

VIA E-MAIL

September 30, 2016

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

**RE: EB-2016-0186 Union Gas Panhandle Reinforcement Project
FRPO Technical Conference Areas of Inquiry and Questions**

We are writing on behalf of the Federation of Rental-housing Providers of Ontario ("FRPO") in regard to the Panhandle Reinforcement Project. In respect of the Board's Procedural Order No. 2, we appreciate the Board's provision of a Technical Conference that, in our view, will benefit all parties in the examination of the project, alternatives previously considered and potentially available.

Respecting the Order, we provide the attached list of Areas of Inquiry and some advanced questions. We have advanced some of our questions to provide Union Gas with understanding of the Areas to be addressed for its consideration of staff in attendance. We have chosen to focus on the System Design, Gas Supply and Facilities aspects of the application for the purposes of our advancing these areas and questions. We chose to advance specific questions that are data related, seeking clarification or would require simulation work that would not be able to answered in the Technical Conference. We respectfully understand that some of these answers will not all be available on Tuesday but wanted to provide Union Gas with additional time to prepare. While we have submitted those questions, other questions that are best asked and answered in dialogue will be asked in each area. Given the nature and order of our questions, we believe that one panel would be able to address our questions. If Union believed that it needed to have two panels, we respectfully request that they appear in order of our questions to establish a building of information that would aid understanding. If Union is presenting more than one panel in this area, we respectfully request notification by noon on Monday.

We also do have concerns regarding the depreciation term and cost allocation methodologies but will follow those who are taking the lead in those areas and our questions may be asked by others.

Respectfully Submitted on Behalf of FRPO,



Dwayne R. Quinn
Principal
DR QUINN & ASSOCIATES LTD.

- c. K. Hockin – Union Gas, S. Andison, K. Lauesen – FRPO, A.S. Cheung
Interested Parties EB-2016-0186

A) Panhandle System capacity (FRPO.14): System Capacities and Capabilities

1. Please provide the Summer Design Day flow schematics for 2017 and 2021, using the forecast demand underpinning the application and with the existing facilities.
2. Please provide the actual consumption by electricity generators in the Windsor market for the summers of 2013, 2014 and 2015. Please provide in the form of an Excel spreadsheet.
3. Please provide the winter flow schematics that show the maximum receipt of 140 TJ/d. Please provide the same flow schematics for 2017 and 2021 using the forecast demand underpinning the application and with the existing facilities.
4. Please provide the degree days experienced and the daily consumption in the Windsor market separated between electricity generation and non-generation load for the winter period (Nov. to March) for the last 3 years. Please provide in the form of an Excel spreadsheet.

B) Union Receipt Capacity at Ojibway (FRPO.6c, FRPO.20)

5. Please provide the actual receipts in Ex. B.FRPO.20 separated between Ojibway and Dawn.
 - a. For the Ojibway receipts, please provide a daily breakdown between receipts from:
 - i. C1 receipts
 - ii. Union system gas from annual transportation contracts
 - iii. Union system gas from monthly or spot gas purchases
6. In the attached Appendix 1 (also included in a submitted Excel file), we provide the daily deliveries at Ojibway from January 1, 2014 to September 28, 2016 downloaded from Union Gas Informational Postings – Gas Day Summary Reports. Please confirm that these are the daily receipts for Ojibway. If not confirmed, please provide by way of Excel file, Union's records for these recent for that period.

C) C1 Contract capacity (FRPO.4): Impact of C1 contracts on system capacity

7. From Ex. B.FRPO.4 and FRPO.3b, please confirm the following is correct. If not, please revise.

	<u>Term Start</u>	<u>Term End</u>	<u>GJ/d</u>
Dynegy Gas Imports LLC	01-Nov-08	31-Oct-15	38,533
Direct Energy Marketing Ltd.	01-Nov-10	31-Oct-15	10,000
Direct Energy Marketing Ltd.	01-Nov-10	31-Oct-15	10,000
J. Aron & Company	01-Oct-10	31-Jan-15	9,212
Direct Energy Marketing Ltd.	01-Nov-11	31-Mar-16	20,000
Emera Energy Incorporated	01-Nov-15	31-Oct-20	21,016
Direct Energy Marketing Ltd.	01-Apr-16	30-Apr-17	21,101

Total C1 between Nov. 1 2011 and Jan. 31, 2015:

= 87.7 TJ/d during the winter months

= 67.7 TJ/d during the summer months

Over the same period Nov. 1, 2011 and Jan. 31, 2015, Union has the same 4 contracts on PEPL and PEPL/Trunkline provided in FRPO.3b totaling 60 TJ/d.

Total firm receipt capacity at Ojibway between Nov. 1 2011 and Jan. 31, 2015:

= 147.7 TJ/d during the winter months

= 127.7 TJ/d during the summer months

D) PEPL Delivery Capacity at Ojibway (FRPO.7): Presidential Permit and Capacity

8. Attached as Appendix 2 are maps showing the Panhandle Eastern Pipeline and a Map of the Rover Pipeline depicting its path to Dawn and its interconnection with the Panhandle Eastern Pipelines. Both maps are from 2015. We would intend to use these maps to orient our technical conference questions spatially.

E) Gas Supply from PEPL (FRPO.17)

9. For each of the three versions cited in FRPO. 17, please specify alternate routes impacted and the specific toll change including the date of the change and a source reference for the toll change. With the answers, please provide a supporting map to locate the alternate routes considered in the analysis.

F) Demand Growth (FRPO.12)

10. From Ex. B.FRPO.12 and Ex. A, Tab 5, page 8, Table 5-1, please confirm the following is correct. If not, please revise.

<u>Growth in GJ/d</u>		<u>Growth in</u> <u>Windsor area</u>	<u>Growth</u> <u>from</u> <u>Table 5-1</u>	<u>Growth in</u> <u>Leamington</u> <u>Area</u>
Existing Industrial	2017	17,600	58,000	40,400
Gordie Howe Int'l Bridge	2018	800	15,000	14,200
Windsor Mega Hospital	2019	2,900	13,000	10,100
CNG Facilities	2021	1,500	10,000	8,500
		22,800	96,000	73,200

G) Transmission and Gate Station Designs and Enhancements (FRPO.8)

11. For each of the Leamington Line Reinforcements (EB-2012-0431 and EB-2016-0013), please provide the following design parameters, capacity and equipment for each of the Comber Transmission, County Rd. 18 and Leamington North Gate Stations before and after the respective construction projects;

To aid in comparability, please populate the following table for each station before and after each proceeding (example below for EB-2012-0431)

Parameters and Equipment	Prior to EB-2012-0431	After EB-2012-0431
Inlet Pressure		
Maximum (kPa)		
Minimum (kPa)		
Outlet Pressure		
Maximum (kPa)		
Minimum (kPa)		
Design Flow Capacity		
(m ³ /hr)		
(GJ/day)		
Filter		
Model		
Pressure Drop at Design (kPa)		
Regulator/Control Valve		
Model		
Size		
Orifice/Trim		
Single or Operator-Monitor		
Pressure Drop at Design (kPa)		
Relief Valve		
Model		
Size		
Capacity at Outlet MAOP		
Other Significant Changes or		
Potential Constraints		

- a) For each station, please specify which piece(s) of existing equipment are limiting the capacity to the design level and what a high level cost estimate would be to increase the capacity of the station
- b) When using the forecasted flows for the next five years, what is the minimum inlet pressure required to provide the forecasted flow with the maximum outlet pressure ?

12. Please provide the same information as above for Essex and Mersea stations.

APPENDIX 1

TO

FRPO TECHNICAL CONFERENCE -AREAS OF INQUIRY

EB-2016-0186 UNION GAS PANHANDLE REINFORCEMENT

APPENDIX 1

OJIBWAY RECEIPTS

FRPO TC INQUIRIES

	A	B	C	D	E	F	G	H	I	J	K	L
1	DAY	2014	2015	2016	DAY	2014	2015	2016	DAY	2014	2015	2016
2	1-Jan	173,095	136,465	101,300	16-Feb	206,131	105,556	101,299	1-Apr	125,356	61,439	79,223
3	2-Jan	173,095	136,465	101,300	17-Feb	206,131	96,366	101,299	2-Apr	125,356	61,722	79,223
4	3-Jan	136,168	127,634	101,300	18-Feb	206,131	96,986	101,299	3-Apr	125,356	61,305	79,223
5	4-Jan	65,709	127,634	101,300	19-Feb	229,940	77,231	101,299	4-Apr	125,356	61,722	79,223
6	5-Jan	65,709	127,634	101,276	20-Feb	231,207	88,559	101,299	5-Apr	125,356	61,722	94,495
7	6-Jan	64,971	112,862	101,300	21-Feb	224,876	81,237	101,299	6-Apr	125,356	61,722	104,037
8	7-Jan	165,354	54,783	99,299	22-Feb	117,380	106,340	101,299	7-Apr	125,356	77,548	79,224
9	8-Jan	96,551	65,333	101,300	23-Feb	117,380	97,055	101,299	8-Apr	153,525	74,383	42,297
10	9-Jan	132,423	60,139	101,300	24-Feb	116,226	81,079	101,299	9-Apr	153,525	77,548	42,297
11	10-Jan	183,646	65,333	101,300	25-Feb	117,366	94,992	101,299	10-Apr	153,525	77,548	42,053
12	11-Jan	183,646	65,333	101,300	26-Feb	148,558	105,779	101,299	11-Apr	127,149	77,548	40,623
13	12-Jan	183,646	65,333	101,299	27-Feb	146,802	105,779	101,299	12-Apr	127,149	77,548	42,046
14	13-Jan	183,646	80,157	96,653	28-Feb	115,477	105,779	101,299	13-Apr	127,149	77,548	42,297
15	14-Jan	183,646	95,982	101,299	29-Feb			101,299	14-Apr	127,149	77,548	42,297
16	15-Jan	183,646	141,622	101,299	1-Mar	118,717	167,000	87,234	15-Apr	127,149	77,548	42,297
17	16-Jan	183,646	161,425	101,050	2-Mar	129,268	167,000	80,199	16-Apr	153,525	77,548	42,297
18	17-Jan	183,646	142,749	101,300	3-Mar	115,545	167,000	85,621	17-Apr	127,149	71,828	42,297
19	18-Jan	149,989	142,749	101,300	4-Mar	143,637	178,605	101,262	18-Apr	127,149	61,722	42,068
20	19-Jan	149,989	142,780	101,300	5-Mar	141,402	171,906	101,300	19-Apr	127,149	61,722	42,296
21	20-Jan	149,989	144,424	101,300	6-Mar	146,677	168,809	101,300	20-Apr	127,149	61,722	42,296
22	21-Jan	122,457	171,846	101,300	7-Mar	182,033	148,009	101,300	21-Apr	127,149	61,722	42,297
23	22-Jan	127,728	167,964	101,300	8-Mar	146,677	148,009	101,300	22-Apr	127,149	61,722	42,296
24	23-Jan	111,163	167,964	101,300	9-Mar	146,677	148,009	101,300	23-Apr	127,149	61,722	42,297
25	24-Jan	119,288	168,069	101,300	10-Mar	146,677	145,899	111,850	24-Apr	127,149	61,722	42,297
26	25-Jan	102,440	168,069	101,300	11-Mar	146,677	145,899	111,850	25-Apr	127,149	61,585	42,297
27	26-Jan	81,349	168,069	101,300	12-Mar	146,677	145,899	111,850	26-Apr	127,149	61,722	42,297
28	27-Jan	81,349	168,069	101,300	13-Mar	146,677	145,899	111,850	27-Apr	127,149	61,722	42,297
29	28-Jan	91,592	168,069	101,300	14-Mar	146,677	145,803	111,850	28-Apr	127,149	61,722	42,297
30	29-Jan	150,623	168,069	101,300	15-Mar	146,677	145,646	148,777	29-Apr	127,149	61,722	42,297
31	30-Jan	167,820	133,544	101,300	16-Mar	146,677	145,634	159,058	30-Apr	127,149	61,722	42,297
32	31-Jan	173,095	122,440	101,300	17-Mar	146,677	145,899	159,328	1-May	121,569	51,171	42,297
33	1-Feb	105,003	70,690	101,299	18-Mar	146,676	145,899	159,328	2-May	123,598	51,171	42,297
34	2-Feb	105,003	70,690	101,299	19-Mar	146,677	145,899	148,777	3-May	127,185	51,171	42,297
35	3-Feb	105,003	70,690	101,299	20-Mar	146,677	145,899	148,777	4-May	127,185	51,171	42,297
36	4-Feb	170,944	60,139	101,299	21-Mar	146,677	145,899	148,777	5-May	127,185	51,171	42,297
37	5-Feb	149,386	58,662	101,299	22-Mar	146,672	145,899	125,586	6-May	123,704	51,171	42,297
38	6-Feb	152,785	70,690	101,299	23-Mar	146,677	145,899	169,878	7-May	127,185	51,171	42,297
39	7-Feb	167,903	70,690	101,299	24-Mar	146,676	145,899	148,777	8-May	127,185	51,171	42,297
40	8-Feb	141,485	70,690	101,292	25-Mar	146,676	145,899	148,777	9-May	112,942	51,171	42,297
41	9-Feb	141,485	70,690	101,299	26-Mar	146,676	145,899	148,777	10-May	112,942	51,171	42,297
42	10-Feb	173,137	150,714	101,299	27-Mar	146,676	145,899	148,777	11-May	112,942	51,171	42,297
43	11-Feb	189,095	156,319	101,299	28-Mar	146,677	145,899	148,777	12-May	112,942	51,171	42,297
44	12-Feb	199,900	102,878	101,299	29-Mar	146,677	145,899	164,603	13-May	116,565	51,171	70,782
45	13-Feb	199,554	137,948	101,299	30-Mar	146,677	145,899	127,676	14-May	120,893	51,171	65,507
46	14-Feb	205,374	105,556	101,299	31-Mar	146,677	145,899	127,676	15-May	123,809	51,171	65,507
47	15-Feb	206,133	105,556	101,299					16-May	119,240	51,171	65,507

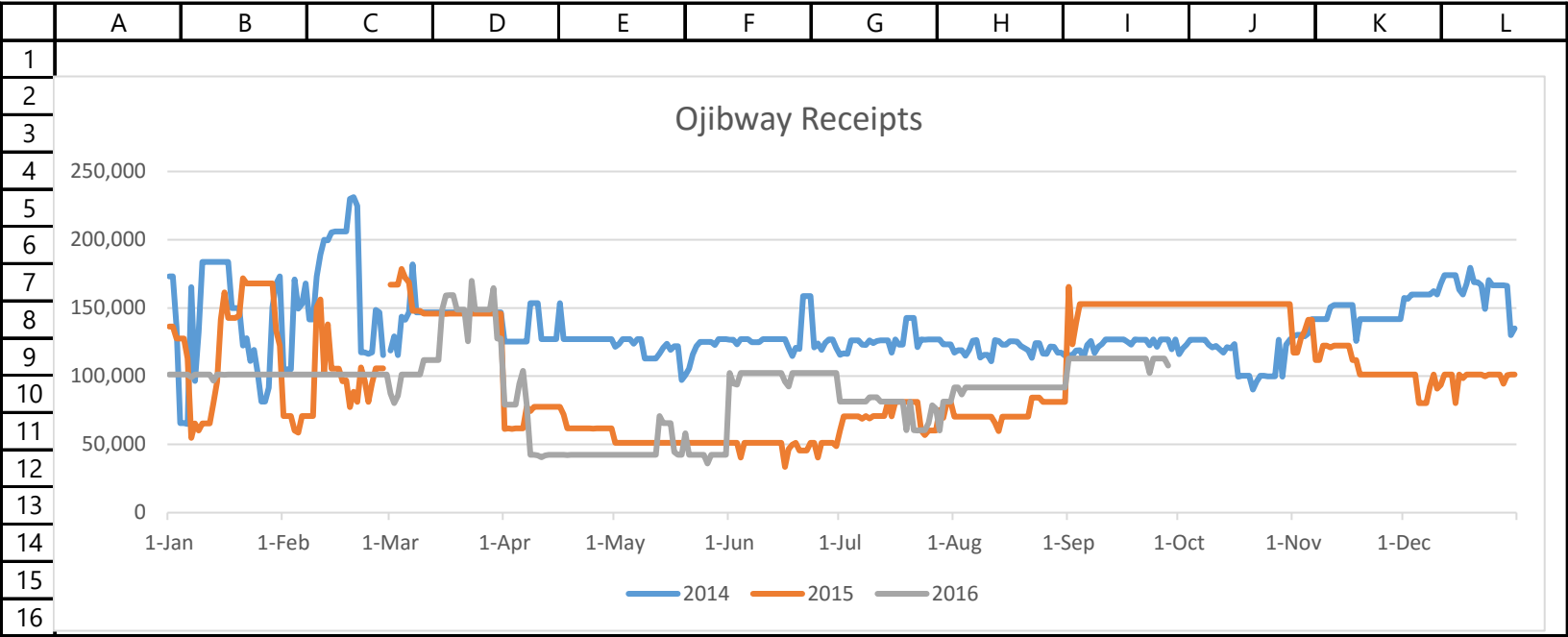
APPENDIX 1

OJIBWAY RECEIPTS

FRPO TC INQUIRIES

	A	B	C	D	E	F	G	H	I	J	K	L
48	DAY	2014	2015	2016	DAY	2014	2015	2016	DAY	2014	2015	2016
49	17-May	121,910	51,171	44,406	1-Jul	115,685	60,138	81,333	16-Aug	125,601	70,305	91,790
50	18-May	121,910	51,171	42,296	2-Jul	116,895	70,530	81,333	17-Aug	125,601	70,305	91,790
51	19-May	97,248	51,171	42,296	3-Jul	116,257	70,530	81,333	18-Aug	125,417	70,305	91,790
52	20-May	100,809	51,171	58,122	4-Jul	126,341	70,530	81,333	19-Aug	122,211	70,305	91,790
53	21-May	105,609	51,171	42,296	5-Jul	126,341	70,530	81,333	20-Aug	120,595	70,305	91,790
54	22-May	115,933	51,170	42,296	6-Jul	126,341	70,530	81,333	21-Aug	119,021	70,305	91,790
55	23-May	121,910	51,170	42,296	7-Jul	123,176	68,868	81,333	22-Aug	113,429	84,356	91,790
56	24-May	125,075	51,170	42,296	8-Jul	122,895	70,847	81,333	23-Aug	124,296	84,356	91,790
57	25-May	125,075	51,170	42,296	9-Jul	126,364	68,940	84,498	24-Aug	124,296	84,356	91,790
58	26-May	125,075	51,170	36,023	10-Jul	124,254	70,847	84,498	25-Aug	116,489	81,086	91,790
59	27-May	125,075	51,170	42,296	11-Jul	125,836	70,847	84,498	26-Aug	116,278	81,086	91,790
60	28-May	122,965	51,170	42,296	12-Jul	126,365	70,847	81,333	27-Aug	121,856	81,086	91,790
61	29-May	127,185	51,170	42,296	13-Jul	126,365	70,847	81,333	28-Aug	121,500	81,086	91,790
62	30-May	127,185	51,170	42,296	14-Jul	126,365	81,239	81,333	29-Aug	117,163	81,086	91,790
63	31-May	127,185	51,170	42,296	15-Jul	117,306	70,530	81,333	30-Aug	117,163	81,086	91,790
64	1-Jun	126,733	51,170	102,433	16-Jul	126,868	81,239	81,333	31-Aug	114,947	81,086	91,790
65	2-Jun	126,733	51,170	94,801	17-Jul	123,199	81,239	81,333	1-Sep	115,492	165,515	112,891
66	3-Jun	123,354	51,170	93,860	18-Jul	123,199	81,239	81,333	2-Sep	115,492	123,300	112,891
67	4-Jun	127,049	40,461	102,433	19-Jul	142,694	81,239	60,422	3-Sep	118,836	139,205	112,891
68	5-Jun	127,049	51,170	102,433	20-Jul	142,694	81,239	81,333	4-Sep	119,035	152,816	112,891
69	6-Jun	127,049	51,170	102,433	21-Jul	142,694	81,239	60,317	5-Sep	113,558	152,816	112,891
70	7-Jun	124,939	51,170	102,433	22-Jul	121,299	81,239	60,232	6-Sep	122,893	152,816	112,891
71	8-Jun	124,939	51,170	102,433	23-Jul	126,868	60,138	60,317	7-Sep	125,909	152,816	112,891
72	9-Jun	124,939	51,170	102,433	24-Jul	126,816	56,894	60,317	8-Sep	117,073	152,816	112,891
73	10-Jun	127,049	51,170	102,433	25-Jul	126,868	60,138	65,545	9-Sep	121,559	152,816	112,891
74	11-Jun	127,049	51,170	102,433	26-Jul	126,868	60,138	78,615	10-Sep	123,499	152,816	112,891
75	12-Jun	127,049	51,170	102,433	27-Jul	126,868	60,138	76,105	11-Sep	126,834	152,816	112,891
76	13-Jun	127,049	51,170	102,433	28-Jul	126,868	75,311	60,297	12-Sep	126,834	152,812	112,891
77	14-Jun	127,049	51,170	102,434	29-Jul	123,409	69,454	81,333	13-Sep	126,834	152,816	112,891
78	15-Jun	127,049	51,170	102,423	30-Jul	123,409	81,238	81,333	14-Sep	126,834	152,816	112,891
79	16-Jun	127,049	33,534	96,077	31-Jul	123,381	81,238	81,333	15-Sep	126,834	152,816	112,891
80	17-Jun	120,719	46,697	92,353	1-Aug	117,230	70,304	91,790	16-Sep	126,834	152,816	112,891
81	18-Jun	114,740	49,814	102,434	2-Aug	119,113	70,304	91,790	17-Sep	125,082	152,816	112,891
82	19-Jun	120,877	51,170	102,434	3-Aug	119,113	70,304	86,514	18-Sep	123,061	152,816	112,891
83	20-Jun	119,928	45,657	102,434	4-Aug	114,892	70,309	91,790	19-Sep	126,834	152,816	112,891
84	21-Jun	158,701	45,657	102,434	5-Aug	119,277	70,304	91,790	20-Sep	126,799	152,816	112,891
85	22-Jun	158,701	45,657	102,434	6-Aug	126,048	70,309	91,790	21-Sep	126,799	152,816	112,891
86	23-Jun	158,701	51,170	102,434	7-Aug	126,512	70,304	91,790	22-Sep	126,798	152,816	112,891
87	24-Jun	121,089	51,170	102,434	8-Aug	113,585	70,304	91,790	23-Sep	122,614	152,816	102,435
88	25-Jun	124,005	40,461	102,434	9-Aug	115,621	70,304	91,790	24-Sep	126,835	152,816	112,891
89	26-Jun	119,347	51,170	102,434	10-Aug	115,621	70,304	91,790	25-Sep	121,559	152,816	112,891
90	27-Jun	124,442	51,170	102,434	11-Aug	110,873	70,309	91,790	26-Sep	126,834	152,816	112,891
91	28-Jun	126,838	51,170	102,434	12-Aug	126,371	65,772	91,790	27-Sep	126,834	152,816	112,891
92	29-Jun	126,838	51,170	102,434	13-Aug	125,857	59,753	91,790	28-Sep	126,834	152,816	107,663
93	30-Jun	120,508	48,775	102,434	14-Aug	123,148	70,304	91,790	29-Sep	119,713	152,816	
94					15-Aug	123,093	70,304	91,790	30-Sep	126,834	152,816	

	A	B	C	D	E	F	G	H	I	J	K	L
95	DAY	2014	2015	2016	DAY	2014	2015	2016				
96	1-Oct	116,163	152,878		16-Nov	152,248	122,401					
97	2-Oct	120,329	152,878		17-Nov	152,248	111,850					
98	3-Oct	123,021	152,878		18-Nov	125,872	111,850					
99	4-Oct	126,712	152,878		19-Nov	141,698	101,300					
100	5-Oct	126,713	152,878		20-Nov	141,698	101,300					
101	6-Oct	126,713	152,878		21-Nov	141,698	101,300					
102	7-Oct	126,695	152,878		22-Nov	141,698	101,300					
103	8-Oct	126,712	152,878		23-Nov	141,698	101,300					
104	9-Oct	123,044	152,878		24-Nov	141,698	101,300					
105	10-Oct	121,035	152,878		25-Nov	141,698	101,300					
106	11-Oct	122,090	152,878		26-Nov	141,698	101,300					
107	12-Oct	119,716	152,878		27-Nov	141,698	101,300					
108	13-Oct	117,342	152,878		28-Nov	141,698	101,300					
109	14-Oct	121,246	152,878		29-Nov	141,698	101,300					
110	15-Oct	120,382	152,847		30-Nov	141,698	101,300					
111	16-Oct	123,547	152,847		1-Dec	157,450	101,262					
112	17-Oct	99,593	152,878		2-Dec	156,684	101,300					
113	18-Oct	100,336	152,878		3-Dec	159,850	101,300					
114	19-Oct	100,336	152,878		4-Dec	159,850	101,300					
115	20-Oct	100,336	152,878		5-Dec	159,850	80,198					
116	21-Oct	90,169	152,878		6-Dec	159,850	80,198					
117	22-Oct	95,969	152,878		7-Dec	159,850	80,198					
118	23-Oct	100,336	152,878		8-Dec	159,848	92,749					
119	24-Oct	100,336	152,878		9-Dec	162,358	101,299					
120	25-Oct	99,940	152,878		10-Dec	159,850	90,872					
121	26-Oct	99,940	152,878		11-Dec	167,763	93,542					
122	27-Oct	99,940	152,878		12-Dec	174,093	101,261					
123	28-Oct	126,712	152,878		13-Dec	174,093	101,261					
124	29-Oct	99,750	152,878		14-Dec	174,093	101,261					
125	30-Oct	123,106	152,878		15-Dec	174,093	80,199					
126	31-Oct	126,713	152,877		16-Dec	163,381	101,262					
127	1-Nov	129,142	117,126		17-Dec	159,850	98,446					
128	2-Nov	130,403	117,126		18-Dec	167,763	101,261					
129	3-Nov	130,418	127,677		19-Dec	179,359	101,262					
130	4-Nov	129,144	132,952		20-Dec	168,807	101,262					
131	5-Nov	131,148	141,392		21-Dec	168,808	101,262					
132	6-Nov	141,698	141,392		22-Dec	166,698	101,261					
133	7-Nov	141,698	111,851		23-Dec	149,288	99,964					
134	8-Nov	141,698	111,851		24-Dec	170,401	101,261					
135	9-Nov	141,698	122,401		25-Dec	166,641	101,261					
136	10-Nov	141,698	122,401		26-Dec	166,641	101,261					
137	11-Nov	150,710	121,161		27-Dec	166,641	101,261					
138	12-Nov	152,248	122,401		28-Dec	166,641	94,519					
139	13-Nov	152,248	122,401		29-Dec	166,140	100,878					
140	14-Nov	152,248	122,401		30-Dec	130,036	101,261					
141	15-Nov	152,248	122,401		31-Dec	135,150	101,262					



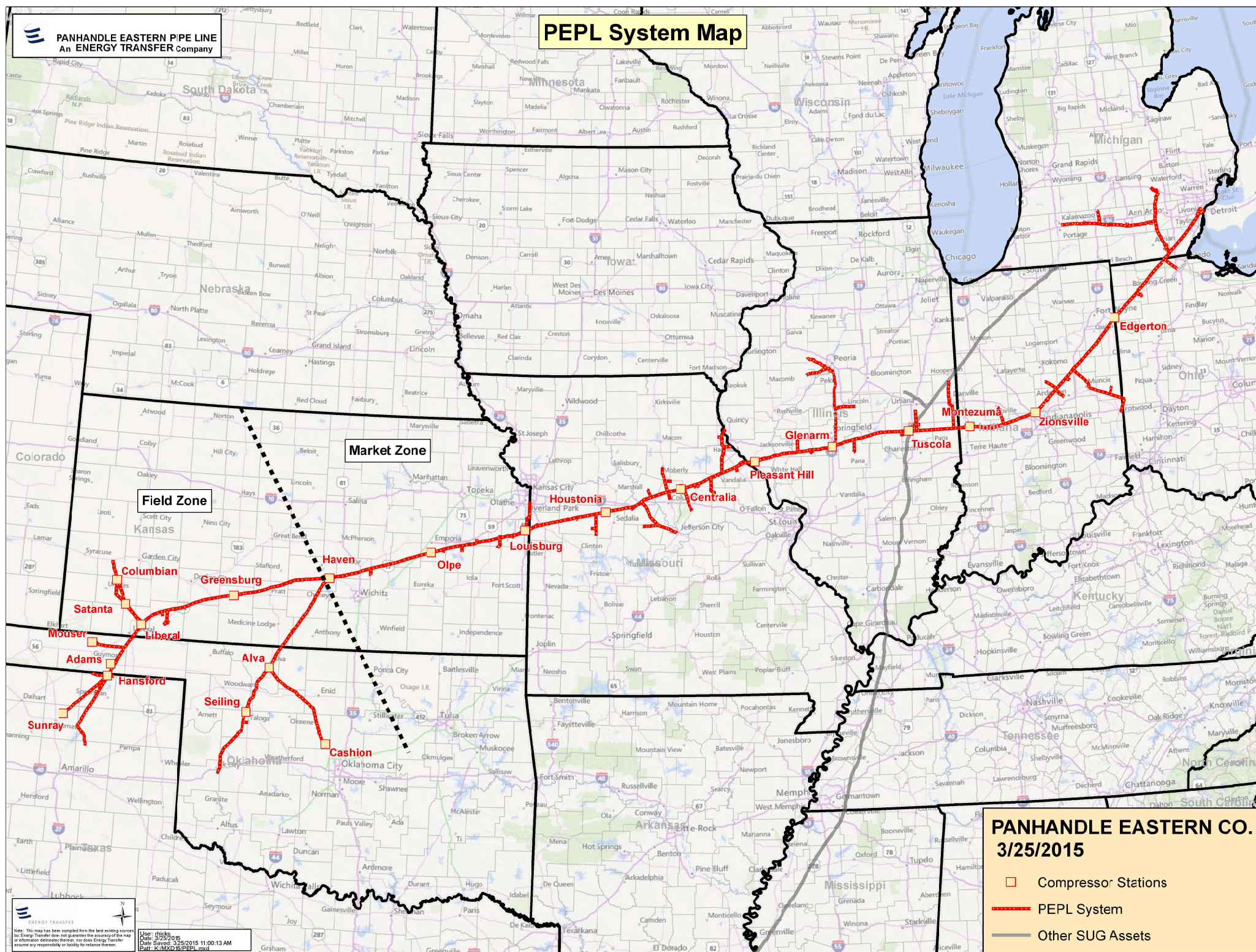
APPENDIX 2

TO

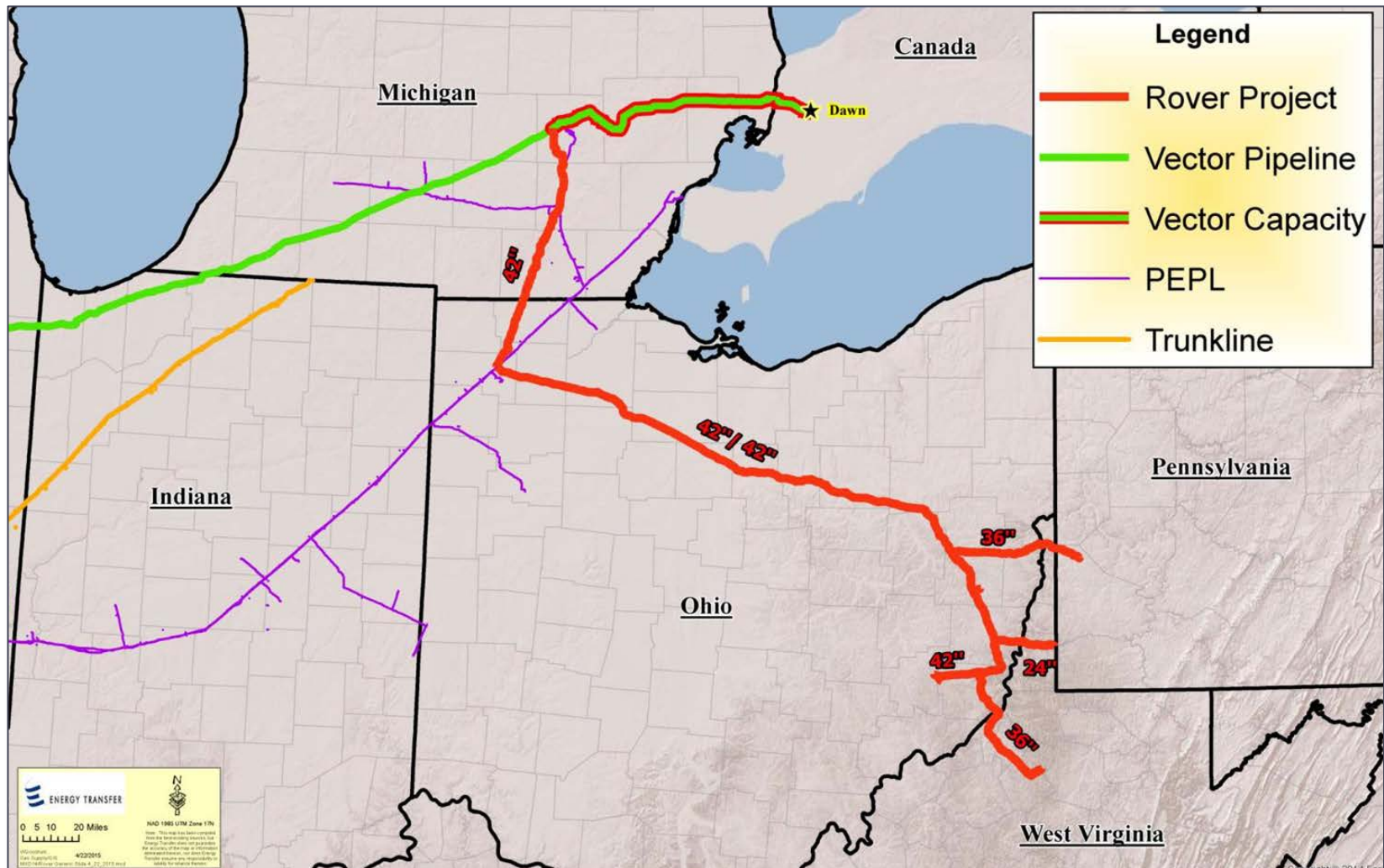
FRPO TECHNICAL CONFERENCE -AREAS OF INQUIRY

EB-2016-0186 UNION GAS PANHANDLE REINFORCEMENT

PEPL System Map



ROVER PIPELINE



711 miles of pipeline; initial forward haul capacity of 3.25 Bcf/day of capacity