

500 Consumers Road
North York, Ontario
M2J 1P8
PO Box 650
Scarborough ON M1K 5E3

Shari Lynn Spratt
Supervisor Regulatory Proceedings
Telephone: (416) 495-5499
Fax: (416) 495-6072
Email: EGDRRegulatoryProceedings@enbridge.com



June 21, 2013

VIA COURIER, EMAIL and RESS

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

**Re: Enbridge Gas Distribution Inc. ("Enbridge")
EB-2012-0451 - Greater Toronto Area ("GTA") LTC Project
Undertaking and Interrogatory Responses**

Further to the letter sent on June 18, 2013, enclosed please find the responses to Undertakings JT1.7 and JT2.25 from the Technical Conference for the EB-2012-0451 GTA Project.

Enbridge has included in the package the updated Interrogatory Responses to CME Interrogatory #5 (Exhibit I.A1.EGD.CME.5) which includes additional attachments.

Also, the witness names for the interrogatory responses listed below have been updated:

- Exhibit I.A3.EGD.CCC.14
- Exhibit I.A3.EGD.ED.37
- Exhibit I.A4.EGD.ED.20

Please also find enclosed the update from June 3, 2013 for Exhibit E, Tab 1, Schedule 1, page 8. This page was inadvertently missed in the previous update.

The above noted submissions have been filed through the Board's Regulatory Electronic Submission System and will be available on the Company's website at www.enbridgegas.com/gtaproject.

June 21, 2013
Page 2 of 2

Please contact me if you have any questions.

Yours truly,

[original signed]

Shari Lynn Spratt
Supervisor Regulatory Proceedings

cc: EB-2012-0451, EB-2012-0433, and EB-2013-0074 Interested Parties

UNDERTAKING JT1.7

UNDERTAKING

TR 1, page 76

To provide UDC cost based upon current gas supply needs if Enbridge does not obtain additional storage, Exhibit A2 EGD FRPO 26.

RESPONSE

The dollar amount associated with Unutilized Demand Charges (UDC) in the Long Haul Scenario identified at Exhibit A, Tab 3, Schedule 5, page 28, Table 1, is estimated to be \$75 million in 2016. This estimate was calculated using tolls from TransCanada's Compliance Filing pursuant to National Energy Board Toll Order TG-006-2013. The UDC amount pertains to incremental long haul firm transportation capacity assumed in the Long Haul Scenario in excess of the long haul contracts currently held by Enbridge. Since STFT pricing is unknown the minimum bid floor toll for STFT was used when calculating UDC in this scenario.

As indicated in the response to FRPO Interrogatory #26 at Exhibit I.A2.EGD.FRPO.26 the expected gas supply benefits were calculated assuming 100% utilization for incremental long haul requirements and did not consider less than 100% utilization. Directionally, an assumption of less than 100% utilization would increase the expected gas supply benefits.

Witness: J.Denomy

UNDERTAKING JT2.25

UNDERTAKING

TR 2, page 139

To respond to FRPO hard copy questions sent to EGD.

RESPONSE

The majority of the responses to this undertaking only address the customer growth requirements of this project. Other project objectives, such as reduced operational risks and enhanced safety and reliability of natural gas delivery would not be achieved with the scenarios presented below. The gas supply benefits would also not be achieved.

FRPO Follow-up Questions

EX I.A1.EGD.FRPO.5

1. Please provide all of the peak hour throughputs and the pressures at the respective stations for the scenarios as requested in the original undertaking.

Enbridge provides the following response:

Please see Table 1: FRPO 5 Response with Reduced Operating Pressures (Interruptibles On)

- a. If EGD had assumed that for the purposes of the simulations that Interruptible are still being served, please present the results with Interruptibles off in a separate table.

Enbridge provides the following response:

Please see Table 2: FRPO 5 Response with Reduced Operating Pressures (Interruptibles Off)

Witnesses: E. Naczynski
C. Fernandes

2. From the scenarios provided, each after 5a), EGD has provided the results based upon its desire to reduce the pressure at Victoria Square and NPS 26 Set. Please provide the simulation results if the original 2014 set pressures of 450 and 375 respectively were maintained in 2015/16.

Enbridge provides the following response:

Please see Table 3: FRPO 5 Response with Original Operating Pressures (Interruptibles On)

Witnesses: E. Naczynski
C. Fernandes

Table 1: FRPO 5 Response with Reduced Operating Pressures (Interruptibles On)

Unsteady State Model Results	A1 FRPO 5 a)		A1 FRPO 5 b)		A1 FRPO 5 c)		A1 FRPO 5 d)		A1 FRPO 5 e)		A1 FRPO 5 f)	
	Current	IN	OUT	Current	IN	OUT	Segment A Only	IN	OUT	Segment B1 Only	IN	OUT
Victoria Square Set Pressure (psi)	450			375			375			375		
NPS 26 Set Pressure (psi)	375			275			275			275		
Station B Result Pressure (psi)	244			148			148			193		
Albion Rd. District Station (10 ³ m ³ /hr)	330	383	275	339	385	275	339	331	275	332	389	275
Albion Rd Gate Station (10 ³ m ³ /hr)	na	na	na	na	na	na	832	na	485	na	na	na
Keele/CNR Station (10 ³ m ³ /hr)	267	368	275	280	371	275	280	269	275	269	376	275
Downsview Station (10 ³ m ³ /hr)	135	267	175	149	266	175	149	136	175	136	267	175
Martin Grove Station (10 ³ m ³ /hr)	305	278	175	352	255	175	352	308	175	308	263	175
Buttonville Station (from West inlet) (10 ³ m ³ /hr)	na	na	na	na	na	na	na	276	na	na	na	na
Buttonville Station (from North inlet) (10 ³ m ³ /hr)	na	na	na	na	na	na	na	276	na	526	na	na
South of Alden Road, flow from DV line (10 ³ m ³ /hr)	886	na	na	798	na	na	798	613	n/a	367	na	na
Jonesville Station (10 ³ m ³ /hr)	155	291	175	167	198	175	167	156	175	156	250	175
Station B (10 ³ m ³ /hr)	299	244	175/120	243	148	148/120	243	301	175/120	302	193	175/120
West Mall (10 ³ m ³ /hr)	237	292	175	269	275	175	269	239	175	239	292	175
Bayview (10 ³ m ³ /hr)	142	254	175	104	161	161	104	142	175	143	206	175
Peak time	8.07			8:00			8:00	8:13		8:08		8:03

Table 3: FRPO 5 Response with Original Operating Pressures (Interruptions On)

Unsteady State Model Results	A1 FRPO 5 a)		A1 FRPO 5 b)		A1 FRPO 5 c)		A1 FRPO 5 d)		A1 FRPO 5 e)		A1 FRPO 5 f)														
	Current	2014/2015	IN	OUT	2015/2016	Current	IN	OUT	2015/2016	Segment A Only	IN	OUT	2015/2016	Segment B Only	IN	OUT	2015/2016	Segment B1 Only	IN	OUT	2015/2016	NPS 16 from Markham	IN	OUT	
Victoria Square Set Pressure (psi)		450				450																450			
NPS 26 Set Pressure (psi)		375				375																375			
Station B Result Pressure (psi)		244				246																267			
Albion Rd. District Station (10 ³ m ³ /hr)		330	383	275	331.5	382	382	275	332.6	460	460	275	275	331.2	365	365	275	333.1	389	389	275	332.9	388	275	
Albion Rd Gate Station (10 ³ m ³ /hr)		na	na	na	na	na	na	na	539.1	917	917	485	485	na	na	na	na	na	na	na	na	na	na	na	na
Keele/CNR Station (10 ³ m ³ /hr)		267	368	275	222.9/46.2	367	367	275/175	223.8/46.3	472	472	275/175	275/175	222.7/46.2	340	340	275/175	224.1/46.4	376	376	275	224/46.3	375	275	
Downsview Station (10 ³ m ³ /hr)		135	267	175	136	267	267	175	136.6	267	267	175	175	136.1	267	267	175	136.9	267	267	175	136.8	267	175	
Martin Grove Station (10 ³ m ³ /hr)		305	278	175	307.6	278	278	175	308.8	277	277	175	175	307.9	278	278	175	309.2	277	277	175	309	277	175	
Buttonville Station (from West inlet) (10 ³ m ³ /hr)		na	na	na	na	na	na	na	na	na	na	na	na	180.4	na	na	na	na	na	na	na	na	na	na	na
Buttonville Station (from North inlet) (10 ³ m ³ /hr)		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
South of Alden Road, flow from DV line (10 ³ m ³ /hr)		886	na	na	891.6	na	na	na	895.8	na	na	na	na	708.3	na	na	na	369.3	na	na	na	815.8	na	na	na
Jonesville Station (10 ³ m ³ /hr)		155	291	175	155.6	288	288	175	156.2	293	293	175	175	155.5	301	301	175	156.4	353	353	175	156.4	312	175	
Station B (10 ³ m ³ /hr)		299	244	175/120	146/42.7	240	240	175/120	156.4/146.8	246	246	175/120	175/120	155.4/145.8	288	288	175/120	147.2/156.7	314	314	175/120	147/156.5	267	175/120	
West Mall (10 ³ m ³ /hr)		237	292	175	238.8	292	292	175	239.7	291	291	175	175	238.4	292	292	175	240	291	291	175	239.8	291	175	
Bayview (10 ³ m ³ /hr)		142	254	175	142.7	250	250	175	143.3	256	256	175	175	142.3	301	301	175	143.5	322	322	175	143.4	277	175	
Peak time		8.12			8.12				8.05					8.13				8.02				8.03			

3. It is clear from the evidence and the way this question was answered that EGD would prefer to reduce the pressure on the two respective pipes. FRPO would like to explore a stepped reduction in pressure over time.
- a) In a way acceptable to EGD, please show the pressure reductions in at least 3 steps down toward the desired pressure.

Enbridge provides the following response:

- a) The Company does not believe a stepped reduction is acceptable and is seeking to lower the pressures to below 30% SMYS as soon as possible. The scenarios below have been run in order to respond to the question only. This response should not be taken to mean that the Company believes this is acceptable, as this is not the case.

Pressure reductions were modeled in 2015, 2020 and 2025 in increments of one third of the total reduction and modeled in steady state. The below table shows pressure reductions, corresponding required reinforcements, as well as corresponding pressures at Station B. This scenario does not allow for reduced operational risks and enhanced safety and reliability of natural gas delivery. Furthermore, the gas supply benefits would not be achieved.

Table 4: Incremental Pressure Reduction Results

Year	Victoria Square Set Point (psi)	NPS26 Set Point (psi)	Reinforcement Segments	Station B Pressure (psi)
2015	450	375	None	215
	425	342	None	Infeasible
	425	342	B (N-S)	268
2020	400	308	B (N-S)	208
	400	308	B (N-S & E-W)	224
	400	308	A & B	326
2025	375	275	A & B	295

4. FRPO, without the benefit of the model, has asked about the benefit of the EGD simulation tools has asked about alternative in linking the Markham south line the Don Valley line as an opportunity to defer Segment B.

- a) Please present EGD's next best alternative in a table of flows and pressures.

Enbridge provides the following response:

Growth Only:

An alternative which only addresses the growth portion of the project up to 2025 is the installation of NPS 36 pipe looped to the existing NPS 30 from Sheppard Ave to

Witnesses: E. Naczynski
 C. Fernandes

McNicoll Ave. Table 5 shows the steady state modeling results of this scenario. This scenario does not allow for reduced operational risks and enhanced safety and reliability of natural gas delivery. Furthermore, the gas supply benefits would not be achieved.

Table 5: Sheppard to McNicoll Loop 2025 Results

Station	Set Point (psi)	Flow (10 ³ m ³ /hr)
Parkway	485	898
Lisgar NPS 20	175	112
Lisgar NPS 30	275	268
Lisgar NPS 24	485	412
Martin Grove	175	359
West Mall	175	292
Victoria Square	450	987

Station B Pressure (psi)	224
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Operational Flexibility + Growth Only:

This alternative would meet the load growth forecast and also provide the downstream operational flexibility needs, including reduced operating pressures to 375 psi on the NPS 30 Don Valley and 275 psi on the NPS 26. A new NPS 36 485 psi pipeline, approximately 15 km length, would be required. The pipeline would start at Victoria Square Gate Station and tie into the existing NPS 36 at Sheppard Ave. An upgrade to Jonesville Station and reconfiguration at Victoria Square Gate Station would also be required. Table 6 shows the steady state modeling results of this scenario. This scenario does not allow supply benefits to be achieved and does not eliminate the east-west bottleneck nor provide entry point diversity.

Table 6: Victoria Square to Sheppard Ave. and Jonesville Station 2025 Results

Station	Set Point (psi)	Flow (10 ³ m ³ /hr)
Parkway	485	825
Lisgar NPS 20	175	112
Lisgar NPS 30	275	268
Lisgar NPS 24	485	278
Martin Grove	175	359
West Mall	175	292
Victoria Square	485/375	1094

Station B Pressure (psi)	323
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Witnesses: E. Naczynski
 C. Fernandes

Next Best Complete Solution:

As discussed in Exhibit A, Tab 3, Schedule 7, paragraph 21, a build of Segment B plus another segment that allows a source of supply to connect near the center of the distribution system (either at Albion or Keele/CNR Stations) would meet the distribution system project objectives. This additional segment and source is effectively Segment A in the proposed facilities. If the alternative was sourced from TransCanada's Mainline to the north, this alternative would also need additional short haul capacity to be procured in order to achieve the the supply chain reliability and gas supply benefits. If this solution is sourced from Union's system and supplies Albion Station, it becomes the original proposal for the LTC Application, originating Segment A from Parkway West.

Station flows are same/similar for this alternative as already submitted for the proposed facilities.

- b) Please provide the reasons why this alternative was rejected.

Enbridge provides the following response:

The alternatives discussed above do not meet the project objectives and were screened out for that reason. Alternatives that were dependent on increased short haul capacity were screened out due to the lack of availability of short haul capacity from Parkway to Maple.

The alternative of initiating Segment A from Parkway West was no longer necessary following the MOU agreement with TransCanada, which allows for the economic sharing and shortening of Segment A by using TransCanada's existing infrastructure from Parkway West to Bram West and only building the infrastructure required to supply at Albion Station. This alternative would meet all of the project objectives, but has a lower NPV and higher cost than what is proposed.

5. Provide flow equation and describe if squared on pressures and load. (Transcript from June 13, 2013) on page 139 lines 19 to page 140 line 7).

Enbridge provides the following response:

The "Fundamental pipe with flow-depending friction (FM)" equation in the SynerGEE Gas program is used in steady-state modeling. This equation is squared on both pressures and flow rate.

Witnesses: E. Naczynski
C. Fernandes

ENBRIDGE GAS DISTRIBUTION INC. RESPONSE TO
CANADIAN MANUFACTURERS & EXPORTERS INTERROGATORY #5

INTERROGATORY

Are the proposed facilities needed? Considerations may include but are not limited to demand, reliability, security of supply, flexibility, constraints, operational risk, cost savings and diversity as well as the Board's statutory objectives.

Issue A.I.

Ref: EB-2012-0451, Exhibit A, Tab 3, Schedule 1, page 10 of 14

EGD confirms that it has had discussions with Union centering on Dawn Supply, incremental transportation on the Dawn Parkway system and reliability concerns with supply concentration at Parkway.

- (a) Please provide all written communications, memoranda, papers or PowerPoint/slide presentations provided by Union to EGD, or provided by EGD to Union, addressing any or all of these issues;
- (b) Without limiting the generality of subparagraph (a), CME requests that EGD and Union provide all written documents exchanged that address:
 - (i) Incremental compression as a result of additional volumes contracted from Dawn and Niagara;
 - (ii) Back-up feed into EGD's system; or
 - (iii) Loss of critical unit protection at Parkway West.

RESPONSE

- a) Copies of the relevant documents are attached. A review and reproduction of all documentation, including all internal memoranda, would require an inordinate amount of time and would not provide additional information of value in consideration of the issue.

Witness: M. Giridhar

- i. Enbridge Letter to Union Request for Services – 28/01/2013
(Attachment 1)
- ii. Firm M12 Transportation Contract Dawn Parkway/Lisgar – 21/12/2012
(Attachment 2)
- iii. Firm M12 Transportation Contract Kirkwall – 21/12/2012 (Attachment 3)
- iv. Enbridge Letter to Union - Waiving Conditions Precedent of Sch A 2010 –
28/01/2013 (Attachment 4)
- v. Union Letter Agreement for New Interconnections at Parkway 28/01/2013
(Attachment 5)
- vi. M12225 Precedent Agreement and Transport Contract with Waiver –
28/01/2013 (Attachment 6)
- vii. Financial Backstopping Agreement – 28/01/2013 (Attachment 7)
- viii. MOU Enbridge Union – 09/03/2012 (Attachment 8)
- ix. 2014 Firm Transportation Open Season Bid – 04/05/2012 (Attachment 9)
- x. 2015 Firm Transportation Open Season Bid – 04/05/2012 (Attachment 10)
- xi. Presentation – Third Feed Into Toronto – 15/06/2011 (Attachment 11)
- xii. Presentation – Joint Discussion on Upstream Supply Options –
19/07/2011 (Attachment 12)
- xiii. Presentation – Joint Discussion on Upstream Supply Options –
16/08/2011 (Attachment 13)
- xiv. Presentation – Joint Task Force Meeting – 02/08/2011 (Attachment 14)

b) Please see a) above.



FIRM TRANSPORTATION SERVICE BID FORM

Page 1 of 1

Please complete, sign and return this Firm Transportation Service Bid Form on or before 12:00 p.m. EDT (noon) on May 4, 2012, via email or fax to:

ATTN: Dale Van Der Meersch via

Email: dvandermeersch@uniongas.com

or **Fax:** (519) 436-4643

This is a binding bid, subject to specified conditions precedent. The purpose of the Parkway Extension Project and the Dawn to Parkway Open Season is for Union Gas to determine the facility design requirements to support market needs. Union Gas will determine whether or not to proceed with offering any of the services defined in the Parkway Extension Project and the Dawn to Parkway Open Season based on the assessment of the results from this Open Season. By signing and returning this Firm Transportation Service Bid Form, Shipper may be contacted directly to transition to a M12 transportation contract, a related Precedent Agreement and potentially a Financial Backstopping Agreement. Pro-forma copies of each can be found at www.uniongas.com/openseason.

Shippers may submit more than one bid form. Please indicate your requirements below:

Firm Transportation Service Binding Bid:

Receipt Point Dawn Kirkwall Parkway Maple
 Delivery Point Maple Parkway Dawn
 Start Date (select one per bid) Nov 1, 2014 or Nov 1, 2015
 NEW Quantity Max 250,000 (GJ/d)
 CONVERSION Quantity Max (GJ/d) (from existing M12 capacity)
 Contract Reference (e.g. M12000):
 TOTAL (New + Conversion) Max 250,000 (GJ/d)
 TERM (10 year minimum ending October 31) 10 (yrs)

Interest in Fixed Tolls:

Interest in Firm all day service with additional nomination windows:

Interest in bi-directional, multiple receipt point service:

Is the bid subject to any additional conditions precedent in addition to the standard Preconditions in Section XXI of Union Gas' M12 General Terms and Conditions?

Yes* **No** (circle one) *If yes, please articulate those conditions in an attachment

Dated this 4th day of MAY 2012

SHIPPER LEGAL NAME ENBRIDGE GAS DISTRIBUTION INC.

By: 
 Signature: _____


 E-mail: Signature _____

Name: **D. Guy Jarvis**
 President

Phone: _____
James Lord
 Vice President
 Law & Information Technology

**Enbridge Gas Distribution Inc. ("Enbridge") Conditions to Bid
for Union Gas Limited ("Union") Dawn to Parkway Binding Transportation Open Season
Closing May 4, 2012 ("Open Season")**

In addition to the conditions precedent set out in Section XXI of Union's M12 General Terms and Conditions ("M12 Conditions"), Enbridge's Open Season bid is subject to satisfaction of the following conditions ("Enbridge Conditions"), which are for the sole benefit of Enbridge and which may be waived or extended in whole or in part in the manner set out below:

i) Union shall maintain Nomination windows equivalent to TCPL Storage Transportation Services nomination windows in effect as of May, 2012 for the term of the Contract.

ii) Union shall modify operating parameters and construct additional facilities at Union's proposed Parkway West station, as reasonably required by Enbridge, to enable Enbridge to transport the Contract Demand from Union's Parkway station to Enbridge's Albion station and to have operating flexibility amongst the Parkway West, Parkway Consumers and Lisgar stations. Upon completion, the parties shall forthwith amend any such modified operating parameters, and any applicable agreements between them to include the Parkway West station.

iii) Section 2b. of the M12 Conditions shall be deleted and replaced with: Enbridge shall have obtained, in form and substance satisfactory to Enbridge, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required from federal, state, or provincial authorities for the gas quantities handled under the Contract, including without limitation approvals, consents, orders and authorizations related to any required new Enbridge facilities.

Union and Enbridge shall each use due diligence and reasonable efforts to satisfy and fulfill the Enbridge Conditions. Enbridge shall notify Union forthwith in writing of the satisfaction or waiver of each Enbridge Condition. If Enbridge concludes that the Enbridge Conditions are not satisfied at any time prior to such notice, Enbridge may, upon written notice to Union, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations thereunder. In the event of any conflict between the Enbridge Conditions and the M12 Conditions, the Enbridge Conditions shall govern.

FIRM TRANSPORTATION SERVICE BID FORM

Page 1 of 1

Please complete, sign and return this Firm Transportation Service Bid Form on or before 12:00 p.m. EDT (noon) on May 4, 2012, via email or fax to:

ATTN: Dale Van Der Meersch via

Email: dvandermeersch@uniongas.com

or **Fax:** (519) 436-4643

This is a binding bid, subject to specified conditions precedent. The purpose of the Parkway Extension Project and the Dawn to Parkway Open Season is for Union Gas to determine the facility design requirements to support market needs. Union Gas will determine whether or not to proceed with offering any of the services defined in the Parkway Extension Project and the Dawn to Parkway Open Season based on the assessment of the results from this Open Season. By signing and returning this Firm Transportation Service Bid Form, Shipper may be contacted directly to transition to a M12 transportation contract, a related Precedent Agreement and potentially a Financial Backstopping Agreement. Pro-forma copies of each can be found at www.uniongas.com/openseason.

Shippers may submit more than one bid form. Please indicate your requirements below:

Firm Transportation Service Binding Bid:

Receipt Point Dawn Kirkwall Parkway Maple
 Delivery Point Maple Parkway Dawn
 Start Date (select one per bid) Nov 1, 2014 or Nov 1, 2015
 NEW Quantity Max 150,000 (GJ/d)
 CONVERSION Quantity Max — (GJ/d) (from existing M12 capacity)
 Contract Reference (e.g. M12000): —
 TOTAL (New + Conversion) Max 150,000 (GJ/d)
 TERM (10 year minimum ending October 31) 10 (yrs)

Interest in Fixed Tolls:

Interest in Firm all day service with additional nomination windows:

Interest in bi-directional, multiple receipt point service:

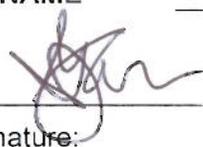
Is the bid subject to any additional conditions precedent in addition to the standard Preconditions in Section XXI of Union Gas' M12 General Terms and Conditions?

Yes* No (circle one)

*If yes, please articulate those conditions in an attachment

Dated this 4th day of MAY 2012

SHIPPER LEGAL NAME ENBRIDGE GAS DISTRIBUTION INC.

By: 
Signature:


~~Email:~~ Signature

Name: **D. Guy Jarvis**
President

Phone: **James Lord**
Vice President
Law & Information Technology

**Enbridge Gas Distribution Inc. ("Enbridge") Conditions to Bid
for Union Gas Limited ("Union") Dawn to Parkway Binding Transportation Open Season
Closing May 4, 2012 ("Open Season")**

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iii) Section 2b. of the M12 Conditions shall be deleted and replaced with: Enbridge shall have obtained, in form and substance satisfactory to Enbridge, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required from federal, state, or provincial authorities for the gas quantities handled under the Contract, including without limitation approvals, consents, orders and authorizations related to any required new Enbridge facilities.

Union and Enbridge shall each use due diligence and reasonable efforts to satisfy and fulfill the Enbridge Conditions. Enbridge shall notify Union forthwith in writing of the satisfaction or waiver of each Enbridge Condition. If Enbridge concludes that the Enbridge Conditions are not satisfied at any time prior to such notice, Enbridge may, upon written notice to Union, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations thereunder. In the event of any conflict between the Enbridge Conditions and the M12 Conditions, the Enbridge Conditions shall govern.

Third feed into Toronto

Presented to
Enbridge Gas Distribution

June 15th, 2011



Confidential

Agenda



CELEBRATING
100 YEARS
Est. 1911

- Executive Summary
- Summary from last meeting
- Enbridge Concerns
- Options Considered
- Recommendation
- Next Steps

Executive Summary



uniongas

A Spectra Energy Company

CELEBRATING
100 YEARS
Est. 1911

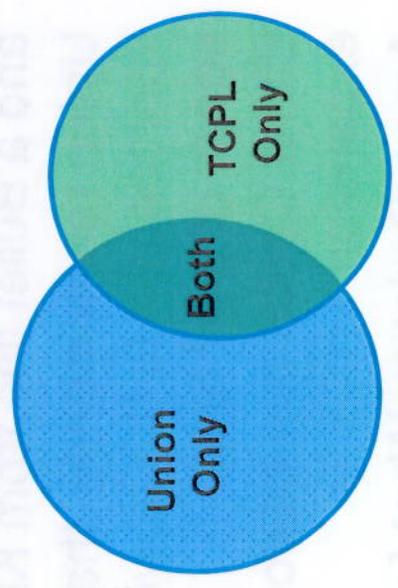
- Union evaluated two 3rd feed options – a redundant Parkway West plant and a Bullet line from Kirkwall to the West Mall
- Union recommends that Parkway West, with the design redundancy and interconnect to the downtown security loop, is the best option to meet the needs of a 3rd feed
- Either Option can be combined with Parkway to Enbridge Victoria Square expansion
- A new Parkway West facility will provide:
 - Secure, safe supply from Dawn or Kirkwall to Enbridge’s Security loop
 - A design that ensures continuous flow of gas even with critical elements of Parkway unavailable
 - Includes a new feed south that would have enough operating capacity to support Lisgar plus 400-500 TJ/d of new load
 - Provides synergies with Enbridge upstream assets of Alliance, Vector and Tecumseh storage
- Expected M12 toll to remain in historic range of 7 to 10 cents (to Parkway)

Summary of Last meeting - Nov 15, 2010



CELEBRATING
100 YEARS
Est. 1911

- Reviewed Enbridge's Peak Day requirements
- LCU coverage at Dawn, Bright / Lobo, but not Parkway(TCPL)
- Reliability of Union – Pipe & compressors
- Union's Integrity Management Programs
- Safe and dependable Operational history
- New Parkway interconnect to Enbridge's Downtown reinforcement project
- Need to debottleneck Parkway to Maple



Union provides ~70% of Enbridge's peak day

Enbridge Peak Day Transport
~ 3,500 TJ/d

Enbridge Concerns



- Dependence on Union at Parkway (Enbridge can have 70% of their peak day demands supplied through Parkway via 3 existing feeds)
- Concern about physical distance between major equipment at current Parkway station and potential impact during an incident
- No Loss of Critical Unit (LCU) coverage for compressed volumes to TCPL (Enbridge currently shipping 0.5 bcfd on this path)
- No redundant measurement
- Depending on incident, no bypass around Parkway

Enbridge views the solution as a 3rd new feed into Toronto

3rd feed options considered



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Since Nov meeting, Union has looked at a number of alternatives. Would like to present 2 potential options:

1. Parkway West:
 - New plant would be west of the existing station and would include a new feed south to the downtown reinforcement project
 - 100% redundancy on all equipment and pipe at Parkway station
 - New plant becomes equivalent to a 3rd feed
 2. Bullet Line from Kirkwall to West Mall area to connect with downtown reinforcement project
- In addition, also look at synergy with a new Pipeline from Parkway to Victoria Square in combination with #1 or #2 to provide a 4th feed

Union has options that can meet the Enbridge need

Option #1: Parkway West Proposal



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- Upgrade existing metering to custody transfer level for TCPL
- Develop a new West Station, complete with:
 - redundant metering
 - Install 2 new 20,000 HP compressors to complete LCU
 - Full emergency bypass piping - would allow gas to be re-routed in the event of any single emergency
- \$220m of costs rolled into M12 rates
- Metering and bypass piping completed for 2013; Loss of Critical unit in 2014

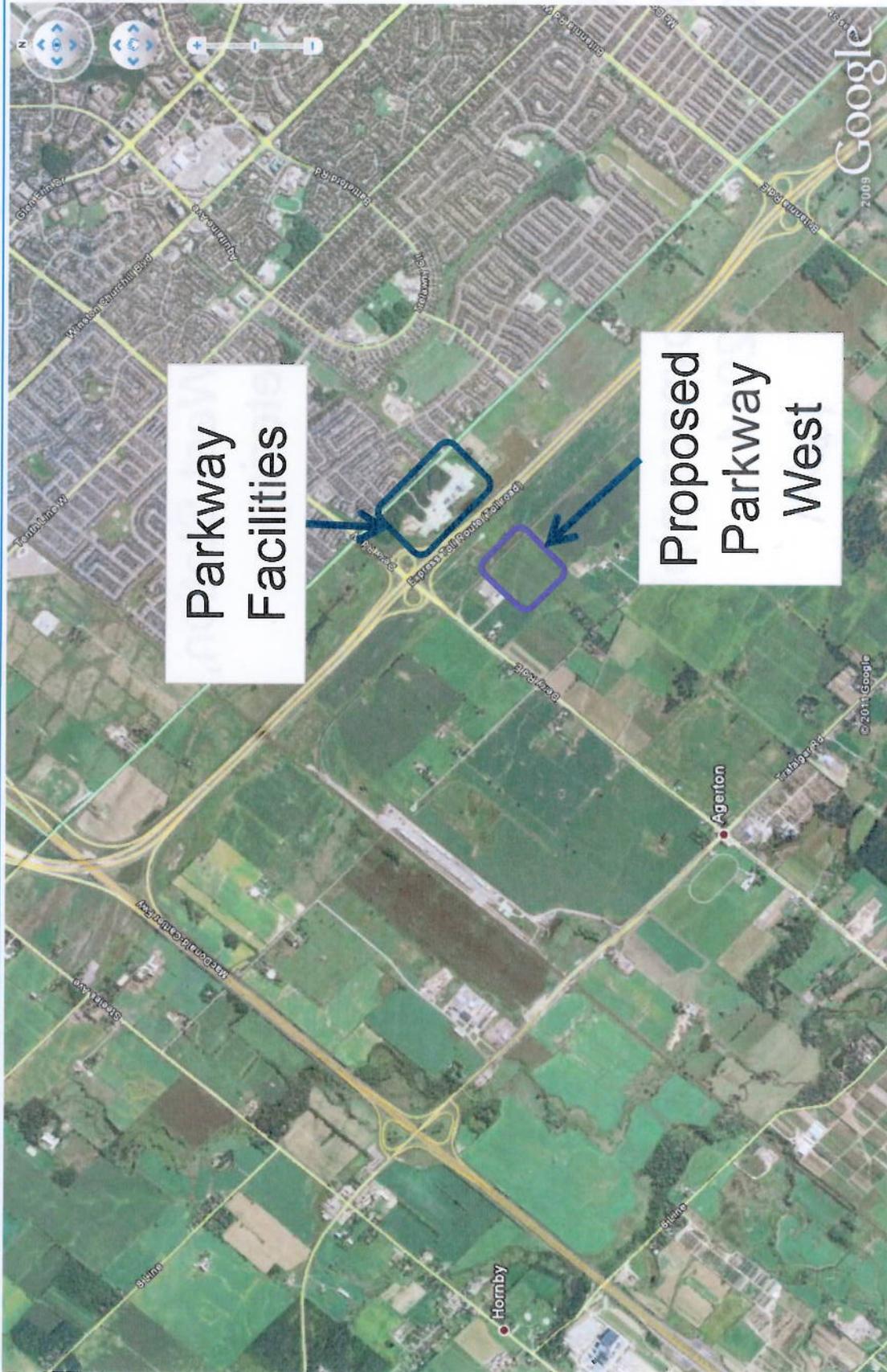
metering, LCU, emergency, \$2M for transfer

Location of Parkway West



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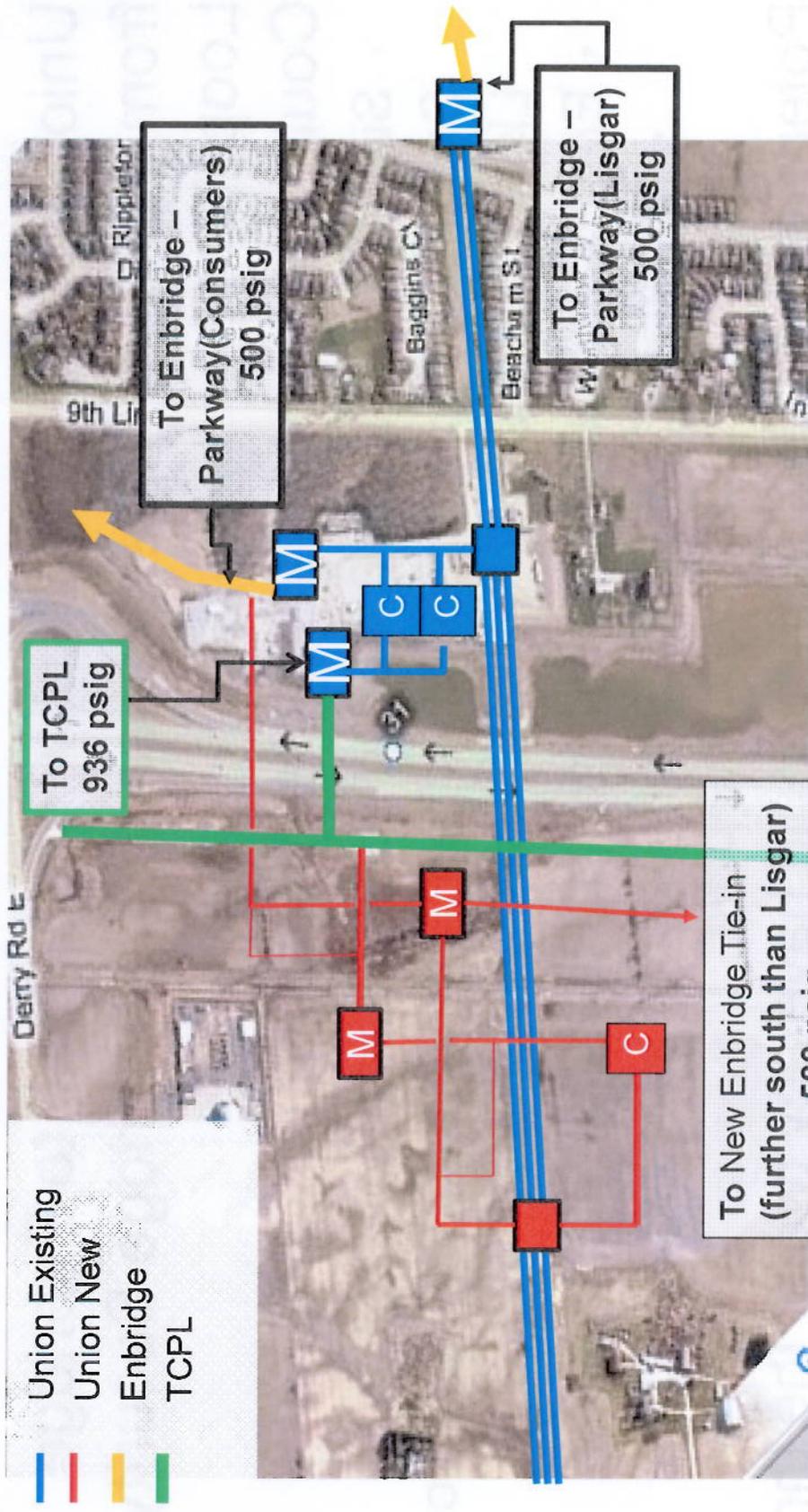


Parkway West Proposal



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Union Existing
Union New
Enbridge
TCPL

C Compressor
M Metering Stn

New Interconnection to Enbridge



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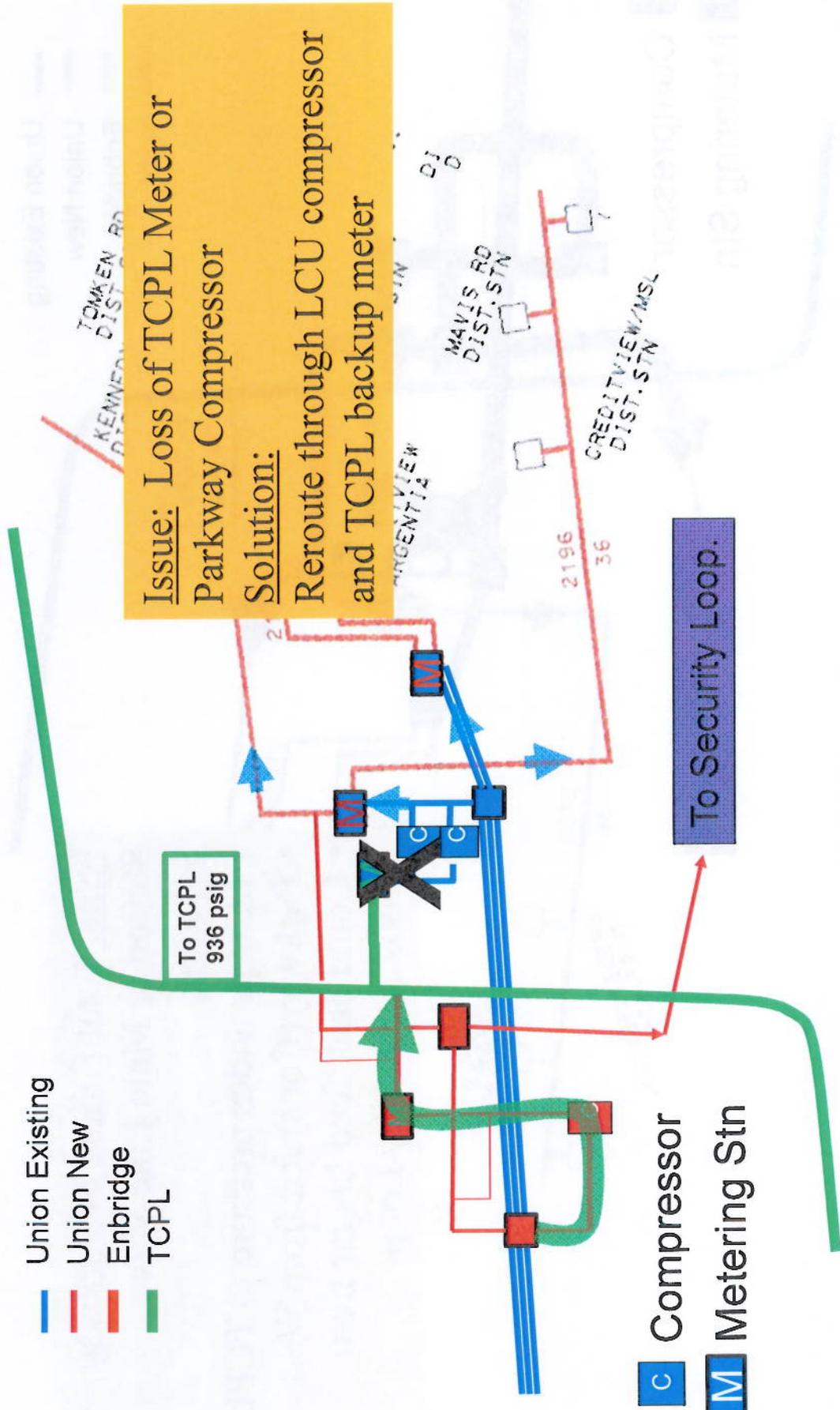
- Union proposing a 3rd new major feed to Enbridge from Parkway West station to the Enbridge Security Loop
- Could be supplied from Dawn and/or Kirkwall
 - Sized for between 0.4 bcf/d and 1 bcf/d (coverage for Security Loop and possible backup for Parkway(Cons) or Lisgar capacity)
 - Enhances design redundancy at Parkway
 - Parkway (Cons) and Lisgar currently have excess interconnect capacity of 0.9 bcf/d
- Potential for a design that could have any two of the three Union feeds (including Lisgar, Parkway(Cons) and the new feed) meeting all Enbridge requirements

Parkway West Proposal



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- Union Existing
- Union New
- Enbridge
- TCPL



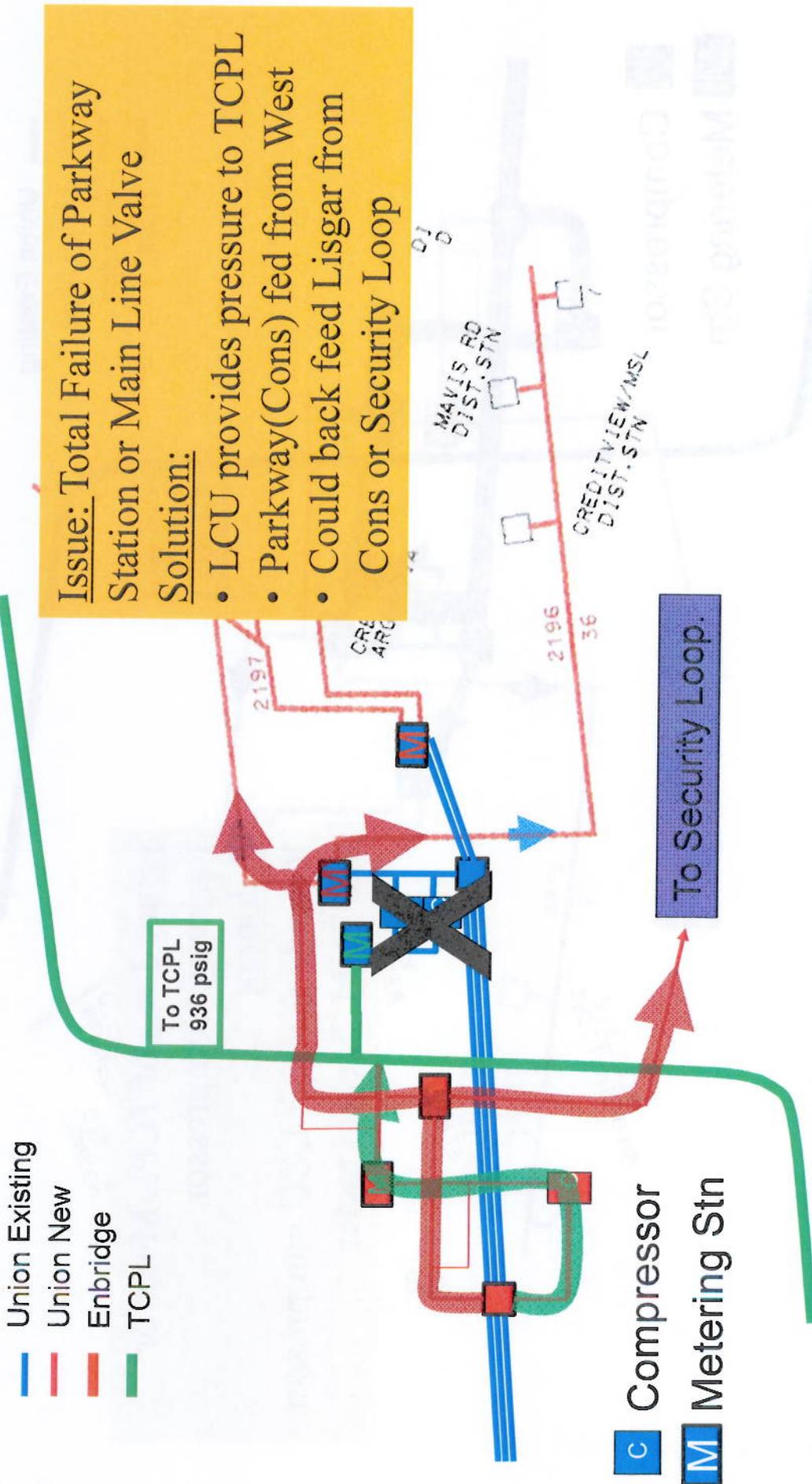
- C Compressor
- M Metering Stn

Parkway West Proposal



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- Union Existing
- Union New
- Enbridge
- TCPL

- C Compressor
- M Metering Stn

Issue: Total Failure of Parkway Station or Main Line Valve

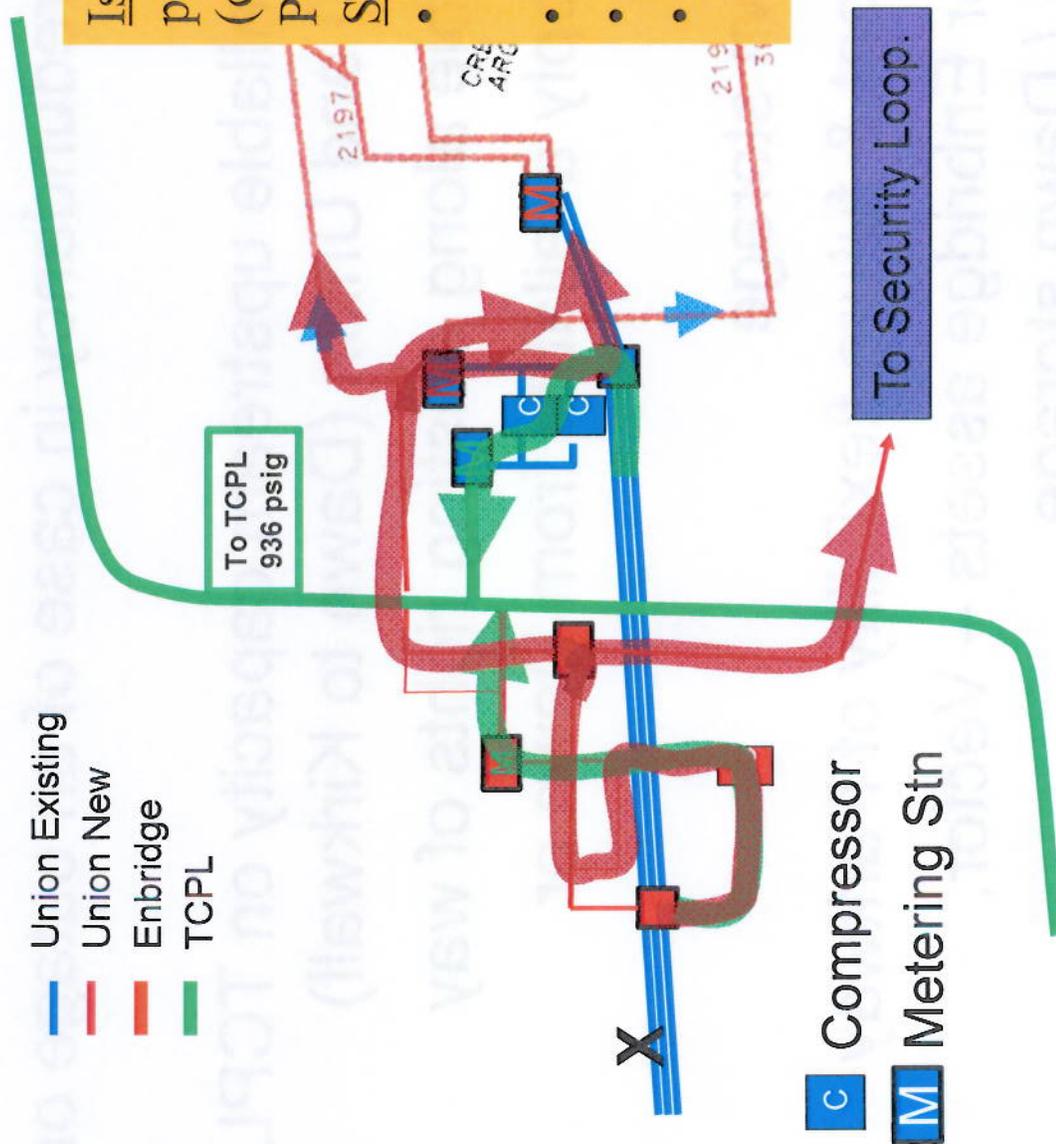
Solution:

- LCU provides pressure to TCPL
- Parkway(Cons) fed from West
- Could back feed Lisgar from Cons or Security Loop

To Security Loop.

To TCPL
936 psig

Parkway West Proposal



Issue: Incident upstream and partial loss of Dawn-Parkway (causing lower pressure at Parkway)

Solution:

- Use LCU for Enbridge and TCPL
- Parkway(Cons) fed from West
- Lisgar fed from West
- TCPL fed from Parkway and from West

Strategic Considerations of Uniongas Parkway West

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- Provides complete redundancy in case of an outage or incident
- Proposal utilizes available upstream capacity on TCPL (Niagara to Kirkwall) and Union (Dawn to Kirkwall)
- Expandable / Scalable along existing rights of way
- Incremental gas supply available from Dawn or Marcellus (Kirkwall)
- Easy access to Dawn storage
- Integrates with current & future flexibility of Parkway
- Synergies with other Enbridge assets – Vector, Alliance, Tecumseh / Dawn storage

Option #2 Bullet Line from Kirkwall



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- New pipeline from Kirkwall to West Mall / Etobicoke (south of Parkway)
- 75 km of 36” pipeline with 36,500 HP compression for 1 bcf/d
- Route assumed to follow Union’s ROW from Kirkwall towards Parkway and then south, but **not** interconnecting with Parkway
- Designed to feed Enbridge’s downtown reinforcement project
- Allows for dedicated independent feed, avoiding Parkway
- Estimated cost - \$495 m (\$181 m just to Parkway)

Map of Kirkwall to West Mall



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Strategic Considerations of uniongas

Bullet Line

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- Creates independent feed
- Utilizes excess TCPL Niagara/Chippawa to Kirkwall capacity
- Gas Supply from Dawn or Marcellus
- Access to Dawn storage
- Synergies with other Enbridge assets – Vector, Alliance, Tecumseh / Dawn storage
- Issues:
 - Economics and structure
 - Reliant on a single pipeline vs 3 existing pipes

A 4th feed – synergistic with Option #1 & 2



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Parkway to Victoria Square / TCPL

- 55 km of 24” to 30” pipe from Parkway to Victoria Square and 40-60,000 HP of compression at Parkway providing 1 Bcf/d of new capacity for \$581m
- Provides new dedicated feed into the heart of the Greater Toronto Area
- Roll into M12 rates (Dawn to Victoria Square)
- Option to tie in at several Enbridge delivery points and reinforce key areas within GTA
- If combined with Enbridge reinforcement projects may provide additional security of supply

Strategic Benefits of Parkway **Enbridge** to Victoria Square/TCPL

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- Allows Dawn to Victoria Square or Kirkwall to Victoria Square without TCPL
- Creates a 4th feed into Greater Toronto Area
- Gas Supply from Dawn or Marcellus
- Access to Tecumseh / Dawn storage
- Integrate with current and future flexibility at Parkway
- Synergies with other Enbridge assets – Vector, Alliance, Dawn storage
- Provides synergies with either Option 1 or 2

Conclusions



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- Union evaluated two 3rd feed options – a redundant Parkway West plant and a Bullet line from Kirkwall to the West Mall
- Union recommends that Parkway West, with the design redundancy and interconnect to the downtown security loop, is the best option to meet the needs of a 3rd feed
- Either Option can be combined with Parkway to Enbridge Victoria Square expansion
- A new Parkway West facility will provide:
 - Secure, safe supply from Dawn or Kirkwall to Enbridge’s Security loop
 - A design that ensures continuous flow of gas even with critical elements of Parkway unavailable
 - Includes a new feed south that would have enough operating capacity to support Lisgar plus 400-500 TJ/d of new load
 - Provides synergies with Enbridge upstream assets of Alliance, Vector and Tecumseh storage
- Expected M12 toll to remain in historic range of 7 to 10 cents (to Parkway)

**Union/EGD
Joint Discussion on Upstream Supply options
July 19th, 2011**



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Agenda



- **Issues**
 - **Distribution, Gas Supply and Growth**
- **Requirements/Priorities**
- **Concerns**

Distribution System Issues



- **Limited system flexibility**
 - Potential for significant customer outages in upset conditions
- **Aging infrastructure, urban development and technical standard changes could further reduce system capacity**
- **Heavy dependence on Parkway/Lisgar Station**
 - 70% of peak day flows in the GTA
 - Location of Lisgar station not ideal

Upstream Supply Characteristics



- **TCPL toll uncertainties & Marcellus supply warrant further supply diversity**
- **However 70-80% of GTA supply on peak day already sourced from storage/Dawn on Union**
 - **> 80% of EGD procurement**
 - **400 TJ of marketer supply uses TCPL IT, STFT or Union short haul**
 - **Up to 300K of Marcellus supply underpinning TCPL expansion likely to land in the CDA by 2013**

Demand Issues



- **EGD expects to add ~30-40K residential customers/year in GTA for the foreseeable future**
 - Limited annual load growth due to conservation & type of dwelling
 - Peak hour and peak day demand will continue to grow
- **Continued growth in small scale power generation and LNG for vehicles could result in further load growth**
- **EGD's current design day criteria (39.5 DD) too aggressive relative to other utilities**
 - Significant proportion of current peak day supply is not backed by firm transport to franchise
- **Increase in XHP system in conjunction with short haul contracts will provide the needed flexibility**

Requirements/Priorities



Identify a reinforcement option to address the following concerns:

- Create a third major source of supply for the GTA that will:
 - Maintain a secure supply source of natural gas in the event of upset conditions from existing upstream suppliers/supply points
 - Increase the flexibility of the distribution system to offset/displace loads between 500TJ – 1000TJ from key gate stations
 - Gain the ability to source natural gas from the expanding Marcellus Shale Gas in the Appalachian Basin, increasing diversity of supply and path
- Must meet expected growth over a 20 year forecast horizon
- Opportunistically mitigate other system concerns
 - Tie-in to other programs/initiatives
 - Items must not negate economics of reinforcement solution

Preliminary options



EGD has done preliminary investigation on 3 options:

- 1. Bullet Line from Kirkwall to Parkway South**
- 2. Submarine Pipeline from Kirkwall to PEC**
- 3. Submarine Pipeline from Niagara to PEC**

Pictorials follow on next slide

Potential Pipeline Routings



Concerns



- **Manage ratepayer impact from proposed build**
 - Optimize upstream gas cost impacts
 - Manage distribution rate impacts
- **Minimize stakeholder concerns on routing**
- **Ensure timing of project matches window of opportunity**

**Union/EGD
Joint Discussion on Upstream Supply options
August 16th, 2011**



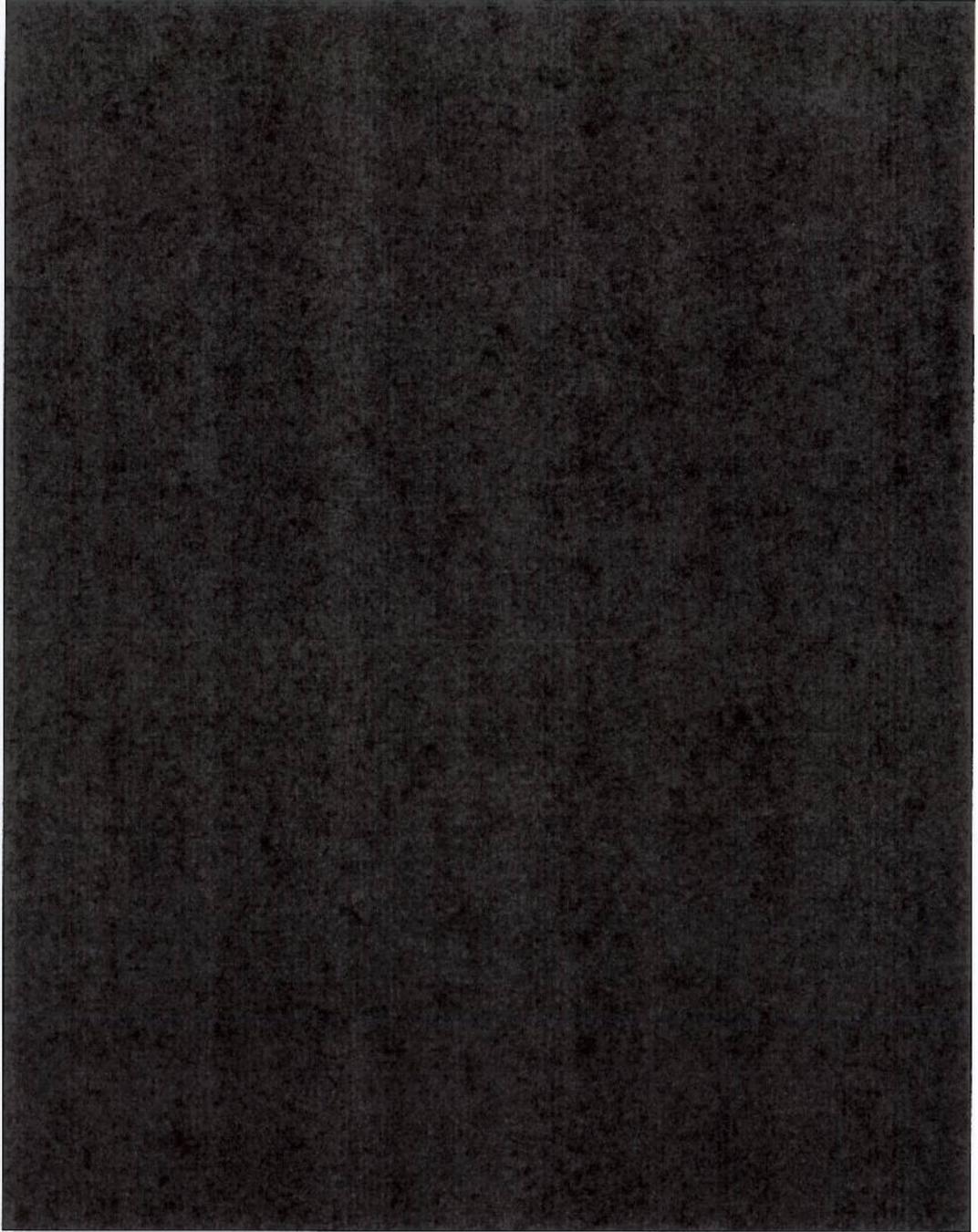
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Agenda for August 16th



- Review of Actions items from last meeting
 - EGD mains near Western franchise boundary
- Union presentation (reference Jim's detailed agenda)
- Review of EGD analysis to date
 - Forecast growth
 - Reliability concerns
 - Internal Process review and expected timelines
 - Entry points being considered
- Group Discussion
- Next steps

EGD mains near Western franchise boundary



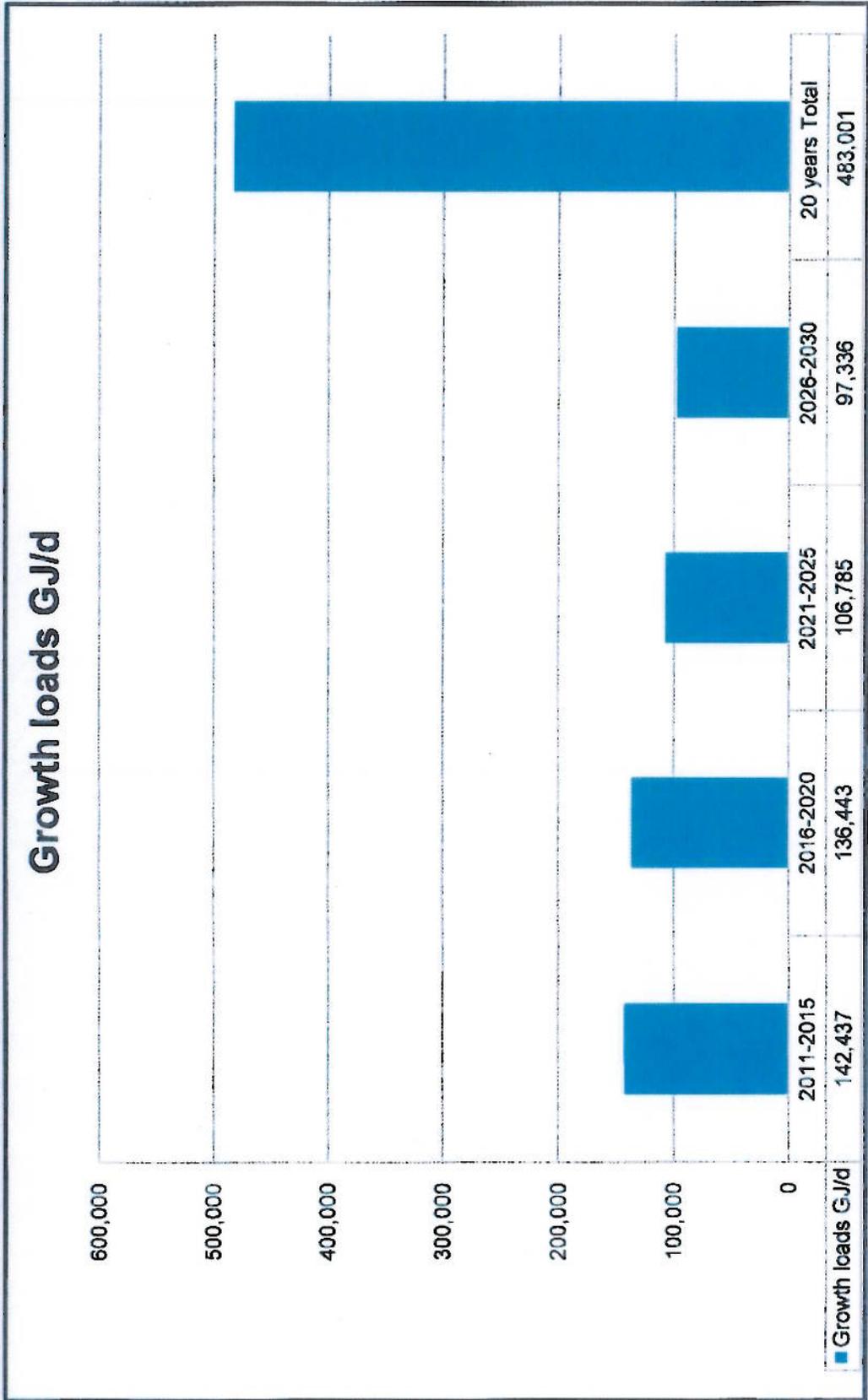
Note: Redacted for security purposes

Union Presentation



- <<insert ppt from Jim here>>

Enbridge – Estimated Load Growth



Distribution System Reliability Concerns



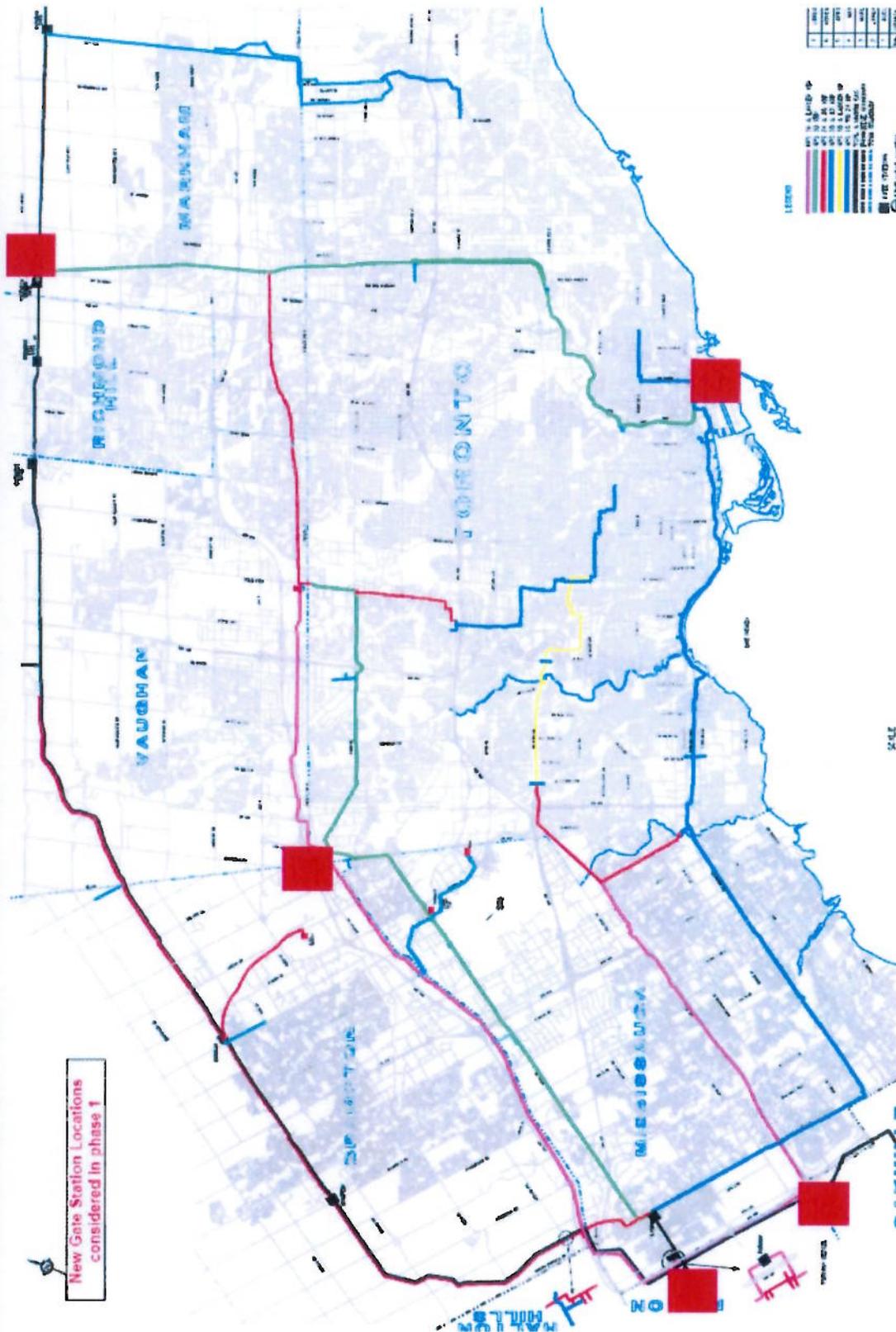
- **Limited system flexibility**
 - Potential for significant customer outages in upset conditions
- **Heavy dependence on Parkway/Lisgar Station**
 - 70% of peak day flows in the GTA
 - Location of Lisgar station not ideal
 - Takeaway currently constrained
- **Reliability of Upstream supplies**
 - TCPL toll uncertainties & Marcellus supply warrant further supply diversity

EGD Internal working team



- **Twice-weekly meetings**
- **Representatives from:**
 - **Operations**
 - **Gas Control**
 - **Network Analysis**
 - **Measurement and Regulation**
 - **Engineering**
 - **GTA Reinforcement project team**
- **Working Team is working towards definition of EGD system requirements**
 - **Significant effort to analyze impacts of various options**
 - **Parkway West option is being analyzed as an option**

System Map with New Supply point locations considered



Working team process



Working group is underway with a series of facilitated sessions

- Exercise #1 – Upstream supply points
- Exercise #2 – Entry points – “ideal” entry points definition
- Exercise #3 – XHP Distribution – “ideal” XHP lines definition
- Exercise #4 – Entry points – Possible points on current system
- Exercise #5 – Distribution implications for each defined entry pt
- Exercise #6 – Business Risks
- Exercise #7 – Pro’s and Con’s for Upstream Supply points
- Exercise #8 – Pro’s and Con’s for Entry points
- Exercise #9 – Pro’s and Con’s for Downstream
- Decision ranking of options

Working Team Timelines



Major Milestone:

- **Definition of preferred option for discussion with Union team available for Aug 26th meeting ***

*** Some dependencies/risks to timeline exist**

Group Discussion



Next Steps



EGD/Union Joint Task Force Meeting #2



August 2, 2011
Union Parkway /
Four Points Sheraton, Elmbank Room,
2501 Argentia Road, Mississauga, ON
(905-363-2448)

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Agenda



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- Confirm Concerns & Issues
- Existing Parkway Facilities
- Union System Reliability
- New Parkway West Options
- Next Steps

Enbridge Concerns



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- **Distribution System**
 - Security of supply (3rd feed)
 - System reliability
 - Aging infrastructure and limited system flexibility
- **Upstream Supply**
 - Mitigation of TCPL toll uncertainty, further diversification of supply
- **Meeting Future Demand Requirements**
 - Address customer attachments & urban densification – growing peak hour/day demand
 - Design day upgrade – from 1 in 5yr probability to 1 in 10yr probability
 - Additional requirements for Co-gens and NGVs

Union Concerns



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- Repurpose Dawn-Kirkwall turn back to Dawn-Parkway
 - Maximize use of the Dawn-Parkway system
- Debottleneck Parkway
 - Need for additional take away capacity east of Parkway
 - Constraint east of Parkway has significant impact on value of Dawn storage assets
- Third Feed for Enbridge
 - Be part of the solution for Enbridge third feed and system security
- Increase supply into Dawn
 - Access unconventional sources to replace declining WCSB



Existing Parkway Facilities

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Parkway Compressor – 2 Units - 65,000 HP



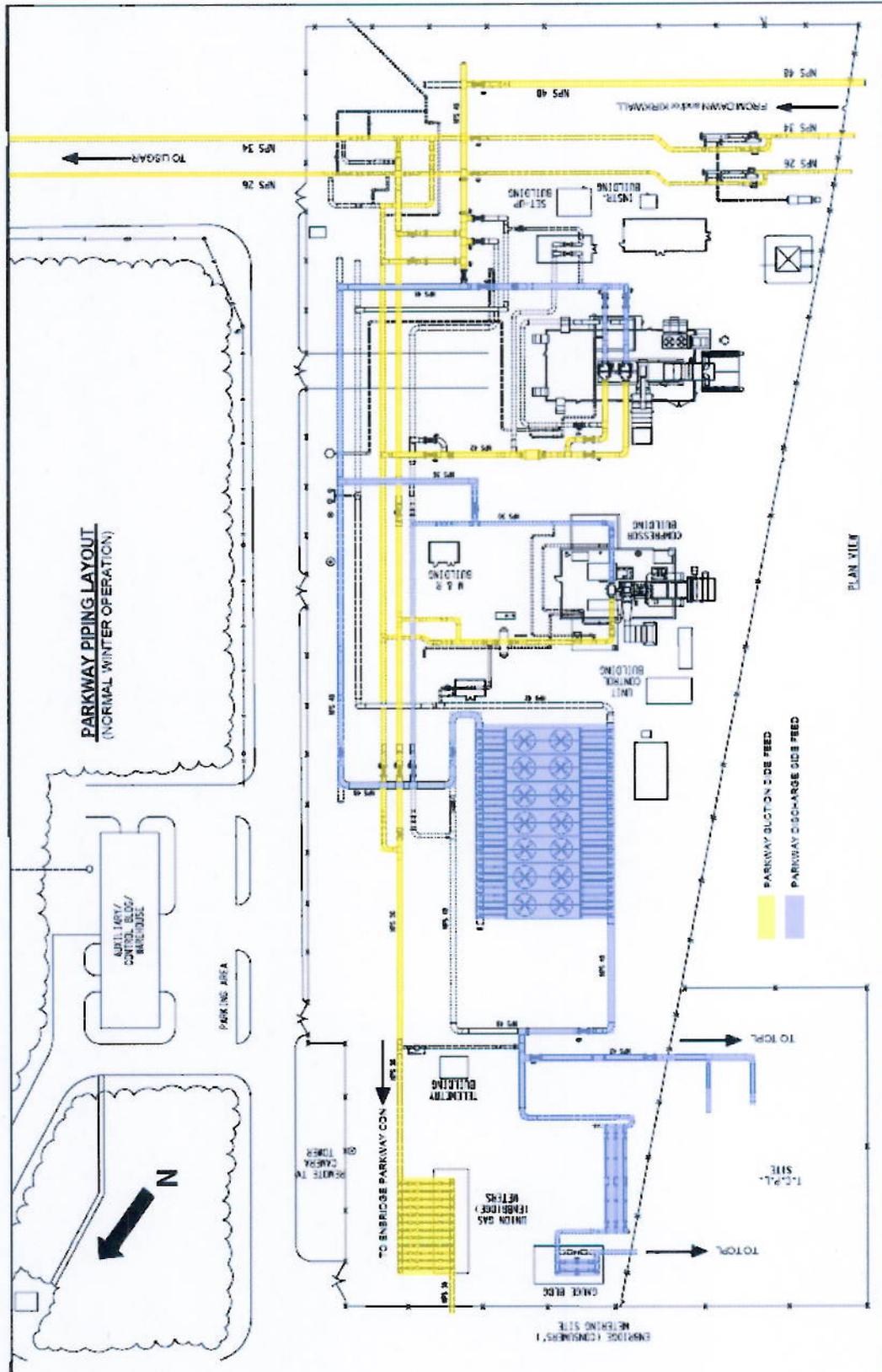
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Existing Parkway Operation



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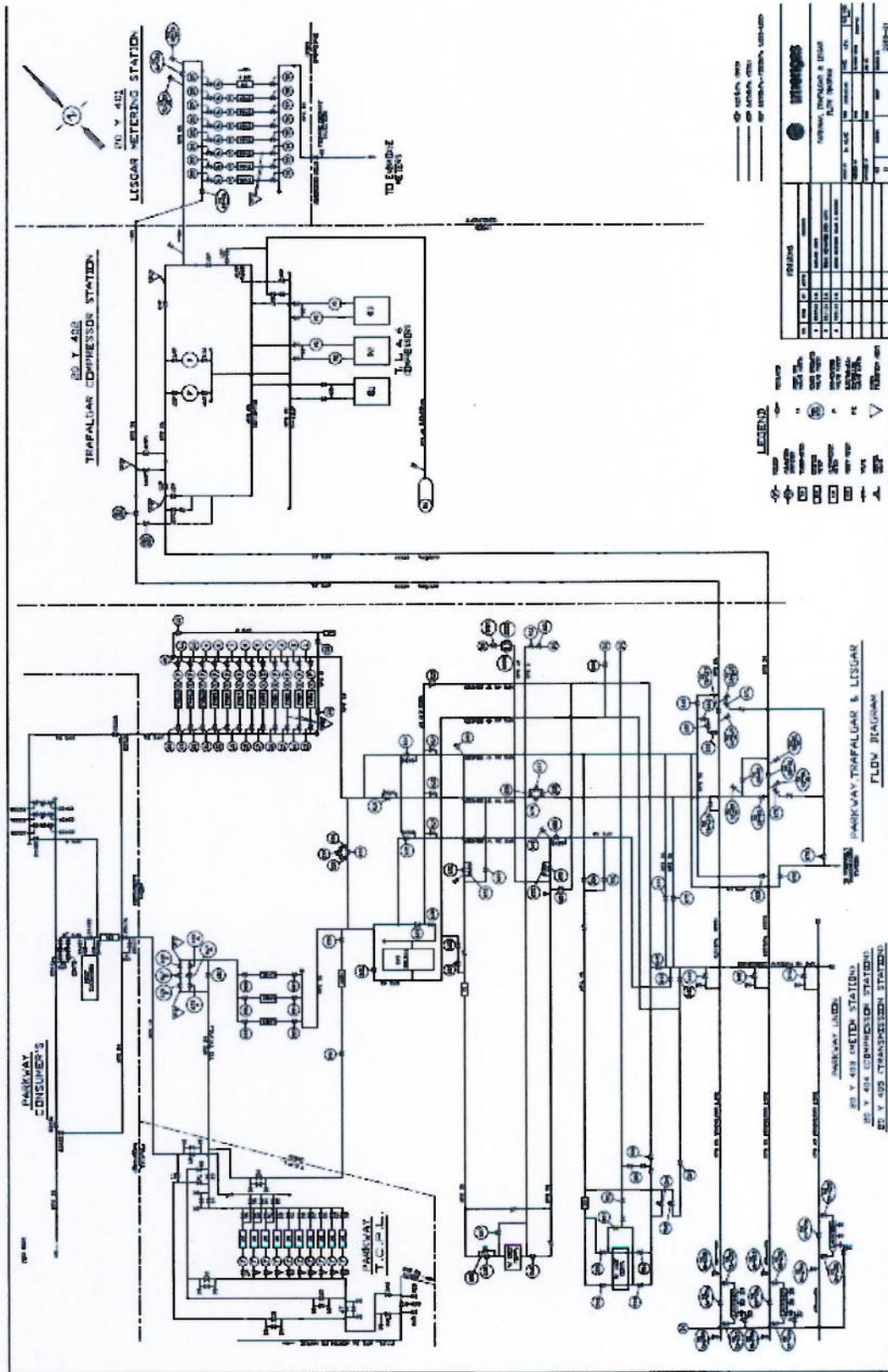
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Parkway to Lisgar System



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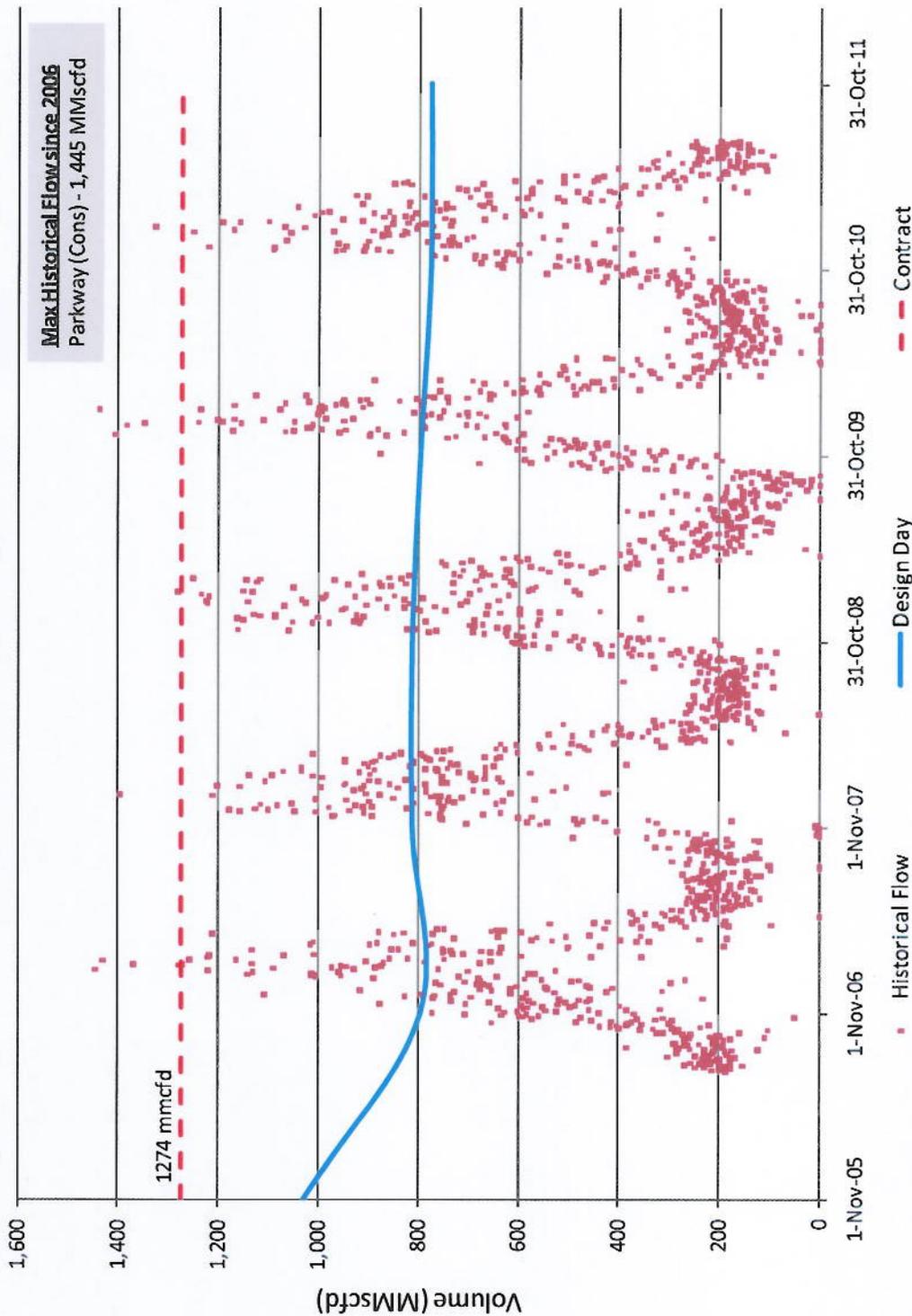
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EGD Utilization – Parkway (Cons)

Historical Parkway (Cons) Sendout Volume

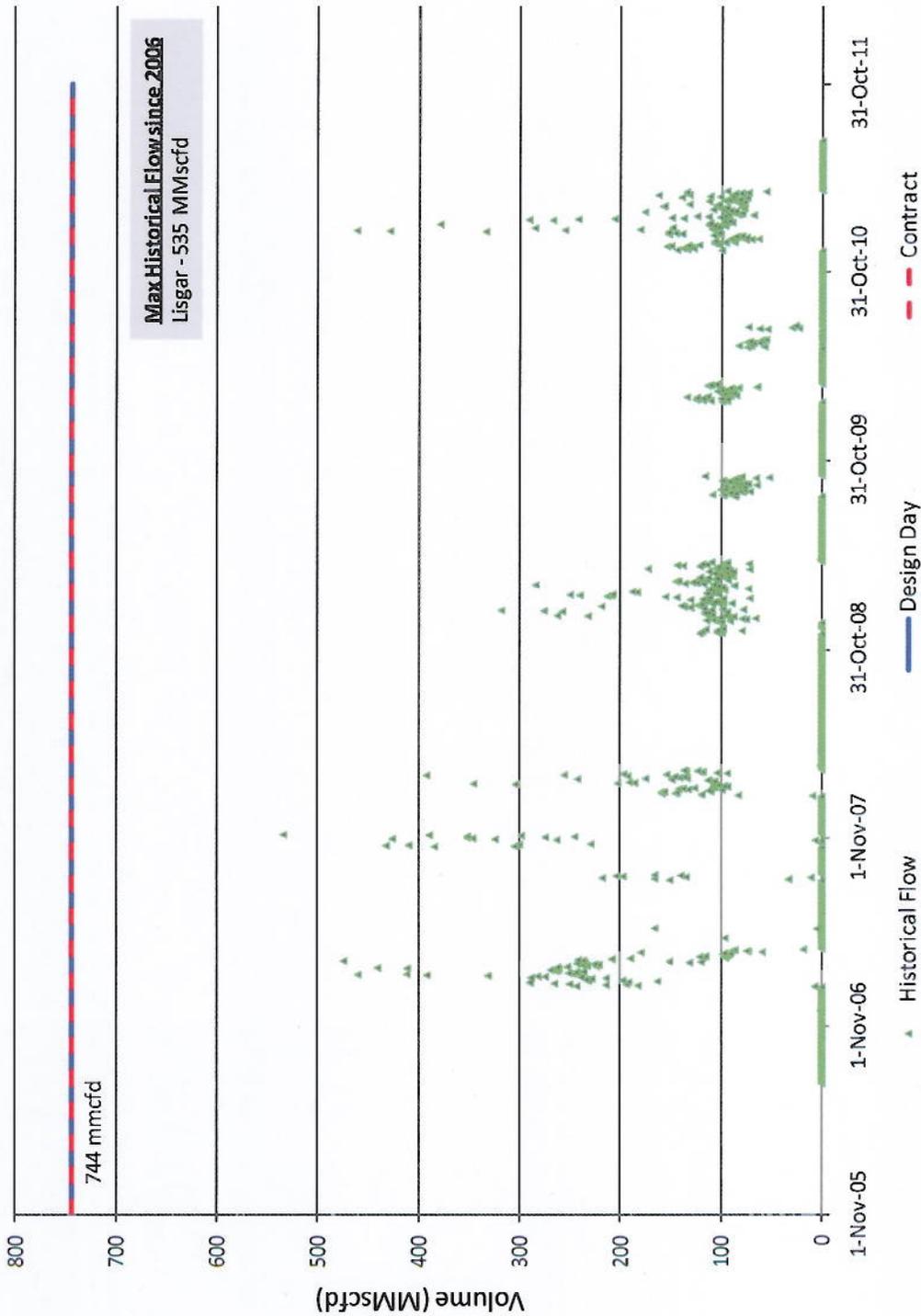


EGD Utilization - Lisgar



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Historical Lisgar Sendout Volume

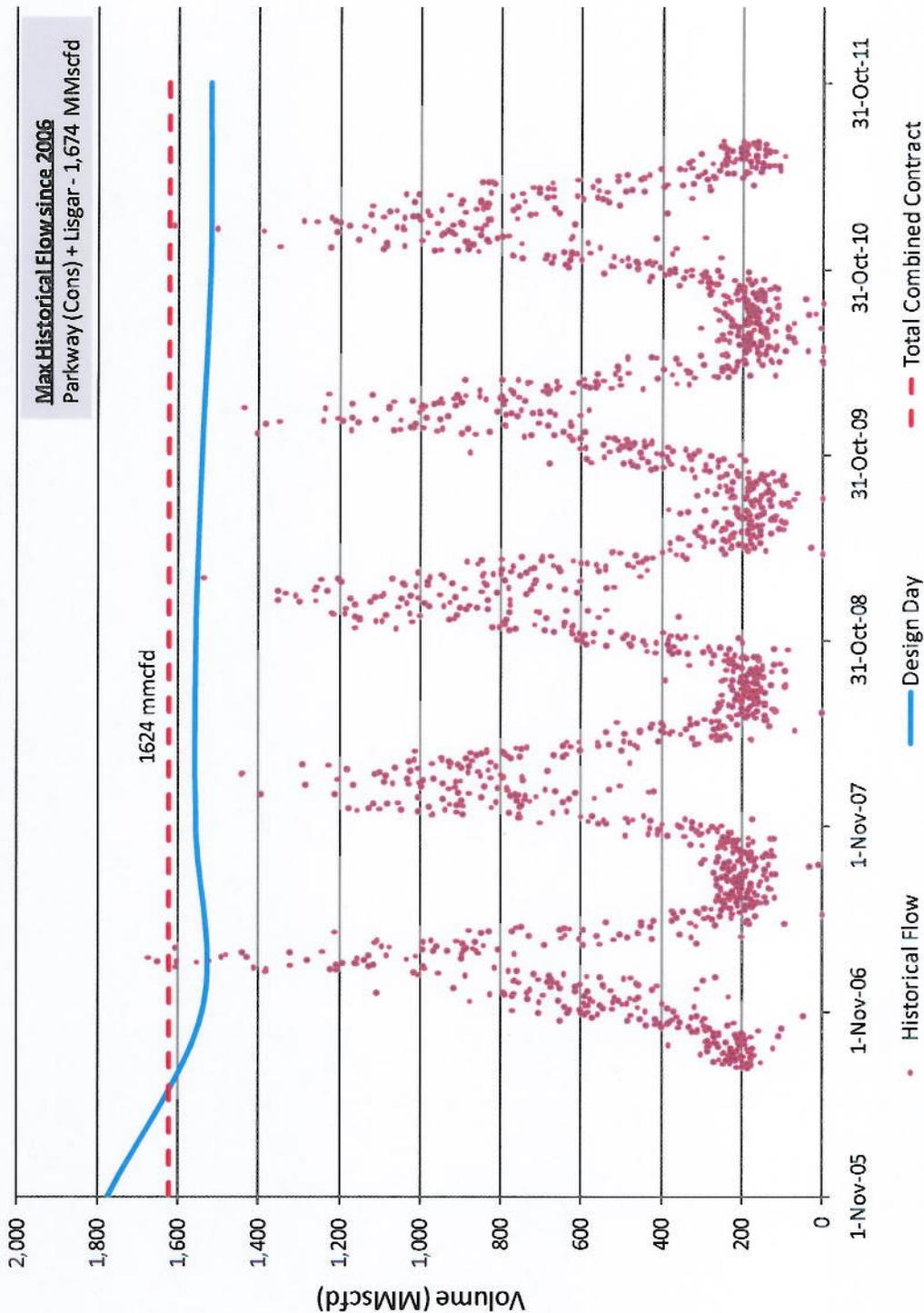


EGD Utilization – Parkway (Cons) + Lisgar



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Historical Parkway (Cons) + Lisgar Sendout Volume





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Union System Reliability

Dawn to Parkway Transmission System



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- 225 km from Dawn to Parkway
- 4 interconnected pipelines for 93% of length
 - 26", 34", 42", 48"
- 11 Comp. (excluding Dawn) ~ 260,000 HP
- 6.8 PJ/d of transportation capacity
- Bi-directional capabilities
- Kirkwall emerging as a critical import point for Marcellus gas

- Hagar LNG**
- 0.6 PJ space
 - 95 TJ/d del.



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**ENBRIDGE GAS DISTRIBUTION INC. RESPONSE TO
CONSUMERS COUNCIL OF CANADA INTERROGATORY #14**

INTERROGATORY

3. Are the costs of the facilities and rate impacts to customers appropriate?

Issue: A.3-CCC-14

Reference: E/T1/S1/pg.9; C/T2/S1/pg.1

a) Please reconcile the Summary of Inputs table at E/T1/S1/pg.9 with Table 1 – Summary of Total Estimated Project Cost at C/T2/S2/pg.1.

RESPONSE

Economic model inputs are based on 2013 dollars (non-escalated values) – please reference Exhibit E, Tab 1, Schedule 1, page 2, paragraph 7. Please see table below for reconciliation.

	Segment A (NPS 42 Option)		Segment A (NPS 36 Option)	
	Escalated	Non-escalated	Escalated	Non-escalated
Base Project Cost	\$ 500.6	\$ 500.6	\$ 476.8	\$ 476.8
Contingency	\$ 78.0	\$ 78.0	\$ 62.0	\$ 62.0
Escalation	\$ 27.8	\$ -	\$ 25.7	\$ -
Interest During Construction	\$ 17.4	\$ 16.7	\$ 16.4	\$ 15.8
Total Estimated Project Cost	\$ 623.8	\$ 595.3	\$ 580.9	\$ 554.6

ENBRIDGE GAS DISTRIBUTION INC. RESPONSE TO
ENVIRONMENTAL DEFENCE INTERROGATORY #37

INTERROGATORY

Issue A.3 “Are the costs of the facilities and rate impacts to customers appropriate?”

Interrogatory No. A.3-ED-37 Reference: Ex. C, Tab 2, Schedule 1

- a) What is the estimated total present value cost of the proposed facilities?
- b) What is the estimated total present value cost of (i) the Bram West Interconnect to Albion portion of Segment A, (ii) the Parkway West Gate Station portion of Segment A, and (iii) Segment B, as those portions of the project are defined in exhibit A, TAB 3, schedule 1, page 3?

RESPONSE

- a) Per the update provided in the response to Board Staff Interrogatory #48 at Exhibit I.D5.EGD.D5.48, the estimated total present value cost is \$554,575,341.
- b) Parts i to iii, please see the response to Energy Probe Interrogatory #14 at Exhibit I.A3.EGD.EP.14. Note, the cost breakdown information is available only to those who have signed a Declaration and Undertaking as the information is confidential.

ENBRIDGE GAS DISTRIBUTION INC. RESPONSE TO
ENVIRONMENTAL DEFENCE INTERROGATORY #20

INTERROGATORY

Issue A4: “What are the alternatives to the proposed facilities? Are any alternatives to the proposed facilities preferable to the proposed facilities?”

Reference: Ex. A, Tab 3, Schedule 7, pages 1-3

Has Enbridge analysed the potential for incremental DSM measures, programs and budgets to defer the need for all or part of the proposed GTA Pipeline Project? If yes, please provide copies of all of these analyses and studies.

RESPONSE

The GTA Project has multiple purposes. It meets customer growth, reduces operational risks, enhances safety and reliability, provides entry point diversity, improves supply chain diversity and reduces upstream supply risks and costs. (See Exhibit A, Tab 3, Schedule 1).

DSM may be able to address some of the growth demand, but not reliability, entry point and distribution system diversity, or supply chain needs. If there were no load growth, all of the project facilities would be required in order to meet the other objectives.

Considering a “growth only” scenario alone:

- The growth forecast has already incorporated conservation at current levels.
- To offset all the forecasted growth, it is estimated that an overall DSM budget twice the current level, with the entirety of the incremental spend used for the GTA Project Influence Area, is required every year moving forward.
- The “growth only” component of the GTA Project, namely the extension of the NPS 36 line from Sheppard north to McNicol Avenue is estimated to cost \$40M to \$50M.¹

¹ Unclassified estimate.

Witnesses: C. Fernandes
T. MacLean
F. Oliver-Glasford
J. Ramsay

- The timeframe required to increase DSM programs is insufficient given the scale and date the delivered results are required.
- It is uncertain whether and when the conservation targets can be achieved, noting the fact that the Company has not fully utilized its budget opportunity historically.

Given the uncertainty and challenge in scaling DSM programs to address the growth objective, and given that reliability and upstream concerns (as stated in Exhibit A, Tab 3, Schedule 5) cannot be resolved by any DSM efforts, DSM measures are not a viable alternative to the GTA Project. As a result, no in-depth analysis of potential incremental DSM measures, programs and budgets was undertaken.

Witnesses: C. Fernandes
T. MacLean
F. Oliver-Glasford
J. Ramsay

PROJECT BENEFITS AND ECONOMICS

1. The purpose of this evidence is to describe the project benefits and economic feasibility associated with the GTA Project.
2. The asset to be shared with TransCanada will be referred to as the “Shared Pipeline” for the purpose of this evidence in order to distinguish them from the assets that will be used for Enbridge’s distribution system and will not be used to provide service to TransCanada. The Shared Pipeline is defined in Exhibit E, Tab 1, Schedule 2. The Shared Pipeline has a distribution component and a transportation component, as explained below.
3. The distribution assets include all of Segment B and Segment A’s Parkway West Gate Station, 315 metre (“m”) tie-in, Parkway Bypass Station, Albion Road Station, and 40% of the Shared Pipeline. The transportation asset includes 60% of the Shared Pipeline. The contractual arrangement with TransCanada and the associated method of cost recovery is described in Exhibit E, Tab 1, Schedule 2.

Methodology and Results

4. The economic feasibility for the distribution and transportation assets were assessed under the following guidelines as recommended by the Ontario Energy Board (the “Board”):
 - For the distribution assets, “*Ontario Energy Board Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario*” and as laid out in the Board’s EBO 188 “Report to the Board” dated January 30, 1998.
 - For the transportation asset, “*Filing Guidelines on Economic Tests for Transmission Pipeline Applications*” as set out in the Board’s EBO 134 “Report to the Board” dated June 1, 1987, plus the additional filing

requirement described in the Board Letter dated February 21, 2013 (Board File No. EB-2012-0092).

5. Both Segment A and Segment B are required for ratepayers to realize the associated benefits. Correspondingly, the overall economics combine the costs and quantifiable benefits of both segments. As a result, a Discounted Cash Flow (“DCF”) was prepared on the basis of the entire project over a 40-year horizon which is in accordance with both EBO 188 and EBO 134.
6. The economic feasibility evidence has been prepared using the Company’s feasibility parameters pursuant to the Board’s Decision in the Company’s EB-2013-0045 Rate Order. A summary of the input parameters can be found on pages 8 and 9.

Cash Outflows: Capital, O&M, and Other Costs

7. The upfront capital cost for the proposed facilities is estimated to be \$595.3 million and includes the costs for mains, stations, land, land rights, contingencies, and overheads, in 2013 dollars. The detailed breakdown of the total estimated project cost is provided in Exhibit C, Tab 2, Schedule 1.
8. The annual average Operation and Maintenance (“O&M”) cost is estimated to be \$13.2 million. The O&M includes leak survey, damage prevention, cathodic protection, direct maintenance, corporate RCAM allocation and incremental O&M for customer attachment.
9. On-going capital for investigative digs arising from in-line inspection was also included in the economic feasibility analysis. The capital anticipated for this activity is approximately \$1.0 million and occurs every seven years starting in 2021. In-line inspection also has an O&M component which will occur on the same time interval.

/u

10. Other costs include:

- Estimated capital costs¹ of \$379.5 million for the services² associated with attaching ten years of incremental customer additions as outlined in Exhibit A, Tab 3, Schedule 4;
- Future reinforcement projects³ anticipated in the years 2017, 2018, 2019, and 2020 at estimated costs of \$21.0 million, \$16.4 million, \$13.0 million and \$0.3 million, respectively;
- Gas costs associated with attaching the ten years of incremental customer additions; and
- Income and municipal taxes.

/u

Cash Inflows and Savings

11. The economic feasibility includes the revenue generated from the ten years of incremental customer additions, the expected transportation savings, and the transportation services charge from TransCanada, which includes:

- The net transportation savings as outlined at Exhibit A, Tab 3, Schedule 5. The net transportation savings considers impacts from Union Gas' Parkway West (EB-2012-0433) and Brantford-Kirkwall Parkway D (EB-2013-0074) projects, in addition to TransCanada tolls to the new distributor areas⁴ and the expected toll from TransCanada to ship gas from Parkway to Bram West. These forecasted transportation savings have only been included until 2025.⁵

¹ The Company is not seeking approval for the services costs with this application but has incorporated them into the analysis since these customers will be supported by the proposed GTA Project. The customer growth does not include customers outside the GTA Project Influence Area.

² Services include the costs for distribution mains, services and meters based on the 2013 capital budget.

³ The Company is not seeking approval for these future reinforcement projects in this application. The capital amounts for these future reinforcement projects have been included in the feasibility analysis for completeness.

⁴ Based on TransCanada's Review and Variance Application for 2013 to 2017 in relation to National Energy Board's March 27, 2013 Decision in RH-003-2011.

⁵ For feasibility purposes, the amounts beyond 2025 have been assumed to be zero for conservatism, however, it is expected savings will continue in the periods beyond 2025.

- The revenue associated with TransCanada's use of the Shared Pipeline from Bram West Interconnect to Albion Road Station. The revenue and transportation service charge are further described in Exhibit E, Tab 1, Schedule 2.

Results

12. The DCF results⁶ of the feasibility analysis indicate a Profitability Index ("PI") of 1.74 and a Net Present Value ("NPV") of \$637.9 million, in 2013 constant dollars. /u
A summary of the feasibility results can be found on page 9. The complete DCF results can be found in Attachment 1.
13. The present value of the project's total net operating cash flows before taxes is \$1,922.1 million. Of this total amount, the forecasted transportation savings /u
account for approximately 57%, distribution related cash flows comprise 34% with the remaining 9% attributable to the transportation services charge.
14. An un-redacted version of the Project Benefits and Economics has been filed in confidence. Some of the project cost data utilized in the economic analysis is commercially sensitive as described in Estimated Project Costs, Exhibit C, Tab 2, Schedule 1, paragraph 6.
15. Enbridge has contemplated an alternate NPS 36 build that may be shared with TransCanada or solely used by Enbridge, as described at Exhibit E, Tab 1, Schedule 2, paragraphs 7 and 8. In the event TransCanada does not renew the Transportation Services Agreement ("TSA") at the end of the contract term or later, TransCanada has agreed to compensate Enbridge as described in paragraph 6 of

⁶ DCF analysis is a requirement of EBO 188 and a requirement of Stage 1 analysis for EBO 134. Stage 2 and Stage 3 feasibility tests, as suggested by EBO 134, were not required given the DCF feasibility test yielded a PI > 1.0. However, other benefits and public interest factors were considered in the project development and are described in this exhibit.

the same exhibit. Based on the same input assumptions, in all cases the project is economic.

Project Benefits and Public Interest Factors

16. Benefits associated with reliability, diversity, and flexibility are substantial and are the primary purpose of this project. These benefits are critical to the continuing operation of gas distribution in the GTA but are difficult to quantify or monetize, such as:

- Increased operational flexibility and lower operational risk associated with the distribution system, as described in Exhibit A, Tab 3, Schedule 6;
- Increased diversity of entry points and the lower operational risk and greater flexibility provided with this diversity, as described in Exhibit A, Tab 3, Schedule 6;
- Increased upstream reliability and diversity, as described in Exhibit A, Tab 3, Schedule 5;
- Capacity to serve customer growth; and
- Efficiency in upstream transportation.

Therefore these benefits are not included in the economic analysis. The project benefits that have been included in the economic feasibility are the associated revenue from customer growth and the expected upstream transport benefits.

17. The Board recently instituted a new filing requirement (Guideline 14, Board File No. EB-2012-0092) under EBO 134:

“Any project brought before the Board for approval should be supported by an assessment of the potential impacts of the proposed natural gas pipelines on the existing transportation pipeline infrastructure in Ontario, including an assessment of the impacts on Ontario consumers in terms of cost, rates, reliability, and access to supplies.”

Further to the considerations described in Exhibit A, Tab 3, Schedule 1, pages 10 to 14:

- The Shared Pipeline eliminates the need for duplicative pipelines and/or facilities. As a result, Enbridge's distribution customers and TransCanada's shippers will realize savings in the shared facilities.
 - The Shared Pipeline reduces environmental and community impacts.
 - Reliability: As outlined in Exhibit A, Tab 3, Schedule 6, there are significant reliability benefits associated with the proposed facilities, including the ability to procure more reliable upstream transport, diversification of key entry points into the GTA system, and diversification of critical supply lines with the downstream backbone of the GTA system. The ability to lower pressures on key supply lines also increases overall system reliability.
 - Access to supplies: The project will allow access to additional supplies through Parkway from Niagara and/or Dawn to replace a potential reduction of TransCanada's Mainline capacity as outlined in Exhibit A, Tab 3, Schedule 5. As a result of the sharing arrangement with TransCanada, the project will also increase access to supplies for other consumers both in Ontario and beyond.
18. Further public interest factors include the consumer economic advantage of natural gas as compared to other fuels. For reference, natural gas is currently the most economical choice for home and water heating in Ontario. Compared to electricity, heating oil and propane, natural gas is about 70% less expensive than the next most economic alternative. The GTA Project is annually expected to permit an average of approximately 14,000 new residential customer additions over a ten year period. For the typical residential household, the savings from using natural gas compared to electricity, heating oil or propane is approximately \$2,000 per year. In total, the average annual savings for all residential customer additions included in the forecast is approximately \$28 million. Apartment, commercial and

industrial customer annualized savings over alternate fuels would substantially increase the annualized savings that accrue to energy consumers.

SUMMARY OF INPUTS

	Incremental Customer Additions									
	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Residential	12,277	12,607	13,034	13,148	13,331	13,535	13,748	13,748	13,748	13,748
Commercial	1,291	1,327	1,250	1,253	1,250	1,261	1,269	1,269	1,269	1,269
Apartment	71	71	69	69	68	67	67	67	67	67
Industrial	3	3	2	2	2	2	2	2	2	2
Total	13,642	14,008	14,355	14,472	14,651	14,865	15,086	15,086	15,086	15,086

Average Annual Volume per Customer

<i>(10³ m³)</i>	
Residential	2.568
Commercial	20.230
Apartment	154.877
Industrial	109.481

	Total Cumulative Volumes*										
	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
Residential	15,764	47,715	80,638	114,255	148,254	182,750	217,782	253,087	288,392	323,696	341,349
Commercial	13,058	39,540	65,606	90,924	116,242	141,640	167,231	192,903	218,575	244,247	257,083
Apartment	5,498	16,494	27,336	38,022	48,631	59,086	69,462	79,839	90,216	100,593	105,781
Industrial	164	493	766	985	1,204	1,423	1,642	1,861	2,080	2,299	2,409
Total	34,484	104,241	174,346	244,187	314,332	384,900	456,118	527,690	599,263	670,835	706,621

Note* 50% effectivity considered for the first year of customer additions

Savings on Gas Transportation

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
Total Savings	24,283,396	148,930,993	154,482,286	192,335,965	161,419,071	156,859,561	156,743,050	157,109,580	157,360,615	161,395,219	161,094,879

SUMMARY OF INPUTS (cont'd)

Capital Investment

Mains	
Stations	
Land/Land Rights	
Total	\$595,280,523
<u>Future Reinforcement Projects</u>	
2017	\$21,000,000
2018	\$16,400,000
2019	\$13,000,000
2020	\$250,000
<u>Capital Maintenance Costs</u>	\$5,218,238
<u>Services⁷</u>	<u>\$379,533,696</u>
<u>Total Capital</u>	\$1,030,682,457
<u>Total Transportation Savings</u>	\$1,632,014,615
<u>Total Transportation Services Charge</u>	\$388,604,339

SUMMARY OF RESULTS

Net Present Value (40 years)	\$637,855,721
Profitability Index (40 years)	1.74

⁷Services include the costs for distribution mains, services and meters based on the 2013 capital budget.