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May 2, 2012

VIA RESS, EMAIL and COURIER

Ms Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, Suite 2700
Toronto, Ontario, M4P 1E4

Dear Ms Walli:

**Re: Enbridge Gas Distribution Inc. ("Enbridge") - Undertaking Responses
Renewable Natural Gas Program Application ("Application")
Ontario Energy Board ("Board") File Number EB-2011-0242 / EB-2011-0283**

On April 30, 2012, during the Renewable Natural Gas Hearing, Enbridge and Union Gas Limited ("Union") agreed to file responses to the Undertakings.

Enclosed please find responses to Undertakings J1.3 and J1.4.

During the Hearing the following documents were submitted to the Board and attendees, on behalf of Enbridge and Union.

Undertaking Responses to J1.1 and J1.2,
Updated Exhibit I, Tab 8, Schedule 9, and
Updated Exhibit 1, Tab 15, Schedule 10,

This submission has been filed through the Board's Regulatory Electronic Submission System ("RESS"), and two hard copies are being sent to the Board as directed. Enbridge's filing for this proceeding can be found on the Enbridge website at: www.enbridgegas.com/ratecase.

If you have any questions, please contact the undersigned.

Sincerely,

[Original Signed By]

Lesley Austin
Regulatory Coordinator, Regulatory Affairs

cc: Mr. F. Cass, Aird & Berlis LLP (via email and courier)
All Interested Parties EB-2011-0242 (via email)

UNDERTAKING J1.3

Undertaking of Enbridge Gas Distribution Inc. and Union Gas Limited

Transcript Volume 2, page 132.

To provide reconciliation of \$36 million a year increase to system gas portfolio.

As outlined in evidence at Exhibit C, Tab 1, Schedule 1, Page 2, the Company is proposing to recover the incremental costs of RNG from system gas customers through its gas supply commodity charge. As shown at Exhibit C, Tab 1, Schedule 1, Page 2, Table 1 which is reproduced below, based on the July 1, 2011 QRAM, the total incremental costs is approximately \$34.0 million and the incremental impact on the gas supply commodity charge is approximately 0.59 cents/m³ or \$5.87 /10³m³.

Table 1
IMPACT ON GAS PURCHASE BUDGET

<u>Line</u>		<u>Units</u>	
1	RNG Average Purchase Costs	\$/GJ	\$15.00
2	Existing July 2011 Delivery Supply Costs	\$/GJ	\$ 4.56
3	Price Differential	\$/GJ	\$10.44
4		\$/10 ³ m ³	\$393.60
5	Annual cap on RNG Purchase Volumes	10 ³ m ³	87,370
6	2011 Gas Purchase for System Sales Volumes	10 ³ m ³	5,853,968
7	Percentage of 2011 Gas Purchase Sales Volumes for RNG (Line 5 ÷ Line 6)	%	1.49
8	Incremental Cost Increase in Gas Purchases (Line 4 x Line 5)	\$	\$34,388,668
9	Impact on Gas Supply Commodity Charge (Line 8 ÷ Line 6)	\$/10 ³ m ³	\$5.87
10		¢/m ³	0.59¢

(Based on the January 1, 2012 QRAM the total incremental cost would be approximately \$36.0 million as outlined in Interrogatory IE-11-24)

Therefore, at 0.59 cents/m³ for a typical residential customer consuming 3,064 m³, the annual incremental impact would be approximately \$18 annually. For a typical commercial customer under Rate 6 consuming 22,606 m³ the annual impact would be approximately \$133.

Note that all customers on system gas will pay the same incremental unit rate of 0.59 cents/m³. Therefore the unit rate applied to the 2011 forecast system gas volumes recovers approximately \$34 million as outlined in the table below.

	Residential Rate 1	Commercial Rate 6 + LV	Total System Gas
1. No. of Customers on System Gas	1,269,606	117,477	1,387,053
2. Associated 2011 Forecast System Gas Volumes 103m3	3,356,349	2,497,619	5,853,968
3. Incremental Unit Rate (\$/103m3)	\$ 5.87	\$ 5.87	
4. Total Incremental Impact (line 2 x 3)	\$ 19,701,769	\$ 14,661,024	\$ 34,362,792

Please note that because the annual impact of \$18 and \$133 are not recovered by a fixed monthly charge but rather through a volumetric charge, the reconciliation of the number of system gas customers times the \$18 or \$133 will not equate exactly to the overall incremental costs of \$34 million.

UNDERTAKING J1.4

Undertaking of Enbridge Gas Distribution Inc. and Union Gas Limited

Transcript Volume 2, page 156.

To look at variable provided in the sample file, if it is present, and pull the sample data into the survey data and cross-tab to explore the result.

Results from the commercial customer survey show that support does not vary significantly by size of business. Details can be found in the tables below.

Q10. If your utility purchased biogas and the result was that your gas utility bill increased by 4% per size Crosstabulation

			Size of business (per m3)				Total
			smallest (under 2500)	mid small (2500- 5825)	mid large (5826- 15325)	largest (15326+)	
Q10. If your utility purchased biogas and the result was that your gas utility bill increased by 4% per	Strongly oppose	Count	30	30	27	31	118
		% within size	24.0%	24.2%	21.6%	24.6%	23.6%
	Somewhat oppose	Count	28	28	24	27	107
		% within size	22.4%	22.6%	19.2%	21.4%	21.4%
	Somewhat support	Count	51	55	60	56	222
		% within size	40.8%	44.4%	48.0%	44.4%	44.4%
	Strongly support	Count	14	7	14	9	44
		% within size	11.2%	5.6%	11.2%	7.1%	8.8%
	Don't Know	Count	2	4	0	3	9
		% within size	1.6%	3.2%	.0%	2.4%	1.8%
Total	Count	125	124	125	126	500	
	% within size	100.0%	100.0%	100.0%	100.0%	100.0%	

Q11. If your utility purchased biogas and the result was that your gas utility bill increased by 2% per size Crosstabulation

		Size of business (per m3)				Total	
		smallest (under 2500)	mid small (2500- 5825)	mid large (5826- 15325)	largest (15326+)		
Q11. If your utility purchased biogas and the result was that your gas utility bill increased by 2% per	Strongly oppose	Count	26	25	21	25	97
		% within size	20.8%	20.2%	16.8%	19.8%	19.4%
	Somewhat oppose	Count	19	26	21	20	86
		% within size	15.2%	21.0%	16.8%	15.9%	17.2%
	Somewhat support	Count	44	31	46	48	169
		% within size	35.2%	25.0%	36.8%	38.1%	33.8%
	Strongly support	Count	35	39	36	30	140
		% within size	28.0%	31.5%	28.8%	23.8%	28.0%
	Don't Know	Count	1	3	1	3	8
% within size		.8%	2.4%	.8%	2.4%	1.6%	
Total	Count	125	124	125	126	500	
	% within size	100.0%	100.0%	100.0%	100.0%	100.0%	

Q12. If your utility purchased biogas and the result was that your gas utility bill increased by 1% per size Crosstabulation

		Size of business (per m3)				Total	
		smallest (under 2500)	mid small (2500-5825)	mid large (5826- 15325)	largest (15326+)		
Q12. If your utility purchased biogas and the result was that your gas utility bill increased by 1% per	Strongly oppose	Count	23	22	16	18	79
		% within size	18.4%	17.7%	12.8%	14.3%	15.8%
	Somewhat oppose	Count	16	21	19	18	74
		% within size	12.8%	16.9%	15.2%	14.3%	14.8%
	Somewhat support	Count	34	28	36	41	139
		% within size	27.2%	22.6%	28.8%	32.5%	27.8%
	Strongly support	Count	51	50	53	45	199
		% within size	40.8%	40.3%	42.4%	35.7%	39.8%
	Don't Know	Count	1	3	1	4	9
% within size		.8%	2.4%	.8%	3.2%	1.8%	
Total	Count	125	124	125	126	500	
	% within size	100.0%	100.0%	100.0%	100.0%	100.0%	

Q13. If your utility purchased biogas and the result was that your gas utility bill increased by ½% per size Crosstabulation

			Size of business (per m3)				Total
			smallest (under 2500)	mid small (2500- 5825)	mid large (5826- 15325)	largest (15326+)	
Q13. If your utility purchased biogas and the result was that your gas utility bill increased by ½% per	Strongly oppose	Count	21	22	16	16	75
		% within size	16.8%	17.7%	12.8%	12.7%	15.0%
	Somewhat oppose	Count	12	18	15	15	60
		% within size	9.6%	14.5%	12.0%	11.9%	12.0%
	Somewhat support	Count	36	25	32	35	128
		% within size	28.8%	20.2%	25.6%	27.8%	25.6%
	Strongly support	Count	55	56	59	54	224
		% within size	44.0%	45.2%	47.2%	42.9%	44.8%
	Don't Know	Count	1	3	3	6	13
		% within size	.8%	2.4%	2.4%	4.8%	2.6%
Total	Count	125	124	125	126	500	
	% within size	100.0%	100.0%	100.0%	100.0%	100.0%	

UNDERTAKING J1.1

Undertaking of Enbridge Gas Distribution Inc. and Union Gas Limited

Transcript Volume 2, page 30.

To provide a calculation of cost of achieving greenhouse gas emission reductions by procuring biomethane, assuming cost of conventional natural gas is \$2.00 per gigajoule.

Please see Attachment 1.

	A	B	C (A - B)	D	E	F (C / D)	G (C / E)
	RNG Price (\$/GJ)	Natural Gas Price (\$/GJ)	Premium/(Discount) (\$/GJ)	GHG Reduction		Implied GHG Reduction Cost	
				Substitution Only ⁽¹⁾ (t CO2/GJ)	Substitution and Emission Reduction ⁽²⁾ (t CO2/GJ)	Substitution Only (\$/t CO2)	Substitution and Emission Reduction (\$/t CO2)
1	\$ 17.00	\$ 12.00	\$ 5.00	0.051	0.428	\$ 98.04	\$ 11.68
2	\$ 13.00	\$ 12.00	\$ 1.00	0.051	0.428	\$ 19.61	\$ 2.34
3	\$ 11.00	\$ 12.00	\$ (1.00)	0.051	0.428	\$ (19.61)	\$ (2.34)
4	\$ 6.00	\$ 12.00	\$ (6.00)	0.051	0.428	\$ (117.65)	\$ (14.02)
5	\$ 17.00	\$ 8.00	\$ 9.00	0.051	0.428	\$ 176.47	\$ 21.03
6	\$ 13.00	\$ 8.00	\$ 5.00	0.051	0.428	\$ 98.04	\$ 11.68
7	\$ 11.00	\$ 8.00	\$ 3.00	0.051	0.428	\$ 58.82	\$ 7.01
8	\$ 6.00	\$ 8.00	\$ (2.00)	0.051	0.428	\$ (39.22)	\$ (4.67)
9	\$ 17.00	\$ 4.00	\$ 13.00	0.051	0.428	\$ 254.90	\$ 30.37
10	\$ 13.00	\$ 4.00	\$ 9.00	0.051	0.428	\$ 176.47	\$ 21.03
11	\$ 11.00	\$ 4.00	\$ 7.00	0.051	0.428	\$ 137.25	\$ 16.36
12	\$ 6.00	\$ 4.00	\$ 2.00	0.051	0.428	\$ 39.22	\$ 4.67
13	\$ 17.00	\$ 2.00	\$ 15.00	0.051	0.428	\$ 294.12	\$ 35.05
14	\$ 13.00	\$ 2.00	\$ 11.00	0.051	0.428	\$ 215.69	\$ 25.70
15	\$ 11.00	\$ 2.00	\$ 9.00	0.051	0.428	\$ 176.47	\$ 21.03
16	\$ 6.00	\$ 2.00	\$ 4.00	0.051	0.428	\$ 78.43	\$ 9.35

(1) GHG reduction from fuel substitution calculated from pre-filed evidence Exhibit B, Tab 1, Appendix 1 Page 48
 = 2,677.7 kt CO2 / (1,373 M m3 * 0.0379 GJ/m3)

(2) GHG reduction from fuel substitution and emission reduction calculated from pre-filed evidence Exhibit B, Tab 1, Appendix 1, Page 48
 = 2,677.7 kt CO2 / (1,373 M m3 * 0.0379 GJ/m3) + 10,327.8 kt CO2 / (723 M m3 * 0.0379 GJ/m3)

UNDERTAKING J1.2

Undertaking of Enbridge Gas Distribution Inc. and Union Gas Limited
To CCC

Transcript Volume 2, page 113.

To provide response as to whether Union will be seeking to recover the costs of this hearing through deferral account or some other manner.

No. Union has no specific mechanisms to recover regulatory costs within incentive regulation.

ENBRIDGE GAS DISTRIBUTION INC.
UNION GAS LIMITED
RESPONSE TO FEDERATION OF RENTAL-HOUSING PROVIDERS OF ONTARIO
INTERROGATORY #9

REFERENCES REFER TO THE COMMON EVIDENCE OF THE UTILITIES

REF: EX. B., TAB 1, PG. 20

Preamble: The evidence states: "According to the report prepared by Alberta Innovates and attached as Exhibit B, Tab 1, Appendix 1, the use of near-term RNG could lead to a potential reduction in GHG emissions of approximately 13 million tonnes of CO₂e, or more than 45% of Ontario's 2020 GHG emissions reduction target."

Potential Reduction of 45% of Ontario's 2020 GHG emissions reduction target

- a) Is the 45% calculated using the Utilities proposed annual caps of a total of 5.5PJ?
- b) If not, please provide the emission reduction figure that corresponds to 5.5PJ cap.

Response:

- a) No. The 45% is not calculated using the Utilities proposed combined annual program caps of 5.5PJ.
- b) The emission reduction figure that corresponds to 5.5 PJ cap is approximately 2.4 million tonnes of CO₂e, which is 8.1% of Ontario's 2020 GHG emissions reduction target. This assumes the same mix of projects are used as the AI report, including both emissions and fuel substitution.

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ENBRIDGE GAS DISTRIBUTION INC.
UNION GAS LIMITED
RESPONSE TO VECC INTERROGATORY #10

3.0: Impacts on the Distribution System

Reference: Exhibit B Tab 1 Page 22 Exhibit B, Tab 1, Appendix 5.

Preamble: Electrigaz then worked with EGD and Union to develop a single, simple pricing model for each of AD and landfill-sourced RNG. The pricing models were developed with a view to settling on prices that would support an ROE in the proximity of 11% in a number of scenarios, without the price exceeding a threshold determined by the Utilities to be excessive and unlikely to be supported by their customer base.

- a. Using typical hypothetical cases for each of LG and AD provide pricing model runs in Excel active spreadsheet format. List all assumption and provide commentary and explanatory notes.
- b. Using data from the consultant's sources and/or the OPA Website run comparable price models for electricity production at the same scale and similar assumptions (as long as these are compatible with the FIT program). Provide the results in Excel active spreadsheet format with input assumptions and explanatory notes.
- c. Confirm that the FIT program is under review and prices may change as a result.

Response:

- a. Please see the response to LPMA Interrogatory #27 for Union (Exhibit IU-11-27), regarding provision of the model. Please see the response to LPMA Interrogatory #16 (Exhibit I-11-16) for outputs to provide details on several scenarios run.
- b. The Electrigaz biomethane costing and pricing model is not fully adapted to precisely perform this electrical analysis. However, with a minor adaption and using general market data the following results were obtained:

FIT converted in \$/GJ (no threshold)

$\$/kWh * (1kWh/0.0036GJ) * (40\% / 95\%)$

Percentage represents a systems efficiency average

Results	Project Cost	ROE	Applicable FIT	Converted in
<i>AD scenarios</i>			<i>\$/kWh</i>	<i>\$/GJ</i>
Baseline Farm	\$ 4,448,919	-	\$ 0.1618	\$ 18.45
Large Farm	\$ 5,751,962	12.2%	\$ 0.1486	\$ 16.95
Coop Farm	\$ 8,200,289	21.3%	\$ 0.1486	\$ 16.95
SSO (Municipal)	\$ 31,524,253	10.1%	\$ 0.1486	\$ 16.95
Industrial	\$ 29,282,343	-	\$ 0.1486	\$ 16.95
WWTP	\$ 2,492,935	7.9%	\$ 0.1618	\$ 18.45
<i>Landfill scenarios</i>				
Small landfill	\$ 5,077,647	9.5%	\$ 0.1122	\$ 12.80
Medium landfill	\$ 9,107,041	23.8%	\$ 0.1122	\$ 12.80
Large landfill	\$ 17,482,106	69.0%	\$ 0.1122	\$ 12.80

(Where ROE's are negative, no figure is included in the table)

Same scenarios with Genset instead of Upgrading

Capex for major overhaul every 60000 hrs (approximately twice in 20 yrs) of the Genset upfront, connection to electrical grid = connection to gas grid

Results	Project Cost	ROE	OPEX	Electricity	Applicable FIT
<i>AD scenarios</i>			<i>\$/yr</i>	<i>kW</i>	<i>\$/kWh</i>
Baseline Farm	\$ 3,841,075	-	\$ 242,239	316	\$ 0.1618
Large Farm	\$ 5,587,221	4.6%	\$ 377,972	647	\$ 0.1486
Coop Farm	\$ 7,949,528	12.0%	\$ 536,346	975	\$ 0.1486
SSO (Municipal)	\$ 31,147,851	-	\$ 2,680,415	1,232	\$ 0.1486
Industrial	\$ 29,151,657	-	\$ 2,760,012	1,584	\$ 0.1486
WWTP	\$ 1,176,637	64.5%	\$ 52,093	225	\$ 0.1618
<i>Landfill scenarios</i>					
Small landfill	\$ 3,315,119	-	\$ 317,780	790	\$ 0.1122
Medium landfill	\$ 7,686,119	-	\$ 740,974	1,846	\$ 0.1122
Large landfill	\$ 23,141,165	-	\$ 2,431,608	6,189	\$ 0.1122

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(Where ROE's are negative, no figure is included in the table)

At first it appears significantly different from OPA FIT projections but note that:

- Electrigaz model considers gate fee revenues for AD scenarios which are large contributor to ROE.
 - It is assumed that the capital cost of electrical grid connection equals capital cost of the natural gas grid connection.
- c. The Utilities confirm that the OPA FIT program is currently under review, as per the two year cycle of scheduled reviews. The outcomes of this review are unknown at this time.