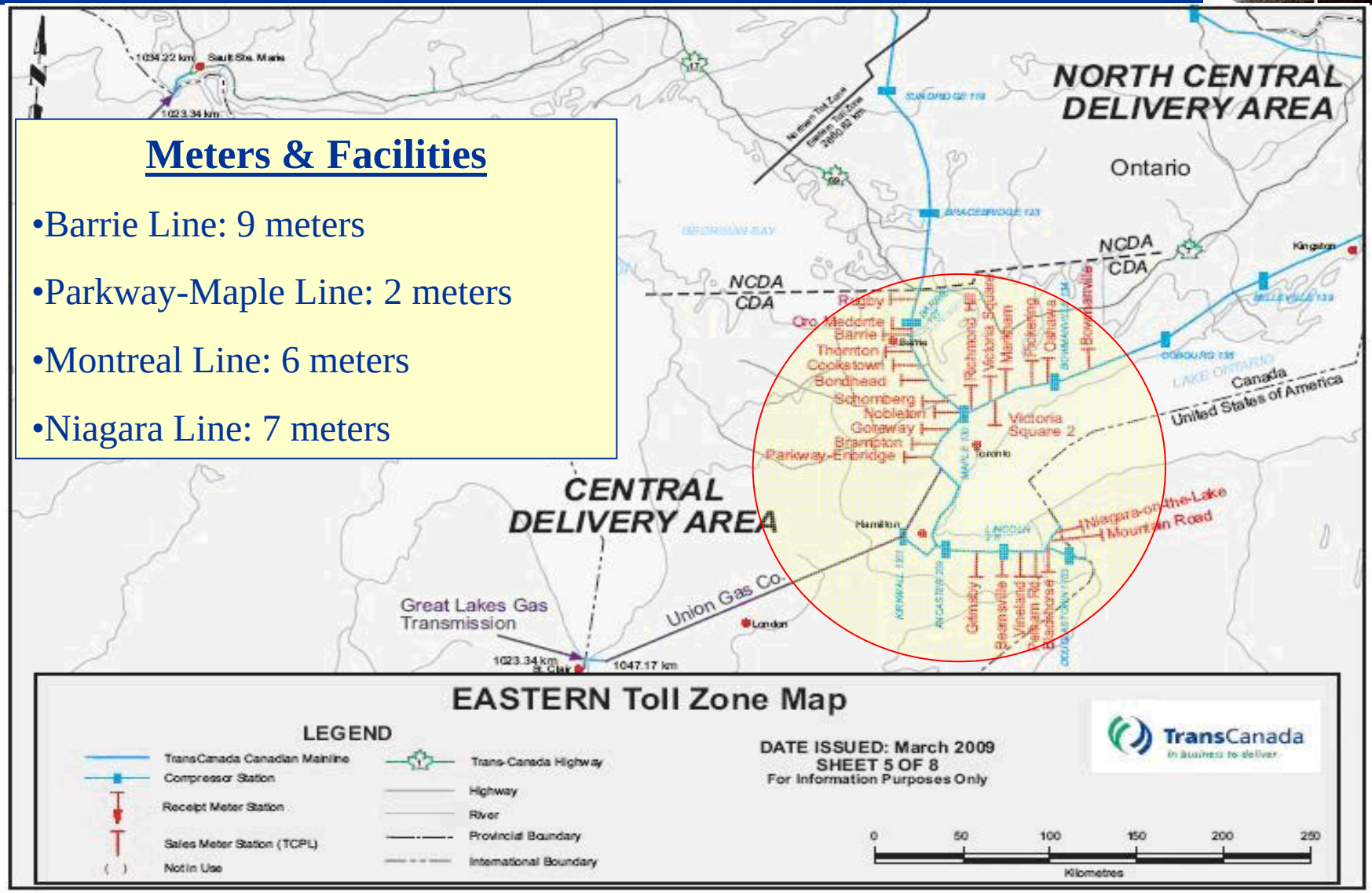
- Montreal Line: 7 meters
- Ottawa Lateral: 3 meters
- NB Shortcut: 6 meters

TransCanada

Enbridge's Markets Served by TransCanada:
- Enbridge CDA

Meters & Facilities

- Barrie Line: 9 meters
- Parkway-Maple Line: 2 meters
- Montreal Line: 6 meters
- Niagara Line: 7 meters



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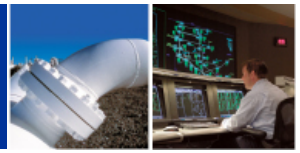
Risk associated with large DDA's



- **Contracts, nominations, capacity allocation ….all done on DDA basis**
- **Localized outage affecting any part of the DDA …..will result in restrictions to full DDA**

- **Example:**
  - Outage on Barrie Line affecting flows down into the GTA
  - TransCanada would restrict deliveries (based on Tariff service priorities) to all of the Enbridge-CDA including the Niagara Line

- **Large DDAs spanning large geographic areas and multiple segments of the TransCanada System are more likely to be impacted by outages**

TransCanada

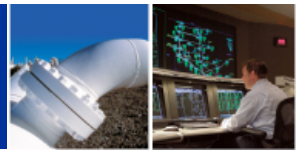
Capacity for Discretionary Services - Average Days

- **TransCanada does not build, nor does it reserve capacity or facilities for Discretionary Services (STFT, Diversions / Alternate Receipts, IT)**

- **Capacity available for Discretionary Services will be reduced by:**
  - Efficiency measures (e.g. compressor unit retirements)
  - Incremental Firm Contracts (e.g. power generation)
  - Other uses (e.g. Keystone)
  - Planned maintenance

Shippers should typically have adequate time to assess impact and respond

Higher Risks on "Extreme" Days – January 09



- **Impact of extreme weather on the Northern Ontario Line**
  - 8 unplanned unit outages – reduced capacity by approx. 600 TJ/d
  - Several units failed to start
  - Frozen recycle valves, frozen isolation valves…
  - Effect of outages compounded by geographic proximity

- **Impact of extreme weather on the Prairies Line**
  - 5 unplanned unit outages
  - Several units failed to start
  - Frozen recycle valves, frozen isolation valves…

- **Risk compounded by flow volatility …..**
  - Low flows followed by extreme cold requires numerous unit starts

TransCanada

Two Risks Factors During Extreme Conditions

1) Will capacity be available?

- Outages, frozen valves, and difficulty in starting units
- Firm shippers will nominate full contract entitlements
  - Reduces capacity available for non-firm discretionary services

2) If any capacity is available, how much will you be able to contract?

- Will be competing with other markets
- Allocation of new Interruptible nominations and new STFT contracts is based on **sealed-bid auction process**.

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Capacities On TransCanada

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How Does TransCanada Design Its System?

- TransCanada designs its system to meet the daily contract quantity specified in long term firm contracts (FT, STS, FT-SN) during periods of peak demand even with loss of the single most critical compressor unit

- For the following tables:

  "All facilities" = no planned maintenance or unplanned outages

  "Firm" = Design conditions; loss of critical unit

Capacity on TransCanada

What is available next winter?

Canadian Mainline Capacity Summary (TJ) Winter 2010

"All Facilities" means the expected daily capacity with all facilities available
"Firm" is the quantity of transport TransCanada makes available on a firm basis and assumes the loss of the single most critical compressor unit

Northern Ontario Line		
	All facilities	Firm
Capacity	4310	3984
Contracted	2105	2105
Available	2205	1879

(*) Note capacity for annual firm (FT) is lower by approximately 300 TJ

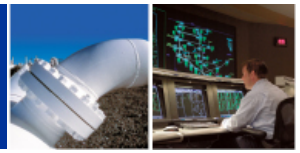
TBO Contracts		
GLGT		987
Union	M12 Kirkwall	(*) 1202
	M12 Parkway	623

(*) Note M12 Kirkwall is reduced to 885 TJ on Nov 1, 2011

Note:
Based on contracts in effect Nov 1, 2010 assuming full renewal of contracts expiring Oct 31, 2010 (6 month renewal notice required)

TransCanada

Available Capacity in the Market Areas (TJ) Winter 2010



Northern Ontario Line		
	All facilities	Firm
Capacity	4310	3984
Contracted	2105	2105
Available	2205	1879

Ottawa

Montreal

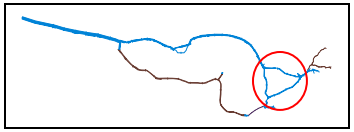
Eastern Delivery Areas & Exports		
	All facilities	Firm
Available	923	760

(*) Note capacity for annual firm (FT) is lower

Central Delivery Areas		
	All facilities	Firm
Available	2205	1879

(*) Note capacity for annual firm (FT) is lower

Toronto



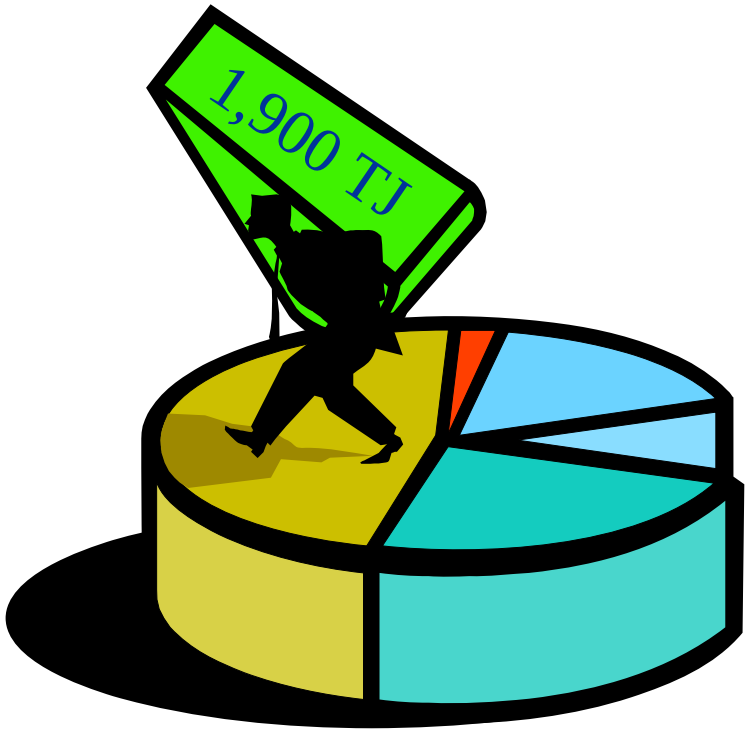
Note:
Based on contracts in effect Nov 1, 2010 assuming full renewal of contracts expiring Oct 31, 2010 (6 month renewal notice required)

TransCanada

Capacity on TransCanada

We've seen what's available on TransCanada…

What does Enbridge require?



Enbridge Requirement on TransCanada (TJ)

Enbridge Franchise	
Peak Day Requirement	[1]1900
Contracted Quantity	[2]1040
Exposed Quantity	860

[1] Enbridge stated peak day requirement on TCPL
[2] Contract quantities to the Enbridge CDA & EDA on TransCanada

Enbridge CDA		
Peak Day Requirement	1350	100%
Contracted Quantity	634	47%
Exposed Quantity	716	53%

Enbridge EDA		
Peak Day Requirement	550	100%
Contracted Quantity	406	74%
Exposed Quantity	144	26%

Montreal
Ottawa
Toronto

TransCanada

Enbridge Requirement on TransCanada

We're going to look at a couple different capacity and allocation scenarios on TransCanada and how this might affect the market areas

All facilities – Max Daily Capacity (all facilities available)

Firm - Design Condition (loss of single most critical unit)

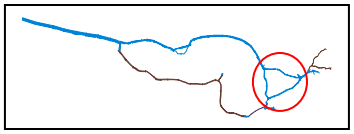
Multiple Unit failure – 600 TJ impact

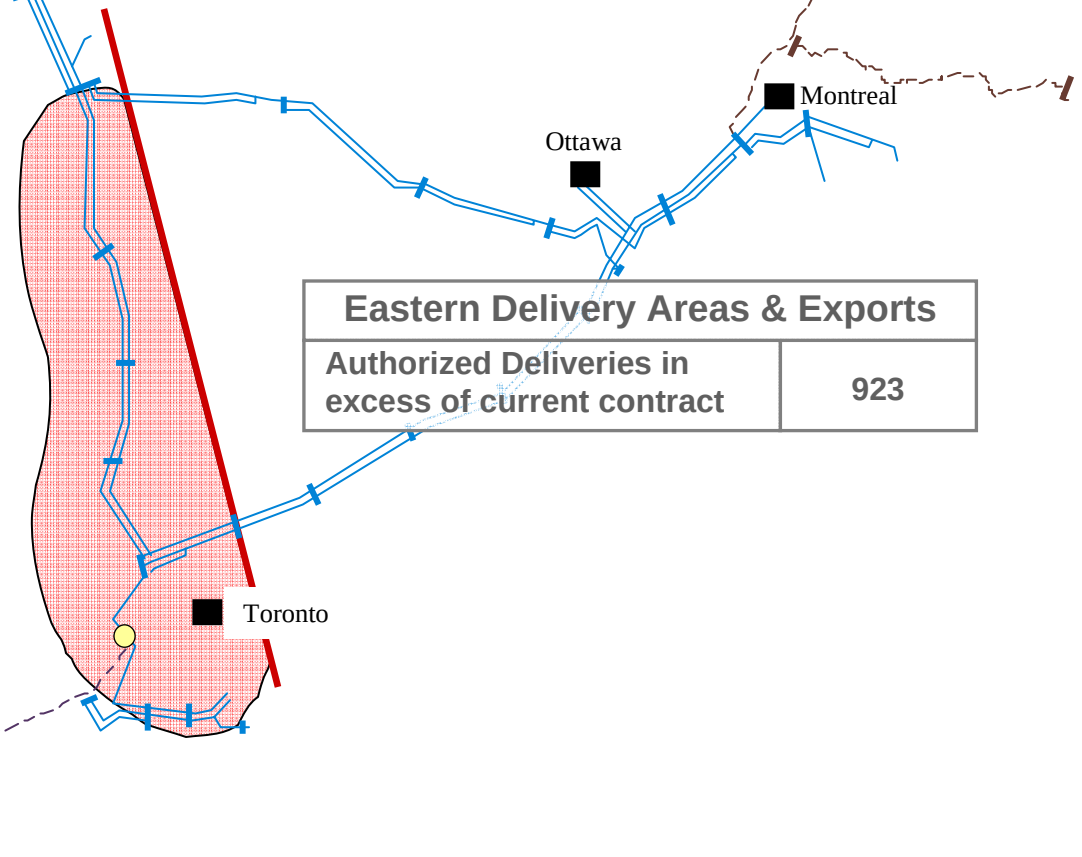
Multiple Unit Failure / Line Break – 1770 TJ impact

Winter 2010 – At Design Capacity (TJ)
What remains for the CDA if Downstream Markets Peak?

Northern Ontario Line		
	All facilities	Firm
Available	2205	1879
Less EDA	(923)	(923)
Available to CDA	1282	956

Enbridge CDA	
Exposed Quantity	716





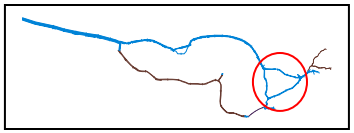
Eastern Delivery Areas & Exports	
Authorized Deliveries in excess of current contract	923

- Capacity is available to the CDA
- Enbridge Shippers must compete

Note:
All Figures in TJ/d
Firm Capacities listed are available for the winter season. Annual FT may be lower
Figures are based on contracts in place as of February 10, 2010 and effective for Nov 1, 2010

TransCanada

Winter 2010 – At Design Capacity (TJ)
What remains for the EDA if the CDA is fully allocated?



Central Delivery Areas	
Authorized Deliveries in excess of current contract	2205

- There is sufficient pipeline capacity on TransCanada to deliver all uncontracted NOL capacity to the CDA leaving nothing available for the EDA
- Enbridge Shippers must compete

Ottawa
Montreal
Toronto

Eastern Delivery Areas & Exports		
	All facilities	Firm
Available Capacity	0	0

Enbridge EDA	
Exposed Quantity	144

Note:
All Figures in TJ/d
Firm Capacities listed are available for the winter season. Annual FT may be lower
Figures are based on contracts in place as of February 10, 2010 and effective for Nov 1, 2010

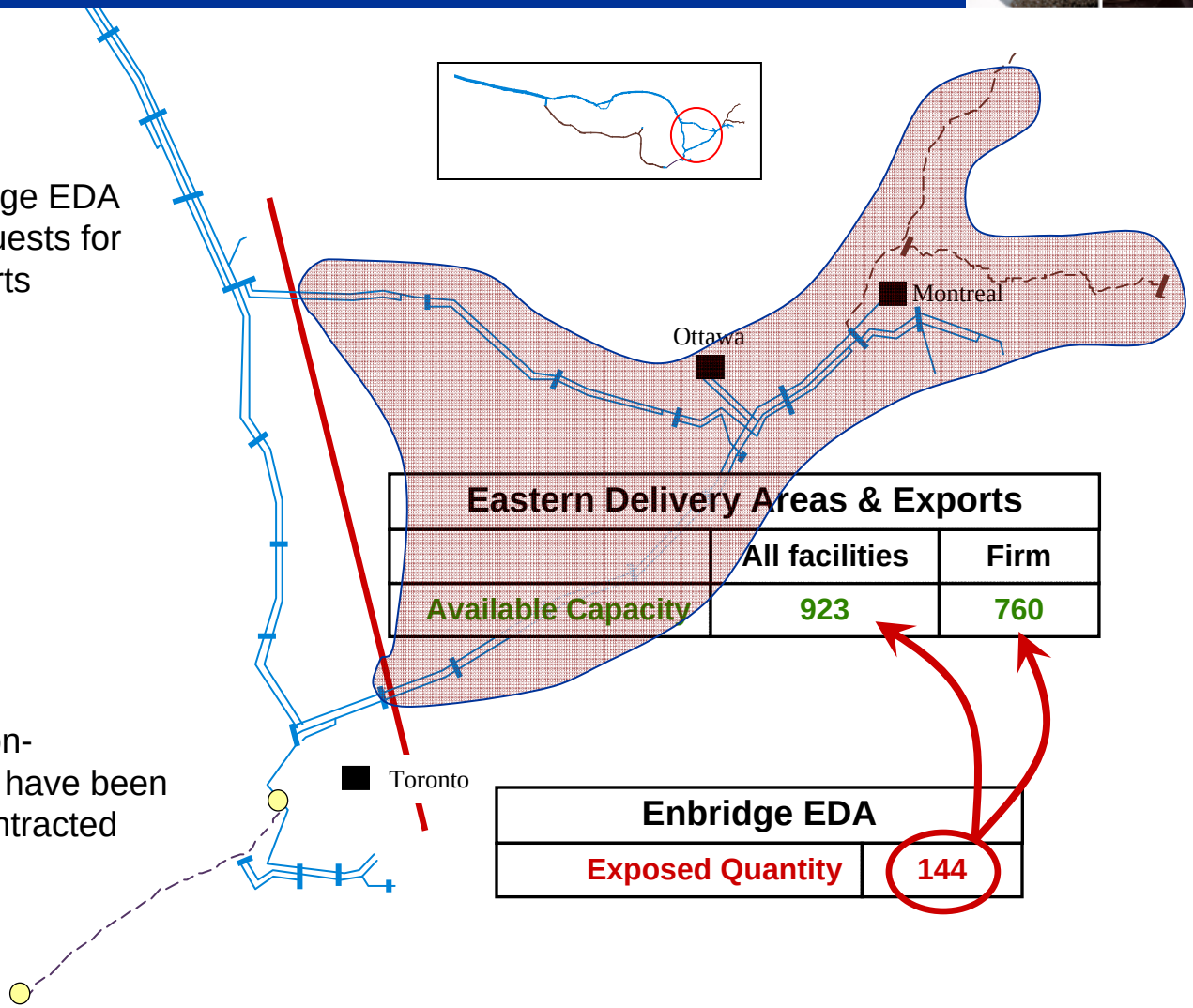
TransCanada

Winter 2010 – At Design Capacity
Competing for Capacity Within the EDA

Non firm deliveries to the Enbridge EDA must compete with all other requests for capacity within the EDA & Exports

- Enbridge EDA
- Union EDA
- GMi EDA
- Iroquois
- East Hereford
- Philipsburg
- Napierville
- Cornwall

Excluding Enbridge EDA, the non-coincidental peak day deliveries have been sufficient to consume all non-contracted capacity to the EDA



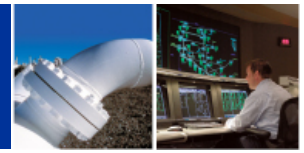
Eastern Delivery Areas & Exports		
	All facilities	Firm
Available Capacity	923	760

Enbridge EDA	
Exposed Quantity	144

Note:
All Figures in TJ/d
Firm Capacities listed are available for the winter season. Annual FT may be lower
Figures are based on contracts in place as of February 10, 2010 and effective for Nov 1, 2010

TransCanada

Operational Capacity vs Design Capacity



We've looked at TransCanada's design capacities

What about maintenance? or upsets?

Let's look at 2 cases:

- A capacity reduction similar to the reduced capacity seen in the January 2009 cold snap (600 TJ)
- A capacity reduction similar to the reduced capacity seen in the September 2009 line break (1770 TJ)

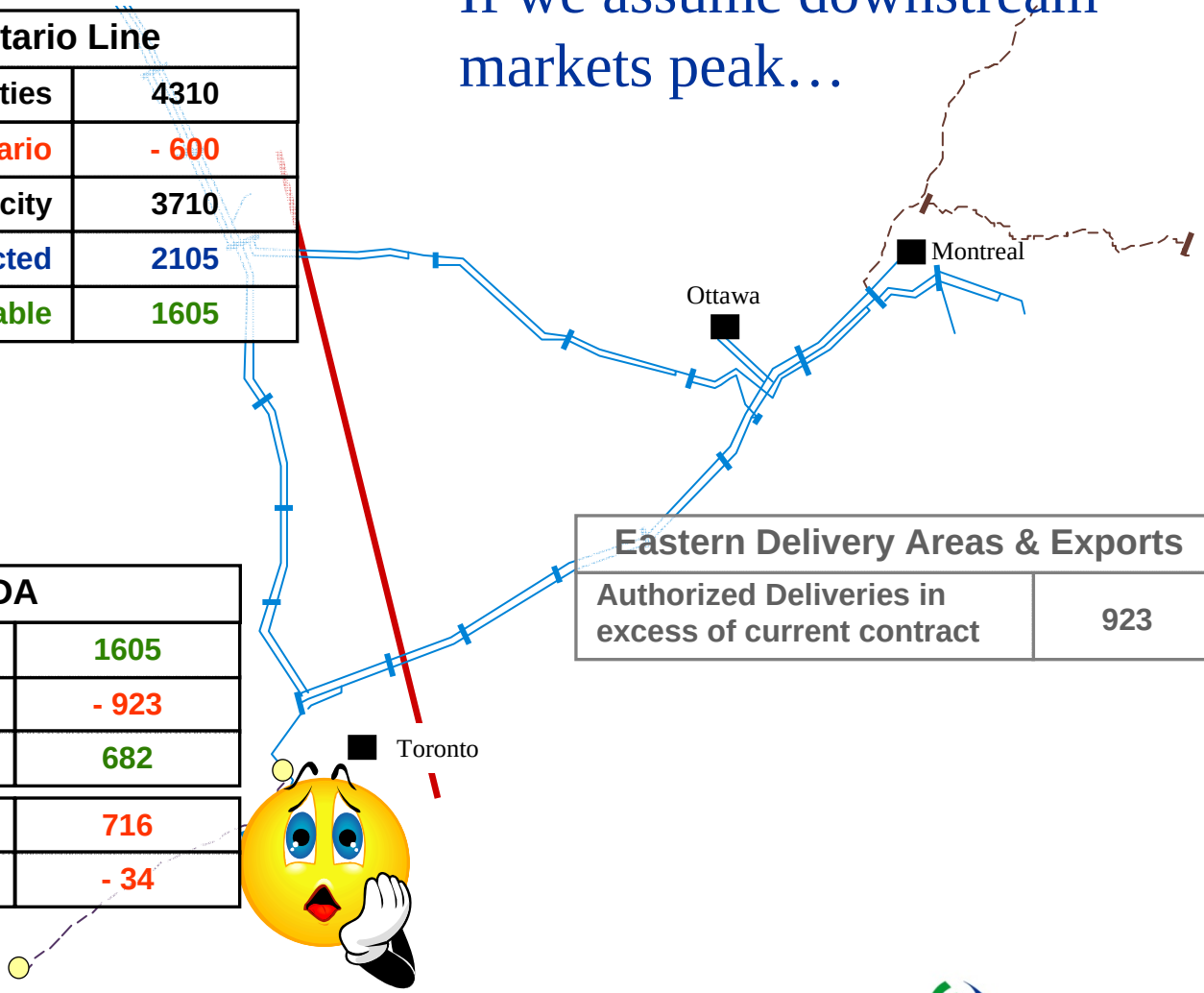
TransCanada

600 TJ Reduction in NOL Capacity

Reduced Capacity Scenario

Northern Ontario Line	
Capacity with all facilities	4310
Less Outage Scenario	- 600
Capacity	3710
Contracted	2105
Available	1605

If we assume downstream markets peak…



Eastern Delivery Areas & Exports	
Authorized Deliveries in excess of current contract	923

Enbridge CDA	
Available through NOL	1605
Less Gas to D/S Markets	- 923
Available to CDA	682
EGD CDA Exposed Qty	716
Shortfall	- 34

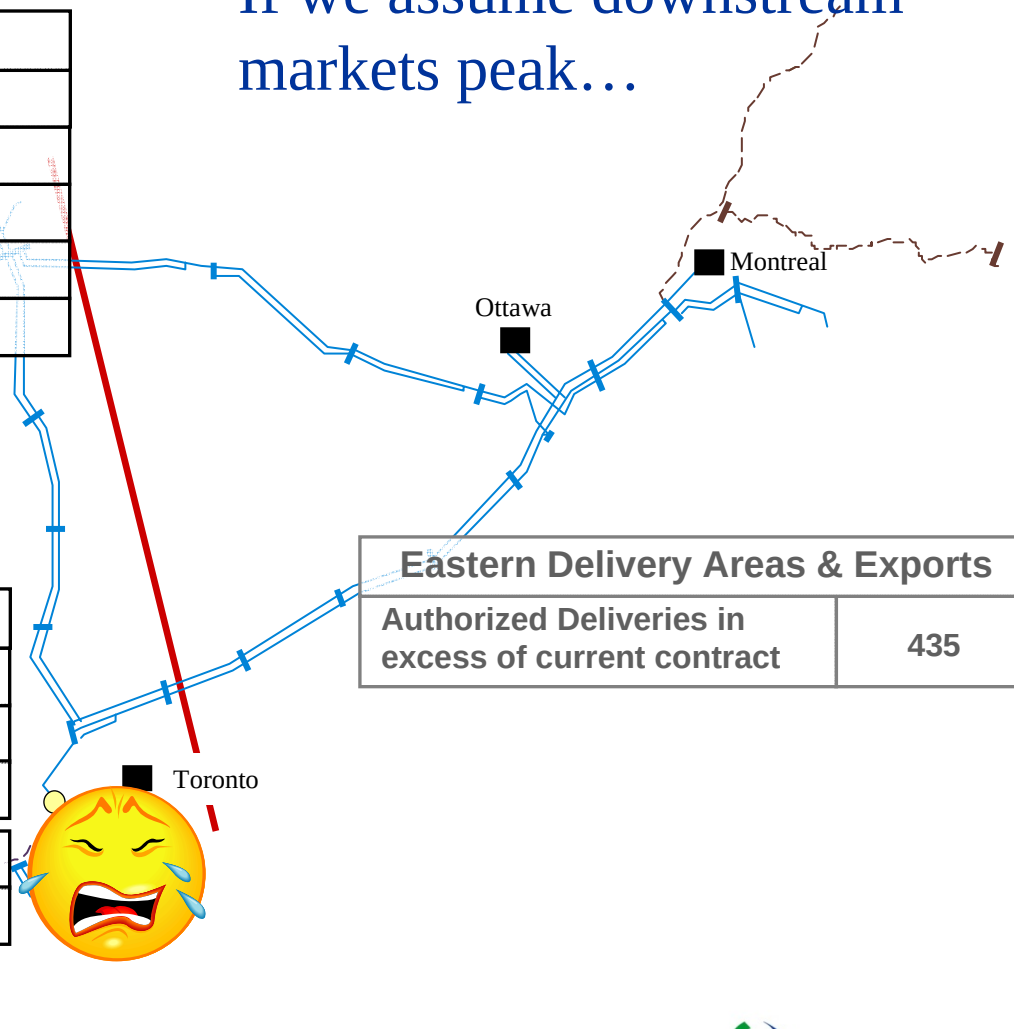
TransCanada

1770 TJ Reduction in NOL Capacity

Reduced Capacity Scenario

Northern Ontario Line	
Capacity with all facilities	4310
Less Outage Scenario	- 1770
Capacity	2540
Contracted	2105
Available	435

If we assume downstream markets peak…



Eastern Delivery Areas & Exports	
Authorized Deliveries in excess of current contract	435

Enbridge CDA	
Available through NOL	435
Less Gas to D/S Markets	- 435
Available to CDA	0
EGD CDA Exposed Qty	716
Shortfall	- 716

TransCanada

1770 TJ Reduction in NOL Capacity (...2)

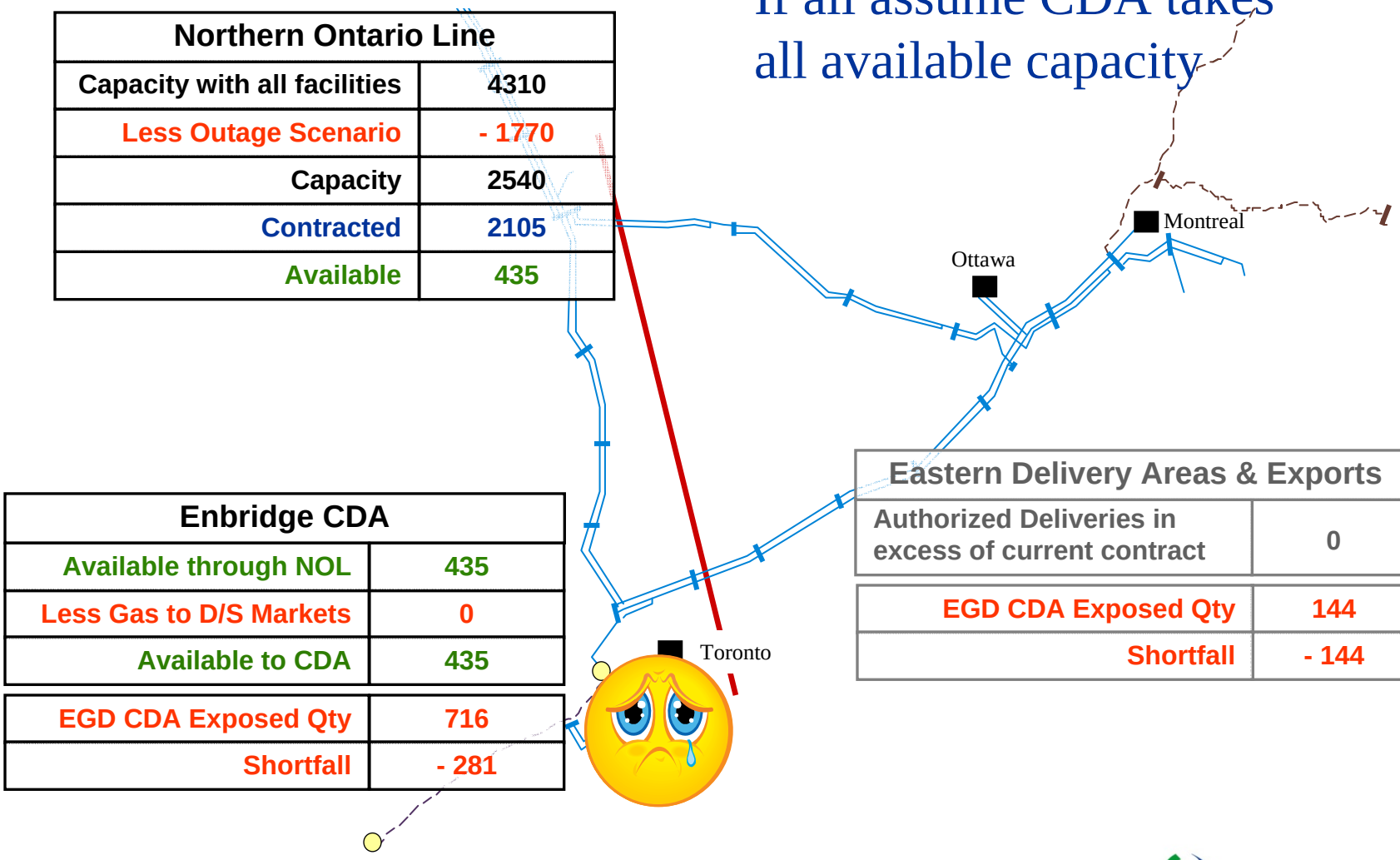
Reduced Capacity Scenario

Northern Ontario Line	
Capacity with all facilities	4310
Less Outage Scenario	- 1770
Capacity	2540
Contracted	2105
Available	435

If all assume CDA takes all available capacity

Enbridge CDA	
Available through NOL	435
Less Gas to D/S Markets	0
Available to CDA	435
EGD CDA Exposed Qty	716
Shortfall	- 281

Eastern Delivery Areas & Exports	
Authorized Deliveries in excess of current contract	0
EGD CDA Exposed Qty	144
Shortfall	- 144



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What does this all mean?

- **All facilities available**
  - Capacity available to Enbridge CDA & EDA
  - Must compete for capacity, more of an issue in the EDA
- **Firm (with loss of critical unit)**
  - Less capacity available to Enbridge CDA & EDA
  - Must compete for capacity
- **Extreme day: impact on non-firm services**
  - Jan/09 (600 TJ capacity loss): CDA could be restricted
  - Sept/09 Line Break (1,770 TJ capacity loss): CDA & EDA could be severely restricted
  - Union outage: Impact? 2.5 Bcf?

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Probability of an Outage

Unable to establish a probability of an outage, since insufficient data on starting multiple units in extreme weather

- **If the outage occurs during an average day:**
  - The impact on deliveries may be minimal (or none in the case of the Sept 09 line break)
- **If the outage occurs during periods of extreme cold weather:**
  - The impact on deliveries can be significant
  - There is increased likelihood of facilities failing
- **If an outage occurs:**
  - Non-firm discretionary services would be cut to zero before any firm services are impacted; and
  - If firm is impacted, such cuts would be made on a prorata basis.

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January 2009 Cold Snap

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Highlights

- **All available long haul STFT sold out**
- **High EDA deliveries ~ 3.1 bcf**
- **High NOL flows driven by reduced Overrun on Union of 500 mmcfd**
- **Multiple System Bottlenecks:**
  - East Hereford at Capacity – discretionary authorized every day
  - Chippawa at Capacity - New record set at 690 MMcfd
  - Prairies Line restricted on 14th
  - GMi EDA at capacity on 15th
  - NOL at capacity and restricting on 15th and 16th

All Firm Services Met

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Prairies Line

- **Extreme cold temperatures across the Prairies**
  - -35C in the west
- **Actions**
  - Cancelled 3 planned outages ~ 60 MW
  - Started 14 compressors totaling ~ 210 MW
- **Impact of extreme weather on the Prairies Line**
  - 5 unplanned unit outages
  - Several units failed to start
  - Frozen recycle valves, frozen isolation valves…

Northern Ontario Line

- **Extreme cold weather across the Northern Ontario Line**
  - -43C in Northern Ontario
  - -31C in Ottawa
- **Actions**
  - Expedited completion of 3 outages ~ 80 MW
  - Started 18 compressors totaling ~ 400 MW
- **Impact of extreme weather on the Northern Ontario Line**
  - 8 unplanned unit outages – reduced capacity by approx. 600 TJ/d
  - Several units failed to start
  - Frozen recycle valves, frozen isolation valves…
  - Effect of outages compounded by geographic proximity

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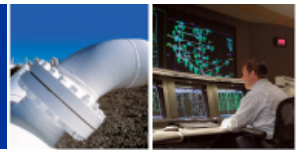
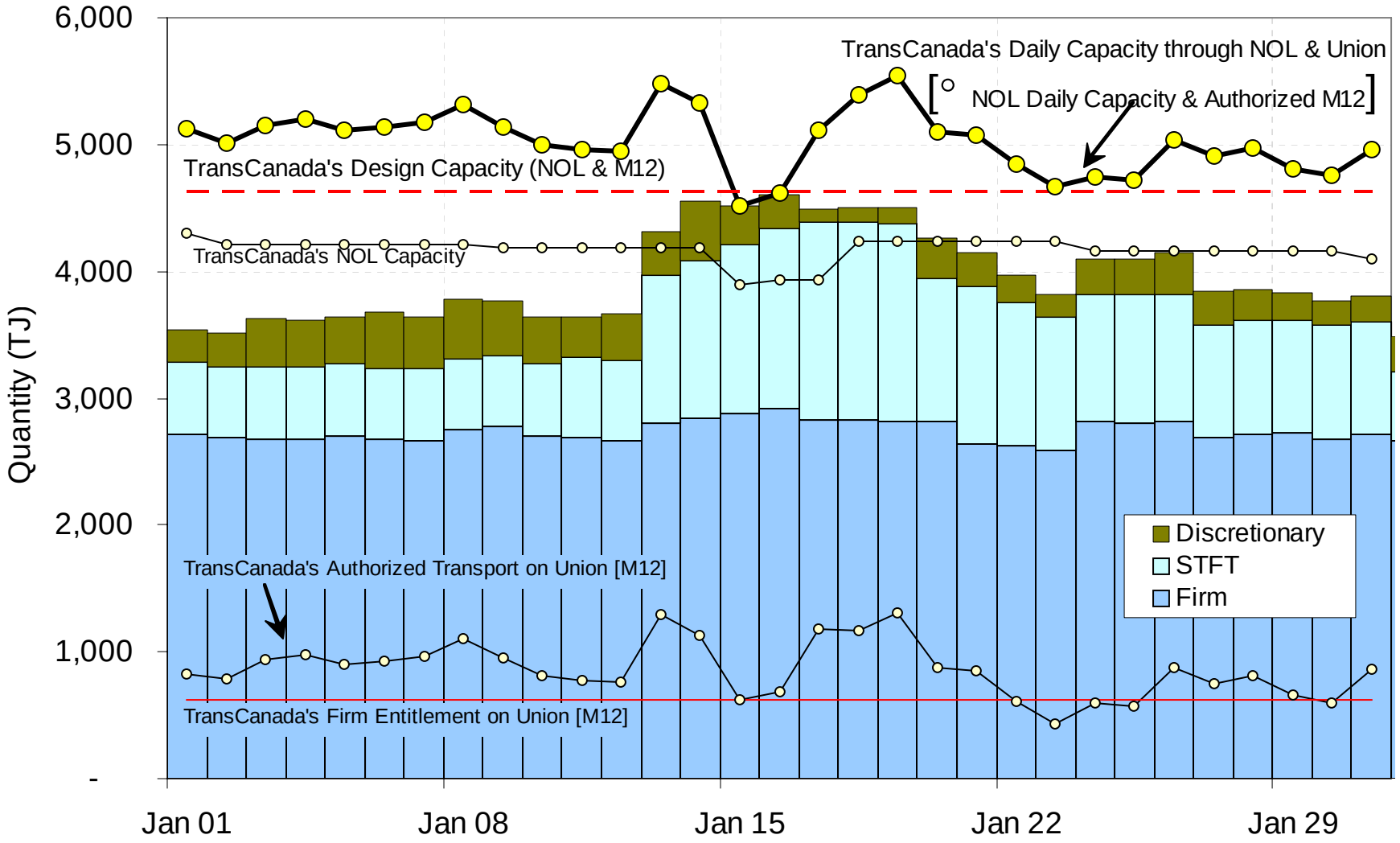
Capacities & Services
- January 1-31





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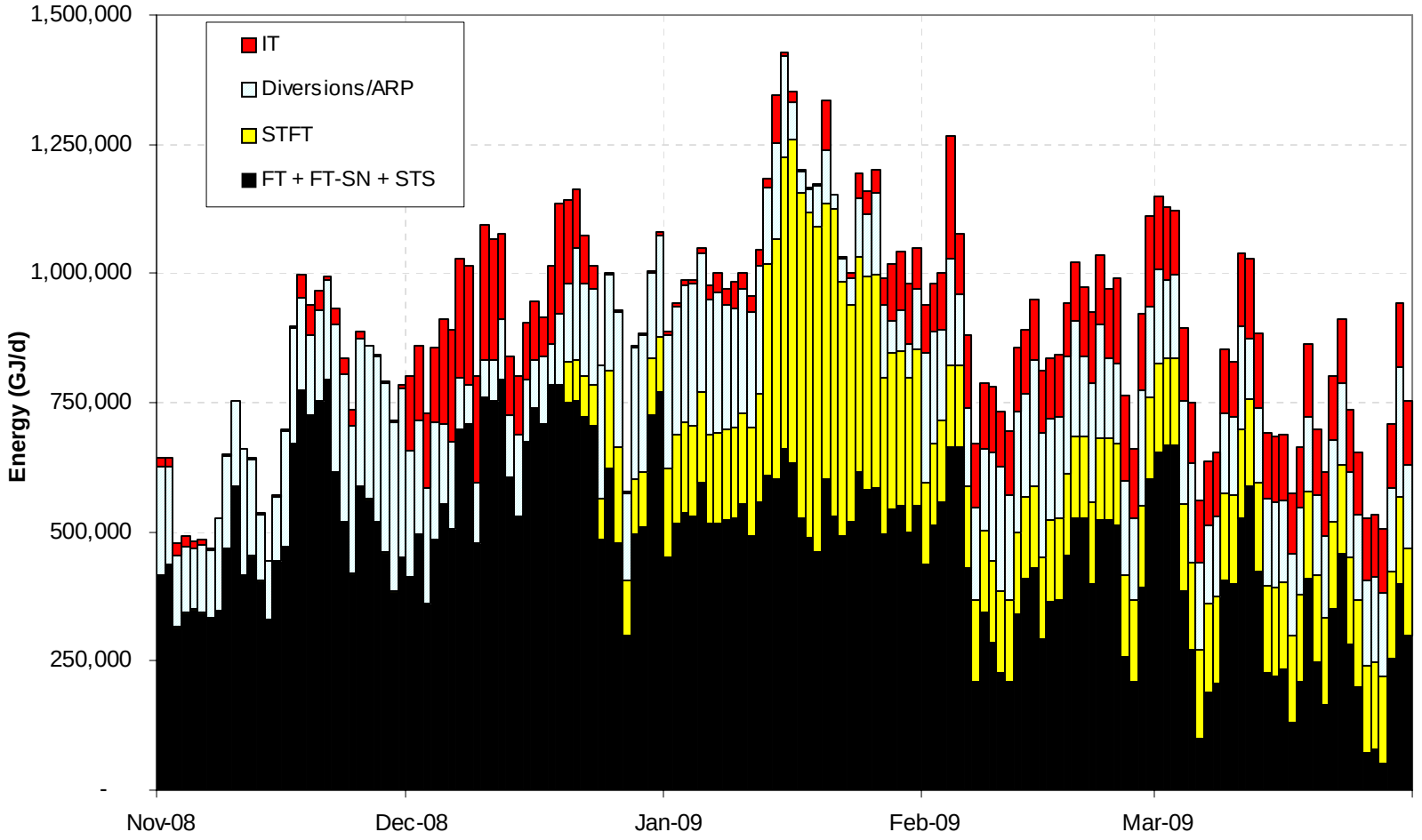
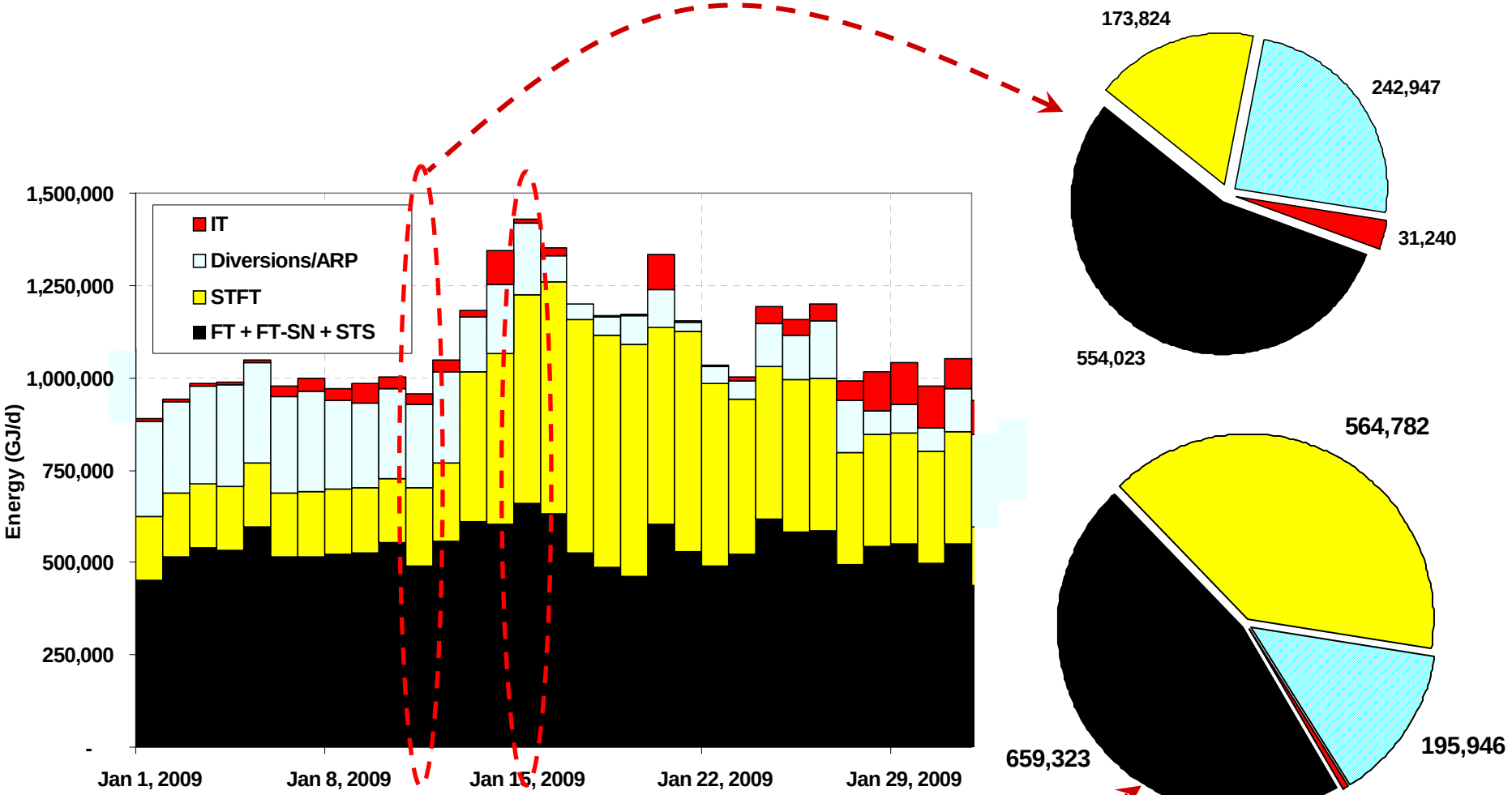
Deliveries to the Enbridge CDA* - Winter 2008/2009



*** Includes Enbridge CDA, Goreway CDA, Victoria #2 CDA**

TransCanada

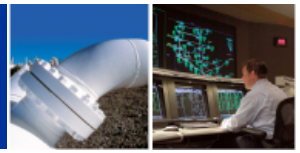
Deliveries to the Enbridge CDA* - January 2009



Includes Enbridge CDA, Goreway CDA, Vic Sq2

TransCanada

IT & Diversion Nominations to Enbridge
- January 15, 2009, Timely Nomination Cycle *



Enbridge CDA Service Category	Quantity Nominated (GJ)	Quantity Authorized (GJ)	% Authorized	Quantity Not Authorized (GJ)
IT –not through bottleneck	4,653	4,653	100%	0
IT – through bottleneck **	5,306	0	0%	5,306
Diversions – Upstream	167,253	167,253	100%	0
Diversions – Downstream **	73,166	40,873	55.9%	32,293

Enbridge EDA Service Category	Quantity Nominated (GJ)	Quantity Authorized (GJ)	% Authorized	Quantity Not Authorized (GJ)
IT – not through bottleneck	498	498	100%	0
IT – through bottleneck **	24,433	0	0%	24,433
Diversions – Upstream	150,016	150,016	100%	0
Diversions – Downstream **	21,735	12,143	55.9%	9,592

Notes:

* These tables show the results of the capacity allocation process for the Timely nomination cycle.

** The capacity bottlenecks affecting these nominations were TransCanada's Union M12 capacity & TransCanada's Northern Ontario Line in the Western Delivery Area.

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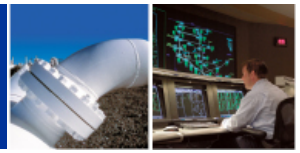
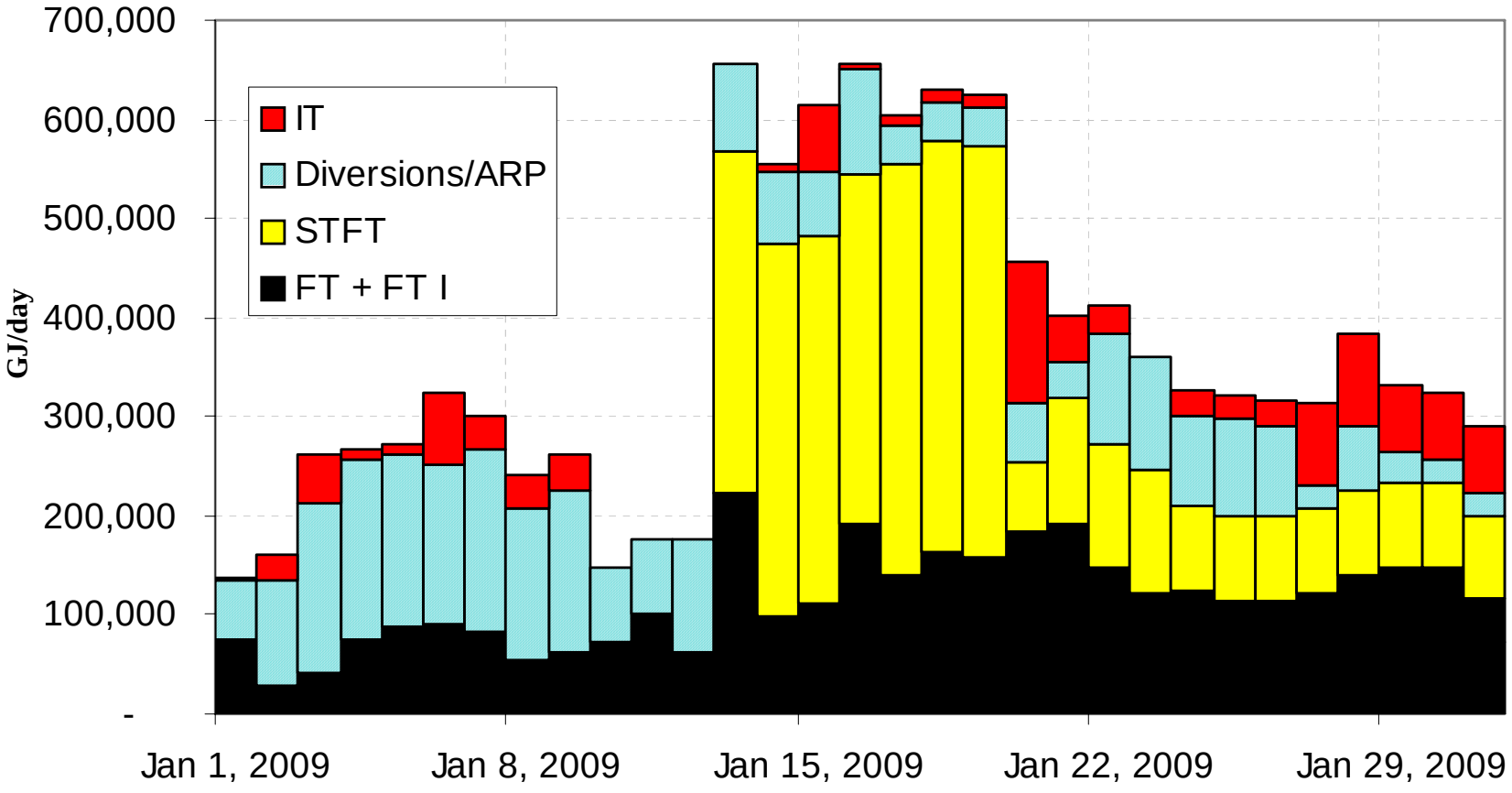
Deliveries to the Union CDA





Capacity & Service

Options to Serve Enbridge Markets

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Options

- **FT from Empress = Low Risk**
  - Lots of capacity available
  - Excellent supply availability
- **STFT from Empress = Low Risk if contracted for full winter**
  - Lots of capacity available if contracted before extreme day
  - Excellent supply availability
- **FT or STFT from North Bay**
  - Supply availability? Need partner with upstream firm transport

Options

- **FT or STFT from Dawn**
  - Capacity may be available
    - Subject to backhaul/exchange….with flow through Northern Ontario Line
  - Good supply availability

- **Upstream Diversion**
  - Capacity is “firm” for upstream diversions
    - Example:
      - Diversion to CDA from FT contract that delivers to Iroquois, East Hereford or EDA should typically be “upstream” and “firm”
      - Depends on location of bottleneck(s)
  - Requires “deal” with FT contract holder

Options

- **Downstream Diversions = High Risk**
  - Limited or no capacity available on “extreme” days
  - Prorata allocation if any capacity is available

- **IT = High Risk**
  - Limited or no capacity available on “extreme” days
  - Must compete in bidding process for any capacity that is available

Summary

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Summary - Capacities

- **All facilities available**
  - Capacity available to Enbridge CDA & EDA
  - Must compete for capacity, more of an issue in the EDA
- **Firm (with loss of critical unit)**
  - Less capacity available to Enbridge CDA & EDA
  - Must compete for capacity
- **Extreme day: impact on non-firm services**
  - Jan/09 (600 TJ capacity loss): CDA could be restricted
  - Sept/09 Line Break (1,770 TJ capacity loss): CDA & EDA could be severely restricted
  - Union outage: Impact? 2.5 Bcf?

Summary - Options

- Firm services
  - FT: lowest risk
  - STFT: low risk if contracted before “extreme” day
- Supply sources
  - Empress: excellent supply availability
  - North Bay: need to ensure upstream supply / transport
  - Dawn: capacity may be available
- Upstream Diversion
  - Typically low risk; need FT partner
- Downstream Diversion & IT
  - Risky

Keep these 6 Factors in mind when assessing risk

1) Upstream grid

- Need to think about risks and capacity constraints on any upstream pipeline…… Union, GLGT, Vector…
- EGD is highly reliant on Union system

2) Service Priority

- Long Term Firm, upstream Diversions and pre-contracted STFT have lowest risk

3) Higher risks of broad Distributor Delivery Areas"DDAs"

- localized constraint = broad impacts

4) Lots of capacity on Average day

5) Risks are higher on "extreme" days

- Impact of extreme cold weather; impact of flow volatility

6) Not just a question of <u>how much</u> capacity; also a question of <u>who</u> gets the capacity that is available.

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Questions?

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