uniongas
An Enbridge Company

March 17, 2017

BY COURIER & RESS

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

RE: EB-2016-0296 – Union Gas Limited - 2017 Cap-and-Trade Compliance Plan Interrogatory Responses

Dear Ms. Walli,

On November 15, 2016 Union filed its 2017 Cap-and-Trade Compliance Plan with the Ontario Energy Board ("the Board"). Union's filing was in compliance with the Board's EB-2015-0363 Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (the "Framework").

In accordance with the Framework, certain aspects of Union's Compliance Plan were deemed as "Strictly Confidential", specifically areas of Auction Confidential and Market Sensitive content. This content is to be reviewed only by Board Staff and the Board panel assigned to review and decide this Application.

In this context and pursuant to Procedural Order No.1 (dated January 27, 2016), please find attached Union's responses to interrogatories on "Non-confidential Information". These responses will be filed on the Board's RESS and copies will be sent to the Board. With respect to its responses to Board Staff's interrogatories on "Strictly Confidential Information", Union has filed these with the Board Staff directly. These responses will not be filed on the Board's RESS.

In addition, certain live Excel spreadsheets as requested at Exhibit B.LPMA.4 and Exhibit B.LPMA.5 have been provided to the requesting party via email, copying the Board. Other parties who wish to receive a copy of the document can contact Union directly.

Should you have any questions with respect to this submission please contact me at 519-436-4558.

Yours truly,

[original signed by]

Adam Stiers
Manager, Regulatory Initiatives

Encl.

cc: C. Smith, Torys
EB-2016-0296 Intervenors

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 3, pp. 29-32

Preamble: Union provided its projected 2017 Compliance Plan administrative costs.

a) For comparative purposes, please provide a breakdown of Union's 2016 administrative costs which include the costs of IT billing system updates, staff resources, call centre, consulting, and any other amounts Union incurred or forecast to be incurred.

b) Please provide variance analysis which compares, by cost element, the costs incurred in 2016 versus the projected administrative costs for 2017.

c) Please discuss the rationale and appropriateness of the difference in staffing levels proposed by Union (13.5 FTEs in 2017) and Enbridge (7 FTEs in 2017).

d) Please discuss the process that Union uses or intends to use to ensure that administrative costs are incremental to the Company's current business and are required for the purpose of the Company meeting its Cap-and-Trade obligations.

Response:

a) The Table below provides a breakdown of Union's administrative costs for both 2016 actual and 2017 forecast.

Line No.	**Particulars**	**2016 Cost** ($000)	**2017 Forecast** ($000)
1	Salaries - *excluding customer contact centre*	1,670	2,542
2	Salaries - *customer contact centre*	12	275
3	Consulting & Market Research	484	670
4	Bad Debt - *related to Cap-and-Trade*	0	600
5	Revenue Requirement on Capital Costs	(4)	68
6	Other	63	68
7	**Total**	**2,225**	**4,223**

The Table below provides a breakdown of Union's consulting costs for both 2016 actual and 2017 forecast.

Line No.	Particulars	2016 Cost ($000)	2017 Forecast ($000)
1	Legal	135	150
2	Carbon Strategy & Analysis	152	120
3	Compliance Planning, Implementation & Customer Communication/Research	162	200
4	GHG Reporting & Forecasting	35	100
5	Offset Development	0	100
6	**Total**	**484**	**670**

Union has incurred approximately $450,000 in incremental capital costs related to Cap-and-Trade at December 31, 2016. Union is forecasted to incur an additional $400,000 in 2017 in capital costs related to Cap-and-Trade. Most of Union's capital costs relate to billing system updates required as a result of Cap-and-Trade. Capital costs are reflected in administration costs using a revenue requirement calculation.

b) The following analysis provides an explanation for the variances between 2016 and 2017 administrative costs by cost element, as provided above. Union's actual 2017 costs could vary from the forecast.

Salaries - *excluding customer contact centre*

The increase in 2017 forecast salaries compared to 2016 is the result of realizing a full year's expense for 2017 as opposed to a partial year's expense for 2016. Throughout 2016, Union ramped up its Cap-and-Trade FTE commensurate with the scope and complexity of Cap-and-Trade related work requirements. As a result, Union's 2016 Cap-and-Trade salaries include a pro-rata of the 2016 total that is applicable to Cap-and-Trade. For 2017, Union is including a full year of salaries for the 13.5 Cap-and-Trade FTE.

Salaries - *customer contact centre*

Union's customer contact centre costs represent seven temporary employees hired due to expected increases in calls to the customer contact centre as a result of Cap-and-Trade implementation and billed beginning January 1, 2017. These temporary employees started in December 2016. Therefore, there are significantly less costs for 2016 than forecasted for 2017.

Consulting

The increase in 2017 forecast consulting costs compared to 2016 costs, is attributable to forecast costs for offset regulations and protocols, compliance planning and implementation and GHG reporting and forecasting. Union's offset consulting costs started in 2017 and there were no costs for 2016. Union's compliance planning/implementation costs will increase due to execution and transactional costs expected in 2017. GHG reporting and monitoring is expected to increase in 2017 as a result of additional measurement, reporting and verification expected in 2017.

Bad debt related to Cap-and-Trade

Union did not start billing customers Cap-and-Trade related charges until 2017, and therefore, there are no bad debts related to Cap-and-Trade for 2016.

Revenue requirement on capital costs

Union's revenue requirement on capital costs will increase in 2017 as these capital assets become available for use and are placed into service in 2017.

Other

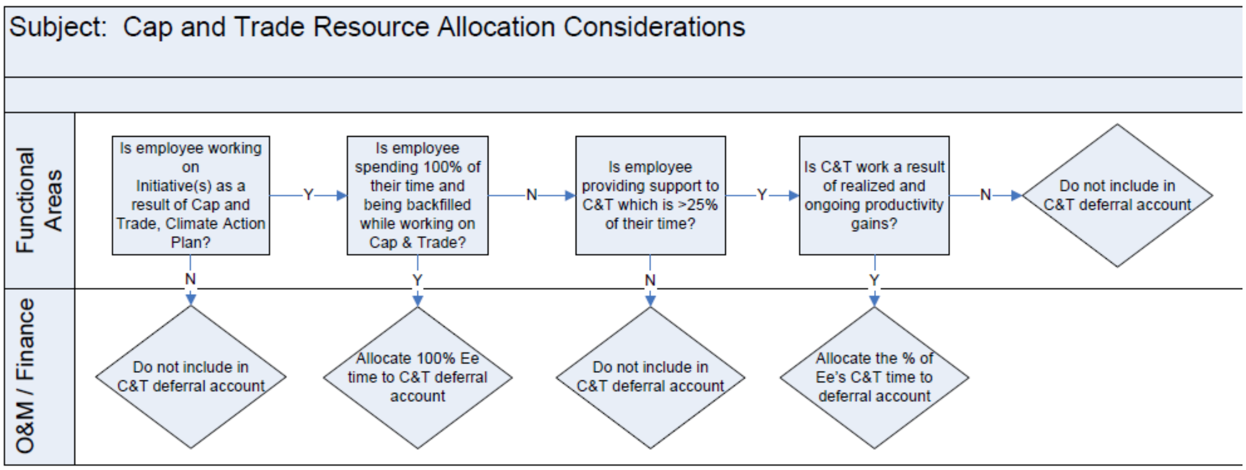
Other expenses represent employee expenses, office supplies and computer expenses. Other expenses are not expected to increase significantly in 2017.

c) Union does not have the information required to adequately assess and justify the difference in staffing levels proposed between Union and Enbridge. Please see Exhibit B.SEC.3 for a description of Union's 13.5 FTE roles.

d) In order to properly support the incremental work resulting from the Cap-and-Trade and CCAP, Union has incurred administrative costs. These costs are comprised of new incremental roles and existing roles supporting the incremental work. In the case of existing roles, Union has reallocated work, refined processes and restructured support teams to drive productivity gains allowing for these roles to assume the incremental Cap-and-Trade work.

   Please see Figure 1 below for the methodology and guidelines that Union uses to ensure that incremental administrative costs attributable to Cap-and-Trade obligations are properly accounted for. These costs are reviewed quarterly to ensure appropriateness and correct capture of administrative costs.

Figure 1


Subject: Cap and Trade Resource Allocation Considerations
Functional Areas
O&M / Finance
Is employee working on Initiative(s) as a result of Cap and Trade, Climate Action Plan?
Y
N
Is employee spending 100% of their time and being backfilled while working on Cap & Trade?
Is employee providing support to C&T which is >25% of their time?
Is C&T work a result of realized and ongoing productivity gains?
Do not include in C&T deferral account
Allocate 100% Ee time to C&T deferral account
Allocate the % of Ee's C&T time to deferral account

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 3, pp. 29-32

Preamble: Union indicates that it will incur $275,000 in customer care centre costs in 2017.

a) Are the proposed additional call centre costs strictly incremental to the customer care centre costs currently embedded in rates?

b) Please discuss the process Union will employ in determining the value of these additional call centre staff and how and when decisions will be made to extend the temporary assignment of some or all of the staff.

Response:

a) The costs for the incremental customer care staff are not currently embedded in rates and will be captured in the Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152).

b) Union's goal is to staff appropriately to meet the Service Quality Requirement ("SQR") for Call Answering Service Level of 75% of calls answered in 30 seconds. The additional staff were hired and trained to assist meeting the SQR based on a forecast of increased call volumes. When call volumes decrease to a normal level the additional call centre staff will be released from the Cap-and-Trade program and these costs will no longer be captured in the Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152).

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 3, pp. 29-32

Preamble: Union has included a proposed bad debt amount of $600,000 for 2017.

a) Please confirm that Union intends to include increased bad debt related to the Cap and Trade program for the general service market.

b) How will Union ensure that the incremental bad debt is solely in relation to the Cap and Trade program?

c) Please provide a summary of actual bad debt expenses from 2013 to 2015 (and 2016 if available).

Response:

a) Confirmed.

b) Even though Cap-and-Trade amounts are embedded within the delivery lines on the customer bill, there is configuration built in the billing system that allows for the breakdown of accounts written off to bad debt including the incremental amounts specifically associated with Cap-and-Trade. Only the bad debt specifically related to Cap-and-Trade will be captured in the deferral account.

c) Bad Debt Expenses for 2013-2015 are as follows:

2013 - $6.3 million (Board-approved)
2013 - $4.8 million
2014 - $4.7 million
2015 - $5.7 million
2016 – Actual bad debt expense is not yet available

Source: 2013 EB-2015-0010, Tab 2, Appendix A, Schedule 13; 2014-2015 EB-2016-0118, Tab 2, Appendix A, Schedule 13.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 2, p. 2

Preamble: Union states that the forecast methodology employed is consistent with that approved by the OEB in Union's 2013 Cost of Service proceeding.

a) Please provide a comparison of Union's proposed volume forecast to the actual weather normalized throughput from 2013 to the most recent year where actual weather normalized throughput is available.

Response:

UNION GAS LIMITED
Total Weather Normalized Throughput Volume by Service type and Rate Class
All Customer Rate Classes
Year Ended December 31

Line No.	Volumes in 103m3	2013 Board Approved Total	2013 Actual Total	2014 Actual Total	2015 Actual Total	2017 Forecast Total
1	General Service					
2	**Total General Service**	**5,122,423**	**5,341,881**	**5,426,657**	**5,360,660**	**5,580,757**
3	Contract & Wholesale					
4	**Total Contract & Wholesale**	**9,534,734**	**8,996,029**	**8,701,465**	**8,318,496**	**8,343,558**
5	**Total Throughput Volume**	**14,657,157**	**14,337,910**	**14,128,122**	**13,679,156**	**13,924,315**

Notes:

1) 2013: EB-2015-0010, Tab 2, Appendix A, Schedule 5
2) 2014-2015: EB-2016-0118, Tab 2, Appendix A, Schedule 5
3) 2017 Forecast: EB-2016-0296, Exhibit 2, Schedule 1

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 2, p. 2

Preamble: Union indicates that it has excluded the volume forecast for wholesale customers (volume of 344,825,589 m3 include customers within Rate T3, Rate M9 and Rate M10 rate classes that distribute natural gas) since these customers are not covered by Union's compliance obligation.

a) Please clarify that wholesale customers are still responsible for a portion of Union's proposed administrative costs and facility-related costs.

Response:

a) Confirmed. Wholesale customers are responsible for an allocation of Union's facility-related and administrative costs.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 2, pp. 1- 2

Preamble: Union has provided information related to its 2017 volume forecast of 8,310,348,868 m3.

a) Please provide Union's 2017 volume forecast and associated GHGs attributed to gas-fired generators.

b) Please provide Union's most recent 2017 volume forecast and associated GHGs attributed to mandatory participants.

c) Please provide Union's most recent 2017 volume forecast and associated GHGs attributed to voluntary participants.

d) Please provide the following summary tables:

i. 2017 customer-related emissions showing CO2, CH4, N2O and CO2e by rate class (similar to Enbridge's Exhibit B, Tab 3, Sch 1, p 3, Table 1)
ii. Conversion factors table for customer-related volume (similar to Enbridge's Exhibit B, Tab 3, Sch 1, p 3, Table 2)
iii. 2017 facility-related emissions showing CO2, CH4, N2O and CO2e by facility type (similar to Enbridge's Exhibit B, Tab 3, Sch 1, p 4, Table 3)
iv. Conversion factors table for facility-related volume (similar to Enbridge's Exhibit B, Tab 3, Sch 1, p 4, Table 4)

Response:

a-c) Please see Attachment 1.

d) The summary tables as requested are included below:

i. 2017 customer-related emissions showing CO_2, CH_4, N_2O and CO_2e by rate class (similar to Enbridge's Exhibit B, Tab 3, Schedule 1, p.3, Table 1).

2017 Customer-Related Emissions by Rate Class

Line	Rate	Net Volumes	CO_2 Emissions[1]	CH_4 Emissions[2]	N_2O Emissions[3]	Net CO_2e Emissions[4]
		m^3	Tonnes CO_2	Tonnes CH_4	Tonnes N_2O	Tonnes CO_2e
1	RATE_01	976,292,070	1,818,832	36	34	1,830,183
2	RATE_10	355,658,160	662,591	13	12	666,726
3	RATE_100	368,203,317	685,963	14	13	690,244
4	RATE_20	222,507,405	414,531	8	8	417,118
5	RATE_25	129,403,120	241,078	5	5	242,583
6	RATE_M1	3,033,862,629	5,652,086	112	106	5,687,361
7	RATE_M10	-	-	-	-	-
8	RATE_M2	1,204,673,376	2,244,306	45	42	2,258,313
9	RATE_M4	509,917,275	949,976	19	18	955,905
10	RATE_M5	73,865,479	137,611	3	3	138,470
11	RATE_M7	44,297,898	82,527	2	2	83,042
12	RATE_M9	-	-	-	-	-
13	RATE_T1	134,831,560	251,191	5	5	252,759
14	RATE_T2	944,366,863	1,759,355	35	33	1,770,336
15	RATE_T3	-	-	-	-	-
16	Total	7,997,879,152	14,900,049	296	280	14,993,040

Notes:

1 Net Volumes * CO_2 Emission Factor (from 'Customer-Related Conversion Factors' table)
2 Net Volumes * CH_4 Emission Factor (from 'Customer-Related Conversion Factors' table)
3 Net Volumes * N_2O Emission Factor (from 'Customer-Related Conversion Factors' table)
4 CO_2 Emissions + (CH_4 Emissions * GWP_{CH4}) + (N_2O Emissions * GWP_{N2O})

ii. Conversion factors Table for customer-related volume (similar to Enbridge's Exhibit B, Tab 3, Schedule 1, p 3, Table 2)

Customer-Related Conversion Factors

Line	Description	Units	CO_2 Emission Factor[1]	CH_4 Emission Factor[2]	N_2O Emission Factor[2]
1	Customer Emission Factors	Tonne/m^3	0.001863	0.000000037	0.000000035
Line				CH_4[3]	N_2O[3]
2	Global Warming Potential for Carbon Dioxide Equivalent			21	310

Notes:

1 CO_2 Emission Factor is from Table 400-2 of the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017"
2 CH_4 and N_2O Emission Factors are the 'Residential, Construction, Commercial/Institutional, Agriculture' emission factors from Table 20-4 of the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017"
3 The Global Warming Potentials are from Schedule 1 of Ontario Regulation 143/16 "Quantification, Reporting and Verification of Greenhouse Gas Emissions"

iii. 2017 facility-related emissions showing CO_2, CH_4, N_2O and CO_2e by facility type (similar to Enbridge's Exhibit B, Tab 3, Schedule 1, p.4, Table 3)

2017 Facility-related Emissions

Line	Description	Net Volumes	CO_2 Emissions[1]	CH_4 Emissions[2]	N_2O Emissions[3]	Net CO_2e Emissions[4]
		m^3	Tonnes CO_2	Tonnes CH_4	Tonnes N_2O	Tonnes CO_2e
1	Unaccounted for Gas (UFG)	89,851,375	167,393	3	3	168,438
2	Blowdowns	4,154,798	7,740	0	0	7,789
3	Compressor Fuel	205,196,989	390,460	395	10	401,973
4	Own Use Gas Buildings & Line Heaters	13,266,555	25,244	26	1	25,989
5	Total Facility	312,469,716	590,838	424	14	604,189

Notes:

1 Net Volumes * CO_2 Emission Factor (from 'Facility-Related Conversion Factors' table)
2 Net Volumes * CH_4 Emission Factor (from 'Facility-Related Conversion Factors' table)
3 Net Volumes * N_2O Emission Factor (from 'Facility-Related Conversion Factors' table)
4 CO_2 Emissions + (CH_4 Emissions * GWP_{CH4}) + (N_2O Emissions * GWP_{N2O})

iv. 2017 customer-related emissions showing CO_2, CH_4, N_2O and CO_2e by rate class (similar to Enbridge's Exhibit B, Tab 3, Schedule 1, p.3, Table 1).

Facility-Related Conversion Factors

Line	Description	Units	CO_2 Emission Factor[1,2]	CH_4 Emission Factor[3,4]	N_2O Emission Factor[3,4]
1	UFG and Blowdown Emission Factors	Tonne/m^3	0.001863	0.000000037	0.000000035
2	Compressor, Building & Line Heater Emission Factors	Tonne/GJ	0.04903	0.00004958	0.000001305
3	High Heat Value	GJ/m3	0.03881	0.03881	0.03881
Line				CH_4[5]	N_2O[5]
4	Global Warming Potential for Carbon Dioxide Equivalent			21	310

Notes:

1 The UFG and blowdown CO_2 Emission Factor is from Table 400-2 of the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017"

2 The compressor, building and line heater CO_2 Emission Factor is the 'Ontario' default CO_2 emission factor from Table 20-3 of the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017"

3 The UFG and blowdown CH4 and N2O Emission Factors are the 'Residential, Construction, Commercial/Institutional, Agriculture' emission factors from Table 20-4 of the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017"

4 The compressor, building and line heater CH4 and N2O Emission Factors are the 'Pipelines' emission factors from Table 20-4 of the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017"

5 The Global Warming Potentials are from Schedule 1 of Ontario Regulation 143/16 "Quantification, Reporting and Verification of Greenhouse Gas Emissions"

Natural Gas-Fired Generators, Mandatory Participants and Voluntary Participants

	2017 Forecast Volumes m^3	Associated GHGs Tonnes CO_2e
Natural Gas-Fired Generators	1,420,560,000	2,663,020
Mandatory Participants	5,007,870,867	9,387,890
Voluntary Participants	501,656,440	940,419

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 2, pp. 1- 2

Preamble: Union has provided information related to its 2017 volume forecast.

a) Please discuss whether Union's 2018 abatement activities (customer- and facility-related) should be classified as: a) public information, b) confidential information as per OEB's Rules of Practice and Procedure and Practice Direction on Confidential Filings, and/or c) strictly confidential information as per the *Climate Change Act* and *Cap and Trade Regulation*.

    i. If in 2018, Ontario is linked with the WCI market, would Union's answer above change?

b) Please discuss whether Union's 2018 offset activities should be classified as: a) public information, b) confidential information as per OEB's Rules of Practice and Procedure and Practice Direction on Confidential Filings, and/or c) strictly confidential information as per the Climate Change Act and Cap and Trade Regulation.

    i. If in 2018, Ontario is linked with the WCI market, would Union's answer above change?

c) If details on abatement programs and offsets are marked as strictly confidential, how does Union intend to present the volume and GHG forecasts as part of future Compliance Plans when it has abatement activities and offsets to propose?

Response:

a) Union's 2018 abatement activities (customer and facility related) should be classified as confidential information as per the OEB's Rules of Practice and Procedure and Practice Direction on Confidential Filings. Union believes that to the extent that it has abatement volumes, disclosure could provide meaningful information to other market participants. Disclosure of abatement volumes could allow other market participants to infer Union's compliance instrument quantity, which could put Union at a competitive disadvantage compared to other market participants, which could adversely impact its cost of compliance for ratepayers.

   Union agrees with the OEB's stated position in the Framework[1] that "*in the early stages of the market's develoment the appropriate approach must not only comply with the Climate*

[1] OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

Change Act and associated regulations, it should also be cautious and have regard to market integrity in order to protect customers from undue costs while still making appropriate information publicly available where possible"[2]. On these grounds, Union will consider on a case by case basis any abatement projects or volumes it can make public. As an example, for the 2017 Compliance Plan, Union disclosed the Green Investment Fund ("GIF") program since it was a government program where Union's participation was already well known, and the impact on the 2017 Compliance Plan was very small.

i. If Ontario is linked with the WCI in 2018, Union's answer above would not change.

b) Union believes offset activities should be classified as Strictly Confidential. Offset credits are a compliance instrument which are acquired in a competitive market. Most of the participants in this market are not regulated utilities and do not need to disclose any information with respect to offsets. If offset information for natural gas utilities was not strictly confidential, it would create a competitive disadvantage which could result in higher costs for ratepayers. Therefore, this information is Strictly Confidential. The Framework at p.10 recognizes this classification as well; "*information relating to transactions of emissions units on secondary or tertiary markets or offset credits*" is market sensitive and therefore Strictly Confidential.

i. If Ontario is linked with the WCI in 2018, Union's answer above would not change.

c) As outlined in part a) above, Union's total abatement volumes would be confidential information as per the OEB's Rules of Practice and Procedure and Practice Direction on Confidential Filings. As normal course, Union would present its volume and emissions forecast net of abatement volumes to ensure that abatement volumes are not publically disclosed. Union may consider disclosing abatement volumes on a case by case basis.

As outlined in part b) above, offsets are a compliance instrument and do not impact Union's volume and emissions forecast.

[2] Framework, p. 9.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 2, Schedule 1
Exhibit 2, p. 7

Preamble: Union, in its table, shows line 15 (ON.400) is 0.001875 tonnes CO2e/m3 and on line 16 (ON.20) is 0.001959 tonnes CO2e/m3.

Union states that it used a higher heating value of 0.03881 GJ/m3.

a) Please provide the inputs, assumptions and calculations used to compute 0.001875 CO2e/m3, for Natural Gas Distribution Activities, and rationale for applying this emission factor to unaccounted for gas (UFG) and blowdown volumes.

b) Please provide the inputs, assumptions and calculations used to compute 0.001959 CO2e/m3, for General Stationary Combustion, in accordance with ON. 23 and ON.24 (c), and rationale for applying this emission factor to Compressor Fuel Volume, and Buildings and Line Heater volumes.

i. Please explain why a higher heating value of 0.03881 GJ/m3 was chosen, and whether this was based on measurements taken from gas entering compressors, and building and line heaters.

ii. Please indicate which row of Table 20-4 (Ontario Ministry of Environment and Climate Change's "Guidelines for Quantification, Reporting and Verification of GHG Emissions"), was used to calculate the CH4 and N20 emission factors, and why.

Response:

a) Under the Ontario Regulation 143/16, natural gas distributors are required to calculate greenhouse gas ("GHG") emissions based on the net volume of natural gas distributed, after excluding deliveries to other distributors or exports, net deliveries to storage, and deliveries to capped participants, in accordance with Standard Quantification Method ("SQM") ON.400 Natural Gas Distribution in the Ontario Ministry of the Environment and Climate Change's ("MOECC") "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017" ("the Guideline").

As per SQM ON.400, the net volume reported includes, not only the volumes resulting from the natural gas distributed to non-capped end users, but also includes unaccounted for gas ("UFG") and blowdown volumes. Therefore, the conversion factor applied to UFG and blowdown volumes was calculated following SQM ON.400 of the Guideline. This reporting approach is generally modeled on the California framework for reporting by natural gas distributors for purposes. Under this reporting approach, the GHG emissions from UFG (of which, venting and fugitives emission sources are sub-components) are calculated in the same manner as end use and are included in the compliance obligations of the natural gas distributor. Since Union identifies some vented volumes (under “blowdown volumes”), these vented volumes would not be included in the UFG volumes. For completeness and consistency under the reporting framework as a natural gas distributor, these vented emission sources are therefore added as a separate line item in the calculation.

In accordance with SQM ON.400 of the Guideline, the Natural Gas Distribution conversion factor was calculated using the following inputs:

- CO_2 Emission Factor (EF_{CO2}) - In accordance with Section ON.403, Calculation Methodology 2 of the Guideline the default CO_2 Emission Value from Table 400-2, 0.001863 tCO_2/m^3, was used.
- CH_4 Emission Factor (EF_{CH4}) - In accordance with Section ON.404 of the Guideline the 'Residential, Construction, Commercial/Institutional, Agriculture' default CH_4 emission factor from Table 20-4, 0.037 g/m^3, was used.
- N_2O Emission Factor (EF_{N2O}) - In accordance with Section ON.404 of the Guideline the 'Residential, Construction, Commercial/Institutional, Agriculture' default N_2O emission factor from Table 20-4, 0.035 g/m^3, was used.
- Global Warming Potentials (GWPs) - GWPs as listed in Schedule 1 of O.Reg.143/16, $GWP_{CO2} = 1$, $GWP_{CH4} = 21$, $GWP_{N2O} = 310$.

Natural Gas Distribution conversion factor calculation:

Conversion Factor

$= (EF_{CO2} * GWP_{CO2}) + (EF_{CH4} * \text{Conversion of grams to tonnes} * GWP_{CH4})$
$+ (EF_{N2O} * \text{Conversion of grams to tonnes} * GWP_{N2O})$
$= (0.001863 \text{ tonnes } CO_2/ m^3 * 1) + (0.037 \text{ g}/ m^3 * 0.000001 \text{ tonnes/g} * 21)$
$+ (0.035 \text{ g}/m^3 * 0.000001 \text{ tonnes/g} *310)$
$= 0.001875 \; tCO_2e/m^3$

b) Ontario Regulation 143/16 includes the following definition of general stationary combustion equipment:

> *"includes any stationary combustion devices, including boilers, simple and combined cycle combustion turbines, engines, incinerators (including units that combust hazardous waste or gaseous waste) and process heaters but does not include:*

a. portable equipment,
b. stationary emergency generators that have a nameplate generating capacity of less than 10 megawatts, and
c. any auxiliary fossil fuel powered equipment, other than stationary emergency generators, that is intended for use only in emergency situations, including fire pumps and flares"

SQM ON.20 General Stationary Combustion in the Ontario MOECC Guideline identifies the methodologies for calculating emissions from stationary combustion equipment. Sources of stationary combustion-related emissions at Union include reciprocating and centrifugal compressors (compressors), boilers (buildings), and line heaters. Therefore, the conversion factor applied to compressor, building and line heater volumes was calculated following SQM ON.20 of the Guideline.

In accordance with SQM ON.20 of the Guideline, the General Stationary Combustion conversion factor was calculated using the following inputs:

- CO_2 Emission Factor (EF_{CO2}) - In accordance with Section ON.23, Calculation Methodology 2 of the Guideline, the 'Ontario' default CO_2 emission factor from Table 20-4, 49.03 kg/GJ, was used.
- CH_4 Emission Factor (EF_{CH4}) - In accordance with Section ON.24, Calculation Methodology 6 of the Guideline, the 'Pipelines' default CH_4 emission factor from Table 20-4, 49.58 g/GJ, was used. The 'Pipelines' value was selected as it is the most applicable value for compressor units, which contribute the majority of stationary combustion emissions reported by Union Gas under SQM ON.20.
- N_2O Emission Factor (EF_{N2O}) - In accordance with Section ON.24, Calculation Methodology 6 of the Guideline, the 'Pipelines' default N_2O emission factor from Table 20-4, 1.305 g/GJ, was used. The 'Pipelines' value was selected as it is the most applicable value for compressor units, which contribute the majority of stationary combustion emissions reported by Union Gas under SQM ON.20.
- High Heating Value (HHV) - As per ON.23, Calculation Methodology 2, the company-specific natural gas HHV, 0.03881 GJ/m^3, was used. The value was calculated based on the weighted average HHV from the last full calendar year,.
- Global Warming Potentials (GWPs) - GWPs as listed in Schedule 1 of O.Reg.143/16, $GWP_{CO2} = 1$, $GWP_{CH4} = 21$, $GWP_{N2O} = 310$.

Natural Gas Distribution conversion factor calculation:

Conversion Factor = HHV * [(EF_{CO2} * Conversion of kg to tonnes * GWP_{CO2})
+ (EF_{CH4} * Conversion of g to tonnes * GWP_{CH4})
+ (EF_{N2O} * Conversion of g to tonnes * GWP_{N2O})]
= 0.03881 GJ/m^3 * [(49.03 kg/GJ * 0.001 tonnes/kg * 1)
+ (49.58 g/GJ * 0.000001 tonnes/g * 21)
+ (1.305 g/GJ * 0.000001 tonnes/g *310)

$= 0.001959\ tCO_2e/\ m^3$

i. The high heating value ("HHV") of 0.03881 GJ/ m^3, used for the 2017 forecast, represents the weighted average HHV for the 2015 calendar year. The weighted average was calculated based on the measured HHV at each of the delivery and receipt points where natural gas flows into and out of Union's Southern franchise area, where the majority of Union's stationary combustion equipment is located. The methodology meets the requirements of Section ON.25 of the MOECC's Guideline. Since the 2017 forecast was completed in 2016, the 2015 calendar year was the most current year of data available.

ii. The 'Residential, Construction, Commercial/Institutional, Agriculture' emission factors in Table 20-4 of the MOECC's Guideline were used to calculate the CH_4 and N_2O emissions for SQM ON.400 Natural Gas Distribution, in accordance with the requirements of Section ON.404 of the MOECC's Guideline. Emissions due to non-capped end users, UFG and blowdowns were calculated in accordance with SQM ON.400.

    The 'Pipelines' emission factors in Table 20-4 of the Guideline were used to calculate the CH_4 and N_2O emissions for SQM ON.20 General Stationary Combustion. The 'Pipelines' value was used as it is the most applicable value for compressor units, which consume the bulk of the stationary combustion emissions reported under SQM ON.20. Emissions due to compressors, buildings (boilers) and line heaters were calculated in accordance with SQM ON.20.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 2, p. 1-4

Preamble: In Section I - General Service Market, Union has provided a 2017 DSM volume impacts of 93,832,137 m3 related to the 2015-2020 DSM plan approved by the OEB (EB-2015- 0029). In Section II - Contract Market, Union has indicated 2017 DSM volume impacts corresponding to the 2016-2020 DSM plan of 227,573,753 m3.

The OEB's DSM Decision specified formulas to set 2017 targets based on 2016 achievement.

a) Please provide the detailed calculations used to derive all 2017 DSM volume impacts. Within your response, please provide the DSM volume impacts for each gas savings metric approved in the OEB's DSM Decision to arrive at the two DSM volume impacts specified above. Further, indicate whether 2016 targets or unverified actual volume impacts were used to derive 2017 achievement levels.

b) Please indicate if and how gas savings from DSM programs to LFE and voluntary participants have been removed from these totals, taking into account changes to voluntary participants that may have occurred after the OEB's Decision.

Response:

a) Please see Attachment 1.

Union's 2017 achievement levels were derived based on the following methodology:

1) For programs that were proposed by Union and approved by the OEB:

   i. Union assumed the filed 2017 target, increased by 10% to reflect the OEB's decision to increase targets by 10%. Union's 2017 targets for its proposed programs can be found in EB-2015-0029, Union 2015-2020 DSM Plan Application and Evidence - Corrected, Tab 3, Appendix A.

2) For programs directed by the OEB but not proposed by Union:

   ii. Union did not propose to run a Direct Install and Large Volume program and thus did not have 2017 targets outlined in the 2015-2020 DSM Plan Application and Evidence. Union estimated the 2017 cumulative natural gas savings (m^3) using the 2017 scorecard formulas to derive a 2017 target. Union assumed it would achieve 100% on the 2016 scorecard while spending the 100% OEB approved program budget (customer incentive and promotion).

b) The gas savings from DSM programs found at Exhibit 2, Schedule 1, line 2 represent the total forecasted savings from Union's DSM portfolio (including those programs that support Large Final Emitters ("LFE") and voluntary participants). Union does not forecast DSM savings at the customer level and cannot adjust values to take into account changes to voluntary participants or LFE. The throughput to LFE and voluntary participants found at Exhibit 2, Schedule 1, line 6 c
This ensures DSM savings are not double counted for LFE and voluntary participants.

UNION GAS LIMITED
Calculations Used to Derive 2017 DSM Volume Impacts

Line No.	DSM Scorecards and Programs	Cumulative Natural Gas Savings (m3) 2016 (1)	Cumulative Natural Gas Savings (m3) 2017 (2,3)	Average Effective Useful Life (Years) 2016 (4)	Average Effective Useful Life (Years) 2017 (4)	Annual Natural Gas Savings (m3) 2016	Annual Natural Gas Savings (m3) 2017	2017 DSM Volume Impacts (m3) 2017
		(a)	(b)	(c)	(d)	(e) = (a)/(c)	(f) = (b)/(d)	(g) = (e) + (f)
	Resource Acquisition							
1	Residential HRR	85,745,550	114,327,400	25	25	3,429,822	4,573,096	8,002,918
2	C/I Perscriptive	302,055,812	311,684,768	18	18	16,738,109	17,346,708	34,084,817
3	C/I General Service Custom	83,961,752	83,961,752	17	17	4,944,855	4,944,855	9,889,709
4	C/I Contract Custom	735,642,065	735,642,065	16	16	45,028,293	45,028,293	90,056,586
5	C/I Direct Install	6,699,181	34,165,823	15	15	446,612	2,277,722	2,724,334
6	Total Resource Acquisition	1,214,104,360	1,279,781,808			70,587,691	74,170,673	144,758,364
	Low Income							
6	Single Family HWP	37,786,348	37,842,404	25	25	1,539,926	1,542,526	3,082,452
7	Social and Assisted Multi-Family	16,216,022	15,855,605	17	18	952,828	888,442	1,841,269
8	Market Rate Multi-Family	2,639,817	5,039,322	17	18	155,111	282,370	437,481
9	Total Low Income	56,642,187	58,737,331			2,647,865	2,713,337	5,361,202
	Large Volume							
10	Rate T2/Rate 100	1,057,431,375	995,004,518	12	12	88,119,281	82,917,043	171,036,324
	Total Large Volume	1,057,431,375	995,004,518			88,119,281	82,917,043	171,036,324
	Performance-Based							
11	RunSmart Savings	-	1,250,000	5	5	-	250,000	250,000
	Total Performance-Based	-	1,250,000			-	250,000	250,000
12	Total Union (line 5 + line 13)	2,328,177,922	2,334,773,657			161,354,837	160,051,053	321,405,890

Notes:

(1) 2016 cumulative natural gas savings (m3) as per Decision and Order EB-2015-0029/EB-2015-0049. Union calculated the 2016 Large Volume target as per Decision and Order EB-2015-0029/EB-2015-0049, the formula uses 2013-2015 Rate T2/Rate 100 cost effectiveness to determine the three-year rolling average. The 2015 cost effectiveness value is pre-audit.

(2) For programs that Union proposed in its DSM Plan and were approved by the OEB as per Decision and Order EB-2015-0029/EB-2015-0049 Union assumed its filed 2017 target, increased by 10% to reflect the OEB's decision to increase targets by 10%. Union's 2017 targets for its proposed programs can be found in EB-2015-0029, Union 2015-2020 DSM Plan Application and Evidence - Corrected, Tab 3, Appendix A

(3) Union did not propose to run a Direct Install and Large Volume program and thus did not have 2017 targets outlined in the 2015-2020 DSM Plan Application and Evidence. Union estimated the 2017 cumulative natural gas savings (m3) using the 2017 scorecard formulas to derive a 2017 target. Union assumed it would achieve 100% on the 2016 scorecard while spending the 100% OEB approved program budget (customer incentive and promotion).

(4) Effective useful life values derived by dividing the cumulative natural gas savings by the annual natural gas savings as per EB-2015-0029, Union 2015-2020 DSM Plan Application and Evidence - Corrected, Tab 3, Appendix A

(5) Residential rate class allocation assumed to be 75% Rate M1 and 25% Rate 01 as per EB-2015-0029, Exhibit B.T3.Union.LPMA.21 pg 1. C/I, Large Volume, and Performance-based programs rate class allocation based on historical customer incentive spend per rate class as per EB-2015-0029, Exhibit B.T3.Union.LPMA.21 pg 1. Low Income rate class allocation based on 2015 pre-audit customer incentive spend per rate class.

UNION GAS LIMITED

Calculations Used to Derive 2017 DSM Volume Impacts

Union North Rate Class [5]					Union South Rate Class [5]								Rate Class Grouping	
Rate 01	Rate 10	Rate 20	Rate 100	Total	Rate M1	Rate M2	Rate M4	Rate M5	Rate M7	Rate T1	Rate T2	Total	General Service	Contracts
(h)	(i)	(j)	(k)	(l) = (h)+(i)+(j)+(k)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)=(m)+(n)+(o)+(p)+(q)+(r)+(s)	(u)=(h)+(i)+(m)+(n)	(v)=(j)+(k)+(o)+(p)+(r)+(s)
2,000,729	-	-	-	2,000,729	6,002,188	-	-	-	-	-	-	6,002,188	8,002,918	-
1,672,155	2,940,668	2,184,731	-	6,797,554	4,783,033	10,644,672	4,162,453	2,863,217	2,901,039	1,932,849	-	27,287,263	20,040,528	14,044,289
485,176	853,235	633,900	-	1,972,310	1,387,797	3,088,552	1,207,736	830,762	841,737	560,816	-	7,917,399	5,814,759	4,074,950
4,418,054	7,769,633	5,772,347	-	17,960,034	12,637,404	28,124,629	10,997,750	7,564,997	7,664,929	5,106,842	-	72,096,552	52,949,721	37,106,865
133,652	235,042	174,621	-	543,315	382,299	850,808	332,697	228,851	231,874	154,489	-	2,181,018	1,601,801	1,122,533
8,709,766	11,798,577	8,765,599	-	29,273,943	25,192,721	42,708,661	16,700,636	11,487,827	11,639,579	7,754,996	-	115,484,421	88,409,727	56,348,637
870,981	-	-	-	870,981	2,211,471	-	-	-	-	-	-	2,211,471	3,082,452	-
178,449	148,250	-	-	326,700	314,226	1,200,343	-	-	-	-	-	1,514,569	1,841,269	-
42,399	35,224	-	-	77,623	74,659	285,199	-	-	-	-	-	359,858	437,481	-
1,091,830	183,474	-	-	1,275,304	2,600,356	1,485,542	-	-	-	-	-	4,085,898	5,361,202	-
-	-	-	61,877,954	61,877,954	-	-	-	-	-	-	109,158,371	109,158,371	-	171,036,324
-	-	-	61,877,954	61,877,954	-	-	-	-	-	-	109,158,371	109,158,371	-	171,036,324
-	12,318	27,806	-	40,124	-	48,891	52,977	36,441	36,923	34,644	-	209,876	61,209	188,791
-	12,318	27,806	-	40,124	-	48,891	52,977	36,441	36,923	34,644	-	209,876	61,209	188,791
9,801,596	11,994,370	8,793,405	61,877,954	92,467,324	27,793,077	44,243,094	16,753,613	11,524,269	11,676,501	7,789,640	109,158,371	228,938,566	93,832,137	227,573,753

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 2, pp. 6-7 and Schedule 1

Preamble: Union indicates that Green Investment Fund (GIF) programming will produce 3,685,000 m3 of savings for General Service Market customers in 2017. Union shows how these natural gas savings are expected to result in close to 7,000 t CO_2e of emissions reductions in 2017.

In Union's July 28, 2016 letter (EB-2015-0029 – Union Gas Limited – 2015-2020 Demand Side Management ("DSM") Plan – Green Investment Fund Attribution), Union explains that GIF funding will be used to expand Union's Home Reno Rebate program in the following ways:

i. Offering the program to homes that use oil, propane, wood as a primary heating fuel, or homes that use natural gas as their primary heating fuel but are not serviced by Union or Enbridge
ii. New rebates on oil, propane, wood, and electricity-based heating equipment
iii. Higher incentive levels for measures already included in the program.

a) Please provide the detailed calculations used to derive the 3,685,000 m3 of savings from GIF programming in 2017, and indicate whether this includes or excludes savings from homes that use natural gas as their primary heating fuel but are not serviced by Union or Enbridge.

b) Please provide estimates of carbon reductions resulting from the installation of efficient oil, propane, and wood-using equipment resulting from the GIF program.

Response:

a) Union forecasted 5,500 Home Reno Rebate participants (homes) would be supported by funding from the Green Investment Fund ("GIF") by the end of 2017. Union also estimated that approximately one-third (33%) of participants in the program would not be Union customers. These participants would be one of the following:

- Kitchener Utilities customers,
- Utilities Kingston customers,
- Natural Resource Gas Limited customers,
- Six Nations Natural Gas customers,
- Homes heated by oil,
- Homes heated by propane, or

- Homes heated by wood.

The remaining participants (67%) were estimated to be Union customers. Union also estimated that each participant (home) in the Home Reno Rebate offering would save, on average, 1,000 m^3 of natural gas per year. This figure was based on information from Union's 2015-2020 DSM Plan application[1], where the estimated average natural gas savings was 1,039 m^3 per year per home.

The calculations are as follows:

5,500 participants x 67% = 3,685 forecasted Union customer participants (homes) driven by funding from the GIF by the end of 2017

3,685 participants x 1,000 m3 = 3,685,000 m^3 saved by Union customer participants (homes) driven by funding from the GIF the end of 2017

Subsequent to development of the above noted forecast Union refined the estimated GIF savings. Participation from Union's customers is now estimated to be 84% (instead of 67%), which results in the following savings calculation:

5,500 participants x 84% = 4,620 forecasted Union customer participants (homes) driven by funding from the GIF by the end of 2017

4,620 participants x 1,000 m^3 = 4,620,000 m^3 saved by Union customer participants (homes) driven by funding from the GIF by the end of 2017

Union has not updated the GIF forecasts found in its 2017 Cap-and-Trade Compliance Plan, as the impacts from this change are not material.

b) Union did not estimate carbon reductions from homes that are primarily heated by oil, propane, or wood.

Please note that in its DSM programs, Union estimates and tracks natural gas savings based on m^3. GHG reductions (not carbon) are calculated using a conversion factor found in Exhibit 2, Schedule 1, line 15. This is the first time that Union has offered programs that focus on fuels other than natural gas. For the purpose of estimating carbon reductions Union has assumed the same amount of carbon reductions from oil/wood/propane that Union would have had from natural gas. Union recognizes that the actual reduction may be higher.

[1] EB-2015-0029

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 3, p. 3
Exhibit 3, Appendix B
Exhibit 2, pp. 6-7 and Schedule 1

Preamble: Union's CIPP was developed jointly between Union's Cap and Trade and Gas Supply department functional areas to outline the governance of the procurement of compliance instruments.

a) Are the procedures outlined in Ex 3, App B similar to Union's gas supply plan development and review process? Please explain and identify any differences.

Response:

a) The procedures outlined in Exhibit 3, Appendix B: Cap-and-Trade Compliance Instrument Procurement Procedures Governance and Operating Controls ("CIPP") are similar to Union's System Gas Procurement Policy and Procedures ("Gas Procurement Policy"). Please see Attachment 1 for Union's Gas Procurement Policy. These documents refer to procedures designed to govern and control the procurement functions. In developing the CIPP, Union used the Gas Procurement Policy as a template. Specific similarities include:

- Review and approval of procurement plans by executive and senior management
- Separation of duties between "front office" staff who develop and execute the plan, and "back office" staff who administer and report transactions
- Credit guidelines
- Periodic review of contracts
- Periodic internal audits
- Procedures to address exceptions to the requirements outlined in the documents

There are minor differences between the CIPP and the Gas Procurement Policy. These differences are driven by the unique characteristics of the Cap-and-Trade program. Differences include:

- The Gas Procurement Policy makes specific reference to approved purchase instruments whereas the CIPP does not. The OEB Framework allows Union to use any of the compliance instruments available in the carbon market. Due to the nascence of the carbon market in Ontario and the wide range of compliance instruments that might be available, Union has established a Compliance Instrument Purchasing Governance Committee which will provide strategic direction with regard to the purchasing strategy, including the compliance instrument mix.

- The Gas Procurement Policy makes specific reference to the procedures for procuring gas, including the procedures for both verbal and written Request for Proposals ("RFP"). The Cap-and-Trade market is new in Ontario and there will be many different ways in which entities will be able to procure compliance instruments. The CIPP allows for flexibility with regard to specific procedures for the procurement of compliance instruments.
- The CIPP reflects the Cap-and-Trade regulations, which is not applicable for gas supply procurement.

unionGas
A Spectra Energy Company

SYSTEM GAS

GAS PROCUREMENT POLICY AND PROCEDURES

August 2016

Gas Procurement Policy and Procedures

Table of Contents

1 INTRODUCTION

Union Gas purchases natural gas for its system operations and regulated system gas supply portfolio. The Gas Procurement Policy and Procedures (the "Policy") addresses the process of securing natural gas supplies for Union's system gas customers.

The Policy applies to all system gas purchases.

2 OBJECTIVES

There are four objectives that provide the foundation for the activities that take place under the Policy. The objectives are as follows:

2.1 Provide reasonable value through a diversified portfolio

This objective is intended to achieve a market sensitive price, through the use of diversified tools to provide a reasonable cost of gas for Union Gas ratepayers. This means finding a balance between the use of fixed price contracts, indexed price contracts, and supply basin diversification to achieve this goal.

2.2 Minimize exposure to counterparty credit risk

This objective is in place to recognize the need for prudent credit practices in gas procurement.

2.3 Union ensures fairness to customers and all counterparties in all gas supply transactions

Union ensures that all transactions are carried out with integrity with no preferential treatment shown towards any particular counterparty.

2.4 Corporate Governance and Controls

Corporate Governance is an integral part of the Policy. The gas supply portfolio plans have oversight by senior management. All transactions are approved by senior management and have appropriate internal controls in place. Subject to the Internal Audit department's annual risk assessment, transactions are periodically audited to ensure compliance with the Policy.

3 CONTROLS

There are six independent controls built into the Policy. 1) Corporate Governance through executive review of the gas supply plan; 2) Transactions in the procurement plan approved by the presiding Vice President or Director, Gas Supply, and the Manager, Gas Supply; 3) Absolute segregation of the responsibilities between the front office (transactors) and the back office (transaction administration) functions; 4) Internal audits of the transactions; 5) Exception reporting; and 6) Standard contracts reviewed every second year by Finance, Credit, Tax and Legal.

3.1 Corporate Governance

Union Gas executive, at least annually, review and approve the gas supply plan. In accordance with Delegation of Authority, the presiding Vice President, has full authority to implement the plan including the purchase of incremental gas that may be required. The gas supply plan is used to establish the monthly procurement plan.

3.2 Procurement Plan Approval

The Gas Supply department develops the monthly procurement plan. The monthly procurement plan identifies the specific dates for the transactions to be executed.

The presiding Vice President, or Director, Gas Supply and the Manager, Gas Supply or his /her delegate sign the monthly procurement plan. This provides all necessary authorizations for the transactors to execute the transactions in the procurement plan.

3.3 Segregation of Duties

3.3.1 Front Office (Gas Supply)

Gas Supply is responsible for developing and executing the monthly procurement plan. The Manager, Gas Supply or his/her designate is responsible for revising the plan, presenting the plan for appropriate approval, and presenting supporting information for any changes recommended. Once the plan is approved, the Manager, Gas Supply and his/her designate is responsible for:

- Establishing and overseeing the business relationships associated with conducting the plans.
- Ensuring compliance with all credit guidelines provided by Credit.
- Recording all transactions and related terms and informing appropriate persons of all transactions.
- Maintaining price data.
- Providing first line checking of all transaction invoices received monthly.
- Reporting of purchases and exceptions from the Policy to Regulatory.
- Providing reports as requested by senior management or the OEB.
- Providing open communication to the OEB and intervenors on policy and procedural updates.
- Initiating a review of the Policy if market conditions warrant or at least every 3 to 5 years.

3.3.2 Back Office (Finance/Credit)

The Finance department performs the administration and accounting of all the transactions. Gas Supply does not have access to post any accounting entries.

The department's responsibilities are:

- Paying all counterparty invoices. Being responsible for all account reconciliation with the counterparties.
- Providing counterparty credit support as detailed in Section 4, Credit Guidelines.
- Working with Gas Supply to monitor mark to market activity, and performing mark to market calculations for internal and external reporting requirements as required.
- Reviewing standard contracts every second year (Corporate Governance).

Finance must notify the Director, Gas Supply immediately in the event there are any material discrepancies relating to transactions, which could expose the company to legal liability and which remain unresolved after 48 hours. The resolution of any discrepancy with the counterparty is conducted by Finance and/or Gas Supply. The resolution of any disputes are placed in writing and sent to the counterparty with an explanation of the discrepancy and an explanation of how the discrepancy was resolved and the provision that the counterparty consents to the resolution unless the company receives notice otherwise within 48 hours from the receipt.

3.4 Internal Audit of Transactions

Periodically, the Internal Audit department initiates and conducts an audit of transactions. The intent of the audit is to ensure the Policy is being followed. At the discretion of the auditors, a transactor may be directed to be absent from his/her office for at least three consecutive days. This mandatory absence is at the discretion of the Audit department and without prior warning. During that time, the transactor must have no contact with the Audit personnel except as requested by the auditors.

In the event that Audit discovers any discrepancies relating to transactions, settlements, etc. that could expose the company to legal liability, the Director, Gas Supply is notified immediately.

The audit procedures include (but are not limited to):

- Reviewing the transaction activities for compliance with internal guidelines and limits and other company policy and regulatory requirements.
- Reviewing a sample of transactions for accuracy, ensure approved contract is in place.
- Reviewing a sample of transactions to ascertain whether transactions were within the range of same day market prices.
- Tracking a sample transaction through the system, from the initial trade to the closing of the contract period including approval to the general ledger.
- Comparing a sample of confirmations or execution authorizations to the position sheets to ensure that the prices, amounts, etc. are properly transcribed.
- Reviewing the authorizations, transaction summaries and confirmation logs for proper authorization and completeness.
- Reviewing and testing the reconciliation procedures.

- Completing a written report noting any discrepancies or deviations from the Policy and any other irregularities, which could expose the company to legal liability.

3.5 *Exception Reporting*

The transactors adhere to the Policy as completely as possible in all circumstances. However, Union recognizes that exceptions to the Policy may be required in certain market situations and such exceptions are reported as required.

3.6 *Review of Standard Contracts*

All standard contracts relating to procurement activity are reviewed every second year by Finance, Credit, Tax and Legal.

4 CREDIT GUIDELINES

The credit guidelines apply to all gas supply transactions. The guidelines reflect the appropriate credit risk for the specific type of gas supply transaction. The intent of the guidelines is to maintain a prudent credit practice balanced with the need to maintain ample alternatives for acquiring gas supplies.

Credit requirements apply to all index transactions. In addition, credit requirements apply to short-term fixed price transactions up to three-months from the transaction date. For example, if the transaction date is in January, the three-month period following the transaction date is February, March and April. Credit requirements would apply to fixed price transactions during this period.

Fixed price transactions extending beyond three months from the transaction date are considered physical hedges and are therefore not permitted under this policy.

4.1 Credit Requirements

Counterparties require an investment grade rating by an acceptable rating agency (Standard & Poors (BBB- and above), Moody's (Baa3 and above), or DBRS(BBB/low and above) and / or an acceptable internal review by the Credit department. Alternatively, a counterparty without a rating, or below investment grade, may be approved as a counterparty provided a parent or affiliate that has an investment grade rating guarantees these transactions. Legal and Credit must approve any guarantee offered. A counterparty without an investment grade rating and without a parent or affiliate guarantee may be approved as a counterparty at the discretion of the Credit department in accordance with Union Gas Credit guidelines.

Any approved counterparty receives a credit limit assigned by the Credit department. Upon request from the Gas Supply department, the Credit department considers raising the credit limit for specific counterparties in accordance with Union Gas Credit guidelines and within the Credit department's Delegation of Authority.

If at any time counterparty's credit exposure is greater than the authorized credit limit, Credit informs the Director, Gas Supply and the he/she recommends a course of action to bring the counterparty within authorized credit limits by either raising the limit, if appropriate, or restricting transactions with the counterparty until they are within limits.

If Credit has reason to be concerned about the financial stability of any counterparty, Credit notifies the Director, Gas Supply, and Legal. Credit, Legal and the Director, Gas Supply develops a course of action to limit Union's financial liability consistent with the provisions of the gas purchase agreement in place with the counterparty.

5 SUPPORT DEPARTMENTS

5.1 Tax Department

The Tax department provides the Gas Supply and the Finance departments with any updates or implications of any proposed or pending tax legislation that affects the program or transactions. The Gas Supply and Finance departments seek the advice of the Tax department as required. The Tax department reviews the standard contracts on an annual basis (Corporate Governance).

5.2 Legal

Legal is responsible for reviewing contractual terms and establishing Union's standard gas purchase agreement (GPA) or a NAESB for counterparties. Once a standard format of each of the documents has been approved by legal, any future sign off by legal is not required. If there are any subsequent changes to the formatting or the wording, or potential law changes then a proper review and sign off are required by legal for any new documentation. Legal reviews the standard contracts on an annual basis (Corporate Governance).

6 AFFILIATE TRANSACTIONS

All counterparties are treated equally and no preferential treatment is given to affiliated companies. Any transaction conducted with an affiliated company complies with the Ontario Energy Board's Affiliate Relationships Code for Gas Utilities.

7 APPROVED TRANSACTION INSTRUMENTS

7.1 Transaction Instruments

Union Gas is authorized to use the following transaction pricing instruments either through the RFP process (written and verbal), electronic gas trading platforms or a brokerage house.

- Fixed price contracts specify purchase of natural gas at a fixed price for a specific term.
- Index price contracts specify purchase of natural gas at a price to be determined in the future for a specific term.
- Price trigger contracts are a hybrid of fixed and index contracts. Initially, the contract is index and Union has the right to fix the price over the contract term.

8 GAS PROCUREMENT PROCEDURE

The following provides an overview of the procedures and related internal controls that must be followed when conducting a transaction.

8.1 Request For Proposal's (RFP's)

8.1.1 Written RFP's

Written RFP's are sent to prospective suppliers by email based on the appropriate counterparty list. Responses to written RFP's are received by email. Emails are sent and received by the "UniongasRFP" mailbox. It is the responsibility of the supplier to ensure that proposals are received by the closing time. Suppliers offering late proposals are notified that their proposal was rejected due to being late. Reasonable allowances are made for communication problems.

Verbal quotes to finalize the transaction are electronically recorded. Recordings are kept for a period of two years following the transaction.

8.1.2 Verbal RFP's

Verbal RFP's are used by exception, primarily for purchases outside the monthly procurement plan. In addition, given the volatile nature of natural gas pricing, it may from time to time, be in the best interests of Union's customers to use a verbal (by phone) tendering procedure. This procedure is used to minimize price disadvantage (eg. in a market of rising prices) or take advantage of price opportunities that materialize from time to time. Supplier short lists (by delivery point) are used in this process to facilitate its timely turnaround with the market. This procedure is intended to complement, not replace the written RFP process by obtaining market responsive pricing without compromising the principle of fairness to both customers and suppliers.

Verbal RFP's are issued only to suppliers who have returned an executed copy of Union's Gas Purchase Agreement or NAESB and those who consistently respond to RFP's for gas sales at the delivery point and consistently make competitive price offers. Verbal quotes are electronically recorded. Recordings are kept for a period of two years following the transaction.

Effective August 1, 2016

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Cheryl Newbury, Director, Gas Supply & Customer Support

____

Jim Redford, Vice President,
Business Development, Storage & Transportation

GLOSSARY

Back Office - The management and staff that have the primary responsibility for accounting, payables/receivables management, reporting and credit matters.

Basis - The differential that exists at any time between the futures price for a given commodity and the comparable price at a different physical location.

Canadian Gas -Gas delivered in specific regions in Canada.

Counterparty – The person or institution standing on the opposite side of a transaction.

Credit Risk – The risk of default by either counterparty in a transaction.

Front Office - The management and staff that have the primary responsibility for counterparty contact and transacting.

Futures Exchange - A location where trading in commodities is conducted in accordance with other specific rules, procedures and guarantees (i.e. New York Mercantile Exchange (NYMEX)).

Gas Purchase Agreement - Any of Union Gas Limited's contracts for gas purchases

NAESB - North American Energy Standard Board standard gas purchase agreement.

New York Mercantile Exchange (NYMEX) - The world's largest commodity futures exchange and preeminent trading forum for energy in North America, the NYMEX is a regulated financial institution that provides a centralized marketplace to increase market efficiency through the competition among many buyers and sellers.

Request for Proposal (RFP) - A request by a prospective party to a contract, asking other potential parties to a contract, for proposals on the key principles and terms related to an expected transaction. Either the seller or buyer may issue a request for proposal, although normally the buyer issues the request. The party requesting normally outlines the key proposed conditions of purchase and sale, but may permit alternative forms and conditions.

US Gas - Gas delivered in specific regions in the United States.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 3, p. 46

Preamble: Union states that an interim solution for recovering costs of capital investments between 2017 and next rebasing application would be required since current mechanisms (including Z Factor) may not be sufficient to recover the costs of these initiatives.

a) Please provide an order of magnitude of the anticipated costs of capital investments related to Union's compliance obligations during the first compliance period.

b) Is Union requesting that the OEB establish such a cost recovery mechanism in this proceeding? If so, what is Union specifically asking the OEB to consider? For example, is Union suggesting that an interim solution for recovering cost of capital investment between 2017 and the next rebasing application is required regardless of the level of capital investment?

Response:

a) Please see the response at Exhibit B.Staff.14.

b) Union is not proposing an interim solution for recovering the cost of capital investment between 2017 and its 2019 Rebasing proceeding in this proceeding. As stated at Exhibit 3, p.46 of its 2017 Compliance Plan (EB-2016-0296),

   "…Union does not have any long term investment projects that will impact its 2017 obligation within regulation".

   Union also does not foresee any long term investment projects to be proposed as part of its 2018 Compliance Plan.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 3, p. 46

Preamble: Union notes that it has brought forward two specific proposals to government for CCAP funding that will reduce GHG emissions in Ontario. The two proposals are Renewable Natural Gas (RNG) and Compressed Natural Gas (CNG).

a) Please provide a status update of the two proposals brought to government. In your response, please discuss if Union has been approved for CCAP funding.

b) If the answer to (a) is yes, please indicate if this funding will be used strictly on RNG and CNG, in what way, the timing of the funding, and if Union will have the ability to use the CCAP funding for other activities (and any rules or requirements that govern the use of the funding).

Response:

a&b) Please see the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 3, pp. 24 - 28

Preamble: Union describes its historic DSM efforts and generally discusses customer abatement options that may be explored as an activity included in a future Compliance Plan. However, Union has not proposed any new customer-related or facility-related abatement activities incremental to its OEB-approved DSM programs outside of the Green Investment Fund activities funded by the Government of Ontario.

a) Other than the GIF activities, please discuss the rationale for not including any customer and facility-related abatement activities as part of the 2017 Compliance Plan.

b) How will Union's Cap-and-Trade strategy be integrated into the company's business plan? For example, how will GHG emissions reduction (facility-related abatement) decisions be incorporated into its business planning process for capital investments?

Response:

a&b) This response addresses multiple questions received from the Board and intervenors related to Union's level of abatement (customer and facilities) and long term investments included in Union's 2017 Compliance Plan, and the expectation for future plans.

Context: New Program and Significant Uncertainty

In order to respond appropriately to questions regarding the degree to which abatement and long term investments are addressed in Union's 2017 Compliance Plan, it is important to review the context in which the program was introduced and implemented.

First, the Cap-and-Trade program is new to Ontario, to the natural gas utilities, and to customers. In addition, the Cap-and-Trade program was implemented in Ontario more quickly than any other jurisdiction, including California and Québec. Ontario's intention to adopt a Cap-and-Trade system was announced in the spring of 2015. The draft regulations and legislation (issued in February 2016) gave participants their first glimpse of program design and timing, with launch set for January 1, 2017. The final regulations were issued and the Climate Change Mitigation and Low-Carbon Economy Act passed in May 2016 with the Climate Change Action Plan being issued in June 2017 (6 months before the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (the "Framework") was launched in Ontario). The OEB then developed the Framework and delivered it at the end of September 2016. This Framework required the utilities to file a comprehensive Compliance Plan by mid-November 2016.

Second, the program itself is complex and new to the province and the utilities. Union's first priority is to ensure that the program is implemented effectively, efficiently, on time, and in compliance with the regulations and the Framework. It is critical that Union develop the systems, processes, expertise and governance necessary to ensure compliance. Given the nascence of the program, and its complexity, it is prudent to approach the program simply at first, taking action based on program elements that are known and documented.

Third, there are many uncertainties around the program. These uncertainties include:

- Outstanding Regulations
  - Early Reduction Credits
  - Administrative Penalties
  - Compliance Offset Credits Regulations
- Ministry of the Environment and Climate Change ("MOECC") development of Offset Protocols
- Western Climate Initiative ("WCI") partnership
  - Linking decision with California and Québec
  - Regulatory amendments associated with linkage
  - Negotiations with other potential partner jurisdictions, beyond 2018
- Allocation of funds related to the Climate Change Action Plan ("CCAP")
- Full details on Ontario Climate Change Solutions Deployment Corporation (aka "Green Bank").
- Post-2020 Cap-and-Trade program design, both for Ontario as well as California and Québec
- The OEB's development of a Long Term Carbon Price Forecast
- The OEB's development of Marginal Abatement Cost Curves ("MACC")

These uncertainties impact Union's ability to plan for incremental abatement activities and long term investments in 2017 and beyond. Union expects some of the outstanding regulations to be released by the end of 2017. However, there could be ongoing regulation amendments beyond this calendar year.

2017 Compliance Plan Abatement Activities

Union recognizes the value of abatement as part of the overall Cap-and-Trade program and the critical role that abatement will play in enabling the province to meet its emissions reduction targets. Union currently provides a comprehensive portfolio of customer abatement programs through DSM. In addition to the aggressive timelines and significant program uncertainties noted above, Union recognizes that the integration between Cap-and-Trade and DSM still needs to be addressed. Union is aware that the OEB will be initiating a DSM Mid-Term review process this spring that may begin to address this issue.

Regarding facilities abatement, Union has begun work on a study to evaluate potential facilities abatement projects, and intends to provide the outcomes of this study in its 2018 Compliance Plan. The initiation of any abatement activities coming out of this study will be dependent on the resolution of a number of uncertainties noted above, particularly the Long Term Carbon Price Forecast and MACC, and assurance of cost recovery. The long term carbon price forecast and the MACC will be required to prioritize which projects should be developed.

Union believes that it is important that future abatement programs and long-term investments are thoroughly and appropriately evaluated in order to uphold the program's guiding principles, specifically cost effectiveness, cost recovery, and continuous improvement (Framework, pp.7-8). This is consistent with the Framework which requires a thorough analysis of the costs, risks and alternatives to accompany the inclusion of a proposal in the plan. Given the insufficient time, the fact that key aspects of the Cap-and-Trade program remain in development, and the significant uncertainties that remain, this thorough and informed review was not feasible for the 2017 Compliance Plan.

Long Term Investments

Similarly, Union is not able to outline long-term investments in its 2017 Compliance Plan. In addition to the uncertainties noted above, it is not appropriate for Union to include any long term investments in the compliance plans until cost recovery is assured. This is consistent with how the Framework describes that cost recovery for these types of investments will be dealt with (Framework, p.27). Even if Union had been able to address all of the outstanding information and uncertainties noted above, it would not have been possible to present these investments for review and have their cost recovery assured before the 2017 Compliance Plan was filed in November 2016.

However, as noted in Union's 2017 Compliance Plan (Exhibit 3, pp.26-47), Union has begun investigative work on both Renewable Natural Gas ("RNG") and Compressed Natural Gas ("CNG") initiatives. Union has dedicated resources working on these opportunities which are currently in the early stages of development. Union is working to gain more endorsement from the Ontario government, including development of a grant structure under CCAP, and alignment with other stakeholders to see these programs move forward. However, it is premature to include these in the scope of Union's 2017 Compliance Plan as the CCAP programs are not defined and are not expected to be implemented until later in 2017 or 2018. Union is unable to proceed further until the government announces program design and advances specific CCAP funding commitments. In addition, further detail yet to be released by the OEB on the MACC and the long term carbon forecast are also crictical factors in assessing long-term investments such as these.

Union will seek approval of the costs of these types of programs in a separate leave to construct or rates application as appropriate, and then will subsequently address them in future Compliance Plans.

2018 and Longer Term Planning

Union expects significant uncertainties will persist through filing of its 2018 Compliance Plan, including linkage to the WCI, CCAP program development, etc. Items that may become known over the coming months, such as offset regulations, the MACC curve and Long Term Carbon Price Forecast will be relatively new information at the time of Union's 2018 filing. In addition, the market itself (both government auction and the secondary market) for compliance instruments will remain in its infancy with little history to gauge trends. This is consisent with a recent decision from the OEB that noted *"…the market has not had time to react and data is not available. The OEB agrees that such unknowns add uncertainty."* [1]

Union is committed to addressing abatement and long term investments more fully in future Compliance Plans. This will allow Union to assess these items as the market matures, the uncertainties resolve, and the mechanisms to ensure cost recovery are determined. Union believes this measured, prudent approach is in the best interest of ratepayers, and is also consistent with the Framework's guiding principle of continuous improvement.

[1] EB-2016-0186 Decision and Order, p 6

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 4, p. 1-3 and Schedules 1 and 2

Preamble: Union states that it has examined monitoring forms that are included in other jurisdictions, in particular California.

Also, Union provides sample monitoring forms.

a) Please provide all monitoring forms from Union's jurisdictional review.

b) Does Union have any concerns with the proposed reporting templates outlined in Enbridge Gas Distribution's Compliance Plan application – EB-2016-0300, Exhibit D, Tab 1, Schedule 5, page 3 – 5 Please explain.

Response:

a) Union has completed a jurisdictional review of monitoring forms for both California and Québec, as required by their respective local utilities regulators. In California, the California Public Utilities Commission ("CPUC") has established templates for two monitoring forms which all regulated utilities are required to use. These templates are provided as follows:

- Attachment 1:
    - GHG Cost and Revenue Template; and
    - Reporting Template to Calculate Weighted Average Cost ("WAC") of Compliance Instruments

In Québec, The Régie de l'énergie ("The Régie") does not have standard templates for utilities for the purposes of monitoring and reporting. Natural gas utilities report on emissions (forecasted and actual) and compliance instruments annually. In addition, utilities report compliance instrument transactions and WAC annually on a Strictly Confidential basis. Quarterly, utilities are required to report auction bidding strategies and auction results; these reports are also filed on a Strictly Confidential basis.

b) Union has no concerns with the three proposed reporting templates outlined in Enbridge's Compliance Plan (EB-2016-0300, Exhibit D, Tab 1, Schedule 5, pp.3-5). The information provided in the proposed templates satisfies the OEB's requirements[1] in the Regulatory

[1] EB-2015-0363, Appendix A, page xi

Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities EB-2015-0363, and is sufficient to allow for a review of the execution and performance of the Compliance Plans with regard to cost recovery.

Union notes these templates are comparable to those proposed by Union at Exhibit 4, Schedules 1 and 2.

As highlighted in both EB-2016-0296 (Exhibit 4) and EB-2016-0300 (Exhibit D), both Union and Enbridge have stated their view that these templates are a starting point for developing final monitoring and reporting forms through working with the other natural gas utilities and the Board-established working group.

GHG Revenue and Reconciliation Application Form

Notes:

Utilities should complete the GHG Revenue and Reconciliation Application Form in accordance with the procedures described in Attachment D of Decision 14-10-033 as corrected.

Gray shading indicates confidential information. However, additional information may be confidential based on a utility's particular circumstances.

Template D-1: Annual Allowance Revenue Receipts and Customer Returns

Line	Description	Year t-1 Forecast	Year t-1 Recorded	Year t Forecast	Year t Recorded
1	**Proxy GHG Price ($/MT)**	-	N/A	-	N/A
2	**Allocated Allowances (MT)**	-	-	-	-
3	**Revenues ($)**				
4	Prior Balance	N/A	N/A	-	-
5	Allowance Revenue	-	-	-	-
6	Interest	-	-	-	-
7	Franchise Fees and Uncollectibles	-	-	-	-
8	**Subtotal Revenues**	-	-	-	-
9	**Expenses ($)**				
10	Outreach and Administrative Expenses (from Template D3)	-	-	-	-
11	Franchise Fees and Uncollectibles	-	-	-	-
12	Interest	-	-	-	-
13	**Subtotal Expenses**	-	-	-	-
14	**Allowance Revenue Approved for Clean Energy or Energy Efficiency Programs ($)**	-	-	-	-
15	**Net GHG Revenues ($) (Line 8 + Line 13 + Line 14)**	-	-	-	-
16	**GHG Revenues to be Distributed in Future Years ($)**	-	-	-	-
17	**Net GHG Revenues Available for Customers in Forecast Year ($) (Line 15 + Line 16)**	-	-	-	-
18	**GHG Revenue Returned to Eligible Customers ($)**				
19	EITE Customer Return	-	-	-	-
20	Small Business Volumetric Return	-	-	-	-
21	Residential Volumetric Return	-	-	-	-
22	**Subtotal EITE + Volumetric Returns**	-	-	-	-
23	**Number of Households Eligible for the California Climate Credit**	-	-	-	-
24	**Per-Household Semi-Annual Climate Credit ($) (0.5 x (Line 17 + 22) ÷ Line 23)**	$ -	$ -	$ -	$ -
25	**Revenue Distributed for the Climate Credit ($) (2 x Line 23 x Line 24)**	$ -	$ -	$ -	$ -
26	**Revenue Balance ($)**	N/A	-	N/A	-

Template D-2: Annual GHG Emissions and Associated Costs

		Year t-1		Year t	
Line	Description	Forecast	Recorded	Forecast	Recorded
1	**Direct GHG Emissions (MTCO2e)**				
2	Utility Owned Generation (UOG)	-	-	-	-
3	Tolling Agreements	-	-	-	-
4	Energy Imports (Specified)	-	-	-	-
5	Energy imports (Unspecified)	-	-	-	-
6	Qualifying Facility (QF) Contracts	-	-	-	-
7	Contracts with Financial Settlement	-	-	-	-
8	**Subtotal**	-	-	-	-
9	**Indirect GHG Emissions (MTCO2e)**				
10	CAISO Market Purchases	-	-	-	-
11	Contract Purchases	-	-	-	-
12	**Subtotal**	-	-	-	-
13	**Total Emissions (MTCO2e)**	-	-	-	-
14	**Proxy GHG Price ($/MT)**	-	-	-	-
15	**GHG Costs ($)**				
16	Direct GHG Costs	-	-	-	-
17	Direct GHG Costs - Financial Settlement	-	-	-	-
18	Indirect GHG Costs	-	-	-	-
19	Previous Year's Forecast Reconciliation (Line 21)	N/A	N/A	-	-
20	**Total Costs**	-	-	-	-
21	**Forecast Variance ($)**	N/A	-	N/A	-

CONFIDENTIAL INFORMATION

Template D-3: Detail of Outreach and Administrative Expenses

Line	Description	Year t-1		Year t	
		Forecast	Recorded	Forecast	Recorded
1	**Utility Outreach Expenses ($)**				
2	Detail of outreach activities	-	-	-	-
3	**Subtotal Outreach**	-	-	-	-
4	**Utility Administrative Expenses ($)**				
5	Detail of administrative activities	-	-	-	-
6	**Subtotal Administrative**	-	-	-	-
7	**Utility Outreach and Administrative Expenses ($) (Line 3 + Line 6)**	-	-	-	-
8	**Additional (Non-Utility) Statewide Outreach ($)**	-	-	-	-
9	**Total Outreach and Administrative Expenses ($) (Line 7 + Line 8)**	-	-	-	-

Template D-4: Forecast Revenue Requirement and Revenues by Rate Schedule

	Bundled Customers				Unbundled Customers			
Rate Schedule (A)	**Forecast Sales (MWh)** (B)	**Forecast GHG Revenue Requirement ($)** (C)	**Rate Impact ($/kWh)** (D)	**Forecast GHG Revenue ($)** (E)	**Forecast Sales (MWh)** (F)	**Forecast GHG Revenue Requirement ($)** (G)	**Rate Impact ($/kWh)** (H)	**Forecast GHG Revenue ($)** (I)
Insert Rate Schedules								
Total								

Template D-5: History of Revenue, Costs, and Emissions Intensity

Line		Year t-5	Year t-4	Year t-3	Year t-2	Year t-1	Year t
1	Total GHG Revenue ($)						
2	Total GHG Costs ($)						
3	Emissions Intensity ($MTCO_2e/MWh$)						

Reporting Template to Calculate Weighted Average Cost of Compliance Instruments

Notes:

Utilities should complete the WAC Calculation Template in accordance with the procedures described in Attachment C of Decision 14-10-033 as corrected.

Utilities should modify this template as appropriate, and use separate worksheets for each compliance period.

Template C: Reporting Template to Calculate Weighted Average Cost of Compliance Instruments

Compliance Period 1

Month	Transaction Date	Transaction Type	Quantity	Cost ($/MT)	Sales Price ($)	Total Cost ($)	Inventory Balance ($)	Total Qty in Inventory	WAC ($)
Jan-13						$0.00	$0.00	0	$0.00
Jan-13						$0.00	$0.00	0	$0.00
Jan-13						$0.00	$0.00	0	$0.00
Jan-13						$0.00	$0.00	0	$0.00
Jan-13						$0.00	$0.00	0	$0.00
Feb-13						$0.00	$0.00	0	$0.00
Feb-13						$0.00	$0.00	0	$0.00
Feb-13						$0.00	$0.00	0	$0.00
Feb-13						$0.00	$0.00	0	$0.00
Feb-13						$0.00	$0.00	0	$0.00

Monthly Direct Cost Calculations

Month	Jan-13
End of Month WAC	$0.00
Monthly Emissions (MT)	500
Balancing Account Entry for Month	$0.00

Month	Feb-13
End of Month WAC	$0.00
Monthly Emissions (MT)	600
Balancing Account Entry for Month	$0.00

Sum of Monthly Balancing Account Entries	**$0.00**

CONFIDENTIAL INFORMATION

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 5, pp. 1-6

Preamble: Union describes its customer outreach activities and has indicated that it has undertaken a number of activities to ensure customers are informed about the Cap-and-Trade program and its impacts.

a) Please discuss Union's experience to-date related to the communication material distributed to its customers. In your response, please discuss how the information has generally been received by customers and the volume of inquiries/comments submitted to Union's call centre.

b) Is Union planning on revising its communication strategy based on feedback and customer response received to date in regarding the Cap-and-Trade program?

c) What tools has Union developed to help customers quantify Cap-and-Trade costs? Is Union developing any additional tools (i.e., calculators, etc.)?

Response:

a) Union has placed a strong emphasis on customer outreach and information, as these are essential to ensuring customers fully understand the provincial Cap-and-Trade program, the impact of the program on their bills and how they can personally manage their greenhouse gas ("GHG") emissions and resulting bill impacts.

The following represents Union's experience to date by communication activity type:

Call Centre:
In Union's Call Centre, the volume of calls related to Cap-and-Trade have been low and fairly consistent week to week for the first six weeks and are currently declining. The Table below provides statistics over the time period beginning January 2, 2017 to February 19, 2017.

	Jan 2 - 8	Jan 9 - 15	Jan 16 - 22	Jan 23 - 29	Jan 30 - Feb 5	Feb 6 - 12	Feb 13-19
Number of customers who selected and listened to the Cap-and-Trade automated IVR message	50	68	71	106	83	94	31
Number of customers who mentioned Cap-and-Trade while speaking to a Contact Centre agent	51	64	70	86	89	72	31
Number of customers who listened to the automated Cap-and-Trade IVR message and then spoke to an agent	2	3	4	6	7	6	3
Number of email inquiries about Cap-and-Trade			6	6	15	7	2
For reference: total number of phone inquiries answered during the week		18,896	14,987	15,888	16,112	14,150	14,656

Recurring themes arising on customer calls include:

- Cap-and-Trade questions and comments are raised as part of general billing calls rather than the reason for the call. Call Centre representatives have noted that calls tend to start as a high bill inquiry which leads to a discussion of Cap-and-Trade charges as a component of the bill.
- Customers appreciate the Cap-and-Trade calculator included on Union's Cap-and-Trade website.
- Customers are upset because:
  - Of the added cost they are now incurring, and
  - The Cap-and-Trade cost is not listed as a separate line item on their bill.

Website:
The Cap-and-Trade section of uniongas.com has become the second most popular area of the Union Gas website (second only to the Union Gas homepage).

Union developed three Cap-and-Trade pages for its website to serve as a central source of up-to-date Cap-and-Trade related information (for both Union directed and customer initiated information searches). These Cap-and-Trade pages build awareness and educate customers about Ontario's Cap-and-Trade program and give customers an alternative to the Call Centre. Specifically, the site communicates information such as what the Cap-and-Trade program is, when it started, how much it costs, how it is displayed on their bill and how customers can reduce or mitigate costs. It has been a significant resource for Union to include in its bill inserts and other Cap-and-Trade communication material. On November 23, 2016 Union added a calculator for customers to easily estimate their individual Cap-and-Trade costs.

As of February 3, 2017, Union has experienced approximately 356,000 site views and over 26,000 calculation runs.

Communication and Awareness Study (bill inserts):
A customer telephone survey is being conducted for Union by Market Probe Canada to determine customers' awareness and understanding of the Cap-and-Trade program and awareness of Union Gas bill inserts. This research is being conducted in three waves (October 2016, December 2016, and March 2017).

Results show that overall awareness of the Cap-and-Trade program and of its impact on customers is increasing across most demographic groups. Awareness is significantly higher among those who have read a Cap-and-Trade bill insert compared to those who have not. This suggests that bill inserts are increasing program awareness. Customers who have read their bill inserts are very satisfied with them, rating them especially high on being "easy to read".

Contract Customer Market:
Overall, Union has used three modes of communication with its large customers:

- General awareness materials
- Formal face-to-face conversations e.g. customer visits, large Commercial/Industrial and large volume customer meetings, participation at partner events like CME Energy 2016
- One-on-one support from account managers (awareness and education in 2016, supporting and addressing questions resulting from the implementation and subsequent billing impacts in early February 2017).

Anecdotal feedback that Union received suggests customers are appreciative of the information Union has provided in helping them understand Cap-and-Trade and how it will impact their bill. Customers also mentioned appreciation to Union specifically in advocating for cost transparency on the bill.

Common Themes Arising from Anecdotal Customer Feedback:

- Customers show general displeasure with the Cap-and-Trade program and the added cost to their business.
- There is displeasure with Cap-and-Trade costs not being billed as separate line items (facility-related and customer-related) on the bill.
- Customers want to know how Cap-and-Trade costs are calculated.
- A few customers have questioned what the government will do with the funds collected.
- A few customers suggested they would not pay the Cap-and-Trade rate and would subtract it from their payment.
- Some customers are concerned about how Cap-and-Trade charges will impact plans for cogeneration.

b) Union's communication strategy has been continually updated based on customer insight and feedback and it will continue to evolve as the Cap-and-Trade program progresses. Union has, and continues to use, multiple targeted activities to reach unique customer groups.

A Cap-and-Trade communications' team holds monthly meetings to share feedback from Union's customers/stakeholders so that communications can be adjusted. In addition, Union will be completing wave 3 of the Cap-and-Trade communications survey in March 2017 and will consider adjusting its communications plans accordingly. Union is also continually reviewing and updating customer representative training material as customer feedback is received.

Moving forward, due to its popularity, Union will continue to use the website as a main source of information on Cap-and-Trade for mass-market customers. The use of bill inserts will decline after March 2017.

Contract customers will continue to be supported directly by their account manager. The focus of Union's messaging will see a shift from general awareness about the Cap-and-Trade program, to what customers can do to reduce their Cap-and-Trade costs and how Union's Demand Side Management program can continue to assist customers to reduce their natural gas consumption and energy costs.

c) Union has two specific tools that customers may use to quantify their Cap-and-Trade costs related to their natural gas consumption.

i. Website Calculator:
On November 23, 2016 Union added a calculator on its website for customers to easily estimate the approximate Cap-and-Trade costs on their bill. As of February 3, 2017 there have been over 26,000 calculations completed.

ii. MyAccount:
Customers can log into MyAccount and use the "Download My Data" function. Within this information download customers will see how much they have paid per month for customer-related Cap-and-Trade charges.

No other tools are being considered at this time.

Large volume customers have been provided reference materials according to their applicable rate class, as well as formal rates specific communications. This information provides the data required to determine the impact related to their natural gas consumption only.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 6, pp. 1-2

Preamble: Union proposes to bring forward its 2016 balance in Account No. 179-152 for disposition with its 2016 non-commodity deferral account disposition proceeding in 2017.

a) Please explain Union's proposal with respect to the disposition of the new deferral and variance accounts that deal with customer and facility related obligations (i.e., Account No. 179-154 and 179-155). For example, is Union proposing that they would be dealt with as part of the Cap and Trade Compliance applications or non-commodity deferral account disposition proceeding?

b) How does Union propose to dispose of any balances? For example, would this be as a one-time adjustment or would the balances be spread over time? If so, over what period of time? Would the recovery of these balances be included in the Delivery Charge or presented as a separate line item?

c) What is the expected timing of disposition for Accounts No. 179-152, 179-154 and 179-155?

Response:

a) Union expects to file for disposition of the Greenhouse Gas Emissions Compliance Obligation Customer and Facility-Related Deferral Account balances (Accounts No. 179-154 and 179-155) as part of its annual Cap-and-Trade Compliance application, in accordance with the Filing Guidelines for Natural Gas Utility Cap-and-Trade Compliance Plans.

b) In accordance with past practice, Union will propose to dispose of deferral account balances over a six-month period for general service customers and as a one-time adjustment for contract rate classes.

   The disposition of deferral account balances for general service customers is included in the delivery price adjustment line item on the bill. The disposition of deferral account balances for contract rate classes is included as a separate line item on the bill along with an explanation of the one-time adjustment.

c) Union will bring forward the 2016 balance in the Greenhouse Gas Emissions Impact Deferral Account (No. 179-152) as part of its 2016 deferral account disposition proceeding which is expected to be filed in April 2017. Union expects to begin disposition of the balance beginning October 2017.

Union will bring forward the 2017 balance in deferral accounts No. 179-152, 179-154 and 179-155 with its 2019 Cap-and-Trade Compliance Plan which is expected to be filed in August 2018. Union expects to begin disposition of the balances beginning January 2019. However, this does not preclude Union from filing for disposition at an earlier time as contemplated by the Board at p. 33 of the Framework "*This does not preclude the Utilities or the OEB from determining, based on particular circumstances, that a more frequent review of the rates is needed.*"

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 7, p. 3
Exhibit 7, Schedule 1, pp. 2-3
Exhibit 7, Appendix B

Preamble: In Ex 7, Schedule 1, p2, Union provides a table that outlines the proposed charges for the facility-related costs. Then in the tariffs (Ex 7 / App B), certain rates have multiple facility-related charges including:

- Rate M4 has multiple facility-related charges (it looks like it has the M4 charge plus two additional charges that look like the facility-related charges for M1 and M5)
- Rate M5 has multiple facility-related charges
- Rate M10 has multiple facility-related charges
- Rate T1 has facility-related charges for transportation and unauthorized overrun
- Rate T2 has facility-related charges for transportation and unauthorized overrun

a) Please explain in detail why Rate M4, M5, M10, T1 and T2 have multiple facility-related charges.

Response:

a) Union's facility-related Cap-and-Trade unit rates are embedded within the delivery charges. Union's rate classes can have multiple delivery charges including: firm and interruptible delivery commodity charges; and authorized and unauthorized delivery overrun charges.

Union's firm, interruptible and authorized overrun facility-related unit rate is the same for each respective rate class except for Rate M4. The Rate M4 interruptible delivery and authorized overrun delivery commodity charges are set to equal the Rate M5 interruptible delivery commodity charges. Accordingly, the facility-related unit rate embedded within the Rate M4 interruptible delivery and authorized overrun delivery commodity charges is the Rate M5 facility-related unit rate.

Union's unauthorized overrun delivery charge for Rate M4, Rate M5, Rate M7, Rate M10, Rate T1 and Rate T2 is calculated based on the Rate M1 delivery and storage rates. Accordingly, the facility-related unit rate embedded within the unauthorized overrun delivery charge for these rate classes is the Rate M1 facility-related unit rate.

A summary of the facility-related unit rates embedded within the delivery charges is provided at Table 1.

Table 1
Summary of Proposed 2017 Facility-Related Unit Rates of Specific Rate Classes by Delivery Charge Type

Line No.	Delivery Charge Type (cents/m^3)	Rate Class					
		Rate M4	Rate M5	Rate M7	Rate M10	Rate T1	Rate T2
		(a)	(b)	(c)	(d)	(e)	(f)
1	Firm Delivery Commodity and Authorized Overrun Charges	0.0280	0.0249	0.0288	0.0258	0.0167	0.0115
2	Interruptible Delivery Commodity and Authorized Overrun Charges	0.0249	0.0249	0.0288	N/A	0.0167	0.0115
3	Unauthorized Overrun Delivery Charge	0.0297	0.0297	0.0297	0.0297	0.0297	0.0297

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 7, Schedule 1, p. 1, line 7

Preamble: Union has provided its derivation of 2017 Cap and Trade Forecast Compliance Cost Unit Rates at the reference above. The customer-related GHG-emission obligation and facility-related GHG-emission obligation are different.

a) Please provide the detailed calculations that were used to derive the customer-related and facility-related forecasted emissions. In your response, please provide the rationale for using different conversion factors and any supporting documentation for why this approach is appropriate.

Response:

a) **Natural Gas Distribution**

Under the Ontario Regulation 143/16, Natural Gas Distributors are required to calculate greenhouse gas ("GHG") emissions based on the net volume of natural gas distributed, after excluding deliveries to other distributors or exports, net deliveries to storage, and deliveries to capped participants, in accordance with Standard Quantification Method ("SQM") ON.400 Natural Gas Distribution in the Ontario Ministry of the Environment and Climate Change's ("MOECC") "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017" ("the Guideline"). As per SQM ON.400, the net volume reported includes those volumes resulting from the natural gas distributed to non-capped end users, unaccounted for gas ("UFG") and blowdown volumes.

As such, the customer-related emissions due to the volumes distributed to non-capped end users, and the facility-related emissions due to UFG and blowdown volumes, are calculated following SQM ON.400.

The conversion factor of 0.001875 tCO_2e/ m^3, as calculated following the requirements of SQM ON.400, was used to calculate both non capped customer-related emissions and the portion of facility-related emissions due to UFG and blowdown volumes. The conversion factor was calculated using the following inputs, as required by SQM ON.400:

- CO_2 Emission Factor (EF_{CO2}) - In accordance with Section ON.403, Calculation Methodology 2 of the Guideline, the default CO_2 Emission Value from Table 400-2, 0.001863 tCO_2/m^3, was used.

- CH_4 Emission Factor (EF_{CH4}) - In accordance with Section ON.404 of the Guideline the 'Residential, Construction, Commercial/Institutional, Agriculture' default CH_4 emission factor from Table 20-4, 0.037 g/m^3, was used.
- N_2O Emission Factor (EF_{N2O}) - In accordance with Section ON.404 of the Guideline the 'Residential, Construction, Commercial/Institutional, Agriculture' default N_2O emission factor from Table 20-4, 0.035 g/m^3, was used.
- Global Warming Potentials (GWPs) - GWPs as listed in Schedule 1 of O.Reg.143/16, $GWP_{CO2} = 1$, $GWP_{CH4} = 21$, $GWP_{N2O} = 310$.

Emissions were calculated using the following formula:
Emissions (tCO_2e) = Volume of Natural Gas (m^3) * Conversion Factor (tCO_2e / m^3)

General Stationary Combustion/Facility Related Emissions

Ontario Regulation 143/16 includes the following definition of general stationary combustion equipment:

> *"Includes any stationary combustion devices, including boilers, simple and combined cycle combustion turbines, engines, incinerators (including units that combust hazardous waste or gaseous waste) and process heaters but does not include:*
>
> *a. Portable equipment*
> *b. Stationary emergency generators that have a nameplate generating capacity of less than 10 megawatts, and*
> *c. Auxiliary fossil fuel powered equipment, other than stationary emergency generators, that is intended for use only in emergency situations, including fire pumps and flares"*

SQM ON.20 General Stationary Combustion in the MOECC's Guideline identifies the methodologies for calculating emissions from stationary combustion equipment. Sources of stationary combustion at Union include reciprocating and centrifugal compressors (compressors), boilers (buildings), and line heaters. As such, facility-related emissions from compressors, buildings and line heaters were calculated following SQM ON.20. Since the 2011 reporting year, emissions calculated under SQM ON.20 have been verified by an accredited third-party verifier.

The conversion factor of 0.001959 tCO_2e/ m^3, as calculated following the requirements of SQM ON.20, was used to calculate facility-related emissions from compressor, buildings (boilers) and line heaters. The conversion factor was calculated using the following inputs, in accordance with SQM ON.20:

- CO_2 Emission Factor (EF_{CO2}) - In accordance with Section ON.23, Calculation Methodology 2 of the Guideline, the 'Ontario' default CO_2 emission factor from Table 20-4, 49.03 kg/GJ, was used.

- CH_4 Emission Factor (EF_{CH4}) - In accordance with Section ON.24, Calculation Methodology 6 of the Guideline, the 'Pipelines' default CH_4 emission factor from Table 20-4, 49.58 g/GJ, was used. The 'Pipelines' value was selected as it is the most applicable value for compressor units, which contribute the majority of stationary combustion emissions reported by Union under SQM ON.20.
- N_2O Emission Factor (EF_{N2O}) - In accordance with Section ON.24, Calculation Methodology 6 of the Guideline, the 'Pipelines' default N_2O emission factor from Table 20-4, 1.305 g/GJ, was used. The 'Pipelines' value was selected as it is the most applicable value for compressor units, which contribute the majority of stationary combustion emissions reported by Union under SQM ON.20.
- High Heating Value (HHV) - As per ON.23, Calculation Methodology 2, the company-specific natural gas HHV, 0.03881 GJ/m^3, was used. The value was calculated based on the weighted average HHV from the last full calendar year.
- Global Warming Potentials (GWPs) - GWPs as listed in Schedule 1 of O.Reg.143/16, $GWP_{CO2} = 1$, $GWP_{CH4} = 21$, $GWP_{N2O} = 310$.

Emissions were calculated using the following formula:
Emissions (tCO_2e) = Volume of Natural Gas (m^3) * Conversion Factor (tCO_2e / m^3)

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit 7, pp. 2-3
Exhibit 7, Schedule 1, pp.1-3
Exhibit 7, p. 1, Appendix B

Preamble: Union has proposed to incorporate customer-related and facility-related obligation costs in rates effective January 1, 2017.

a) Please discuss how Union proposes to recover any variance between the OEB's Interim Decision issued on November 25, 2016 and the Decision and Final Rate Order for this proceeding. In your response, please also discuss if Union proposes to clearly indicate any difference between the Interim Rates and Final Rates on a customer's bill.

b) Please indicate how Union proposes to reconcile the HST related to any differences between Interim Rates and Final Rates.

Response:

a) If necessary, Union proposes to update rates as part of the next available QRAM application following the date of the Decision and Final Rate Order in this proceeding.

   Union will include any variance between the interim 2017 rates and final 2017 rates in the proposed Greenhouse Gas Emissions Compliance Obligation – Customer-Related and Greenhouse Gas Emissions Compliance Obligation – Facility-Related deferral accounts. For additional detail on disposition of deferral accounts please see the response at Exhibit B.Staff.17.

b) Union calculates HST based on net charges on a customer's bill. Any differences between Interim Rates and Final Rates will be reflected in the net charges with the applicable HST adjusted at that time.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 3, p. 32

Preamble: In addition to the responses to Board staff IR-3, we would like to understand how the $600,000 bad debt expense was estimated.

Please provide the supporting calculations and an explanation methodology including assumptions made in support of the estimate.

Response:

Please see the response at Exhibit B.Staff.3 a), b) and c).

The 2013 Board-approved bad debt expense is $6.25 million and 2015 Actual amount is $5.7 million. The average of the two has been rounded to $6 million. At the time of this filing, the increase to customer billing was approximately 10% resulting in an estimate of $0.6 million in additional bad debt as a result of Cap-and-Trade.

The actual incremental bad debt amount directly related to Cap-and-Trade as referenced in the response to Exhibit B.Staff.3 b) is expected to be lower than the estimate in 2017 due to the implementation of Cap-and-Trade commencing January 1, 2017 and the lag time before Cap-and-Trade amounts would be included in customer accounts that are written off. Only the actual costs will be captured in a deferral account for future disposition; the forecast of $0.6 million is not in rates and is not in a deferral account. The amount of bad debt recognized in actuals will be directed to the Greenhouse Gas Emissions Impact Deferral Account (No.179-152).

For 2018 and going forward, Union will begin to develop a history as to the actual annual Cap-and-Trade amounts included in customer accounts written off to bad debt.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 7, p.3 and Schedule 1

Preamble: We would like to understand more about the inclusion of UFG in the facility-related GHG compliance costs.

Please expand upon the company's rationale to include UFG "volumes" in the facility-related costs as a "usage".

Response:

Ontario's Cap-and-Trade program and the greenhouse gas ("GHG") emissions reporting requirements to support the Cap-and-Trade program were developed to be in alignment with California and Québec. This approach was taken to support future integration of Ontario's Cap-and-Trade market into a linked Cap-and-Trade market with Québec and California. In all three jurisdictions, UFG volumes are covered under Cap-and-Trade for natural gas distributors.

As noted at Exhibit 7, p.3, "*Union is proposing to allocate the facility-related obligation costs related to UFG and compressor fuel (including blowdowns) based on the 2013 Board-approved forecast, updated for compressor fuel changes associated with the Parkway Delivery Obligation ("PDO") Settlement Agreement (EB-2013-0365)*".

Union's application also notes that "*all customers in each rate class will be responsible for the facility-related obligation costs, regardless of whether Union is responsible for the customer-related GHG emissions obligation*" [see Exhibit 7, p.3]. As shown at Exhibit 7, Schedule 1, pp. 2-3, the UFG component of facility-related GHG compliance costs are 80,381 10^3m^3, with 30,877 10^3m^3 (38%) allocated to in-franchise and 49,504 10^3m^3 (62%) allocated to ex-franchise rate classes.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 7, p. 3 and Schedule 1

Preamble: We would like to understand more about the inclusion of UFG in the facility-related GHG compliance costs.

Please provide any analysis or studies that Union has conducted in the last several years (e.g., CGA presentations, internal studies, etc.) which estimates the amount or percentage of total UFG that comes from typical sources of metering differences (e.g., oversized meters, Pressure Factor Measurement, calibration errors) versus gas losses through damage or operational purging.

Response:

Please see Attachment 1.

Unaccounted For Gas – Executive Summary

The following is an executive summary of the observations, recommendations and potential opportunities from the 2015 UFG Project. The goal of this project was to bring greater visibility to UFG, through education and identify opportunities to improve: communication, budgeting and overall processes as they relate to UFG. The key deliverables of the project are:

- Benchmarking – further investigate benchmarking with intent to determine "normal" amounts of UFG in the industry
- Education - develop education materials to include factors influencing UFG loss and volatility
- Financial – budget/financial reporting to support opportunities for 2016-2018, 2019 COS
- Accountabilities – clarity around roles and responsibilities
- Communication/Reporting – development of key information/messaging tools for targeted audiences (e.g. ULG, etc.)

Opportunities Identified

- UFG surveys have been sent to the CGA and AGA (Finance/Measurement Committee)
    - CGA and AGA surveys have been issued with results expected in Q1 2016
- Quarterly reporting of UFG (Finance)
    - An executive summary level dashboard has been created for broad based communication
- Opportunities to reduce volatility (Finance/Customer Care)
    - Investigate moving customers with a seasonal load, not captured in the consumption forecast, to a billing cycle that removes them from the unbilled estimate process (e.g. cycles 1,2, 19 or 20)
    - Use this information to improve the accuracy of the forecast
- Budget Methodology / Accounting Treatment (Finance / Regulatory)
    - Revisit in advance of the 2019 COS budget with consideration to:
        - Alternate approaches to budgeting
        - How best to reflect historic storage adjustments
        - All UFG volume variances being subject to deferral

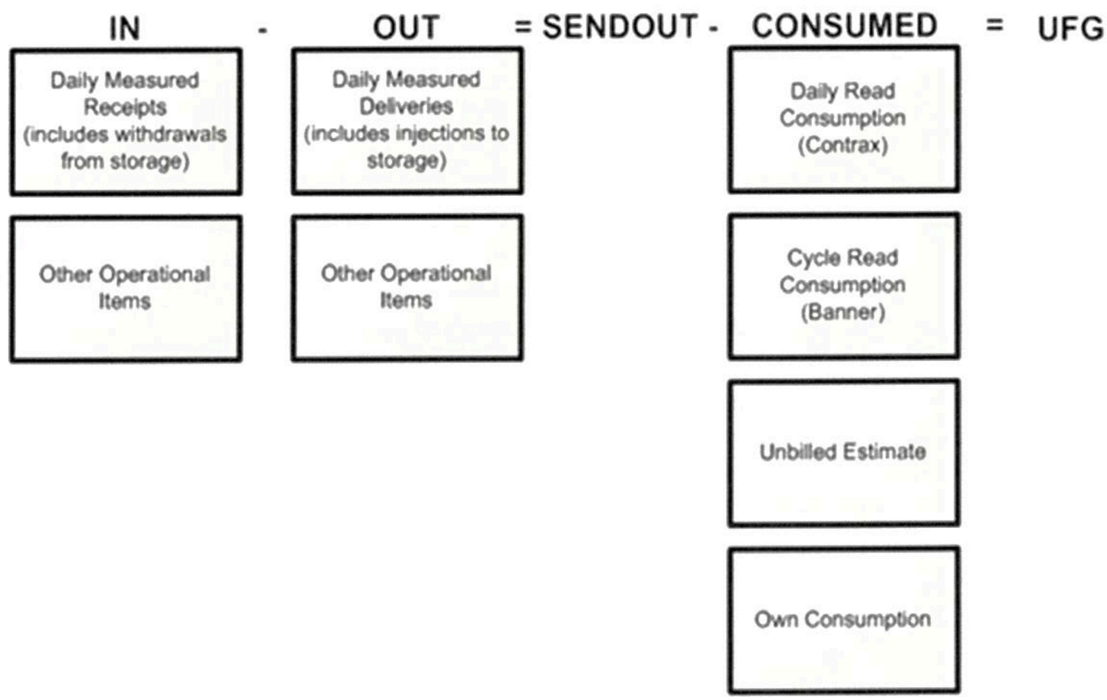
Future Considerations

A key point of consideration in the future will be the relationship between UFG and Cap & Trade.
The current UFG Steering Committee of Paul Rietdyk, Wendy Zelond and Mark Isherwood will continue to share joint accountability for UFG until the Cap & Trade relationship is understood and a single accountable person is identified.

What is UFG and Why Do We Care About It?

UFG losses are a common phenomenon in the natural gas industry. Distribution companies normally experience average losses of 1% of throughput with a range from 0% to +4%; transmission companies 0.3% to 0.5% of throughput. Union's historical average is 0.4% (2001-2014). In comparison, Union's UFG budget as a percentage of throughput is 0.2% for years 2014-2019.

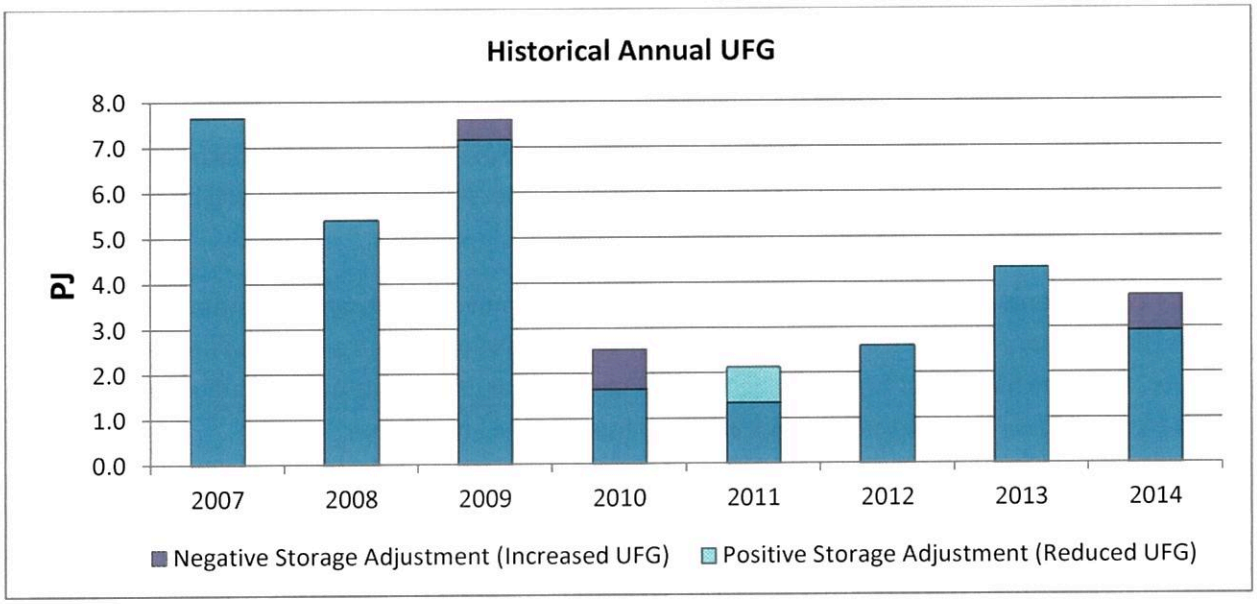
Unaccounted for Gas (UFG) is the variance between measured gas moving on (receipts) or off Union's system (deliveries) less consumption as depicted below.

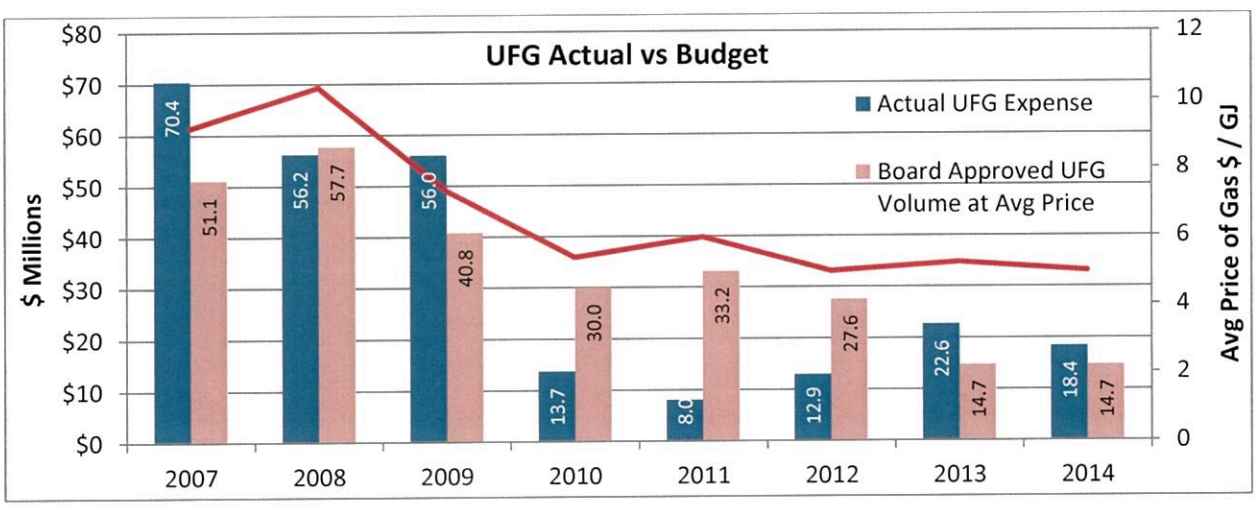


The 2015 UFG budget is $18M. Variances to budget are reported monthly through our financial reporting process. Union's shareholders have historically borne UFG variances; however, effective January 1, 2014, a deferral account was put in place to limit the shareholder impact to +/- $5M for UFG volume variance attributable to our regulated business. UFG volume variances attributable to our unregulated business (approximately 10% of total) remain a shareholder risk.

UFG History at Union

From 2007-2014 UFG ranged between 1.3 and 7.7 PJ. The net UFG variance between actual UFG expense and what was recovered through rates for this same period was approximately $11.5 million favourable.



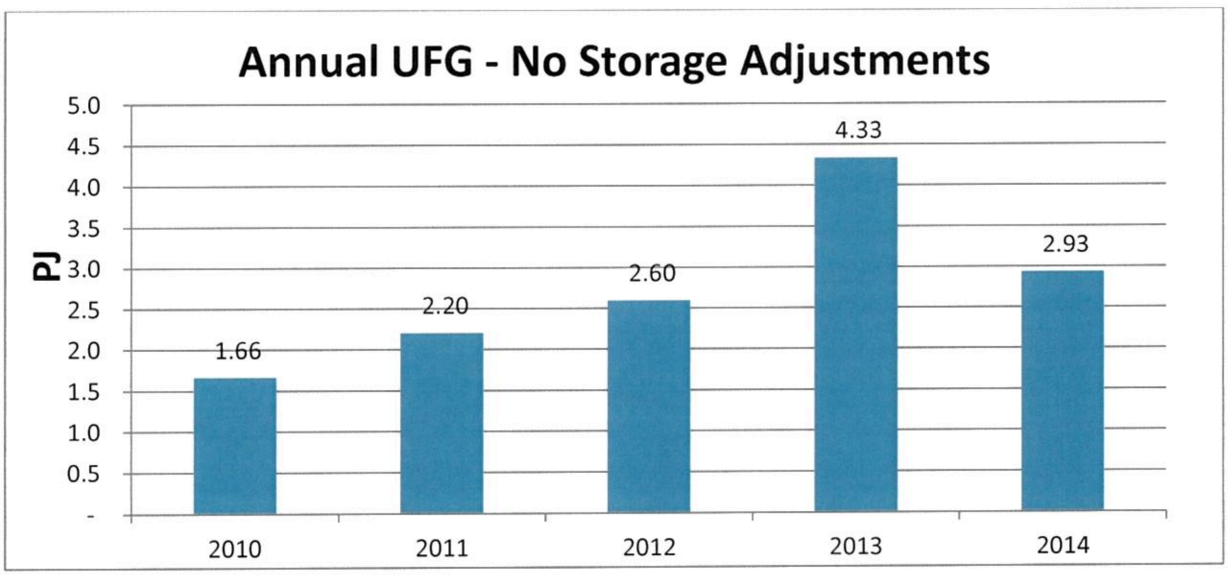


Financially, UFG has declined due to the implemented improvements identified since 2009 and lower natural gas prices. The nine year average 2001-2009, the average UFG as a percentage of throughput was 0.51%. Since the UFG initiative in 2009, this average has improved to 0.23% for the five year period 2010-2014.

Starting in 2010, Union's annual UFG losses fell by approximately 5 PJ. The change is attributable to improvements from the 2009 UFG Project, which supports the sustainability of lower UFG.

Storage pool adjustments can affect UFG. The adjustments can either be positive or negative and can be attributed to measurement error and/or a change in the reservoir index (pool size). Each pool is shut-in following injection and withdrawal seasons to determine the stabilized pressure in the reservoir. The stabilized pressures are then used to calculate the inventory in the pool. The difference between the calculated and measured inventory is reported as the variance. The variances are monitored throughout the year and inventories are audited at the end of the year. Variances are not reflected in UFG until the adjustment process is complete. Storage adjustments have occurred in 6 of the last 8 years. Although, storage adjustments are determined over several years the impact will be recognized at a single year.

Union's average annual UFG loss since 2010 is 2.9 PJ. If we remove the storage adjustments from these figures, the UFG loss would be on average 2.7 PJ per year. Applying our current QRAM prices to these volumes, the financial impact is favourable $1.0 million per year. While the average adjustment is relatively small (0.2 PJ), adjustments have been as large as 1.0 PJ per year.



Why is UFG Always Positive (Loss)?

Note: positive UFG = loss; negative UFG = gain

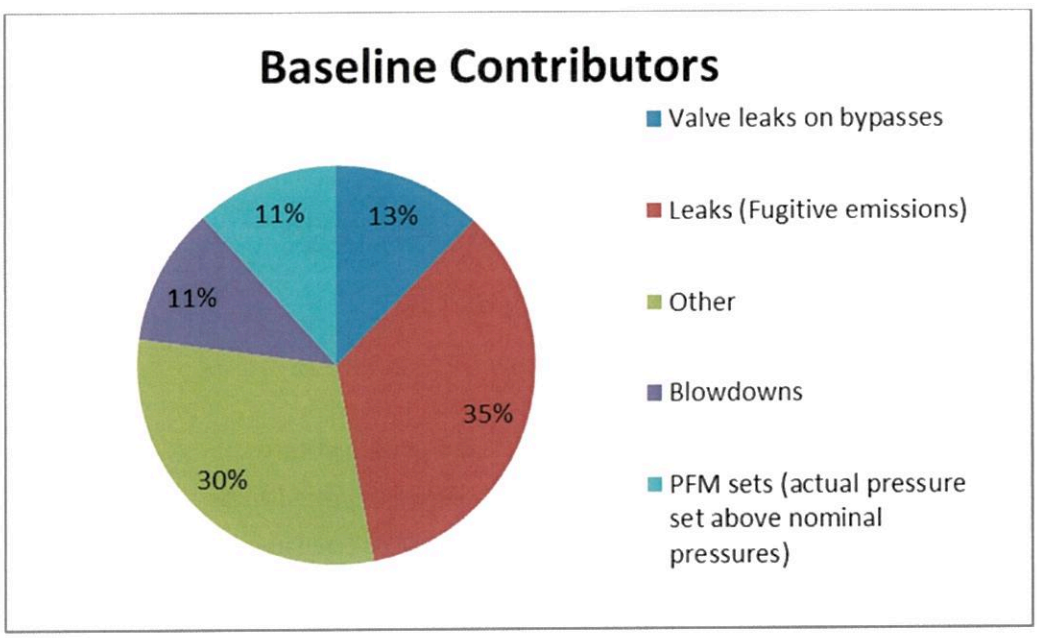
By the very nature of Unaccounted for Gas, baseline contributors result in a loss of gas. The exception is storage adjustments which can be positive or negative.

In 2014 the three most significant operational contributors resulted in UFG of 1.7 PJ, specifically:

- Leaks (Fugitive emissions) within the Union gas system = 1.0 PJ
- Blowdowns (Vented emissions) = 0.3 PJ
- Valve leaks on bypasses at industrial sites = 0.4 PJ

One other significant contributor adding to the baseline loss is from Pressure Factor Measurement (PFMs) sets where the actual pressure is set higher than the nominal pressure (0.3 PJ).

This brings the total baseline loss to 2.0 PJ from these 4 contributors alone and is approximately 70% of our 5 year average of 2.9 PJ. The remaining 30% is made up of many other small baseline contributors that have been reviewed and are considered to be either very expensive to address or are simply not operationally practical. While many of the largest and most significant opportunities for improvements have been implemented, we continuously look for improvement opportunities.



Relationship between Volatility and Consumption

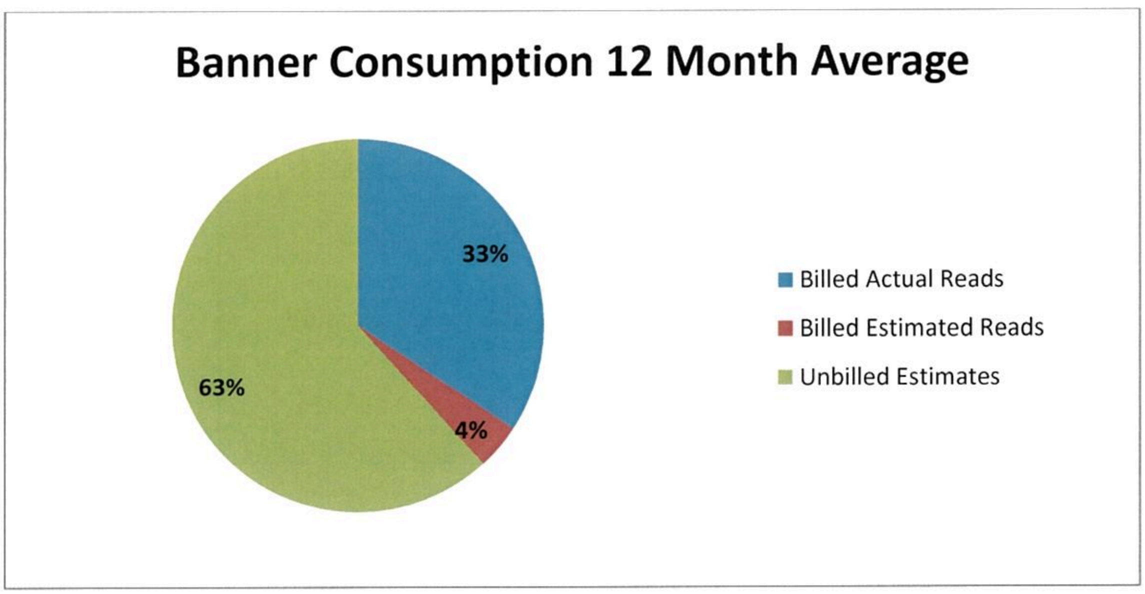
Volatility can result in large monthly variances between actual and budgeted UFG. Historically UFG variances of greater than $10 million have been experienced in a single month.

Volatility can be positive or negative and usually results from differences between consumption estimates used for financial reporting, and billing purposes, and actual consumption. These variances are recorded as UFG to recognize the correlation between consumption and gas in inventory. Each month, consumption estimates are reversed and replaced with actual meter read billed consumption. For this reason, UFG related to consumption variances are considered to be temporary or timing in nature. Variances in estimated consumption range from +1.5 PJ to -2.3 PJ. Larger variances are believed to be driven by consumption not captured in the unbilled estimate. The forecasting group is investigating seasonal loads as a potential contributor to the significant recurring UFG volatility that Union experiences in the fourth quarter of each year. To the extent these customers can be identified UFG volatility may be reduced.

It is important to recognize volatility has the potential to drive business decisions, more specifically gas purchase decisions. Volatility during the winter months may have the effect of reducing inventory which could, in turn, prompt a decision to buy gas to meet inventory needs.

Banner consumption estimates comprise of approximately 70 % of the monthly reported consumption as seen below:

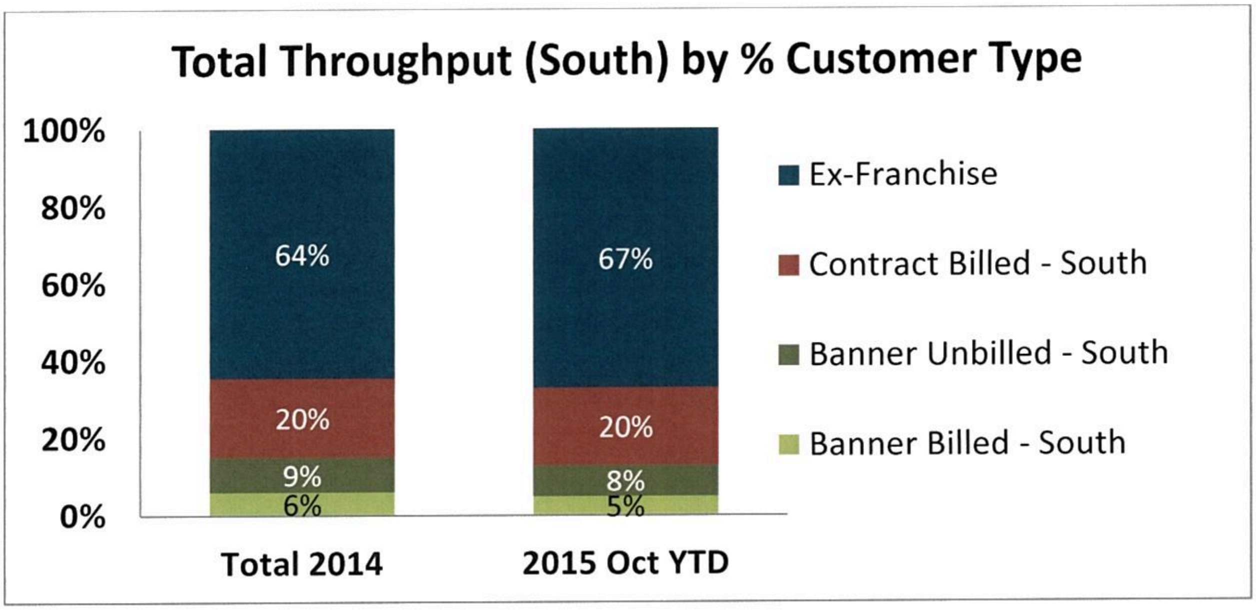
- Unbilled estimate, 63%
- Billed estimated Reads, 4%

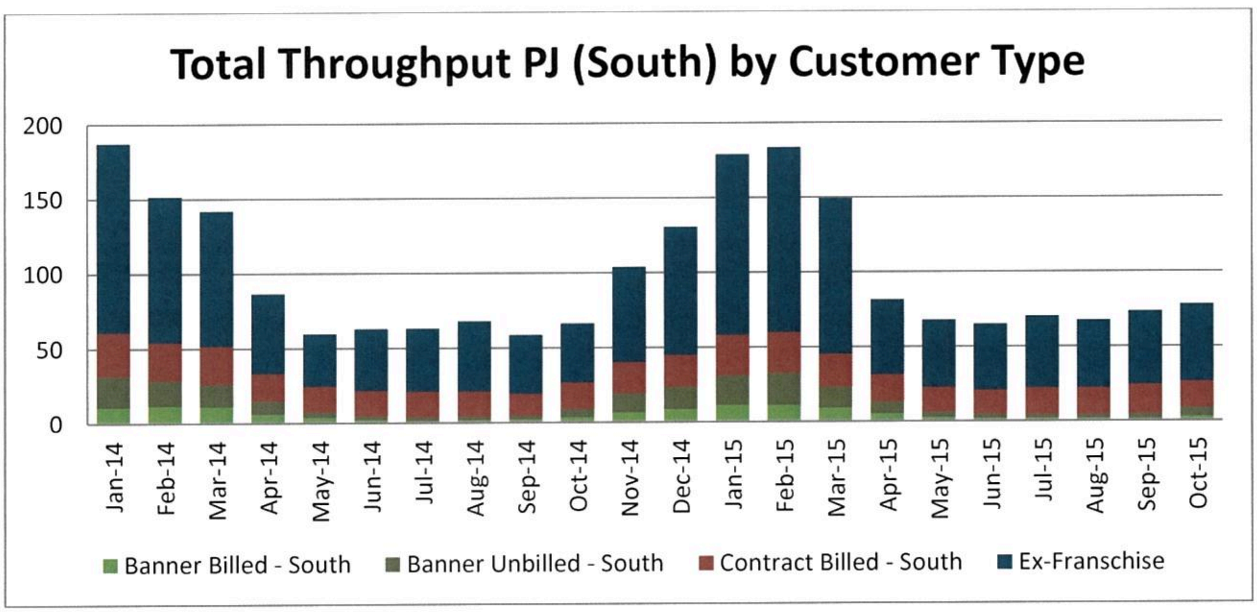


How is UFG Budgeted and Reported?

For 2013-2018, UFG is budgeted at 0.22% of total throughput. Financially, this equates to a budget of $17.8M for 2015, and $15.2M for 2016. The annual UFG budget is impacted by changes to throughput volumes and WACOG.

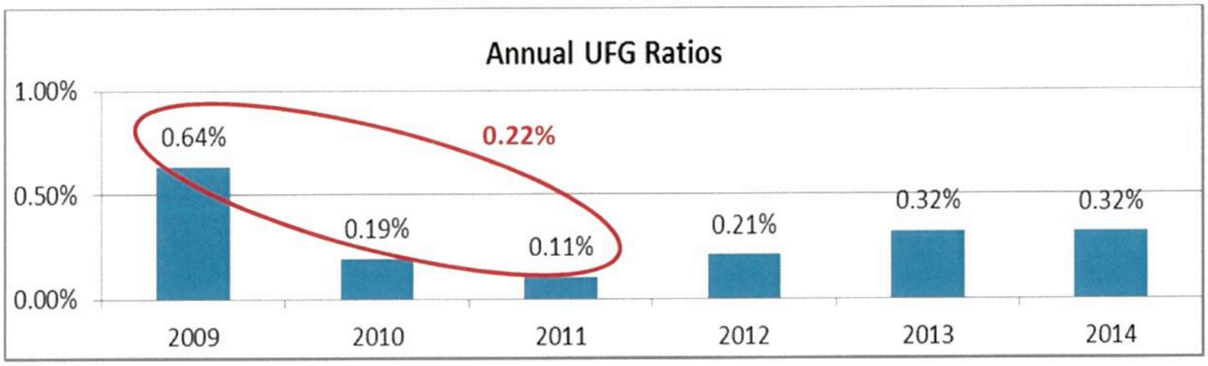
Total throughput includes all gas moving through Union's southern delivery area. In 2014, this figure was 1,171 PJ. UFG is not specifically budgeted for Union North; any UFG incurred results in a volume variance to budget.





While the unbilled estimate is 63% of the total Banner consumption, it is only 9% of total south throughput.

The UFG ratio is determined using a Board approved weighted average of the most recent three years of actual activity at the time the budget is set. The most recent year has a weighting of 3/6th, the second year has a 2/6th weighting and the first year has a 1/6th weighting. This ratio was held flat for the 2013 COS and 2014-2018 IRM. The UFG forecast ratio will be reset through the 2019 rebasing process.



The monthly budget allocation follows the same methodology as the annual budget (0.22% x throughput).

Within a budget year, the outlook is generally held to budget recognizing that monthly fluctuations in UFG are largely from estimated consumption, which corrects as actual billing data becomes available.

What Have We Done to Manage UFG?

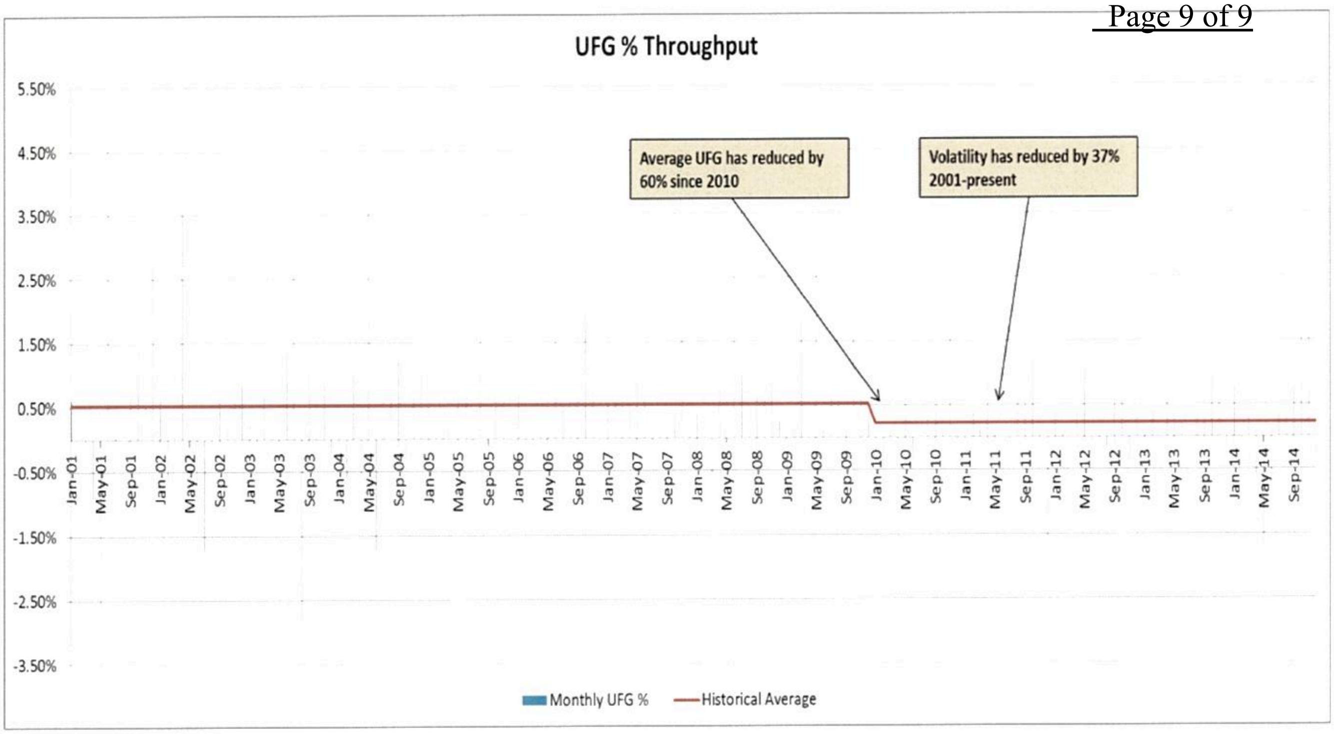
Implementation of improvements from the 2009 UFG project:

Baseline improvements, 1.0 PJ

- Implementation of super-compressibility correction for PFM sets in Banner eliminated this contributor and reduced the UFG Baseline by 0.08 PJ
- Replacement of all non-temperature compensated diaphragm meters eliminated this contributor and reduced the UFG Baseline by 0.03 PJ
- On-going turbocorrector (TOC) project and installation of 97 TOC on turbine meters at industrial sites reduced the UFG Baseline by 0.4 PJ
- Audits of TCPL stations reduced the amount of gas diverted at gas supplier sites downstream of measurement and correspondingly, the UFG Baseline by 0.5 PJ
- The process change in meter reading eliminated gas losses due to meters not activated in Banner and reduced the UFG Baseline by 0.01 PJ per year

Volatility improvements, 0.5 PJ

- Monthly line pack variation reduced from ±0.42 PJ to ±0.04 PJ due to accounting for Dawn-Parkway line pack
- Uncertainty of measurement at pool 156 reduced from ±0.17 PJ to ±0.03 PJ due to replacement of orifices with ultrasonic meters
- Overall, volatility significantly reduced for summer and fall/spring months as a result of improvements in the unbilled estimate



Benchmarking

The most recent industry data on UFG is from 2012. This date suggests Union is a strong performer in managing UFG, recognized by our % loss relative to peer distribution and transmission companies. Union is working through the CGA and AGA to solicit a broader set of current data to allow us to confirm this assumption and further benchmark our performance.

Sustainment

The identified opportunities will be transitioned to Finance and pursued in 2016.

Conclusion

A great amount of resource time has been invested in explaining UFG variances. We can clearly see the returns on the efforts from the 2009 UFG measurement project in our results. The 2015 UFG Project has identified opportunities to improve Union's UFG related to both baseline reporting and volatility. The next step is to pursue the identified opportunities and implement where feasible.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 7, p. 3 and Schedule 1

Preamble: We would like to understand more about the inclusion of UFG in the facility-related GHG compliance costs.

Please confirm the analysis estimates that metering differences account for greater than 80% of UFG. a) Please provide Union's best estimate of measurement-induced UFG as a percent of total UFG.

Response:

While metering variance accounts for a significant portion of total Unaccounted for Gas ("UFG"), Union cannot confirm that it accounts for greater than 80% of UFG.

Attachment 1 at Exhibit B.FRPO.3 identifies sources of UFG. However, it is difficult to estimate with any level of certainty, the amount of UFG specific to each of these sources.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 7, p. 3 and Schedule 1

Preamble: We would like to understand more about the inclusion of UFG in the facility-related GHG compliance costs.

What adjustments, if any, has Union made to its GHG emissions estimates to account for this difference?

Response:

Under the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017", standard quantification method ON.400 Natural Gas Distribution reporting framework, the GHG emissions associated with UFG volumes are all calculated on the same basis, regardless of the source contributing the UFG. Namely, all the GHG emissions associated with UFG volumes are estimated as if the natural gas is combusted. On this basis, there is no requirement to differentiate the GHG emissions calculated for "metering differences" from those UFG volumes arising from unaccounted for vented or fugitive sources such as "gas losses through damage or operational purging."

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 7, p. 3 and Schedule 1

Preamble: We would like to understand more about the inclusion of UFG in the facility-related GHG compliance costs.

How does Union propose to handle measurement-induced UFG separately from operational UFG in the estimations of fugitive methane?

Response:

As noted in the response at Exhibit B.FRPO.5, for the purposes of the ON.400 reporting, GHG emissions from all UFG volumes, regardless of contributing sources, are calculated in the same manner and are estimated as if the natural gas has been combusted.

Further comments relating to this question include:

- Union undertakes periodic reviews of its UFG volumes. These UFG reviews estimate the individual sources that contribute to UFG, including the UFG that arises from fugitive losses, damage events and unaccounted for venting (i.e. venting from mains and service line installation or repair activity).

- As part of its ongoing GHG reporting efforts, Union continues to work to refine and improve the estimates of methane emissions from its operations. These estimates are incorporated into the above-noted UFG reviews.

- Separately, under the Ontario Ministry of the Environment and Climate Change's ("MOECC") "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017" ("the Guideline"), standard quantification method ("SQM") ON.350 Operation of Equipment Related to Natural Gas, Union is required to report GHG emissions from facility-related venting, flaring and fugitives. Although GHG reporting under SQM ON.350 is considered "reporting only" and is not an input to the compliance obligation calculation, the information to be reported under SQM ON.350 will help inform Union's efforts to manage GHG emissions from operations.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 3, Appendix B

Preamble: We would like to understand how Union is proposing to allocate the costs of existing staff resources involved in the Oversight and Governance of the CIPP.

Please provide the principles and allocation methodologies that will be used to attract the appropriate level of costs of existing staff to the oversight of the CIPP.

a) What is the forecasted impact on:
   i) The administration cost of the gas supply program
   ii) The profitability of the distribution utility during the IR period

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Response:

The time spent by resources who provide oversight and governance of the Compliance Instrument Procurement Procedures ("CIPP") does not meet the 25% threshold laid out in the allocation methodology included in Figure 1 of the response at Exhibit B.Staff.1 d). Therefore, these resources are not included in the 13.5 FTE detailed in the response at Exhibit B.SEC.3.

Execution of the CIPP is being managed with the use of an incremental resource which is included in Union's 2017 Compliance Plan (see Exhibit 3, p.7). This resource is included in the 13.5 FTE noted above.

a) There is no impact to the administration cost of the Gas Supply program nor is there any impact on the profitability of the utility during the current incentive regulation ("IRM") period.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

Reference: Exhibit 3, Appendix B & EB-2005-0520 Decision with Reasons, Section 2.3, pp. 13 - 15

Preamble: We would like to understand Union's views on the allocation of risk associated with the use of forward purchases and structured products.

Given Union's development of parallel risk management procedures to Gas Supply and the Board's Decision and Union's subsequent approach to the forward purchases of the natural gas commodity, please provide Union's views on the allocation of risk between ratepayers and shareholders for:

a) Errors in volume forecast methodologies.
b) Prudence of allowances purchased for offsets in the existing year.
c) Prudence of allowances purchased for offsets for the following year.
d) Prudence of allowances purchased for the period beyond current and following years.
e) Prudence of allowances purchased through the use of Structured products (such as caps, collars, calls, etc.) designed to mitigate cost of forward purchases.
f) Costs of the structured products.

Response:

The Guiding Principles identified within Section 3.1 of the OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities state:

> "*Cost Recovery: prudently incurred costs related to Cap-and-Trade activities are recovered from customers as a cost pass-through*"[1]

As Union's 2017 Compliance Plan is focused on prudence, all costs/risks are expected to be passed-through to customers. Further, it is Union's expectation that any variance from forecast will be managed using the established deferral accounts referred to in its 2017 Compliance Plan[2] and disposed of in the manner outlined in the response at Exhibit B.Staff.17. Annual Board review of Union's Compliance Plan together with review of Union's application for disposition of associated deferral account balances (including associated monitoring/reporting and

[1] The Framework (EB-2015-0363) dated September 26, 2016, Section 3.1 The Guiding Principles, p.7

[2] See Exhibit 6 of 2017 Compliance Plan.

performance metrics as discussed in the response at Exhibit B.APPrO.5) will serve to test the prudence of Union's activities. Such reviews should provide ratepayers with assurance that they will incur just and reasonable rates.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: EB-2016-0296, Exhibit 3, p. 25 of 47 Updated

Preamble: For 2017, there is only one customer abatement program included in Union's compliance plan that is incremental to the DSM plan. Through the Government of Ontario's GIF Union has entered into an agreement with the Ministry of Energy to receive funding of $42 million to enhance the Home Reno Rebate offering and achieve additional GHG emissions reductions through 2018.

What differentiates the GIF funded Home Reno Rebate from Union's existing program. How will the savings be differentiated to insure additional GHG emission reductions are from the GIF program elements? Will Union include the customer savings and costs from the home energy efficiency retrofit program in its DSM monitoring and reporting system? Will such savings contribute to any shareholder incentives?

Response:

With funding from the Green Investment Fund ("GIF"), Union enhanced the Home Reno Rebate offering. The enhancements include the following three changes:

1. Expanded eligibility for participation, including:
   - Homes that use oil, propane, or wood as their primary heating fuel (rather than just natural gas)
   - Homes that use natural gas as their primary heating fuel but are not serviced by Union or Enbridge Gas Distribution

2. New rebates for:
   - High-efficiency oil furnaces and boilers
   - High-efficiency propane furnaces and boilers
   - High-efficiency wood burning systems
   - Air-source heat pumps
   - Smart thermostats

3. Increased rebate levels for measures already included in the offering.

Homes that participate in the enhanced Home Reno Rebate Offering, and their associated GHG emission savings, will be attributed to either Union's DSM portfolio or the GIF based on the following rules:

1. 100% of the results from homes outside of Union's franchise area will be attributed to the GIF.
2. 100% of the results from homes within Union's franchise that use a primary heating option other than natural gas will be attributed to the GIF.
3. 100% of the results directly related to the smart thermostat will be attributed to the GIF.
4. For all other results, there will be a two-phased approach to attribution each year. During Phase 1, 80% of the results will be attributed to Union and 20% will be attributed to the GIF. If at any point in a given year Union exhausts its DSM funding available, or elects to stop using DSM funds for the enhanced Home Reno Rebate offering, Phase 2 of attribution will begin. During Phase 2, 100% of the offering's results will be attributed to the GIF. Phase 1 will reset on January 1st of each year.

For further details on the attribution agreement for GHG emissions savings between Union and the Ministry of Energy, refer to:

http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/536605/view/UNION_Ltr_2015-2020%20DSM%20Plan_Green%20Investment%20Fund%20Letter_20160728.PDF

Union tracks all customer savings and costs from the enhanced Home Retrofit Program, regardless of whether the homes are attributed to Union's DSM portfolio or the GIF. Homes attributed to Union's DSM portfolio will count towards Union's DSM Resource Acquisition scorecard and shareholder incentive. Homes attributed to the GIF will not count towards Union's DSM portfolio and will not contribute to any DSM shareholder incentive.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: EB-2016-0296, Exhibit 2, p.5 of 10

Preamble: The UFG volume forecast, for 2017 is 89,851,375. It is based on the forecasted total throughput volumes for Union multiplied by the Board approved UFG Volume percentage of 0.219%.

Has Union Gas done any studies which bear out the Board' approved UFG volume percentage? How does Union intend to address these emissions? How does the Board approved volume percentage compare to other major natural gas distributors? While Enbridge's unaccounted for volumes, represent over 80 per cent of its facility related emissions, what are the factors that make Union Gas' share 28%?

a) Are the GHG emissions forecasts reasonable and appropriate?

b) Is the carbon price forecast reasonable and appropriate?

Response:

Please see the response to Exhibit B.FRPO.3.

As stated in its response to Exhibit B.FRPO.6, Union undertakes periodic reviews of its Unaccounted for Gas ("UFG") volumes. The Board-approved UFG volume percentage is determined using a three-year historical weighted average of UFG volumes and throughput. Please see Attachment 1 for Union's UFG volumes for the year ending December 2013. It is Union's view that its UFG volume percentage compares favourably to other major natural gas distributors.

a) Yes. The GHG emission forecast is reasonable and appropriate. The GHG emissions forecast is based on volume forecasts prepared in accordance with the existing OEB approved methodology, with GHG emissions calculated following the methodologies identified in the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017."

b) Yes. Union believes that its recommended carbon price forecast of $17.70/tonne is reasonable and appropriate for setting the 2017 Compliance Plan rates. See Exhibit 2, pp.8-10 and Exhibit 2, Schedule 2 for the calculation and rationale. Also, please see the response at Exhibit B.BOMA.8.

UNION GAS LIMITED
Unaccounted for Gas Volume
For the Year Ending December 31, 2013

Line No.	Particulars	Volume (a)	Weighting (b)	Volume Weighted (c)	
	Determination of Forecast UFG volume for 2013				
	3 year average of actual UFG (10^3m^3):				
1	2011	35,668	50%	17,834	/u
2	2010	67,283	33%	22,203	/u
3	2009	201,845	17%	34,314	/u
4	Average actual UFG volume			74,351	/u
	3 year average of actual throughput (10^6m^3):				
5	2011	33,824	50%	16,912	/u
6	2010	35,090	33%	11,580	/u
7	2009	31,677	17%	5,385	/u
8	Average actual UFG throughput			33,877	/u
9	UFG ratio for 2013 (line 4 / line 8 / 1,000)			0.219%	/u
10	2013 total forecast throughput (10^6m^3)			32,010	
11	Estimated UFG volume for 2013 (10^3m^3) (1)			70,253	/u
12	Estimated UFG for 2013 ($000's) (2)			14,234	/u
13	Unregulated Allocation - Short-Term ($000's)		2.514%	(358)	/u
14	Unregulated Allocation - Long-Term ($000's)		7.036%	(1,001)	/u

Note:
(1) Line 9 * line 10 * 1,000.
(2) Calculated using EB-2010-0359 reference price of $202.61/10^3m^3$.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: EB-2016-0296, Exhibit 3, p. 25 of 47

Preamble: As outlined in the cap-and-trade Framework, customer abatement programs related to compliance plans are intended to be incremental to the utilities' DSM programs. As such, those programs are not included in Union's 2017 Compliance Plan as a customer abatement activity. However, the forecasted customer volumes and emissions (Exhibit 2, Schedule 1) do reflect the significant impact of these programs to ensure that Union's compliance obligation is not over-stated.

How will Union Gas assess the "additionally" of such reductions? Is this equivalent to the notion of free riders used in the DSM Plan?

Response:

Union will rely on the OEB's Evaluation, Measurement and Verification ("EM&V") process to ensure that any programs incremental to its DSM efforts are not attributed to DSM reductions. As stated by the OEB on p.28 of the Framework[1], the EM&V process will address any issues related to DSM and Cap-and-Trade related customer abatement overlap.

This is not equivalent to the notion of free riders. Free riders are program participants who would have installed the energy efficient measure without the influence of Union's DSM programs.

[1] OEB Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: EB-2016-0296, Exhibit 1, p. 3 of 12, Updated

Preamble: Since the 1990's, Union has had significant success in implementing Demand Side Management ("DSM") programs to assist customers in reducing their natural gas consumption and related greenhouse gas ("GHG") emissions. For 2017, there is an additional customer abatement program, the Plan that is incremental to the DSM plan. Going forward, Union will leverage its experience and skillset in reducing emissions as part of DSM, and evaluate the potential to reduce customer emissions further, thereby reducing Union's compliance obligation. Union will include the outcome of this analysis in future compliance plans.

How will Union assess the "additionally" of such reductions? Is this equivalent to the notion of free riders used in the DSM Plan? How does Union expect to verify offset credits? What options are under consideration? Will it be equivalent to verification process used in the DSM Plan? What are Union's expectation for the scope and process for the Mid Term Review? Will intervenors and/or the DSM consultative or the OEB's Evaluation Audit Committee be involved? Has Union assessed the options relative merging the two frameworks? Has any analysis of the costs and benefits of doing so been completed?

Response:

It appears the first two questions are repeated from Exhibit B.BOMA.3 in error. Please see Exhibit B.BOMA.3 for those responses.

The Offset Regulation has not been published by the Ministry of the Environment and Climate Change ("MOECC"). Therefore, Union is only able to reference the Compliance Offset Credits Regulatory Proposal ("the Proposal") released by the MOECC on November 15, 2016 for public comment (EBR-012-9078). The Proposal outlines the Offset Creation Procedure[1] which requires all offset initiatives to be registered, reported and verified before any offset credits are issued. It also specifies that the verification report be prepared by an accredited verifier. Union is unable to determine if this is equivalent to the DSM verification process since the offset process is not yet defined by an offset regulation.

Union is awaiting direction from the OEB on the DSM mid-term review and cannot comment further on expectations at this time. Without direction from the OEB on the scope and process of the DSM mid-term review Union cannot comment on the involvement of the intervenors, DSM consultative or the involvement of the OEB's Evaluation and Audit committee.

[1] http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2016/012-9078.pdf, p. 14

No, Union has not assessed the options relative to merging the DSM and Cap-and-Trade Frameworks and has not completed any analysis of the costs and benefits of doing so. Given the infancy of the Cap-and-Trade program and the significant uncertainties that remain, (i.e. WCI linking, offsets) it is pre-mature to deviate from established Frameworks. Utilities, together with the OEB and Intervenors all contributed to multi-year Frameworks for DSM and Cap-and-Trade via public review and/or hearing. These Frameworks are set to expire in 2020 and further review should be undertaken closer to that time. Parties will have more experience with how the two Frameworks have co-existed, the nascent components of the Cap-and-Trade program will have had adequate time to mature and current uncertainties may be resolved.

With two decades of successful execution of DSM programs, a clear delineation made by the Board between DSM and Abatement and a mandate that the programs co-exist, Union will continue its focus on successfully delivering DSM programs. Union will do this while working within the OEB's Cap-and-Trade Framework including participation in consultations associated with the development of the Marginal Abatement Cost Curve ("MACC") and Long-term Carbon Price Forecast ("LTCPF").

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: EB-2016-0296, Exhibit 3, p.25 of 47

Preamble: Union is also exploring a number of opportunities for customer abatement such as the use of combined heat and power projects and renewable natural gas in the gas supply portfolio. Prudent customer abatement programs such as these will reduce Union's compliance obligation, resulting in less compliance instruments, and provide diversity within the compliance plan. This allows Union to manage both non-compliance and financial risks. As Union evaluates these programs, the outcomes of this analysis will be provided in future compliance plans.

While it is clear that Renewable Natural Gas represents an incremental emissions reduction element, Union has included combined heat and power projects in previous DSM plans; how will these projects be differentiated from previous projects.

a) Has the gas utility reasonably and appropriately conducted its Compliance Plan option analysis and optimization of decision making?

b) Are the proposed performance metrics and cost information reasonable and appropriate?

c) Has the gas utility reasonably and appropriately presented and conducted its Compliance Plan risk management processes and analysis?

d) Are the gas utility's proposed longer term investments reasonable and appropriate?

e) Are the gas utility's proposed new business activities reasonable and appropriate?

Response:

The combined heat and power projects that form part of a DSM plan are focused on the energy efficiency of the equipment being installed at the site. The energy savings attributed to the project is derived from the additional efficiency of the equipment being installed at the location above the base equipment that would otherwise have been used.

Any emissions reductions resulting from a combined heat and power project when considered an abatement opportunity are derived from displacing a higher carbon intensity energy source with a smaller, lower carbon intensity combined heat and power plant that has a robust thermal host.

Regarding questions a - e) noted above, these questions are included in the Final Issues List established by the Board within Procedural Order No. 2 on February 17, 2017. As such, the answers to these questions will be provided within the context of the overall proceeding including Union's responses to interrogatories.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: EB-2016-0296, Exhibit 3, p. 47 of 47, Updated

Preamble: Renewable Natural Gas ("RNG"). RNG is an alternative to conventional gas supply, is non-emitting, and can be stored, transmitted and distributed using the existing natural gas infrastructure. RNG is produced by capturing methane that results from the decay of any organic matter. Methane is captured at the source (e.g. landfills, waste water, agriculture), where it is "cleaned" and then integrated into the natural gas system. Union is examining how RNG can become part of the utility's gas supply portfolio, which will require regulatory approval. While it is not expected that this will be feasible for 2017, Union is expecting RNG to be part of the gas supply portfolio as early as 2018. Union estimates that by 2020, up to 2% of system supply could be provided using RNG, increasing to up to 10% of total supply by 2030. Replacing 10% of the province's conventional natural gas supply with RNG yields an estimated emissions reduction of up to 8 Mt CO2e/ year by 2030

On September 8, 2009, Order in Council (OC 1540-2009) was issued which gave both Union and Enbridge broader mandates with respect to renewable energy and conservation including some of the activities listed in the submission. In Union's opinion, what is the current status of OC 1540-2009? Will additional government directives be required in the near future? What is required to implement the mandates already given to Union?

Response:

In Union's opinion, the September 8, 2009 Order in Council (OC 1540-2009) is still valid. That order specifically provides Enbridge and Union the authority to own and operate assets required to generate renewable electrical energy, but does not discuss assets related to biogas and the development of renewable natural gas ("RNG"). Included in OC 1540-2009 is reference to a previous directive issued August 10, 2006 by Order in Council (OC 1537-2006), which outlines Unon's abilities in "respect of research, review, preliminary investigation, project development and the provision of services related to the following business activities: the generation of electricy by means of large stationary fuel cells integrated with energy recovery from natural gas transmission and distribution pipelines." There is no mention of biogas projects or the development of RNG projects in OC 1537-2006.

Therefore it is Union's opinion that a ministerial directive is required to enable the utilities, as a regulated entity, to own and operate biogas upgrading equipment that supports the development of biogas for the purpose of creating RNG.

Additionally, should Union be required to procure RNG molecules as part of its gas supply portfolio, direction from the OEB will be required to establish an appopriate pricing mechanism for RNG.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Cost Consequences and General (Conflict of Interest)

a) Will Union Gas Limited (the utility), or a related party, as defined in Ontario Regulation 144/16, register as a market participant, to allow it to participate in the Cap-and-Trade market? Does it intend to buy, sell, trade, take derivative position on, or in any other way participate in the carbon market for its own account (or that entity's account); in other words, in the case of the utility, in any capacity other than on behalf of its ratepayers?

b) If yes, what entity within the Union/Spectra family will be a registered market participant? Has any Union-related entity registered as a market participant?

c) If yes, what arrangements will be made to ensure that the ratepayers will be protected from any conflicts of interest, preferential treatment of non-regulated Union affiliated companies, sharing of information with these entities, and the like, which could lead to higher costs for ratepayers? Would any profits from Cap-and-Trade activities of the entity be credited to the ratepayers' account?

d) Ref: Ibid, p10 - Please confirm that any transactions conducted with an affiliate in the course of implementing a compliance program are, in terms of risk allocation, and price, and any other contractual or commercial matter, no more favourable to the affiliate than it would have been had the counterparty not been an affiliate.

Response:

a-c) Union is registered as a capped participant in the Cap-and-Trade program in order to satisfy its compliance obligation. It expects to participate in this market for the sole purpose of satisfying compliance obligations of itself and its customers as determined by the Cap-and-Trade Regulations. There are no Union-related entities that are registered as a market participant.

d) Confirmed. Union is required to abide by both the Affiliate Relationships Code and the Climate Change Mitigation and Low-Carbon Economy Act, including Section 28(5) and 28(6) as it relates specifically to this question.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit I, p. 6 – Cost Consequences

a) Please explain why Union thinks it is necessary to estimate an Ontario "minimum auction reserve price", which is higher than the California price, outlined in the Board's Framework. What is the justification for imposing the additional burden on ratepayers?

Response:

a) Union does not agree with the premise of the question that assumes an additional burden will be imposed on ratepayers. Rather, Union submits it will not impose an additional burden on ratepayers as the initial increase in rates will reduce future period rate adjustments.

At p.31 of the OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities, the Board stated that "*charges will be set based on the annual weighted average cost of the Utilities' proposed compliance options. This approach will align the charges with the costs of the proposed compliance options in the initial years, while mitigating volatility*." As outlined in Exhibit 2, pp.8-10, the 21-day strip of ICE daily settlement prices for a California Carbon Allowance futures contract ending October 31, 2016 results in a price that is lower than the expected Ontario minimum auction reserve price for 2017. Union believes that its proposal to use the estimated Ontario minimum auction reserve price to set rates for the 2017 Compliance Plan is necessary to align costs in rates to the expected cost of Ontario compliance instruments in 2017.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 7

a) Please provide the name of the person directly responsible and accountable for
   (i) The design, and
   (ii) The execution of Union Compliance Plan for 2017.

Response:

a) Overall accountability for the design and execution of the 2017 Compliance Plan is with the Vice-President, Sales Marketing and Customer Care. The Vice-President, Business Development and Storage & Transportation is accountable for the development and execution of Union's compliance instrument procurement strategy.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 2, p. 1

Please provide the October 7, 2016 list of mandatory and voluntary participants, provided by MOEE.

Response:

Please see the response at Exhibit B.SEC.1 c).

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 26

How will Union deal with the impact of converting its fleet to natural gas when the government agrees that such a fuel shift would decrease provincial emissions but increase Union's own emissions? Will the government provide a credit mechanism? Has this issue been settled?

Response:

As noted in Exhibit 3, p. 6 Union is pursuing a pilot project to convert its fleet vehicles to natural gas due to the environmental benefit and overall reduction in provincial greenhouse gas ("GHG") emissions. For vehicles which are refueled at Union sites, however, this will result in an overall increase in Union's facility-related emissions. As a result, Union will need to acquire additional compliance instruments in order to meet its compliance obligation.

For 2017, this incremental increase in facility-related emissions is expected to be very small and as a result were not included as part of its overall Compliance Plan. Any required adjustments will be made based on actual activity. To date, the government has not indicated if it will provide a credit mechanism to offset this increase in Union's facility-related compliance obligation.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 27

Please make available the terms of reference for the study contracted to address a range of facility related GHG reduction projects? When does Union expect to have the results of the study? Will it file the study in a future proceeding?

Response:

Please see Union's 2017 Compliance Plan (Exhibit 3, pp.27-28).

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, Appendix A

How will Union "minimize risk through diversification within the compliance portfolio" in 2017 since virtually none of the instruments which could be used to diversify risk, are available or fully developed to the point where they are generating emission credits or allowances. When will Union's proposed governance documents for offsets and abatement projects be available? What safeguards exist to ensure that utilities can purchase allowances in 2017 at auction, or otherwise, at prices that are not far above the reserve price, as has been recent experience in California and Quebec? How, if at all, will ratepayers be protected against an allowance cost/rate spike in (i) 2017; (ii) thereafter?

Response:

The Climate Change Mitigation and Low-carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the OEB's Cap-and-Trade Framework.[1]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

Union has provided content related to this question to the Board in both its 2017 Compliance Plan and/or its responses to Strictly Confidential Board Staff Interrogatories.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 ("Climate Change Act") and Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 36

In order to reduce the number of calls to the Customer Contact Centre, does Union intend to provide a customer bill insert on the bills that explain the GHG-related increase to the customer's monthly delivery bid? If not, why not? Why should ratepayers bear the costs due to the utility failing to identify the exact GHG impact of the customer's delivery rate on the customer's delivery charge on its bill?

Response:

Yes. Union used both bill inserts and webpages/tools to reduce calls to the Call Centre. For information related to Union's bill inserts, please see the response at Exhibit B.CCC.8. For information on Call Centre and web statistics please see the response at Exhibit B.Staff.16.

Union advocated to have the Cap-and-Trade cost listed as a separate line item on its customers' natural gas bills to increase the transparency of Cap-and-Trade related costs and to help encourage customers to make the necessary behavioural changes to reduce their GHG emissions. The OEB made the decision to include this cost in the delivery charge on the natural gas bill and Union is complying with this decision.[1]

[1] EB-2015-0363 Ontario Energy Board determination dated July 28, 2016

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: General; Statute Prescribes Total Allowances which are equal to 2017 GHG Emissions

What percentage of Ontario's 2017 Class I allowances do Union's customers (excluding the LFEs and voluntary market participants) account for?

Response:

The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") identifies prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the OEB's Cap-and-Trade Framework.[1]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

[1] Climate Change Mitigation and Low-Carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 ("Climate Change Act") and OEB's Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363).

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 7

Does Union have any GHG/Cap and Trade experts on its purchasing staff, or in any other part of its organization? Please provide the names and positions.

Response:

As described at Exhibit 3, pp.7–11, Union has taken significant steps to develop GHG and Cap-and-Trade expertise in the organization in order to successfully develop and execute its 2017 Compliance Plan. This includes the expertise that has been developed within the Cap-and-Trade department, the Gas Supply department (where the compliance instrument purchasing function resides), as well as other impacted departments. Please see the response at Exhibit B.SEC.3 for a listing of all expert roles allocated to Cap-and-Trade.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Ibid, p. 8

a) Has Union received approval from the MOECC of its participant registration application?

b) Please provide a copy of the approval. If it has not obtained approval, when does it expect such approval?

c) Which carbon market data provider(s) has Union subscribed to?

d) Please provide samples of the carbon market exchange data that Union has acquired from ICF.

e) Please provide the name of the other consultants that Union has engaged on each of the topics set out at p10.

Response:

a) Union received approval of its participant registration application in Compliance Instrument Tracking System Service on December 13, 2016.

b) Please see Attachment 1.

c) Union has a paid subscription with CaliforniaCarbon.info ("CC.info") to provide access to key market data and news to aid in the development of carbon market intelligence. Union also uses free carbon market updates from a number of providers including Carbon Pulse, ClearBlue Markets, Evolution Markets, and BGC Environmental Brokerage Services.

d) Carbon market exchange data originates from ICE, not ICF. Union assumes this question is referring to ICF in error. The planned use of the ICE trading platform for carbon market exchange data is discussed at Exhibit 3, p.9. Union has access to live ICE exchange data through its paid subscription with ICE. The data includes live bid and offer prices, open interest, and settlement data for California Carbon Allowance futures contracts as well as the Ontario Carbon Allowance futures contract.

e) Union engaged the following consultants in 2016:

- ClearBlue Markets
- ORTECH Consulting

- Torys LLP
- StrategyCorp
- ICF Consulting
- Market Probe
- Campaign Research
- FCStone
- Sandbox Advertising

The costs for these consultants are identified in the response at Exhibit B.CCC.3 and Exhibit B.Staff.1.

[redacted]

From: Cap and Trade Applications (MOECC) <CTapplications@ontario.ca>
Sent: December 13, 2016 12:58 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Conditional Approval: Ontario Cap and Trade Participant Registration ON[redacted]165

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks for letting me know. You have met the condition of approval.

[redacted]

From: [redacted]
Sent: December-13-16 12:51 PM
To: Cap and Trade Applications (MOECC)
Cc: [redacted]
Subject: RE: Conditional Approval: Ontario Cap and Trade Participant Registration ON2165

[redacted]

Please note that I have now submitted the requested information in CITSS. Please advise that the condition of approval has now been lifted.

Thanks,

[redacted]

From: [redacted]
Sent: December 13, 2016 11:33 AM
To: 'Cap and Trade Applications (MOECC)'
Cc: [redacted]
Subject: RE: Conditional Approval: Ontario Cap and Trade Participant Registration ON2165

[redacted]

Thank you for your note. Once I receive notification of approval I will make sure the information requested is submitted promptly.

If you have any other questions please do not hesitate to contact me.

Regards,

[redacted]

From: Cap and Trade Applications (MOECC) [mailto:CTapplications@ontario.ca]
Sent: December 13, 2016 11:16 AM
To: [redacted]
Cc: [redacted]
Subject: Conditional Approval: Ontario Cap and Trade Participant Registration ON2165

[redacted],

This is to let you know that the Participant Registration ON2165 for Union Gas Limited has been approved on the condition that you add the Facility GHG Reporter Contact information in CITSS. Please log in to CITSS and add this information within 7 calendar days of receiving the notification from CITSS that the Participant Registration has been approved.
Please let me know if you have any questions or concerns.

Regards,

[redacted]
Application Processing Staff
Cap and Trade Program
Ministry of the Environment and Climate Change
40 St. Clair Ave West, 4th floor
[redacted]

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: General

a) Please advise when Union expects the Board will assess the prudency of Union's 2017 compliance plan actual expenditures, including the allowances purchased either at auction, from third parties, from the Ontario government reserve, or elsewhere. Please provide a complete answer.

b) Please confirm that, given that Union has stated that it will not propose any customer abatement projects (other than the GIF grant(s) driven projects) in 2017, nor any long term capital expenditures, nor new business activities (at least to the point where measurable savings are realized in 2017), its 2017 compliance plan, and the fact that a secondary market for allowances and credits has not yet been developed, does Union agree that its 2017 compliance plan will consist entirely, or close to entirely, of purchases of allowances and options, futures, or other derivatives related to such purchases.

c) How many emission units will be generated by GIF-driven customer abatement projects in 2017, and what percentage of required emission units will they constitute? What is the forecast average cost of emission units produced by these projects?

d) Aside from allowances purchased at auction or from the government reserve, or elsewhere, what other elements may be present in Union's 2017 compliance plan?

Response:

a) Please see the response at Exhibit B.Staff.17.

b) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the Framework.[1]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363).

c) Union's GIF abatement emissions are shown at Exhibit 2, Schedule 1, line 25. These emissions constitute 0.04 percent. This value is calculated by dividing the GIF abatement (Exhibit 2, Schedule 1, line 25, column e) by Union's compliance obligation covered by compliance instruments (Exhibit 2, Schedule 1, line 24, column e). The costs associated with GIF abatement have not been included in Union's Compliance Plan as these costs are not proposed to be recovered through rates. As such, Union does not feel that the average costs per emissions units from GIF are relevant to this proceeding.

d) The Climate Change Act outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the Framework.

   This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 20 et seq

a) When does Union expect the secondary market for allowances/credits to begin operation in Ontario? Will it start in 2017 or 2018? What would be the principle features of such a market, based on experience in Quebec and Ontario? In general terms, how does Union foresee it will operate?

b) Will the sales and purchases be transacted on ICE exclusively, or will there likely be other platforms, including private purchases and sales?

c) Can the ICE platform be used only for GHG futures, or can it be used for other transactions, such as and spot transactions? What other types of transactions will ICE support?

d) How have the secondary markets operated in Quebec and California? Please provide a history including volumes and prices in those markets. Please provide any available studies on the operation of those markets or links to sites where such studies can be found.

e) Please provide a copy of the ICE Ontario only carbon contract.

f) Please provide a copy of, or a link to, the offset programs that have been used in California and Quebec. When will Ontario offset guidelines be available? Please confirm that Union does not expect offsets being available for use in 2017, in Ontario. Please provide a link to information on Alberta's offset experience.

g) What does Union anticipate would be the advantages/disadvantages of having a link to the WIC market in 2018, or at a later date? Please discuss fully.

Response:

a) On January 30, 2017, ICE listed an Ontario Carbon Allowance Futures contract for trading which can be considered to be the beginning of the secondary market in Ontario. Union notes that a small number of transactions have occurred to date. Union notes that the Board provides an overview of compliance options that would be available to participants in Ontario's carbon market on pages 5 and 6 of the OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities. The Ontario secondary market is new and under development, and a platform such as ICE will help in the development of the Ontario secondary market. Union is not certain when the Ontario secondary market will fully develop and mature. Union cannot predict specifically how the Ontario secondary market will operate.

b) Secondary market transactions in the Ontario carbon market may include transactions facilitated by exchanges such as ICE, or over-the-counter ("OTC") bilateral transactions.

c) Currently, ICE has one contract listed related to the Ontario carbon market. This contract is a futures contract for 2017 Vintage Ontario Carbon Allowances with a December 2017 delivery requirement. ICE also lists other vehicles, such as futures, swaps, and options contracts, that are applicable to WCI allowances. Union expects that more products will be available to Ontario market participants once Ontario links to the WCI market.

d) See Exhibit 3, pp. 41-42 for an overview of the secondary market prices in Québec and California. Additional information related to carbon markets can be found at www.californiacarbon.info.

e) Please see Attachment 1.

f)

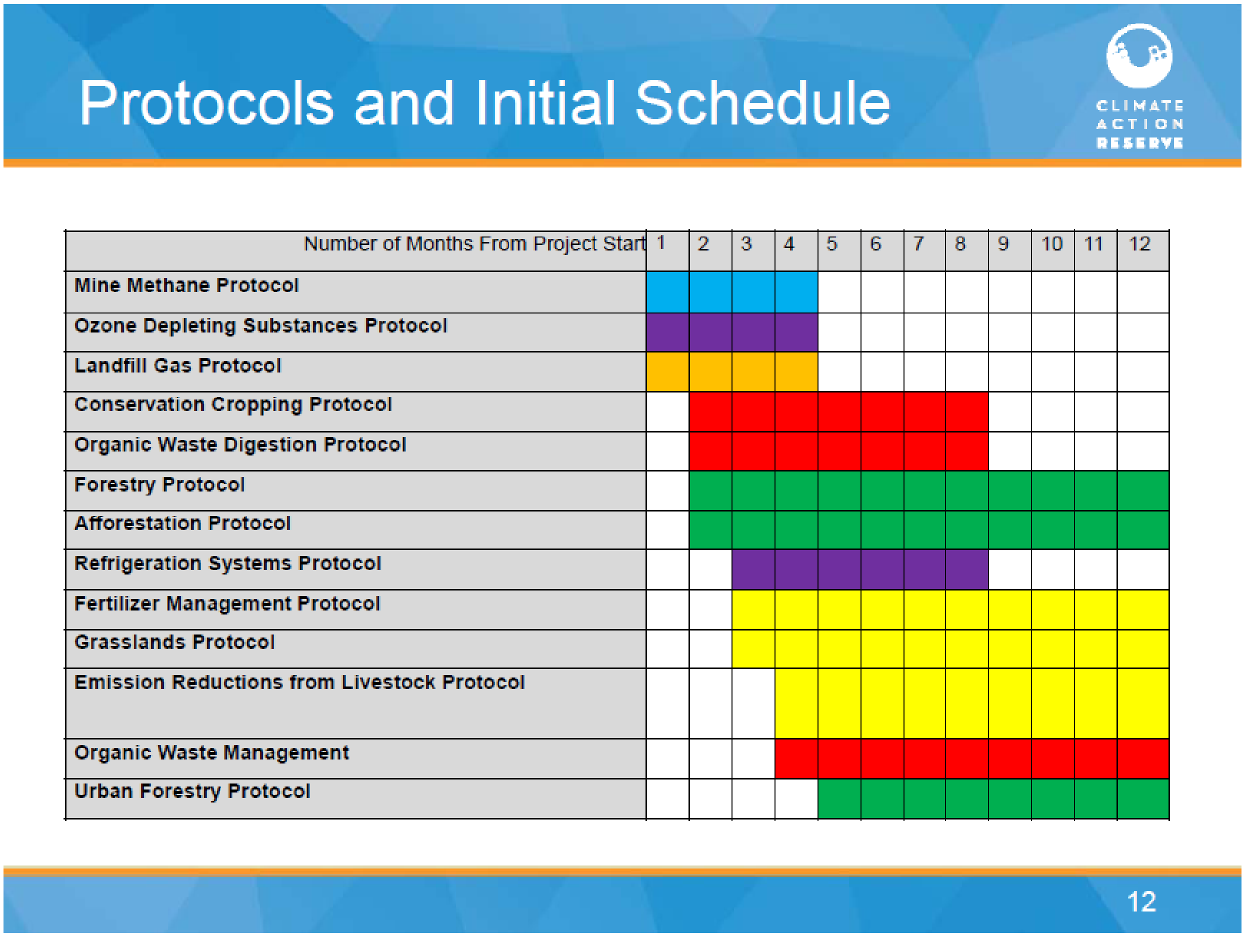
- A link to California's offset program is provided here https://www.arb.ca.gov/cc/capandtrade/capandtrade/unofficial_ct_030116.pdf
- A link to Québec's offset program is provided here http://legisquebec.gouv.qc.ca/en/pdf/cr/Q-2,%20R.%2046.1.pdf
- A link to information on Alberta's Offset Credit System Protocols is provided here http://aep.alberta.ca/climate-change/guidelines-legislation/specified-gas-emitters-regulation/offset-credit-system-protocols.aspx

The Ministry of Environment and Climate Change ("MOECC") has issued a Compliance Offset Credits Regulatory Proposal[1] ("Offset Regulatory Proposal") on November 15, 2016 for public comments (EBR-012-9078). The Offset Regulatory Proposal is a draft document that outlines policy options on a number of program elements including: start dates, verification requirements, offset credit creation criteria and issuance, etc.

Union has no specific information on when the Ontario Final Offset Credit Regulations will be available.

The MOECC has engaged the Climate Action Reserve ("CAR") to lead the development of the Ontario Offset Protocols according to the timeline below:

[1] http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2016/012-9078.pdf



g) Union anticipates many advantages of having a link to the Western Climate Initiative ("WCI") market in 2018, or at a later date, and views it positively. In theory, a linked market could increase market liquidity through opening access to a broader pool of compliance instruments across partnering jurisdictions. In addition, having a link to the WCI market provides Ontario Cap-and-Trade participants with larger holding and purchasing limits, giving them more flexibility in meeting their compliance obligation.

However, the advantages of a linked market must be weighed against the risks. First it is likely that there will be outflow of capital outside the province, as Ontario market participants purchase compliance instruments in other jurisdictions. As well, there will be increased exposure to policy and regulatory changes in linked jurisdictions. A link to the WCI market could expose Ontario participants to further currency risk. It can also limit the government's ability to customize policy decisions, resulting in more stringent program requirements. This is why Ontario must remain engaged with all WCI partners in order to ensure the system works for Ontario.

ICE Futures U.S.
Feb 27, 2017

ICE FUTURES U.S.

Ontario Carbon Allowance Vintage 2017 Future

Contract Specifications

Description	Physically delivered greenhouse gas emissions allowances where each is an allowance issued by the Province of Ontario or a linked program ("Ontario Carbon Allowance") representing one metric ton of CO2 equivalent under the Ontario Climate Change Mitigation and Low-carbon Economy Act and its associated regulations, rules and amendments, all together known as the "Ontario Cap and Trade Program".
Contract Symbol	OC7 Vintage 2017
Settlement Method	Physical delivery
Contract Size	1,000 Ontario Carbon Allowances
Currency	CAD
Minimum Price Fluctuation	The price quotation convention shall be One CAD cent ($0.01) per Ontario Carbon Allowances; minimum price fluctuation may vary by trade type. Please see Table in Resolution 1 to this Chapter 18.
Listing Cycle	1. The Exchange may list monthly contracts in the Standard Cycle or any other calendar month it determines for the current year and forward for up to ten years. 2. The Standard Cycle is: January, February, March, April, May, June, July, August, September, October, November and December
Last Trading Day	Three Business Days prior to the last Business Day of the delivery month

Contract Specifications

Deliverable Instruments	The deliverable instruments are Ontario Carbon Allowances equal to the contract size delivered through the Compliance Instrument Tracking System Service (CITSS). Ontario Carbon Allowances acceptable for delivery are those having a vintage corresponding to the specified vintage year. Ontario Carbon Allowances acceptable must be able to be delivered into CITSS accounts registered in Ontario.
Registry	CITSS

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 29

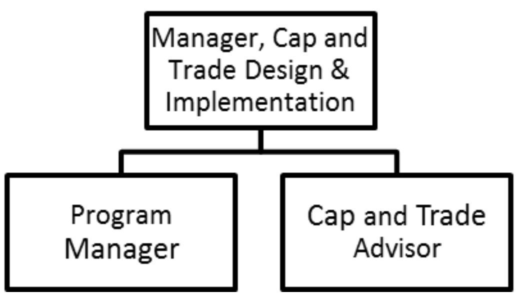
a) Please show an organizational chart for the Union cap and trade organization, which identifies the function of each of the FTEs or partial FTEs that will make up the incremental 13.5 FTEs requested.

b) How many additional full-time personnel will be hired as part of the FTE complement?

c) What are the names of the personnel working on the unit?

Response:

a) Shown below is the organizational chart for Union's Cap-and-Trade organization. This organization is comprised of three incremental FTEs.



Please see the response at Exhibit B.SEC.3 for additional information on Union's Cap-and-Trade FTEs.

b) Union does not anticipate adding any roles beyond the 13.5 FTEs identified.

c) The titles of the permanent personnel working on Cap-and-Trade are noted above and for all 13.5 FTE please see the response at Exhibit B.SEC.3.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 34

Please confirm that any income tax increases not driven by cap and trade compliance obligations will not be included in cap and trade deferral accounts, in 2017, or in any later year.

Response:

Confirmed.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 1, p. 4

a) Why are Union RNG and CNG initiatives not in scope for the 2017 compliance plan? Please explain fully.

b) Is Union seeking cost recovery for costs related CNG and RNG initiatives in 2017 rates? Please explain.

Response:

a) Please see the response at Exhibit B.Staff.14.

b) Union will include actual 2017 administration costs related to Renewable Natural Gas ("RNG") in its Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152). Union is not seeking recovery of these costs in this proceeding.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit I, p. 4 of 12

Union is not including any long-term investments as part of its 2017 compliance plan. Union states that it needs to first determine the mechanism for cost recovery of these investments.

a) Please explain what is meant more fully.

b) What does Union consider an appropriate "mechanism for cost recovery"?

Response:

a-b) Please see the response at Exhibit B.Staff.12.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit I, p. 4 of 12

Does Union expect to obtain a reduction of its GHG emission for the RNG initiative in 2017? If not, when will the reduction in GHG emissions be phased in, in approximately what magnitude, over each year of the initial compliance period.

Response:

Please see the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, Appendix B, p. 5, paragraph 3

a) The document speaks of standard Cap-and-Trade contracts. Which standard contracts have been developed to date? Please provide copies of each of the standard contracts that have been developed to date. What other contracts will be developed, and when? Have the standard contracts been reviewed as per paragraph 3.6 of Exhibit 3, Appendix B, p 7?

b) Has the Compliance Plan for 2017 been approved by the Union Gas executives? On what date?

c) Were any changes made to the plan as part of the Senior Executive Approval process? Please summarize the changes at a high level.

d) Ibid – p5, paragraph 3.2 – Please explain the "tolerances" that are enforced by the Spectra Risk Management Committee, as part of the Spectra corporate risk management policy.

Response:

a) References to standard contracts within Exhibit 3, Appendix B refer to any template or standard contracts which Union uses or would use to facilitate compliance instrument transactions with counterparties. Examples of standard contracts may include, but are not limited to:

- The California Emissions Trading Master Agreement ("CETMA"), developed by the International Emissions Trading Association ("IETA"). A template of this contract can be found at http://www.ieta.org/trading-documents
- ISDA Emissions Allowance Transaction Annex, developed by the International Swaps and Derivatives Association. A template of this contract can be found at http://www.isda.org/publications/pdf/ISDA-Emissions-Allowance-Transaction-Annex.pdf

Union cannot comment on the status of the contracting practices with counterparties in the carbon market as this information is market sensitive.

b) Confirmed. Union's 2017 Compliance Plan was approved by Union management on November 4, 2016.

c) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 (Climate Change Act) outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in section 4 of the Cap-and-Trade Framework.[1]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

Union has provided content related to this question to the Board in both its 2017 Compliance Plan and/or its responses to Strictly Confidential Board Staff Interrogatories.

d) Key members of the Risk Management Committee are aware of Union's compliance obligation. Due to strict confidentiality rules, Union cannot disclose what instruments its 2017 Compliance Plan includes and how that is evaluated by the Risk Management Committee.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and EB-2015-0363 Report of the Board - Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (Cap-and-Trade Framework)

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Ibid, p. 6

Please explain the meaning in the risk management context of "cover ratios" and "compliance position thresholds", and "relative market price levels".

Response:

In the context of Exhibit 3, Appendix B, p.6, paragraph 2, cover ratios, compliance position thresholds and relative market price levels are provided as examples of metrics which Union could use to assess compliance instrument transactions.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Ibid, p. 8

Please provide a copy of the Union Gas Credit Guidelines.

Response:

Credit guidelines applicable to Cap-and-Trade counterparties are outlined on pp. 8-9 of Exhibit 3, Appendix B. These guidelines are led by the general Union Gas Credit Requirements found at the following link:

https://www.uniongas.com/storage-and-transportation/resources/getting-started/credit-process

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, Appendix C

a) Please provide the names and qualifications of staff at Blue Markets Toronto office, other than Mr. Berends, together with their CVs and general experience in carbon markets, especially in California or Quebec.

b) Have the Toronto based principals any experience with the California and/or Quebec auctions?

Response:

a) Please see Exhibit 3, Appendix C, pp. 6-12.

b) Yes. ClearBlue has participated as a qualified bidder most recently in the November 2016 Joint California and Québec WCI Auction.

   ClearBlue's staff have experience in approximately 500 auctions for European carbon allowances. Auctions in Europe are mechanically the same as auctions in the WCI, but occur multiple times per week rather than quarterly as they do in the WCI jurisdications. ClearBlue has been providing detailed auction advisory services related to WCI auctions since early 2016.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, Appendix C

a) BOMA understands that Union currently does not use derivatives in its gas purchase activities other than the NYMEX futures market. Is that still the case?

b) Please list what Union understands to be the derivatives in use in gas purchase markets in some North American jurisdictions.

c) Please comment on the use of derivatives in the Quebec and California Cap-and-Trade markets, including stating which derivatives are used, the extent to which they have been used, the purpose for which they have been used, and any other pertinent information.

d) Why, broadly speaking, would Union consider the use of derivatives in the Cap-and-Trade market? What would be the potential advantages and disadvantages?

Response:

a) Financial hedging related costs in the gas supply portfolio were disallowed in EB-2007-0606[1]. Union does not use derivatives in its gas purchase activities, including the use of the NYMEX futures contracts.

b) Derivatives that are available to support gas supply purchases in North America include futures, swaps and options, for the purposes of hedging price risk.

c) Union is not aware of the extent derivative contracts in the Québec and California carbon markets are used. Union notes that ICE lists swaps and options related to California Carbon Allowances.

d) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 (Climate Change Act) outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in section 4 of the Cap-and-Trade Framework.[2]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information

[1] Union's multi-year 2008-2012 incentive regulation proceeding – OEB decision dated July 31, 2008.
[2] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and OEB Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 25

a) Given the scope for abatement activities in Union's franchise, why has Union not proposed a full slate of abatement activities for 2017 analogous to the GIF program and in addition to the DSM program?

b) Please confirm that Union includes no abatement-driven savings, or investments in its compliance plan for 2017, other than the GIF program.

c) What is the basis of the calculation of the 2017 savings from the GIF program? What are the forecast 2017 savings in 2018, 2019, and 2020?

d) i) Does Union have full cost recovery of its administration of the Green Investment Fund projects? ii) Please provide a copy of the Agreement between Union and the Ontario Government, pertaining to Union GIF program. What was the rationale for the $42 million Union received from the government? What is the proposed budget for each year of the compliance period?

Response:

a) Please see the response at Exhibit B.Staff.14.

b) Confirmed.

c) Please see the response at Exhibit B.Staff.10 for the 2017 Green Investment Fund ("GIF") savings calculations. The forecast 2017 savings continue at the same level in 2018, 2019 and 2020.

d) i) Yes.
ii) The province provided funding from the GIF to enhance the Home Reno Rebate Offering and develop a Behavioural Offering, to help homeowners reduce their energy bills and reduce GHG emissions. The costs associated with Union's delivery of the GIF program have not been included in Union's Compliance Plan as these costs are not proposed to be recovered through rates. As such, Union does not feel that the proposed budget per year of the compliance plan is relevant to this proceeding.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Monitoring and Reporting, Exhibit 4, Schedule 1

a) Why should Union's report of the amounts spent on the components of its compliance program (found at Exhibit 4, Schedule 1) be strictly confidential, provided that it were partly aggregated? Abatement project costs can then be compared with the average and median allowance auction costs, as reported by the government after each auction, and the 2017 reserve bid price. This comparison would be very helpful in determining prudency of the plan. The various compliance components are widely known. The abatement projects are comparable to DSM projects. Release of the offset costs, which are limited by statute to 8% of total eligible emission units, in aggregate form, would not prejudice Union unduly and, again, would assist in exercising prudency. It appears clear that in 2017, most, if not all coverage for emissions will have to come from allowances, due to the absence of other instruments. Please explain why the release of this information would seriously prejudice Union and its ratepayers.

b) How will intervenors be able to analyse and comment upon the prudency of expenditures under the plan if there is not at least information on aggregated cost of most of the tranches of the compliance plan?

Response:

a) Union has prepared its Compliance Plan in accordance with the confidentiality guidelines in the Climate Change Mitigation and Low Carbon Economy Act (2016) and the OEB Framework.[1] The Framework notes that the appropriate approach to confidentiality of information should be "cautious and have regard to market integrity in order to protect customers from undue costs while still making appropriate information publicly available where possible". Union carefully applied both the legislation and Framework when classifying information as Strictly Confidential. As per p.10 of the Framework, any "information relating to compliance instruments used by a utility to meet its GHG obligations" is market sensitive and should be considered Strictly Confidential information. Union has therefore considered any information related to its compliance instrument mix Strictly Confidential. This approach was reviewed and confirmed in discussions with the OEB in light of their review of Union's application.

[1] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

Union is expected to be a very large participant in the Ontario carbon market, and as a regulated utility, is required to prudently manage costs on behalf of ratepayers. Union is cognizant that it will be competing against other entities that do not have the same regulatory requirements. Union recognizes that the public filing of certain information included in Compliance Plan could provide a competitive advantage to other market participants.

b) Please see the response at Exhibit B.CCC.4.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Customer Outreach, Exhibit 5, p.1

Please provide the survey, and the survey results, from the December survey, and the survey, and survey results (if available) from the March survey.

Response:

The December Cap-and-Trade communications survey and results are provided in the documents listed below. Union has not finalized or distributed the March survey.

Attachment 1: Cap-and-Trade communications survey - Residential (December 2016)
Attachment 2: Cap-and-Trade communications survey – Commercial/Industrial (December 2016)
Attachment 3: Cap-and-Trade communications survey results (December 2016)

Cap and Trade Awareness and Communication – Follow-up Research:
Residential Questionnaire

WAVE 2

Introduction

A. May I please speak with ____________ or the person in your household who usually pays the monthly Union Gas bill? Would that be you?

Yes, speaking **(CONTINUE)**
Yes, I'll get them **(REINTRODUCE)**
No, not available **(SCHEDULE CALLBACK)**
ONCE CORRECT PERSON IS ON THE LINE:

B. Good (morning / afternoon/evening), my name is __________________ and I'm calling from Market Probe, a national research company. Let me assure you this is not a sales call. We are conducting a 7 to 9 minute survey and would like to include your viewpoints on energy and your natural gas bill.

IF NECESSARY:

Your participation is completely confidential. Is this a convenient time to speak with you?
Yes **(CONTINUE)**
No **(SCHEDULE APPOINTMENT)**
Refused **(THANK & TERMINATE)**

S1. Are you 18 years of age or older?
Yes **(CONTINUE)**
No **(ASK FOR SOMEONE WHO IS AND REINTRODUCE)**

S2. Do you use natural gas in your home?
Yes
No **(THANK & TERMINATE)**
Don't Know **(THANK & TERMINATE)**

S3. Do you or does anyone living in your household currently work for any of the following types of companies? **(READ LIST)**
A market research company
The media
An advertising company
A public utility or energy retailer

Yes
No
DK/NS
[IF YES OR DK/NS TO ANY OF THE ABOVE THANK AND TERMINATE, ELSE CONTINUE]

Before we start, if there are any questions that you do not know the answer to, just let me know.

Attitudes toward Environment and Natural Gas

Q16a SEE PROGRAMMING NOTE at Q16

1. Now, to start, thinking about all of the issues that face the Ontario government today, how important would you say the issue of the **environment** is to you? **[READ LIST; ROTATE Top-to-bottom]**

01	A critical issue that requires immediate action
02	A significant issue that needs to be dealt with in the coming years
03	Just one of many issues government should address
04	Not really an issue at all
98	Don't know **(DO NOT READ)**
99	Refused **(DO NOT READ)**

2. Thinking about natural gas specifically, generally speaking, would you say you have a very favourable, somewhat favourable, somewhat unfavourable or very unfavourable impression of **natural gas** as an energy source?

01	Very favourable
02	Somewhat favourable
03	Neither favourable nor unfavourable **(DO NOT READ)**
04	Somewhat unfavourable
05	Strongly unfavourable
98	Don't know **(DO NOT READ)**
99	Refuse (**DO NOT READ**)

Attitudes toward Cap and Trade

I'd now like to change the subject over to government energy policy in Ontario. Just remember that your responses will be held in confidence and that if you do not know the answer to any particular question just let me know.

4. Last year the Ontario provincial government announced that it will be implementing a cap-and-trade program. How familiar would you say you are with this program? [**READ LIST**]

01	You have a detailed understanding of the cap-and-trade program	**Continue**
02	You have a general understanding of the cap-and-trade program but don't know the details.	**Continue**
03	You have heard of the cap-and-trade program but don't know any of the details.	**Continue**
04	You haven't heard of the cap-and-trade program before this survey.	**Skip to Q8**
98	Don't know **(DO NOT READ)**	**Skip to Q8**
99	Refuse **(DO NOT READ)**	**Skip to Q8**

IF QUESTION 4 = 01, 02, 03 THEN ASK
4B. How did you first hear about the Cap and Trade program? **[DO NOT READ LIST]**

01	Union Gas bill insert
02	Union Gas website
03	Newspaper
04	Radio
05	TV
06	Online
07	Social media
08	From a colleague / Friend /Relative
09	Other **(please specify)** ___________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

5. Let's discuss some of the details of the Cap and Trade system. Would you be able to tell me when the program is scheduled to start? **[DO NOT READ LIST]** ***(****Interviewer, if needed:* would you be able to be more specific?)

01	January 2017
02	Has already started
03	In the future (unspecified)
04	Next year some time
05	Other ___________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

6. And thinking about your natural gas bill, which of the following comes closest to your understanding of how the program will affect your natural gas bill? **[READ LIST; ROTATE Top-to-bottom]**

01	Charges on your natural gas bill will increase
02	Charges on your natural gas bill will stay the same
03	Charges on your natural gas bill will decrease
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

6B. Considering everything you know about the Cap and Trade program to date, which of the following two statements best describes your understanding. Please consider each statement carefully. **[READ LIST; ROTATE Top-to-bottom]**

01	The money collected from Cap and Trade charges will go to the government
02	The money collected from Cap and Trade charges will be used by Union Gas
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

Bill

Now, please think about your monthly natural gas bill.

8. Now I'd like to ask you about some of the components of the natural gas bill you receive from Union Gas. Your natural gas bill contains 3 separate variable charges, including:
   - A Transportation charge that is for getting your gas into Union Gas' pipeline,
   - A Delivery charge that is for getting your gas through Union Gas' pipeline and into your home, and
   - A gas commodity charge that is for the actual gas you use within your home

   Your monthly Union Gas bill is a total of these costs.

   Prior to today, were you aware of this?

01	Yes
02	No
03	Aware of one or two of the three charges
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

INTERVIEWER NOTE: EACH OF THE THREE VARIABLE CHARGES IS BASED ON A DIFFERENT PRICE PER M^3 OF GAS USED.

[IF Q4 = 01, 02, 03 ASK Q9 AND Q10. OTHERWISE SKIP TO Q11]

9. Referring to the new Ontario Government's Cap and Trade program are you aware that the Ontario Energy Board has determined that the cap and trade charge will not be a separate charge identified on your natural gas bill, but instead will be included within the Delivery Charge I just described?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

10. And also, before today, were you aware that the Cap and Trade-related charge is directly tied to how much natural gas you use? That means that if you use more natural gas you will pay more for Cap and Trade?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

11. Still thinking about your monthly gas bill, do you recall receiving your NOVEMBER bill? This would be the bill that was sent to you during the month of November. ***Interviewer note:*** *either in the mail, or via e-mail?*
PROGRAMMING NOTE: If Bill Cycle is 15 through 20 adjust wording to *"This would be the bill that was sent to you in late November or early December".*

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

11a. **If Q11 is yes** Have you opened this bill, and looked at it? *Interviewer note: either the paper copy or online?* **READ LIST**

01	Yes, opened it, and reviewed it
02	Yes, opened it, but ONLY looked at the total amount
03	No, have not yet opened it and looked at it
04	No, usually don't look at it
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

11b. **If Q11a=03 (No, not yet**) When would you say you would typically look at your Union Gas bill? Would you say …. **READ LIST**

01	Usually on or right before the bill due date
02	Whenever you have time (no specific time)
03	Usually right when it comes in (just not this month)
04	You only look at it if the amount charged is different than what you were expecting
04	Other _________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

12. **Ask all** Now, please think about the last several bills you received from Union Gas. Do you recall seeing a bill insert or flyer about the Cap and Trade program included in the bill envelope? Or if you don't receive a paper bill, did you see a link about Cap and Trade in the e-mail message or once you logged into MyAccount?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

13. **If Q12 is yes** Did you read it?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

14. **If Q13 is no** Is there a specific reason why you didn't read it? **(DO NOT READ LIST)**

01	Never read the bill inserts
02	Plan to read later
03	Already feel informed about the topic
04	Not interested in the topic
05	Other ________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

15. **If Q13 is yes** I am going to read you a number of statements on topics related to the bill insert. For each statement, please tell me if you agree or disagree. **INTERVIEWER NOTE: if "agree/disagree" ask => is that "<u>strongly</u> or <u>somewhat</u> agree/disagree".**

01	Strongly agree
02	Somewhat agree
03	Neither agree or disagree **(DO NOT READ)**
04	Somewhat disagree
05	Strongly disagree
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

[RANDOMIZE LIST]

a. The bill inserts were easy to read
b. The bill inserts taught me something about Cap and Trade that I didn't already know
c. I feel the bill inserts included everything I need to know about Cap and Trade
d. I still have many unanswered questions about Cap and Trade

[END BATTERY]

IF QUESTION 15 D = "STRONGLY AGREE" OR "SOMEWHAT AGREE" THEN ASK
15E. You mentioned that you have unanswered questions about Cap and Trade, what are those questions? **[OPEN ENDED]** __________________________________

Q15F. **Ask all** If you had any questions about the charges on your bill, where would you go or what would you do to get further information? Anything else? ______ **[DO NOT READ LIST]**

01	The Union Gas website
02	Call the Union Gas call centre
03	The Ontario Energy Board (OEB) website
04	Look for answers in the communications from Union Gas (e.g. current or previous bill inserts)
05	Other online (e.g. Google search, news, etc.)
06	Ask a family member, friend, or neighbour
07	Other _______________
08	Depends on the size of the charge / how much of a difference
09	I would not take any action
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

16. I would like to hear about your overall impression of Union Gas. Using a scale of 1 to 10, where 1 is "poor" and 10 is "excellent", how would you rate your overall impression of Union Gas as a company? **(DO NOT READ LIST)**

Poor									Excellent	Don't Know
1	2	3	4	5	6	7	8	9	10	99

NOTE: ASK QUESTION 16 TO ONE-HALF OF THE RESPONDENTS IN THE BEGINNING OF THE INTERVIEW (BEFORE Q1) AND TO THE OTHER HALF AT THE END OF THE INTERVIEW (CURRENT LOCATION IN THE QUESTIONNAIRE). THIS WILL HELP US TO ESTIMATE THE SKEW (IF ANY) INTRODUCED BY THE NATURE OF THE TOPICS COVERED IN THE INTERVIEW.

Comments/suggestions

17. Thinking about the topics we have discussed in this survey, do you have any comments or suggestions you would like to share with Union Gas? ___________________

Demographics

The final questions I have for you are for statistical purposes only.

18. What type of home do you live in? [**READ LIST**]

01	Single detached house
02	Semi-detached house
03	Row house or townhouse
04	Duplex
05	Apartment within a multi-storey building
06	Apartment or basement suite within a house
07	A condominium apartment
88	Or some other type of home (**Please Specify**)
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

19. Do you currently own or rent your home?

Own
Rent

20. Record **Gender**

21. **[BIRTH]** In which year were you born? [enter year of birth: XXXX]

Ask only if "BIRTH" is refused.
Which of the following age groups do you fall into? [**READ LIST**]

18-24	1
25-34	2
35-44	3
45-54	4
55-64	5
65+	6
Refuse **(VOLUNTEERED)**	99

22. What is the highest level of education you have completed? Would you say … **[READ LIST]**

01	No schooling
02	Some elementary or high school
03	High school
04	Apprenticeship or trades certificate or diploma
05	College, CEGEP, or college classique
06	Bachelor's degree
07	Master's degree
08	Degree in medicine, dentistry, veterinary medicine, or optometry
09	Doctorate
99	Prefer not to say **(DO NOT READ)**

23. And how many people, including yourself, live in your household? **[Do not read list]**

01	One
02	Two
03	Three
04	Four
05	Five
06	Six
07	Seven
08	Eight or more
98	Prefer not to say **(DO NOT READ)**

24. And which of the following best describes the total annual income of your household - that is of everyone living in your house, before taxes? Please stop me when I reach your category.

01	Less than $20,000
02	$20,000 to just under $30,000
03	$30,000 to just under $40,000
04	$40,000 to just under $50,000
05	$50,000 to just under $60,000
06	$60,000 to just under $70,000
07	$70,000 to just under $80,000
08	$80,000 to just under $90,000
09	$90,000 to just under $100,000
10	$100,000 and over
98	Prefer not to say **(DO NOT READ)**

“That completes our questions. Thank you very much for taking the time to talk to me today.”

Cap and Trade Awareness and Communication – Follow-up Research: C/I Questionnaire

WAVE 2

Introduction

A. May I please speak with the person in your organization who is accountable for energy management, including understanding your natural gas bill, and its impact on your business? Would that be you?

Yes, speaking **(CONTINUE)**
Yes, I'll get them **(REINTRODUCE)**
No, not available **(SCHEDULE CALLBACK)**
ONCE CORRECT PERSON IS ON THE LINE:

_____Capture referral name.

B. Good (morning / afternoon/evening), my name is ___________________ and I'm calling from Market Probe, a national research company. Today we are calling on behalf of Union Gas, your natural gas utility. We are conducting a 7 to 9 minute survey and would like to include your viewpoints on energy and your business' natural gas utility bill. Let me assure you this is not a sales call.

IF NECESSARY:

Your participation is completely confidential. Is this a convenient time to speak with you?

Yes **(CONTINUE)**
No **(SCHEDULE APPOINTMENT)**
Refused **(THANK & TERMINATE)**

Let me start with some quick questions about your business.

ASK ALL
S1. In your job, please tell me whether you have most of the responsibility, some of the responsibility or none of the responsibility for **[INSERT FIRST ITEM]?** How about for **[INSERT NEXT ITEM]**
(REPEAT SCALE AS NEEDED)

[RANDOMIZE]

a) Dealing with your energy utility companies, such as Union Gas
b) Understanding and selecting energy related equipment for your business – such as a space or water heating piece of equipment
c) Managing energy use by your company

Most of the responsibility
Some of the responsibility
None of the responsibility

[IF S1= NONE/DK/REF TO ALL, THANK AND TERMINATE, ELSE CONTINUE]
IF S1 = Natural gas is Not applicable / other fuel used, capture other fuel and terminate

Attitudes toward Environment and Natural Gas

Q16a SEE PROGRAMMING NOTE at Q16

1. Now, to start, thinking about all of the issues that face the Ontario government today, how important would you say the issue of the **environment** is to your business? **[READ LIST; ROTATE Top-to-bottom]**

01	A critical issue that requires immediate action
02	A significant issue that needs to be dealt with in the coming years
03	Just one of many issues government should address
04	Not really an issue at all
98	Don't know **(DO NOT READ)**
99	Refused **(DO NOT READ)**

2. Thinking about natural gas specifically, generally speaking, would you say you have a very favourable, somewhat favourable, somewhat unfavourable or very unfavourable impression of **natural gas** as an energy source?

01	Very favourable
02	Somewhat favourable
03	Neither favourable nor unfavourable **(DO NOT READ)**
04	Somewhat unfavourable
05	Strongly unfavourable
98	Don't know **(DO NOT READ)**
99	Refuse (**DO NOT READ**)

Attitudes toward Cap and Trade

I'd now like to change the subject over to government energy policy in Ontario. Just remember that your responses will be held in confidence and that if you do not know the answer to any particular question just let me know.

4. Last year the Ontario provincial government announced that it will be implementing a cap-and-trade program. How familiar would you say you are with this program? [**READ LIST**]

01	You have a detailed understanding of the cap-and-trade program	**Continue**
02	You have a general understanding of the cap-and-trade program but don't know the details.	**Continue**
03	You have heard of the cap-and-trade program but don't know any of the details.	**Continue**
04	You haven't heard of the cap-and-trade program before this survey.	**Skip to next section (Q8)**
98	Don't know **(DO NOT READ)**	**Skip to next section (Q8)**
99	Refuse **(DO NOT READ)**	**Skip to next section (Q8)**

IF QUESTION 4 = 01, 02, 03 THEN ASK
4B. How did you first hear about the Cap and Trade program? **[DO NOT READ LIST]**

01	Union Gas bill insert
02	Union Gas website
03	Newspaper
04	Radio
05	TV
06	Online
07	Social media
08	From a colleague / Friend /Relative
09	Other **(please specify)** __________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

5. Let's discuss some of the details of the Cap and Trade program. Would you be able to tell me when the program is scheduled to start? **[DO NOT READ LIST]** *(Interviewer, if needed:* would you be able to be more specific?)

01	January 2017
02	Has already started
03	In the future (unspecified)
04	Next year some time
05	Other __________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

6. And thinking about your natural gas bill, which of the following comes closest to your understanding of how the program will affect your natural gas bill? **[READ LIST; ROTATE Top-to-bottom]**

01	Charges on your natural gas bill will increase
02	Charges on your natural gas bill will stay the same
03	Charges on your natural gas bill will decrease
98	Don’t know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

6B. Considering everything you know about the Cap and Trade program to date, which of the following two statements best describes your understanding. Please consider each statement carefully. **[READ LIST; ROTATE Top-to-bottom]**

01	The money collected from Cap and Trade charges will go to the government
02	The money collected from Cap and Trade charges will be used by Union Gas
98	Don’t know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

Bill

Now, please think about your monthly natural gas bill.

8. Now I'd like to ask you about some of the components of the natural gas bill you receive from Union Gas. Your natural gas bill contains 3 separate variable charges, including:
    - A Transportation charge that is for getting your gas into Union Gas' pipeline,
    - A Delivery charge that is for getting your gas through Union Gas' pipeline and into your business, and
    - A gas commodity charge that is for the actual gas you use within your business

    Your monthly Union Gas bill is a total of these costs.

    Prior to today, were you aware of this?

01	Yes
02	No
03	Aware of one or two of the three charges
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

INTERVIEWER NOTE: EACH OF THE THREE VARIABLE CHARGES IS BASED ON A DIFFERENT PRICE PER M3 OF GAS USED.

[IF Q4 = 01, 02, 03 ASK Q9 AND Q10. OTHERWISE SKIP TO Q11]

9. Referring to the new Ontario Government's Cap and Trade program are you aware that the Ontario Energy Board has determined that the cap and trade charge will not be a separate charge identified on your natural gas bill, but instead will be included within the Delivery Charge I just described?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

10. And also, before today, were you aware that the Cap and Trade-related charge is directly tied to how much natural gas you use? That means that if you use more natural gas you will pay more for Cap and Trade?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

11. *Still thinking about your monthly gas bill, do you recall receiving your NOVEMBER bill? This* would be the bill that was sent to you during the month of November. ***Interviewer note:*** *either in the mail, or via e-mail?*
PROGRAMMING NOTE: If Bill Cycle is 15 through 20 adjust wording to *"This would be the bill that was sent to you in late November or early December".*

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

11a. **If Q11 is yes** Have you opened this bill, and looked at it? ***Interviewer note:*** *either the paper copy or online?* **READ LIST**

01	Yes, opened it, and reviewed it
02	Yes, opened it, but ONLY looked at the total amount
03	No, have not yet opened it and looked at it
04	No, usually don't look at it
05	Someone else opens and looks at it
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

11b. **If Q11a=03 (No, not yet**) When would you say you would typically look at your Union Gas bill? Would you say …. **READ LIST**

01	Usually on or right before the bill due date
02	Whenever you have time (no specific time)
03	Usually right when it comes in (just not this month)
04	You only look at it if the amount charged is different than what you were expecting
04	Other _________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

12. **Ask all** Now, please think about the last several bills you received from Union Gas. Do you recall seeing a bill insert or flyer about the Cap and Trade program included in the bill envelope? Or if you don't receive a paper bill, did you see a link about Cap and Trade in the e-mail message or once you logged into MyAccount?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

13. **If Q12 is yes** Did you read it?

01	Yes
02	No
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

14. **If Q13 is no** Is there a specific reason why you didn't read it? **(DO NOT READ LIST)**

01	Never read the bill inserts
02	Plan to read later
03	Already feel informed about the topic
04	Not interested in the topic
05	Other ________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

15. **If Q13 is yes** I am going to read you a number of statements on topics related to the bill insert.

For each statement, please tell me if you agree or disagree. **INTERVIEWER NOTE: if "agree/disagree" ask => is that "strongly or somewhat agree/disagree".**

01	Strongly agree
02	Somewhat agree
03	Neither agree or disagree **(DO NOT READ)**
04	Somewhat disagree
05	Strongly disagree
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

[RANDOMIZE LIST]

a. The bill insert was easy to read
b. The bill insert taught me something about Cap and Trade that I didn't already know
c. I feel the bill insert included everything I need to know about Cap and Trade
d. I still have many unanswered questions about Cap and Trade

[END BATTERY]

IF QUESTION 15 D = "STRONGLY AGREE" OR "SOMEWHAT AGREE" THEN ASK

15E. You mentioned that you have unanswered questions about Cap and Trade, what are those questions? **[OPEN ENDED]** ________________________________

Q15F. **Ask all** If you had any questions about the charges on your bill, where would you go or what would you do to get further information? Anything else? ______ **[DO NOT READ LIST]**

01	The Union Gas website
02	Call the Union Gas call centre
10	Contact a Union Gas account manager / representative directly (not call centre)
11	Contact an industry organization / board
03	The Ontario Energy Board (OEB) website
04	Look for answers in the communications from Union Gas (e.g. current or previous bill inserts)
05	Other online (e.g. Google search, news, etc.)
06	Ask a family member, friend, or neighbour
07	Other _______________
08	Depends on the size of the charge / how much of a difference
09	I would not take any action
97	Someone else in my organization would look into this
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

16. I would like to hear about your overall impression of Union Gas. Using a scale of 1 to 10, where 1 is "poor" and 10 is "excellent", how would you rate your overall impression of Union Gas as a company? **(DO NOT READ LIST)**

Poor									**Excellent**	**Don't Know**
1	2	3	4	5	6	7	8	9	10	99

NOTE: ASK QUESTION 16 TO ONE-HALF OF THE RESPONDENTS IN THE BEGINNING OF THE INTERVIEW (BEFORE Q1) AND TO THE OTHER HALF AT THE END OF THE INTERVIEW (CURRENT LOCATION IN THE QUESTIONNAIRE). THIS WILL HELP US TO ESTIMATE THE SKEW (IF ANY) INTRODUCED BY THE NATURE OF THE TOPICS COVERED IN THE INTERVIEW.

Comments/suggestions

17. And lastly, thinking about the topics we have discussed in this survey, do you have any comments or suggestions you would like to share with Union Gas?

____

"That completes our questions. Thank you very much for taking the time to talk to me today."

Cap and Trade

Communication and Awareness Study

Wave 2 Results (December 2016)
Market Research & Analysis
High-Level Report

Objectives

Union Gas would like to …

- Identify whether customers understand the Cap and Trade (C&T) program and its impact on their bill – that is, their knowledge of the existence, timing and impact of the program and that the cost will be included in Union Gas' delivery charge based on consumption;
- Identify customers' understanding of Union Gas' role in the C&T program;
- Identify whether customers have seen and read the bill inserts related to the C&T program; and
- Understand general perceptions of natural gas as an energy source.

Methodology

- Fieldwork was conducted by telephone by Market Probe Canada
  - Wave 1: October 7 to October 17, 2016
  - Wave 2: December 7 to December 14, 2016
  - Wave 3: tentatively planned for March 2017

- The margin of error is as follows (note that the margin of error on questions with a reduced base size may be higher):

	Completed Interviews		Margin of Error
	Wave 1	Wave 2	
Residential	401	401	+/- 4.8%
Commercial / Industrial (BANNER-billed)	100	100	+/- 9.8%

- When an "*" is shown in the report it indicates that the Wave 2 result is statistically significantly different from Wave 1 at a 95% confidence level.

Residential attitudes towards environment

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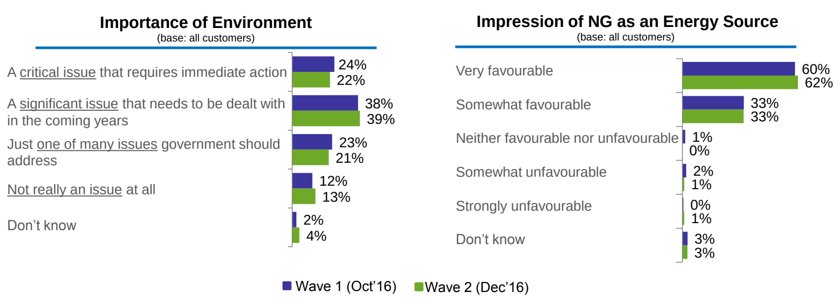
- The majority of customers consistently believe that the environment is at least a significant issue that needs to be dealt with
- Favourability of natural gas continues to be strong among residential customers with 95% indicating they have a very or somewhat favourable impression of the product



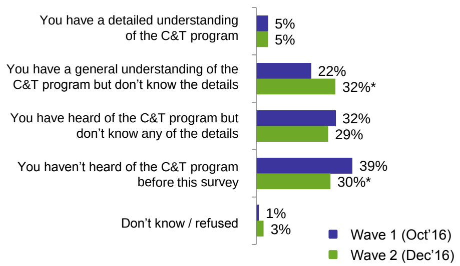
Q: Now, to start, thinking about all of the issues that face the Ontario government today, how important would you say the issue of the environment is to you? Q: Thinking about natural gas specifically, generally speaking, would you say you have a [level of favourability] impression of natural gas as an energy source?

Residential C&T awareness

- 2-in-3 customers have at least heard of C&T, while the remainder – though significantly lower than in Wave 1, still a sizeable group – have not heard of it at all
  - Lower levels of “have not heard” are observed across ALL demographics groups (not just some)

Awareness of Cap & Trade
(base: all customers)

NOT Heard of C&T (%)	W1	W2
18-34	49	33
35-54	40	41
55-64	39	35
65+	40	27
Male	34	30
Female	47	38
High school or less	50	48
College	38	31
University or more	32	23
<$40K	59	60
$40-$80K	31	30
$80K+	33	22
Looked at their monthly bill	40	29
Think the environment is a critical issue	39	35
Think it is easy to rely on renewables	46	n/a



Q: Last year the Ontario provincial government announced that it will be implementing a cap-and-trade program. How familiar would you say you are with this program?

Residential sources of C&T information

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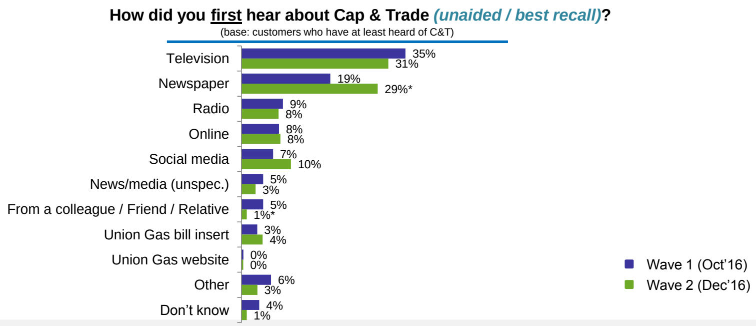
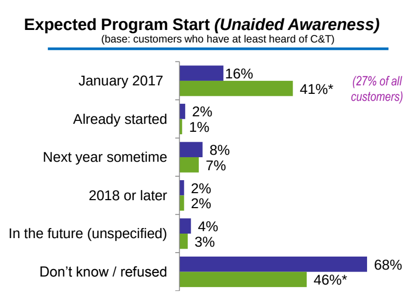
A Spectra Energy Company

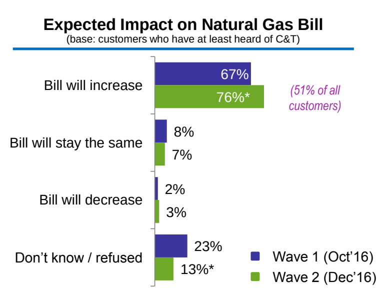
- Majority first heard about C&T through traditional media channels – most likely through news coverage
  - In Wave 2, more customers heard about C&T through newspapers and social media
  - While these areas indicate the point of **first** awareness, they may not necessarily be the source customers turn to (or have turned to) for more information



Residential C&T program expectations

- While there is still a portion of customers that have never heard of C&T, among those that have, more know that the program start date is Jan'17 (41% compared to 16%)
- Among those who have heard of C&T, the majority are aware that it will impact their UG bill, and that this bill will increase (76%)
- Also, the majority expect that the funds will be used by the government (74%, up from 70% in Wave 1) instead of Union Gas (6%), while the remainder does not know (20%)





Q: Let's discuss some of the details of the Cap and Trade system. Would you be able to tell me when the program is scheduled to start? Q: And thinking about your natural gas bill, which of the following comes closest to your understanding of how the program will affect your natural gas bill?

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Residential bill awareness and C&T impact

- At 85% and 87% most customers are aware of how their bills are structured
- Among those who have heard of C&T, many (62%) understand that the charges will be based on their NG usage, and just over half are aware that the C&T charge will be included in the delivery charge (a significant improvement over Wave 1 results)

Aware that …

… there are 3 Variable Charges on the Bill
(base: all customers)

W1: 87% | W2: 85%
Yes

… C&T charge would be tied to NG usage
(base: customers who have at least heard of C&T)

W1: 55% | W2: 62%
Yes

… C&T is to be included in delivery charge
(base: customers who have at least heard of C&T)

W1: 39% | W2: 52%*
Yes

Q: Referring to the new Ontario Government's Cap and Trade program are you aware that the Ontario Energy Board has determined that the cap and trade charge will not be a separate charge identified on your natural gas bill, but instead will be included within the Delivery Charge I just described? Q: And also, before today, were you aware that the Cap and Trade-related charge is directly tied to how much natural gas you use? That means that if you use more natural gas you will pay more for Cap and Trade?

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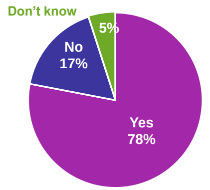
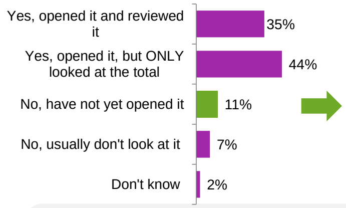
Residential bill readership (Wave 2)

- While most customers recall seeing their November bill, not all have opened and looked at it (or looked at the detail beyond the total amount)
- No notable differences are observed across different "billing groups" (whether by bill presentment type or billing cycle)

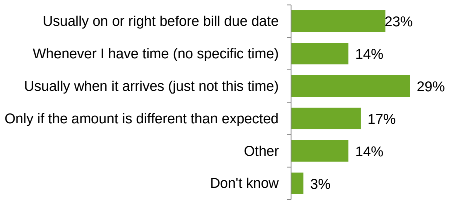
Have received November Bill *(at the time of the survey)*
(base: all customers)



Have opened and looked at the bill?
(base: customers who have received November bill)



When would you typically look at your bill?
(base: customers who have not yet looked at their bill, n=35)



Q: Still thinking about your monthly gas bill, do you recall receiving your NOVEMBER bill? This would be the bill that was sent to you during the month of November. Q: Have you opened this bill, and looked at it? *Interviewer note: either the paper copy or online?* Q: When would you say you would typically look at your Union Gas bill? Would you say ….

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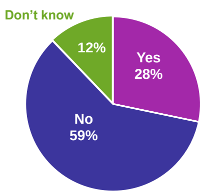
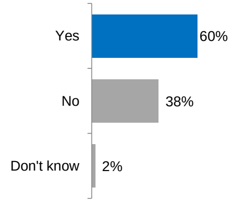
Residential C&T bill insert readership (Wave 2)

- In Dec'16, just over 1-in-4 customers recall seeing a C&T bill insert and 60% (or 17% of all customers) have read it
- No notable differences are observed across different "billing groups" (whether by bill presentment type, EBP, APP or billing cycle)

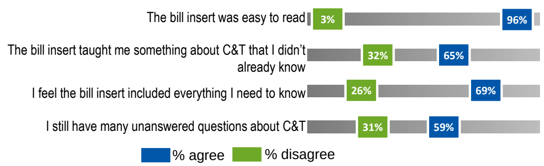
Recollection of any C&T Bill Insert (Paper or Online) in past few months
(base: all customers)



Have read any of the C&T Bill Inserts
(base: customers who recall seeing a C&T insert)



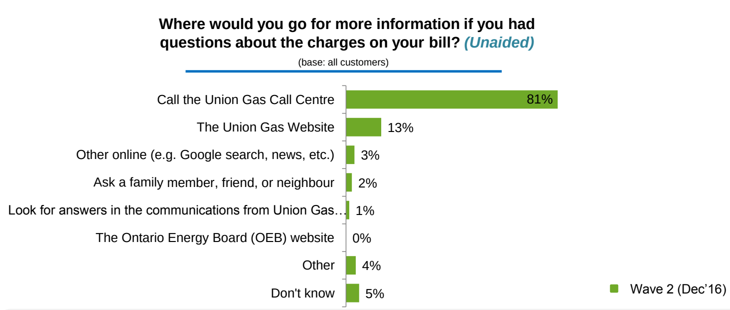
Ratings of the C&T Bill Inserts
(base: customers who have read a C&T bill insert, n=68)



Q: Now, please think about the last several bills you received from Union Gas. Do you recall seeing a bill insert or flyer about the Cap and Trade program included in the bill envelope? Or if you don't receive a paper bill, did you see a link about Cap and Trade in the e-mail message or once you logged into MyAccount? Q: Did you read it?

Residential actions to address questions (Wave 2)

- The majority of customers would call the Union Gas Call Centers in the event of any questions about the charges on their bill
- Among other mentions customers included things like “e-mail Union Gas”, “my local MPP’s office” or “call my MP if I do not get a satisfactory answer from Union Gas”



Residential unanswered questions about C&T Wave 2: (1 of 2)

Unanswered questions about Cap & Trade were as follows (only 40 customers, who had already seen the bill insert, were asked this question):
Are they going to make it another boondoggle like electricity pricing in Ontario with the global adjustment?
Don't even know the question yet, because they don't have the answers to what they are doing. How are they are going to equalize it, how are they going to make sure it is distributed evenly? Manitoba and Saskatchewan opted out. There has to be a main method of distribution costs that is equal for everybody. Doesn't mean an average for all, but addressing the needs individually.
How does the gov't plan to use that money?
How much is the government planning to raise vs. how much the government is actually going to raise? Once they implement this, what will prevent big companies from moving out of this country to escape the cap and trade and get away with this system?
I am not sure how it is going to be used. I am not sure if the government is going to offset it in any way.
I don't know exactly what they are trying to do with it and why is this a new thing all of a sudden?
I just don't understand all of it, just some of it.
I'd like to know what the government is going to do with the money? Did Union Gas get any benefit from it to just pass it on?
I understand what's going to happen. What I don't like is, it's not going to show separately I actually like to see how much is cap and trade fee.
I would like to know how fast it is going to increase and that's why I think it should be broken out in a cap and trade.
Is the Cap and Trade charge a fixed amount per unit of natural gas delivered?
Not particular. Why may we end up giving money to California? I am not going to be penalized for living in Ontario, California has a hot climate.
She's bringing in a tax that has nothing to do with cap and trade, just an excuse to penalize companies and she's putting it on the people in Ontario that can't afford it. The ones on fixed income. She's not thorough. She is just worried about some way of collecting a few million dollars. It is an unfair tax and why isn't she going to itemize it on the bill. If you are charging something to somebody you should see what is on the bill.
The actual reasoning behind the whole thing.
The information maybe in the link that I didn't study. It may be in the link but I didn't read it in detail. I would like to know how and where the money will be used.

Residential unanswered questions about C&T Wave 2: (2 of 2)

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Unanswered questions about Cap & Trade were as follows (only 40 customers, who had already seen the bill insert, were asked this question):
The only question is that I've been reading up on it, and as far as I know unless there is more stuff, I believe that the government is adding more tax and they are just another form of taxation. I believe that's all the government does anymore. Just sit back and think of ways of taxing people. I tried to contact Kathleen Wynne about this skill trade on behalf of all the people that are being licenced and I think it's quite baloney because the people that learn the trade and get licensed to be safe, by doing what they're doing its going to be unsafe for other people.
There's another HST slot on my Canadian tire bill and its empty on my bill and I'm wondering is that where the cap and trade fee is going to be.
They need to lay out a five year plan and review it to see if it is ultimately worth it for the province. If they were to state an assumption, and provide a pamphlet indicating what the average client could benefit or not benefit from the program. The government blending it with that charge it's kind of a masquerade.
Well I can't think right off the bat, have to review the notice you gave me.
What is the environmental impact of cap and trade I don't understand that. How will they be improving the environment? They are just moving the chairs on the titanic. Our corporations and industry is going to be held to the same standards as individuals. If they are bigger polluters are they're going to pay a lot more.
When is it starting? Why is the owner responsible for a cap amount which we use? Why couldn't the gov't find another way to prevent the solution? It should be only the gov't because it's their responsibility to provide to their customers.
Where I can go to show my disapproval to cap and trade?
Where is the money going to go when the money is collected?
Where is the money really going? Why is it so secretive?
Who is profiting from the consistent attacking and taking from the middle class.
Why is it necessary?
Why is the government putting it onto the tax payers?

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Appendix

Residential vs. C/I comparison

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- Awareness of C&T is increasing among Residential and C/I customers, as is the proportion of customers who have seen and read any C&T bill inserts

	Residential		**C/I**	
	W1	**W2**	**W1**	**W2**
Natural Gas favourability	93%	95%	92%	95%
Think the environment is a critical issue	24%	22%	13%	6%
Have heard of C&T	60%	66%	49%	70%
Have **not** heard of C&T *(includes don't know)*	40%	33%	51%	30%
Total aware that C&T starts in Jan'17	9%	27%	9%	24%
Government is expected user of C&T funds	70%	74%	86%	66%
Aware that C&T charge is tied to NG usage	55%	62%	55%	60%
Aware that C&T charge will be included in the delivery	39%	52%	37%	49%
Would call UG call centre with any questions about bill	n/a	81%	n/a	90%
Have seen and read any C&T bill inserts	4%	17%	2%	10%

Total aware refers to a base of all customers. Aware refers to a base of customers who have at least heard of C&T.

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Commercial/Industrial Results

C/I C&T awareness and sources of information

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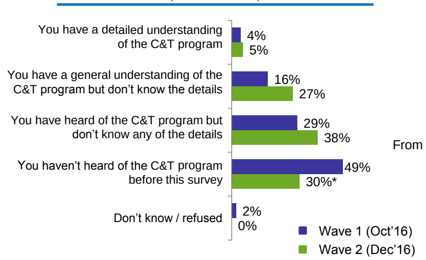
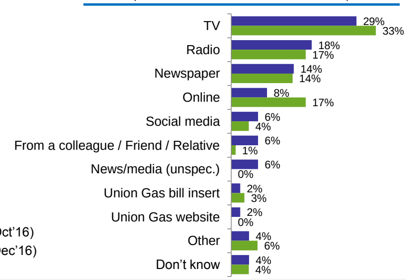
- 70% of C/I customers have at least heard of C&T, while the remaining 30% have not heard of it at all (an improvement over Wave 1)
- Similar to residential customers, among those who have at least heard of C&T, most first heard about it through traditional media channels (television, newspaper and radio)

Awareness of Cap & Trade
(base: all customers)



How did you first hear about Cap & Trade
(base: customers who have at least heard of C&T)



Q: Last year the Ontario provincial government announced that it will be implementing a cap-and-trade program. How familiar would you say you are with this program?

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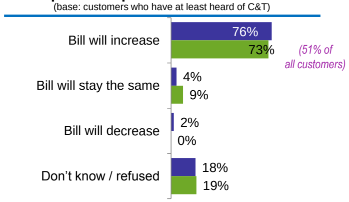
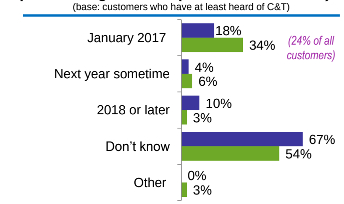
C/I C&T program expectations

- Among those who heard of C&T, the majority are aware that it will impact their UG bill and that the funds will go to the government but most are still unaware of the program's actual start date

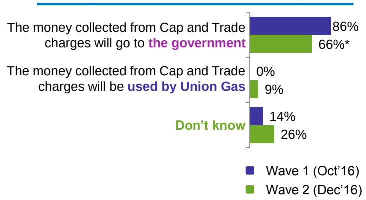
Expected Impact on Natural Gas Bill
(base: customers who have at least heard of C&T)



Expected Program Start *(Unaided Awareness)*
(base: customers who have at least heard of C&T)



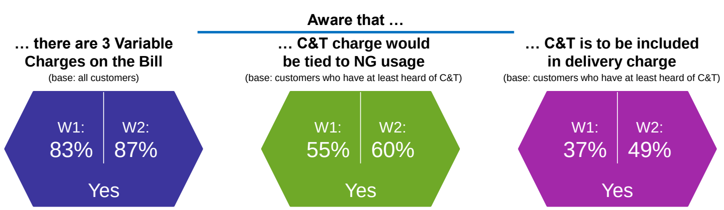
Expected Use of Funds Collected
(base: customers who have at least heard of C&T)



Q: Let's discuss some of the details of the Cap and Trade system. Would you be able to tell me when the program is scheduled to start? Q: And thinking about your natural gas bill, which of the following comes closest to your understanding of how the program will affect your natural gas bill? Q:Considering everything you know about the Cap and Trade program to date, which of the following two statements best describes your understanding.

C/I bill awareness and C&T impact

- At 87% we see that most customers are aware of how their bills are structured
- Among those who have heard of C&T, over half understand that the charges will be based on their NG usage, while just about half are aware that the C&T charge will be included in the delivery charge

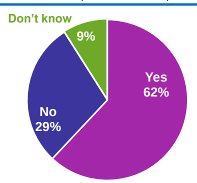


Q: Referring to the new Ontario Government's Cap and Trade program are you aware that the Ontario Energy Board has determined that the cap and trade charge will not be a separate charge identified on your natural gas bill, but instead will be included within the Delivery Charge I just described? Q: And also, before today, were you aware that the Cap and Trade-related charge is directly tied to how much natural gas you use? That means that if you use more natural gas you will pay more for Cap and Trade?

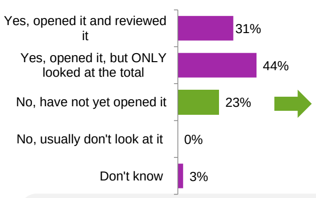
C/I bill readership (Wave 2)

- While most customers recall seeing their November bill, not all have opened and looked at it (or looked at the detail beyond the total amount) yet

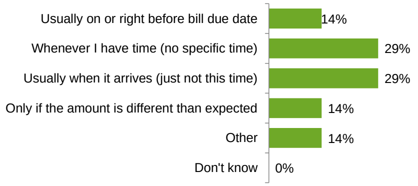
Have received November Bill *(at the time of the survey)*
(base: all customers)



Have opened and looked at the bill?
(base: customers who have received November bill)



When would you typically look at your bill?
(base: customers who have not yet looked at their bill, n=14)

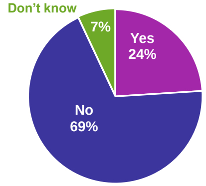


Q: Still thinking about your monthly gas bill, do you recall receiving your NOVEMBER bill? This would be the bill that was sent to you during the month of November. Q: Have you opened this bill, and looked at it? *Interviewer note: either the paper copy or online?* Q: When would you say you would typically look at your Union Gas bill? Would you say ….

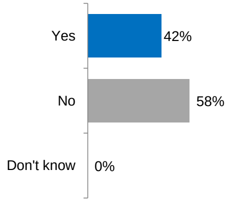
C/I C&T bill insert readership (Wave 2)

- In Dec'16, approx. 1-in-4 customers recall seeing a C&T-related bill insert and 42% (or 10% of all customers) have read it
- No notable differences are observed across different "billing groups" (whether by bill presentment type, EBP, APP or billing cycle)

Recollection of any C&T Bill Insert (Paper or Online) in past few months
(base: all customers)



Have read any of the C&T Bill Inserts
(base: customers who recall seeing a C&T insert)



Ratings of the C&T Bill Inserts
(base: customers who have read a C&T bill insert, n=10)

Not enough data available to report results (n=10)

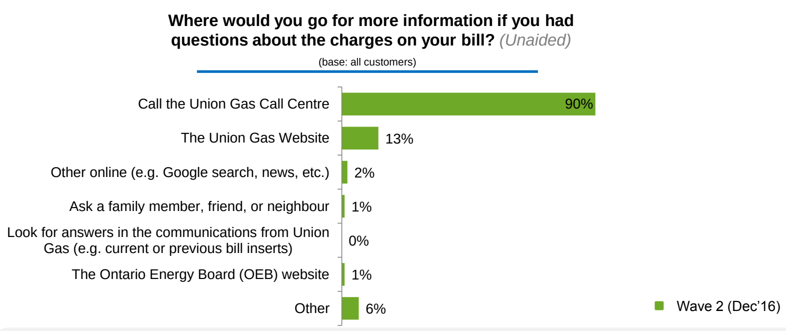
Q: Now, please think about the last several bills you received from Union Gas. Do you recall seeing a bill insert or flyer about the Cap and Trade program included in the bill envelope? Or if you don't receive a paper bill, did you see a link about Cap and Trade in the e-mail message or once you logged into MyAccount? Q: Did you read it?

C/I unanswered questions about C&T Wave 2

Unanswered questions about Cap & Trade were as follows (only 5 customers, who had already seen the bill insert, were asked this question):
Basically it does not explain what is the cap and how much. After how many cubic meters you get charged. That is not very clear. It is not mentioned at all. What does that have to do with conservation and it should be explained clearly before it's rolled out. How's does it benefit the customer? In order to reduce the cost they should come up with some kind of program to bring consumption down.
Just more details. It is very general I know.
Just what assurance we will get that the money goes to the government and that it's not siphoned off along the way.
Why are we doing it. It looks like it is going to collapse in California, how is that going to work. What do they think the financial impact is going to be and is it capped?
Why does it even exist? And how much is the increase, is it going to cost me? When can we see a decrease in the Union Gas bill? When can we see more restraint with the government and Union Gas? Why the Gas Price Adjustment? The storage, transportation, the delivery is higher than the actual usage? The gas I paid used was $27 but the total charges was $75.

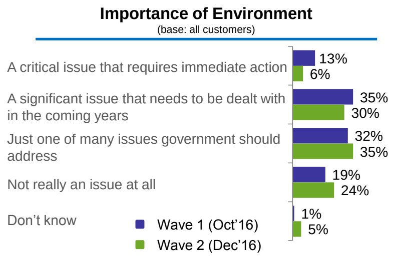
C/I actions to address questions (Wave 2)

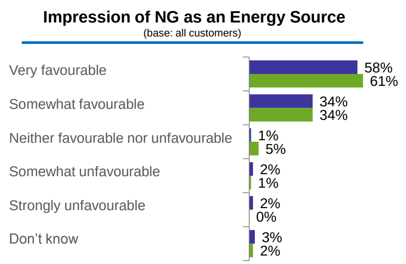
- The majority of customers would call the Union Gas Call Centres in the event of any questions about the charges on their bill



C/I attitudes towards environment

- Fewer C/I customers (36% compared to 48%) believe that the environment is at least a significant issue that needs to be dealt with – this is significantly lower compared to residential customers
- 95% of C/I customers have a favourable impression of natural gas – this is very similar to residential customers (95%)





Q: Now, to start, thinking about all of the issues that face the Ontario government today, how important would you say the issue of the environment is to you? Q: Thinking about natural gas specifically, generally speaking, would you say you have a [level of favourability] impression of natural gas as an energy source?

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Wave 1 – reference slides

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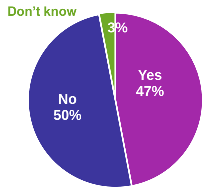
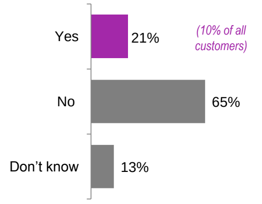
Residential bill readership (Wave 1)

- Bill readership is not very high among residential customers (47%)

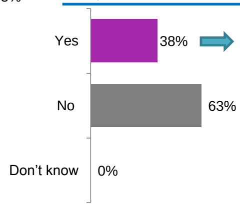
Had looked at September Bill *(at the time of the survey)*
(base: all customers)



Recollection of C&T Bill Insert (Paper or Online)
(base: customers who have looked at September bill)



Read C&T Bill Insert (Paper or Online)
(base: customers who recall seeing a C&T bill insert, n=40)



Represents a total of 15 customers (follow-up questions such as reason for not reading and rating of the insert cannot be reported)
Directionally, ratings for
- *the bill insert was easy to read* and *I still have many unanswered questions* were met only with agreement; while
- *The bill insert taught me something that I didn't already know* and *I feel the bill insert included everything I need to know* were met with more varied responses of both agreement and disagreement

Q: To date, have you looked at your September bill from Union Gas? Q: Do you recall seeing a bill insert or flyer about the Cap and Trade program included in your September bill envelope? Or if you don't receive a paper bill, did you see a link about Cap and Trade in the e-mail message or once you logged into MyAccount? Q: Did you read it?

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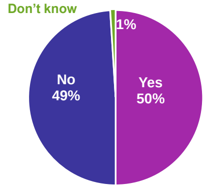
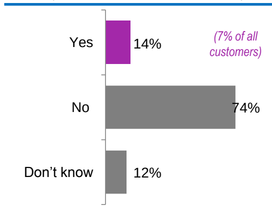
C/I bill readership (Wave 1)

- Bill readership is not very high among C/I customers (47%)

Had looked at September Bill *(at the time of the survey)*
(base: all customers)



Recollection of C&T Bill Insert (Paper or Online)
(base: customers who have looked at September bill)



Read C&T Bill Insert (Paper or Online)
(base: customers who recall seeing a C&T bill insert)

Not enough data available to report results (n=7)

Q: Let's discuss some of the details of the Cap and Trade system. Would you be able to tell me when the program is scheduled to start? Q: And thinking about your natural gas bill, which of the following comes closest to your understanding of how the program will affect your natural gas bill? Q:Considering everything you know about the Cap and Trade program to date, which of the following two statements best describes your understanding.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: General

What assistance will Union make available to voluntary and LFE participants to assist them in developing their compliance plans?

Response:

Union has not, and will not, make any assistance available to voluntary and Large Fuel Emitters ("LFE") participants to assist them in developing their compliance plans.

Union is a mandatory participant in the Ontario government Cap-and-Trade program and it is inappropriate and a violation of law for it to assist voluntary and LFE participants in developing their compliance plans. As outlined in section 32 (6) and (7) of Bill 172 that enacts the Climate Change Mitigation and Low-carbon Economy Act, 2016, it is a violation of the law for entities to share information related to their compliance plans and compliance instruments with each other as such information sharing could lead to market manipulation thus jeopardize the integrity of the Cap-and-Trade market.

Aside from Compliance Plans, Union has assisted customers who are voluntary and LFE participants to understand the Cap-and-Trade program, the impact on their natural gas bill, and what they can do to manage their energy consumption. This is the same public information that would be shared with customers of similar size and/or industries.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 35

a) Please confirm that annual gas volume emission purchase risk will be managed by use of deferral accounts, and explain how that will work, in the case of both over-purchase and under-purchase of allowances, at one or more of the four auctions in 2017. Please provide an example of under-purchase and over-purchase, and how the variances are managed through the new deferral account.

b) Please explain how price risk will be handled through deferral accounts, or otherwise, including purchasing practices.

c) How will price risk be managed in the absence of a functioning future/option markets, either exchange based (ICE) or otherwise.

d) Will the ICE exchange be available to buy/sell GHG allowance or credits in 2017? What instruments have been developed to date for use on ICE?

e) Please describe the nature of the liquidity risk, if any, that Union faces in 2017. To what extent is the risk mitigated by Union bidding for sufficient volumes of allowances at the 2017 auctions. Does Union intend to ask the government to guarantee that the amounts of allowance required by the utilities will be available to the utilities, at reasonable prices, through the sale of the government's reserve allowances or otherwise, given that other methods of obtaining allowance or generating credits (together with emission units) will likely not be available in 2017. In Union's view, is the government aware of the various risks faced by customers and utilities in securing necessary allowances? Does it have sufficient safeguards?

Response:

a) Annual gas volume risk will be managed through deferral accounting. Union's proposed deferral accounts will be used to capture price and volume variances between the compliance instruments and the GHG emission amounts collected in rates during the calendar year.

   The cost of compliance instruments will be represented by the weighted average cost of compliance instruments obtained to satisfy the obligations incurred by customers and Union.

   The following examples have been provided for illustrative purposes only.

(Example A) Compliance Instruments On-Hand Exceed GHG Emissions Incurred

	Compliance Instruments On-Hand or Purchased	
A	Compliance Units on hand	30 MM units
B	Average Cost per Unit	$10 / unit
C	Total Value of Instruments on hand or purchased (A x B)	$300MM
	Collected on Obligations Incurred	
D	Obligations Incurred	29 MM units
E	Rate Recovered	$ 9 / unit
F	Total Value Collected (D x E)	$261MM
	Price and Volume Variances	
G	Total Value of Instruments on hand or purchased (C)	$300MM
H	Total Value Collected (F)	$261MM
I	Total Variance	$ 39MM
J	Price Variance to Deferral Account ((B-E) x D)	$ 29MM
K	Volume Variance to Asset Account ((A-D) x B)	$ 10MM

The cost of excess compliance instruments on hand at the end of year 1 will be used in calculating the weighted average of the cost of compliance instruments obtained in year 2.

(Example B) GHG Emissions Incurred Exceed the Compliance Instruments On-Hand

	Compliance Instruments On Hand or Purchased	
A	Compliance Units on hand	30 MM units
B	Average Cost per Unit	$10 / unit
C	Total Value of Instruments on hand or purchased (A x B)	$300MM
	Collected on Obligations Incurred	
D	Obligations Incurred	31 MM units
E	Rate Recovered	$ 9 / unit
F	Total Value Collected (D x E)	$279MM
	Price and Volume Variances	
G	Total Value of Instruments on hand or purchased (C)	$300MM
H	Total Value Collected (F)	$279MM
I	Total Variance	$ 21MM
J	Price Variance to Deferral Account ((B-E) x D)	$ 31MM
K	Volume Variance ((A-D) x B)	($ 10MM)

b) In the event that Union has a shortfall of compliance instruments on hand at the end of the calendar year to cover off the final emitted amounts, Union will assume that the average cost of the first subsequent compliance instrument purchase after the calendar year be factored into the overall average actual cost as part of the price variance deferral calculation.

In the event that Union has a surplus of compliance instruments on hand at the end of the calendar year beyond what is required to cover off the final emitted amounts, Union will assume that the annual year to date average cost of the final calendar year compliance instrument purchase be carried forward to the subsequent calendar year and factored into that year's price variance deferral calculation.

c) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. Such prohibitions are reflected in Section 4 of the OEB Cap-and-Trade Framework.[1]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

d) Please see the response at Exhibit B.BOMA.19 c).

e) The Climate Change Act outlines prohibitions on the disclosure of certain information. Such prohibitions are reflected in Section 4 of the Cap-and-Trade Framework.

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 37

a) In order to be consistent with the disclosure by EGD of its Alpha Carbon Market Report, please provide a copy of those parts of the Clear Blue Report that deal with the Cap-and-Trade market history, etc., the risks that are present in that market, and the tools that are available to mitigate those risks.

b) Does Clear Blue's characterization of the Cap-and-Trade market differ in any material respect from Alpha's view?

Response:

a) Union notes that Enbridge has filed two reports written by their consultant, Alpha Inception, one of which has been redacted from the public record. The Compliance Instrument Purchasing Strategy in Exhibit 3, Appendix D is not a carbon market overview as is the case with the Alpha Inception Carbon Market Report filed by Enbridge. The ClearBlue Markets report is a recommendation for Union's Compliance Instrument Purchasing Strategy and therefore contains Strictly Confidential market sensitive information. In January 2017, Union, working with Board staff, agreed to unredact the portions of the Compliance Instrument Purchasing Strategy that were not market sensitive (see Exhibit 3, Appendix D, pp. 3, 6, and 7 Updated).

b) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the OEB Cap-and-Trade Framework.[1]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

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[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

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Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 38 – Counterparty Risk

Please confirm there is no counterparty risk in dealing with the purchase of allowance from the Government of Ontario. Please provide Union's credit risk abatement package that it now uses for gas purchases, and describe how the guidelines it intends to adapt for use in the purchase/sale of GHG allowances/credits.

Response:

Union's assessment is there will be low credit or counterparty risk with respect to participation in government auctions for Ontario carbon allowances. Please see the response at Exhibit B.Staff.11.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, Credit Risk Question, Non-compliance Risk, p. 39

a) Based on its studies to date and experience in Quebec and WCI, and latest registration data on market participants, what counterparties does Union anticipate will be engaged in the secondary market? How many? What types of organizations? Please provide a list of the registered marketed participants as of today's date. What additional entrant does Union expect and when?

b) Please confirm that Union will deal with its own non-compliance risk, by simply doing its job properly.

Response:

a) Union is not aware of the Compliance Plans of other market participants, including their plans for secondary market participation. For a list of registered market participants, please see the response at Exhibit B.SEC.1 c).

b) Union's non-compliance risk mitigation plan is discussed at Exhibit 3, p.45.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 42

Please explain, in more detail, the impact on price risk of the fact that, under the Ontario Cap-and-Trade gas regime (Statute and Ontario Regulation 144) utilities, unlike California, are not eligible for free allowances. How have free allowances been used in California and Quebec?

Response:

Since natural gas utilities in Ontario are not eligible for free allowances, the exposure to price risk related to compliance instruments is greater than utilities in California which receive allowances for free. Union does not have insight into how participants in other jurisdictions have incorporated free allowances into their compliance plans, as this information is market sensitive and has not been made public.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 3, p. 44

a) Please explain what is meant by project execution risk in this context.

b) What does Union mean by "it will manage liquidity risk by prioritizing selection of compliance instructions in 2017"? Please explain this in the context of the compliance instruments which Union has stated in its evidence are likely to be available to it, or not available to it, or that it does not intend to use, in 2017.

Response:

a) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the OEB Cap-and-Trade Framework.[1]

   This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

b) The Climate Change Act outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the Cap-and-Trade Framework.

   This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association (“BOMA”)

Reference: Exhibit 5, Appendix C, p. 2

Please confirm that the statement "Customers buying gas from energy marketers will also pay this charge" is meant to refer to a charge for 2017 emission allowance, not necessarily the 3.3 cents per cubic meter, referred to in the previous sentence.

Response:

Not confirmed. The statement “Customers buying gas from energy marketers will also pay this charge” is meant to refer to the 3.3 cents per cubic meter.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit 7, Schedule 1, p.1

a) Please explain the fact that in some of the rate costs (3.4240 cents/m^3) for facility related GHG emissions obligation, why is the rate higher than the 3.3181 for customer related GHG emissions obligation?

b) Please show the derivation of the 389,882 cubic meters.

Response:

a) The difference in the customer-related and facility-related compliance cost unit rates is due to different emission conversion factors used to convert from m^3 to tCO_2e. A detailed calculation of the compliance cost unit rates is provided at Attachment 1. Please see the response at Exhibit B.Staff.19 a) for a discussion of the conversion factors.

b) The facility-related forecast volumes provided at Exhibit 7, Schedule 1, p.1 are 289,882 10^3m^3 not 389,882 m^3. Please refer to Exhibit 2, Schedule 1, column (c), lines 8 to 12 for the utility components of the facility-related forecast volume of 289,882 10^3m^3. Exhibit 2, pp.4-6 describes the methodology used to determine the facility-related forecast volumes.

UNION GAS LIMITED
Calculation of Customer-related and Facility-related Compliance Cost Unit Rates

Line No.		2017 Utility Volume Forecast (1) (m^3)	Emissions Conversion Factor (2) (tCO_2e/m^3)	2017 Forecast Emissions (tCO_2e)	Weighted Average Forecast Price (3) ($\$/tCO_2e$)	Total Forecast Cost of Compliance Instruments ($)
		(a)	(b)	(c) = (a x b)	(d)	(e)
1	Customer-related Obligation	7,997,879,152	0.001875	14,993,040	17.70	265,376,812
2	Forecast Volumes (m^3) (line 1, column (a))					7,997,879,152
3	Weighted Average Compliance Cost Unit Rate (cents/m^3) (line 1/line 2 * 100)					3.3181
	Facility-related Obligation					
4	UFG	80,381,040	0.001875	150,684	17.70	2,667,115
5	Blowdowns	3,864,884	0.001875	7,245	17.70	128,240
6	Compressor fuel volume	192,711,194	0.001959	377,514	17.70	6,682,000
7	Buildings and line heaters	12,925,354	0.001959	25,321	17.70	448,178
8	Total	289,882,472				9,925,533
9	Forecast Volumes (m^3) (line 8, column (a))					289,882,472
10	Weighted Average Compliance Cost Unit Rate (cents/m^3) (line 8/line 9 *100)					3.4240

Notes
(1) Exhibit 2, Schedule 1, column (c).
(2) Exhibit 2, Schedule 1, lines 15-16, column (e).
(3) Exhibit 3, Schedule 1, line 5, column (b).

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 1, p. 2

A number of uncertainties are noted at the top of page 2, including regulations that have not yet been defined, and the linkage to the Western Climate Initiative. Is there any additional information related to these uncertainties at this time, relative to when to the evidence was written? If yes, please provide details. If no, when does Union believe that additional information will be available?

Response:

Since writing the evidence and filing of Union's 2017 Compliance Plan, some new information has become available regarding some of the uncertainties noted in Exhibit 1, p. 2.

The Ministry of Environment and Climate Change ("MOECC") released a Compliance Offset Credits Regulatory Proposal ("Offset Regulatory Proposal") on November 15, 2016 for public comments (EBR-012-9078). The Offset Regulatory Proposal outlines policy options on a number of program elements including: start dates, verification requirements, offset credit creation criteria and issuance, etc. The final Offsets regulation has yet to be completed.

In addition, the MOECC has issued amendments to the Cap-and-Trade regulations and the Greenhouse Gas Emissions Reporting regulations on December 28, 2016 (EBR-012-8953). The purpose of the amendments is to provide clarity on policy, technical and administrative requirements.

There remain significant uncertainties with respect to the Ontario Cap-and-Trade program, as described in the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 1, p. 2

Reference is made to a compliance plan that would minimize risk. Please explain the risk that is being referred to and how this risk is spread between ratepayers and the utility, assuming the utility is prudent in the creation and execution of its compliance plan.

Response:

Union is referring to risks outlined in its 2017 Compliance Plan (see Exhibit 3). Please see the response at Exhibit B.FRPO.8.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, p. 2
Exhibit 7, Appendix B

If Union has excluded the volume forecast for wholesale customers (Rates T3, M9 & M10) since these customers are not covered by Union's compliance obligation, please explain why these rate schedules need to reflect separate rates for the inclusion of the customer-related GHG obligations.

Response:

At the time Union was preparing the rate schedules to include the impact of the Cap-and-Trade charges, Union had not received definitive direction regarding the treatment of certain wholesale customers. To ensure the rate schedule provided the option to charge these customers for the customer-related Cap-and-Trade charges if necessary, Union included the charges within all wholesale rate schedules.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, p. 3

a) Please explain the difference in the industrial volume forecast noted in point (2) of the forecast of normalized average consumption for the industrial customer service class and the estimate of the total throughput volumes for the industrial customers noted in point (3).

b) Please explain why Union removed the volumes for large final emitters and voluntary participants after the calculation of the customers and normalized average consumption, rather than removing the historical data for these customers and estimating the customers and normalized average consumption on the data that already excludes these customers.

c) How has Union determined the volumes to be removed for each of the large final emitters and voluntary participants?

d) How has Union estimated the total number of billed customers for each rate class and service class? Were regression equations used, or trend analysis, or some other methodology? Please provide details and explain fully.

e) For each regression equation used in the customer, normalized average use and volume forecasts the regression equation coefficients, the regression statistics (t-stat, F-stat, Rsquared, etc.) and the mean absolute percent error over the estimation period.

f) Please provide a live Excel spreadsheet for each of the regression equations used that contains all of the historical data used to estimate the equations (independent variable and all explanatory variables) and all of the forecast data for the explanatory variables used to generate the forecast.

g) Please explain how the volume abatement volumes (GIF) were determined.

h) Please explain and show how the weather normal explanatory variable was determined.

i) In calculating the customer and volume forecasts, what assumptions has Union used related to new community expansions?

Response:

a) There was an omission in the Point 3) paragraph of the evidence. It should read as follows: "Estimate the total throughput volumes for the residential, commercial, tobacco and industrial customers by multiplying the estimated billed customers by the normalized average consumption; and,

b) Volumes removed from the forecast need to be consistent with how they were forecasted. The historical data underlying the statistical analysis contains monthly data from January 1991 to December 2005. The regression analysis performed for the general service is done at the market level. However, Union does not keep individual consumer consumption records back to 1991. Therefore, Union is using its annual forecast to calculate the large emitters and voluntary participant's volumes.

c) Contract rates large final emitters and voluntary participants are removed from the forecast in amounts equal to their volume forecast. The forecast is done econometrically and then applied at the customer level.

   General service voluntary participants volumes are based upon historical consumption (customer level detailed forecasts do not exist for general service).

d) The forecast of total billed customers is obtained by subtracting the customer shrinkage estimates from the customer attachment forecast.

   Customer shrinkage or attrition is based on past trends and reflects expected demolitions and customer transactional activity.

   The customer attachment forecast is composed of new residential housing, residential conversions, estimated community expansion and commercial small industrial customer additions. New residential housing mimics the population growth in Union's franchise area. Commercial and industrial growth is typically a proportion of residential growth averaging one commercial/industrial attachment for every nine residential attachments.

   The new housing market is the main driver for growth in Union's customer base. A consensus of provincial housing starts obtained from 10 external agencies (e.g. Canada, CMHC and several chartered banks) provides a base planning estimate. Table 1 below highlights the total Ontario housing start estimates considered by Union to calculate its customer attachment forecast.

Table 1 - Ontario Housing Starts

Housing Forecaster	**2015**	**2016**	**2017**
CMHC	65,600	65,100	59,900
Banque Nationale	70,100	63,000	59,000
Banque Laurentienne	60,300	56,500	58,000
RBC Bank	70,200	68,500	59,000
BMO	68,000	64,500	
TD Bank	63,500	58,500	47,700
Scotia Bank	68,000	67,000	60,000
Desjardins	70,900	68,700	62,300
Global Insight	66,188	63,800	
Consensus Economics	66,188	63,800	
BUDGET 2017 Forecast	66,898	63,940	57,986

Union's consumer survey indicates that about 93% of the new in-franchise single and multi-family market growth is being served by Union. Applying this penetration rate to the housing starts yields the residential new home customer attachments estimates. The factor above leads to a forecast of 13,533 for year 2017.

The residential conversion forecast assumed 5,550 conversions. The commercial and industrial attachments tend to increase in proportion with residential growth. The projected proportion is approximately 1 non-residential attachment for each 9.1 residential attachments.

The total number of billed customers at year end 2017 is forecast to be 1.474 million customers. In December 2015 there were 1.436 million customers. This represents an increase of 37,895 customers or approximately 2.6% over the period. This equates to an annual average growth rate of about 1.3%.

Table 2 details the attachment, conversion, community expansion, shrinkage and billed customer forecast estimates at year end.

Table 2 - Forecasted Total Billed Customer

2015 Actual Billed Customers	1,436,462
2016	
Attachments	14,911
Conversion	5,550
Community Expansion	0
Shrinkage	-1,640
Forecasted Billed Customers 2016	1,455,283
2017	
Attachments	13,533
Conversion	5,550
Community Expansion	1,631
Shrinkage	-1,640
Forecasted Billed Customers 2017	1,474,357

Forecast for contract rate customers is generated as follows:

- R20, T4/M4, T5/M5, T7/M7, M10, T9/M9 rates classes forecast are based upon the most recent years actual volumes at the customer level normalized for weather. Known changes such as growth, closures, changes to a customer's operation and rate switching are reflected in impacted customer's forecast.

- R100, T1, T2, T3, T7/M7 rates classes, historical results and customer provided inputs are taken into account by Union's Sales group and a customer forecast is determined. Known changes such as growth, closures, changes to a customer's operation and rate switching are reflected in impacted customer's forecast.

e) Please see Attachment 1.

f) Union has provided the requested live Excel spreadsheet (Exhibit B.LPMA.4 Attachment 2) directly to LPMA via email, copying the Board. Should any other interested parties wish to receive the document, please contact Union directly.

g) Please see the response at Exhibit B.Staff.10 a).

h) The weather normal for 2017 was determined following the Board-approved methodology (EB-2011-0210). The current weather normal method at Union is a blended method that combines the 20- year declining trend method with the 30-year average method. The blend proportions are 50% for the 30 year average and 50% for the 20-year declining trend. The weather normal is calculated for Union South and Union North region. The 2017 weather normal includes actual weather from year 1986 to 2015 to calculate the 30 years simple average and uses actual weather from 1996 to 2015 to estimate the 20 year trend. The 30 year average is held constant for years 2016 and 2017. The 20 year trend is projected out two years (2016 and 2017). The weather normal then is calculated assuming 50:50 ratio.

Table 1
Heating Degree Day for Union by Region

	Union South				Union North			
	Actual	30YrAvg	20YrTrd	50:50 Normal	Actual	30YrAvg	20YrTrd	50:50 Normal
1986	3,882	3,793			5,175	5,032		
1987	3,684	3,793			4,722	5,032		
1988	3,986	3,793			5,317	5,032		
1989	4,154	3,793			5,654	5,032		
1990	3,572	3,793			4,994	5,032		
1991	3,631	3,793			5,019	5,032		
1992	4,031	3,793			5,489	5,032		
1993	4,105	3,793			5,460	5,032		
1994	4,055	3,793			5,294	5,032		
1995	3,987	3,793			5,358	5,032		
1996	4,153	3,793	3,705		5,550	5,032	5,024	
1997	4,005	3,793	3,708		5,384	5,032	5,013	
1998	3,175	3,793	3,711		4,457	5,032	5,003	
1999	3,554	3,793	3,715		4,754	5,032	4,992	
2000	3,792	3,793	3,718		5,065	5,032	4,982	
2001	3,469	3,793	3,721		4,613	5,032	4,971	
2002	3,652	3,793	3,724		5,007	5,032	4,961	
2003	3,988	3,793	3,727		5,147	5,032	4,950	
2004	3,807	3,793	3,730		5,216	5,032	4,940	
2005	3,838	3,793	3,734		4,866	5,032	4,929	
2006	3,407	3,793	3,737		4,473	5,032	4,919	
2007	3,700	3,793	3,740		4,888	5,032	4,908	
2008	3,869	3,793	3,743		5,040	5,032	4,898	
2009	3,824	3,793	3,746		5,049	5,032	4,887	
2010	3,574	3,793	3,750		4,462	5,032	4,877	
2011	3,695	3,793	3,753		4,741	5,032	4,866	
2012	3,274	3,793	3,756		4,367	5,032	4,856	
2013	3,875	3,793	3,759		5,131	5,032	4,845	
2014	4,221	3,793	3,762		5,361	5,032	4,835	
2015	3,834	3,793	3,765		4,912	5,032	4,824	
2016		3,793	3,769			5,032	4,814	
2017		3,793	3,772	3,782		5,032	4,803	4,918

i) The 2017 customer forecast assumed a total of 1,631 customers due to community expansion projects. To estimate the total demand associated with these customers, Union assumed the forecasted NAC. This resulted in an estimated annual volume of 1,297 10^3m^3. Please see Attachment 3.

Table 1
RESIDENTIAL MARKET REGRESSION EQUATIONS

SOUTHERN

	USE EQUATION	VOLUME EQUATION
R2	0.997	0.997
Durbin Watson	4.61%	4.61%
MAPE	1.753	1.658

USE EQUATION

Variable	Coefficient	T-Stat
RM2.Hdd_Jan	1.385	55.812
RM2.Hdd_Feb	1.375	54.99
RM2.Hdd_Mar	1.374	54.277
RM2.Hdd_Apr	1.35	48.589
RM2.Hdd_May	1.331	36.997
RM2.Hdd_Sep	1.082	19.956
RM2.Hdd_Oct	1.16	37.893
RM2.Hdd_Nov	1.27	47.013
RM2.Hdd_Dec	1.353	53.234
RM2.T_Jun	22.642	6.14
RM2.T_Jul	20.145	5.529
RM2.T_Aug	15.183	4.152
Eff_Factor.Eff_Factor	-0.98	-33.515
RM2.PPH	17.05	14.653
USE_FINAL.TBill_Lag2	-0.127	-6.451
Dummy.Jan00_Feb00	-60.234	-9.807
Dummy.Oct00_Nov00	27.053	4.398
Dummy.Nov_07	-32.464	-3.709
Dummy.Dec_09	-26.98	-3.086

VOLUME EQUATION

Variable	Coefficient	T-Stat
RM2.Hdd_Jan	519.966	93.55
RM2.Hdd_Feb	498.536	81.376
RM2.Hdd_Mar	491.785	68.03
RM2.Hdd_Apr	464.551	37.728
RM2.Hdd_May	453.483	17.557
RM2.Hdd_Sep	267.049	5.884
RM2.Hdd_Oct	339.809	21.681
RM2.Hdd_Nov	439.748	44.277
RM2.Hdd_Dec	509.782	75.975
RM2.T_Jun	24333.496	6.146
RM2.T_Jul	24898.754	6.288
RM2.T_Aug	20235.787	5.108
RM2.T_Sep1	9334.081	2.867
RM2.Cust	0.033	8.454
Dummy.Nov00_Dec00	-30777.293	-5.583
Dummy.Dec_01	-30829.542	-4.146
Dummy.Jan08_Jun08	13697.641	4.469
Dummy.Dec09_Jan10	-25776.932	-4.851
Dummy.Nov_07	-28803.844	-3.806

NORTHERN

	USE EQUATION	VOLUME EQUATION
R2	0.995	0.995
Durbin Watson	6.32%	5.85%
MAPE	1.586	1.76

USE EQUATION

Variable	Coefficient	T-Stat
R01.Hdd_Jan	0.508	68.357
R01.Hdd_Feb	0.486	58.584
R01.Hdd_Mar	0.455	49.653
R01.Hdd_Apr	0.42	29.424
R01.Hdd_May	0.366	13.872
R01.Hdd_Sep	0.282	6.655
R01.Hdd_Oct	0.34	19.011
R01.Hdd_Nov	0.442	38.982
R01.Hdd_Dec	0.463	56.221
R01.T_Jun	-109.273	-14.087
R01.T_Jul	-119.194	-15.406
R01.T_Aug	-120.845	-15.651
R01.FEI_NS	-166.699	-18.748
R01.PPH	62.247	25.037
USE_FINAL.TBillLag12	-0.075	-2.695
Dummy.Oct_93	30.575	2.603
Dummy.Feb_Dum	-42.106	-6.544
Dummy.Jan_14	-36.875	-3.165
Dummy.Apr_14	28.479	2.451
Dummy.May14	40.259	3.493

VOLUME EQUATION

Variable	Coefficient	T-Stat
R01.Hdd_Jan	131.573	73.531
R01.Hdd_Feb	120.609	59.325
R01.Hdd_Mar	116.705	49.161
R01.Hdd_Apr	109.886	28.961
R01.Hdd_May	97.175	13.538
R01.Hdd_Sep	57.006	4.639
R01.Hdd_Oct	82.139	17.692
R01.Hdd_Nov	114.501	37.459
R01.Hdd_Dec	119.484	57.643
R01.T_Jun	6523.063	4.066
R01.T_Jul	5024.226	3.127
R01.T_Aug	3463.521	2.156
R01.Cust	0.036	6.626
Dummy.May_00	25644.41	9.193
Dummy.Sep_00	16272.298	5.514
Dummy.Sep_01	11911.486	4.166
Dummy.May14	7920.298	2.827
Dummy.Apr_14	8426.483	2.993

Table 2
NON-RESIDENTIAL MARKET REGRESSION EQUATIONS

SOUTHERN

	USE EQUATION	VOLUME EQUATION
R2	0.992	0.993
Durbin Watson	6.60%	4.98%
MAPE	1.594	1.62

USE EQUATION

Variable	Coefficient	T-Stat
S.Hdd_Jan	4.438	74.12
S.Hdd_Feb	4.59	62.413
S.Hdd_Mar	4.606	50.905
S.Hdd_Apr	4.484	30.389
S.Hdd_May	4.346	14.878
S.Hdd_Sep	2.992	5.818
S.Hdd_Oct	3.826	24.005
S.Hdd_Nov	4.602	47.886
S.Hdd_Dec	4.493	66.628
S.T_Jun	156.88	3.833
S.T_Jul	119.327	2.984
S.T_Aug	130.841	3.249
Econ.FX_US_Noon	334.165	12.69
S1.CtrctMigr	69.884	2.97
S_USE_FINAL.CI_OldM2_	-0.087	-2.361
Dumm.Mar00_Apr00	655.665	8.552
Dumm.Oct00	-418.131	-3.868
Dumm.Mar08	461.4	4.22
Dumm.Dec09	389.353	3.581

VOLUME EQUATION

Variable	Coefficient	T-Stat
S.Hdd_Jan	352129.437	114.708
S.Hdd_Feb	364337.615	105.75
S.Hdd_Mar	358277.761	86.448
S.Hdd_Apr	325979.748	46.316
S.Hdd_May	265681.481	17.71
S.Hdd_Sep	110878.339	3.868
S.Hdd_Oct	280293.564	31.487
S.Hdd_Nov	365279.421	68.188
S.Hdd_Dec	356684.32	93.988
S.CI_OldM2_Cust	567.921	22.995
S_VOL_FINAL.CI_OldM	-125986.241	-2.116
Dumm.Mar00_Apr00	49350534.77	8.532
Dumm.Mar08_Dec09	39716693.49	6.785
Dumm.Oct00	-32136358.5	-3.942
Dumm.Dec13	23748689.95	2.856

NORTHERN

	USE EQUATION	VOLUME EQUATION
R2	0.994	0.991
Durbin Watson	5.11%	5.83%
MAPE	1.773	1.715

USE EQUATION

Variable	Coefficient	T-Stat
N.Hdd_Jan	3.676	84.826
N.Hdd_Feb	3.573	74.251
N.Hdd_Mar	3.617	65.011
N.Hdd_Apr	3.278	36.722
N.Hdd_May	3.118	18.355
N.Hdd_Sep	2.88	10.513
N.Hdd_Oct	3.118	28.926
N.Hdd_Nov	3.533	48.932
N.Hdd_Dec	3.463	70.643
N.T_Jun	317.159	8.484
N.T_Jul	291.771	7.81
N.T_Aug	283.615	7.566
Econ.FX_US_Noon	225.216	8.969
Dumm.Feb02	369.675	4.124
Dumm.Jan15	-306.302	-3.395
Dumm.Nov07_Feb11	-289.906	-4.564
Dumm.Jan04_Feb04	-262.309	-4.103

VOLUME EQUATION

Variable	Coefficient	T-Stat
CONST	-22365212.2	-3.845
N.Hdd_Jan	98849.016	55.233
N.Hdd_Feb	99119.067	48.634
N.Hdd_Mar	98166.777	41.845
N.Hdd_Apr	87748.17	23.547
N.Hdd_May	76310.327	10.991
N.Hdd_Sep	64296.912	5.6
N.Hdd_Oct	82508.423	17.802
N.Hdd_Nov	93430.479	31.544
N.Hdd_Dec	95300.746	45.43
N.T_Jun	6529034.931	4.02
N.T_Jul	5444841.52	3.351
N.T_Aug	5613389.241	3.454
N.CI_01_10_Cust	1022.818	6.886
Econ.FX_US_Noon	3237007.94	2.507
Dumm.Dec98	-13295017.2	-4.53
Dumm.Jan09	9902514.866	3.34

Assumptions for Community Expansion

Comunity Expansion Customers

Month	Residential Customers			Commercial Customers						Industrial Customers				Total
	Rate M1	Rate M2	Rate 01	Rate M1	Rate M2	**Tobacco M1**	**Tobacco M2**	Rate 01	Rate 10	Rate M1	Rate M2	Rate 10	CIA 10	
Sep-17	239		352	26				35		2				654
Oct-17	358		527	38				52		2				977
Nov-17	478		703	51				70		3				1,305
Dec-17	597		879	64				87		4				1,631

Forecasted NAC (m3)

Month	Residential Customers			Commercial Customers						Industrial Customers				Total
	Rate M1	Rate M2	Rate 01	Rate M1	Rate M2	**Tobacco M1**	**Tobacco M2**	Rate 01	Rate 10	Rate M1	Rate M2	Rate 10	CIA 10	
Sep-17	55		56	182				200		205				
Oct-17	116		126	402				496		635				
Nov-17	212		234	955				936		1,951				
Dec-17	334		338	1,338				1,399		2,996				

Forecasted Volume (m3)

Month	Residential Customers			Commercial Customers						Industrial Customers				Total
	Rate M1	Rate M2	Rate 01	Rate M1	Rate M2	**Tobacco M1**	**Tobacco M2**	Rate 01	Rate 10	Rate M1	Rate M2	Rate 10	CIA 10	
Sep-17	13,109		19,662	4,741				6,990		409				44,911
Oct-17	41,637		66,604	15,276				25,806		1,270				150,592
Nov-17	101,419		164,477	48,704				65,536		5,852				385,988
Dec-17	199,176		297,107	85,620				121,751		11,986				715,639
Total	355,340		547,850	154,341				220,083		19,516				1,297,131

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, p. 4

a) Please provide the regression equation(s) used for the contract market, showing the estimated coefficients and regression statistics.

b) It is noted that about 65% of the total contract volumes shown in Exhibit 2, Schedule 1 are for large final emitters and voluntary participants. Did Union remove the volumes for large final emitters and voluntary participants after the calculation of the volume forecast using the regression analysis or did Union remove the historical data for these customers and estimate the volumes on the data that already excludes these customers. If the former, please explain why Union did not use the latter approach.

c) How did Union determine the individual amounts to be removed from the volume forecast for the large final emitters and voluntary participants?

d) Please provide a live Excel spreadsheet that contains all of the historical and forecast data used to calculate the contract regression equation(s) and the forecast of the volumes shown in Exhibit 2, Schedule 1.

Response:

a) Union segments its contract market into several sectors. They include natural gas-fired power generation, steel, refinery and petrochemical, Greenhouse, wholesale and broad-based commercial and industrials ("LCI"). The volume and revenue forecasts for contract customers are developed using two methodologies:

   1. Econometric; and
   2. Bottom-up.

   For the small to mid-size contract markets, represented by the LCI and Greenhouse market sectors, Union uses an econometric analysis to forecast consumption requirements. For the remainder of the contract market (i.e. steel, chemical, refinery, power, etc.) Union applies a bottom-up forecast methodology. This involves a combination of historical consumption data and knowledge of specific customer production plans and expectations.

   Please see Attachment 1.

b) Volume forecast for the large contract rates are prepared econometrically and then applied at the customer level.

   Volumes for customers identified as being large final emitters and voluntary participants were removed from the 2017 annual forecast. Volumes removed from the forecast are at the customer level and are consistent with how the forecast was applied.

c) Please see the response to part b) above.

d) Union has provided the requested live Excel spreadsheet (Exhibit B.LPMA.5 Attachment 2) directly to LPMA via email, copying the Board. Should any other interested parties wish to receive the document, please contact Union directly.

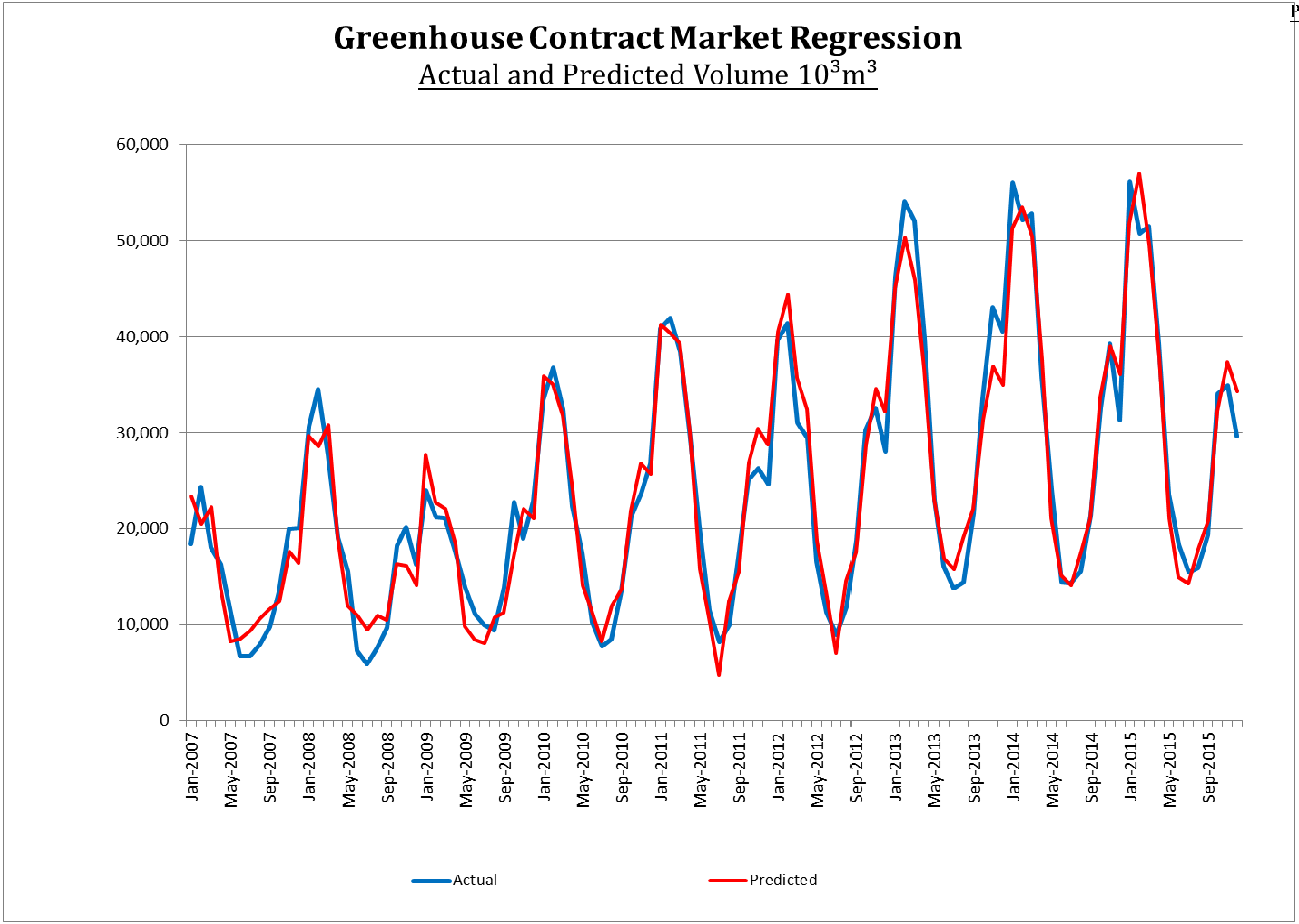
CONTRACT RATE MKT: LCI
REGRESSION ANALYSIS SUMMARY OUTPUT
Data Span: January 2008 to December 2015

Regression Statistics

Adjusted Observations	96
Deg. of Freedom for Error	81
R-Squared	0.965
Adjusted R-Squared	**0.959**
Std. Error of Regression	3,857.1
F-Statistic	161.6
Prob (F-Statistic)	0.000%
Model Sum of Squares	33,663,408,266
Sum of Squared Errors	1,205,062,140
Mean Squared Error	14,877,310
Mean Abs. Dev. (MAD)	2,750.96
Mean Abs. % Err. (MAPE)	2.8%
Durbin-Watson Statistic	0.68

Variable	Coefficient	StdErr	T-Stat	P-Value
CONSTANT	55368.8	8306.1	6.7	0.0%
HDD_Merged_Jan	61.2	1.3	47.1	0.0%
HDD_Merged_Feb	52.0	1.9	27.8	0.0%
HDD_Merged_Mar	59.8	2.1	27.8	0.0%
HDD_Merged_Apr	35.6	3.3	10.7	0.0%
HDD_Merged_Oct	33.4	3.6	9.4	0.0%
HDD_Merged_Nov	46.9	2.9	16.5	0.0%
HDD_Merged_Dec	42.4	1.3	31.5	0.0%
Number of Accounts	157.9	25.1	6.3	0.0%
Dummy_Summer Months_June, July & August	-13126.3	1254.8	-10.5	0.0%
Cdn / US FX Rate lagged 5 months	-8802.6	4310.1	-2.0	4.4%

note HDD is total heating degree days below 18C for merged franchise area


Greenhouse Contract Market Regression
Actual and Predicted Volume 10^3m^3
60,000
50,000
40,000
30,000
20,000
10,000
0
Jan-2007
May-2007
Sep-2007
Jan-2008
May-2008
Sep-2008
Jan-2009
May-2009
Sep-2009
Jan-2010
May-2010
Sep-2010
Jan-2011
May-2011
Sep-2011
Jan-2012
May-2012
Sep-2012
Jan-2013
May-2013
Sep-2013
Jan-2014
May-2014
Sep-2014
Jan-2015
May-2015
Sep-2015
Actual
Predicted

CONTRACT RATE MKT: GREENHOUSE MKT.
REGRESSION ANALYSIS SUMMARY OUTPUT
Data Span: January 2007 to December 2015

Regression Statistics

Adjusted Observations	108
Deg. of Freedom for Error	93
R-Squared	0.950
Adjusted R-Squared	**0.942**
Std. Error of Regression	3,117.7
F-Statistic	124.9
Prob (F-Statistic)	0.000%
Model Sum of Squares	16,996,794,087
Sum of Squared Errors	903,980,255
Mean Squared Error	9,720,218
Mean Abs. Dev. (MAD)	2,457.89
Mean Abs. % Err. (MAPE)	13.3%
Durbin-Watson Statistic	1.71

Variable	Coefficient	StdErr	T-Stat	P-Value
CONSTANT	-14599.5	3995.3	-3.7	0.0%
Growth Trend	28174.0	1214.6	23.2	0.0%
Dummy_Economics 2008/2009	-4626.2	1394.0	-3.3	0.1%
HDD_S_Jan	23.1	1.7	13.4	0.0%
Dummy for February Peaks	4797.7	307.9	15.6	0.0%
HDD_S_Mar	26.7	2.4	11.2	0.0%
HDD_S_Apr	16.3	5.8	2.8	0.6%
Dummy_Summer Months	-6102.8	482.9	-12.6	0.0%
HDD_S_Nov	11.1	2.5	4.4	0.0%
HDD_S_Dec_first 15 days	9.1	4.2	2.2	3.1%
Cdn / US FX Rate lagged 3 months	-21550.8	3509.0	-6.1	0.0%

note HDD is total heating degree days below 18C for southern franchise area

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, Schedule 1

Please confirm that the reduction for wholesale customers reflects the volumes for all T3, M9 and M10 customers. If this cannot be confirmed, please explain which customers in each rate class has been excluded and which have been included.

Response:

Confirmed.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, p. 5

a) Please provide the demand for the ex-franchise market used in the calculation of the unaccounted for gas volume and explain how this forecast for 2017 has been derived.

b) How was the Board approved UFG volume percentage of 0.219% calculated? For example, was it based on a formulaic approach, a regression analysis approach, a weighted average approach, or some other methodology?

c) Based on the response to part (b), if applicable, please update the UFG volume percentage based on the methodology used to reflect the most recent data available. Please also provide all data and assumptions used to calculate the UFG percentage.

Response:

a) Union used an ex-franchise market demand forecast of 27,149,596 m^3 in the calculation of the unaccounted for gas volume.

b) The methodology used to calculate the Board-approved UFG volume percentage of 0.219% is a three year historical weighted average of UFG volumes and throughput. Please see the response at Exhibit B.BOMA.2.

c) Please see Attachment 1.

UNION GAS LIMITED
Unaccounted for Gas Volume
For the Year Ending December 31, 2017

Line No.	Particulars	Volume (a)	Weighting (b)	Volume Weighted (c)
	Determination of Forecast UFG volume for 2017			
	3 year average of actual UFG ($10^3 m^3$):			
1	2015	54,407	50%	27,204
2	2014	97,108	33%	32,046
3	2013	113,996	17%	19,379
4	Average actual UFG volume			78,629
	3 year average of actual throughput ($10^6 m^3$):			
5	2015	31,307	50%	15,653
6	2014	30,578	33%	10,091
7	2013	35,592	17%	6,051
8	Average actual UFG throughput			31,795
9	Actual UFG Ratio for 2017			0.247%
10	Board Approved UFG Ratio			0.219%
11	2017 total forecast throughput ($106m^3$)			41,028
12	Estimated UFG volume for 2017 ($10^3 m^3$) (1)			89,851
13	Estimated UFG for 2017 ($000's) (2)			15,270
14	Unregulated Allocation - Short Term ($000's)		2.64%	$ (403.130)
15	Unregulated allocation - Long Term ($000's)		10.54%	$ (1,609.467)

Note:
(1) Line 10 * line 11 * 1,000.
(2) Calculated using April 2016 WACOG of $169.949/10^3 m^3$.
(3) Where applicable, approved heat value of 38.81 is used
(4) Short/Long term unregulated allocation percentages are based on 2015 actual

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, pp. 4 – 6

Please explain fully how Union has allocated facility related volumes/emissions between utility and non-utility costs and show, in detail, how these allocations are consistent with the last Board approved allocation of costs to non-utility functions.

Response:

The methodology Union utilized to allocate the facility related volumes/emissions between utility and non-utility costs is consistent with that previously approved by the Board.

Please see Attachment 1 for the detailed allocation calculation.

Facility Related Volumes (000's 10^3m^3)

			Utility		**Non-Utility**		**Total**
Unaccounted for Gas							
Total Throughput	41,028,025						
Board Approved UFG factor	0.219%						
Total UFG	89,851	89.460%	80,381	10.540%	9,470		89,851
Blowdowns							
Capital Blowdowns		100.000%	280	0.000%	-		280
Free Gas		100.000%	91	0.000%	-		91
Compressor Unit/Station Maintenance Blowdowns		92.337%	3,493	7.663%	290		3,783
			3,864		290		4,154
Buildings and Line Heaters		97.430%	12,926	2.570%	341		13,267
Compressor Fuel							
Total compressor fuel	208,704						
Non Union Facilities	3,507						
Utility Allocation							
Total compressor fuel	208,704						
utility allocation rate	92.337%						
	192,711		192,711				192,711
Non Utility Allocation							
Total compressor fuel	208,704						
non utility allocation rate	7.663%						
	15,993						
Less Non Union Facilities	3,507						
	12,486				12,486		12,486
			192,711		12,486		205,197
			289,882		22,587		312,469

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, p. 5

a) If some of the compressor fuel and blowdown volumes are related to transmission fuel, storage fuel and dehydration fuel, please explain how Union has allocated the volumes/costs to the transmission, storage and distribution functions.

b) Similarly, it is assumed that the UFG volumes are comprised of losses for transmission, distribution and storage. How are the UFG volumes/costs allocated to each of these three functions?

Response:

a&b) Union is proposing to allocate the UFG and compressor fuel facility-related costs in proportion to the 2013 Board-approved allocation of UFG and compressor fuel, updated for compressor fuel changes associated with the Parkway Delivery Obligation ("PDO") Settlement Agreement (EB-2013-0365). The Board-approved compressor fuel allocation is in proportion to the forecasted transmission and storage fuel usage and the UFG allocation is in proportion to storage, transmission and delivery volumes.

In accordance with the OEB Cap-and-Trade Framework[1], Union has proposed to recover the facility-related obligations as part of the delivery charge or the transportation commodity charge, as appropriate.

[1] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, pp. 4 – 6

a) Are all of the costs associated with facility emissions captured in requested facility related deferral account? If no, please explain fully.

b) Assuming prudence on the part of Union, what facility emissions related costs, if any, is Union at risk for? Please explain fully.

Response:

a) Union will record variances between facility-related Cap-and-Trade costs associated with utility operations and amounts recovered in rates in the Greenhouse Gas Emissions Compliance Obligation – Facility Related deferral account (No. 179-155). Facility-related Cap-and-Trade costs associated with non-utility operations will not be recorded in the deferral account.

b) Please see the response at Exhibit B.FRPO.8 and Exhibit B.APPrO.6 a).

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 2, p. 9
Exhibit 2, Schedule 2

Please update the calculation of the CCA 21-day strip using the most recent information available.

Response:

Please see Attachment 1. Union notes that a complete 12-month forward strip for calendar 2017 is no longer trading. Attachment 1 shows a 21 day strip of the remaining 10 months of Vintage 2017 California Carbon Allowance ("CCA") Futures.

Union Gas Limited
Calculation of Annual Carbon Price Forecast - CCA
for the 10 month period ended December 31, 2017

Line No.	Particulars	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Average
1	Vintage 2017 CCA 21 Day Average (US/tonne) (1)	13.561	13.580	13.600	13.620	13.640	13.656	13.676	13.696	13.716	13.756	13.650
2	Foreign Exchange	1.310	1.309	1.309	1.309	1.308	1.307	1.307	1.306	1.306	1.305	1.308
3	Vintage 2017 CCA 21 Day Average (CAD/tonne) (	17.760	17.782	17.802	17.823	17.840	17.855	17.872	17.891	17.909	17.953	17.849

Notes:
(1) 21-Day Strip dates used: Jan 27 - Feb 27, 2017
(2) line 3 = line 1 x line 2
(3) Sources: CCA prices are ICE Settlement Data acquired through CaliforniaCarbon.info, Foreign Exchange rates are Bloomberg settlement data

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 3, p. 5

With respect to the working capital requirements associated with cap & trade related expenditures:

a) How often does Union expect to purchase emission credits in 2017?

b) When does Union expect to purchase emission credits in 2017?

c) Will Union be paying HST on emission credits it purchases in 2017?

Response:

a&b) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the OEB Cap-and-Trade Framework.[1]

This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

c) Emissions credits may or may not be subject to HST based on the vendor who is selling Union the credit. If the credit is subject to HST, Union will be claiming the HST Input Tax Credit per the Excise Tax Legislation creating a net zero impact on the charge.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 3, p. 34

a) Please provide more detail on the recent changes to the Income Tax Act that could impact cash flows and short-term financing costs.

b) Has Union done any analysis on the impact on working capital on rate base of including cap & trade revenues and expenditures? If not, why not? If yes, please provide the results of that analysis.

Response:

a) Bill C-29, Budget implementation Act, 2016, No. 2 contains new rules (section 27.1) related the tax treatment of transactions under emissions trading regimes. The Bill received royal assent on December 15, 2016 and has been incorporated into the Income Tax Act.

   Specifically, 27.1 (3) restricts the amount of expense that can be recognized for tax purposes. This restriction can result in a situation whereby, the accounting expense differs from tax expense. This is commonly referred to as a "timing difference" as the difference will reverse in future periods.

   In the event that the tax expense becomes restricted pursuant to paragraph 27.1(3), Union may be required to remit incremental income tax to Revenue Canada (CRA). Union will therefore need to finance this incremental cash flow and, as a result, incur additional financing expense. The incremental income tax will eventually be refunded to Union in subsequent tax years when the timing difference reverses.

b) Union examined the impact of Cap-and-Trade on working capital requirements. The impact will be influenced by the timing of consumption relative to compliance instrument purchases. As a result of execution of Union's compliance instrument acquisition strategy, Union may see an increase and/or decrease in working capital throughout 2017. Union will track the impact of these timing differences on working capital as part of the Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152). The cost impacts of changes to working capital in 2017 are not anticipated to be material.

   Starting in 2019, Union will include the impact of Cap-and-Trade on working capital in rate base, similar to other how Union treats timing differences related to gas supply purchases. In preparation for the 2019 Rebasing Application, Union is conducting a Lead Lag study. The results of this study will be included in the 2019 Rebasing Application.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 3, pp. 34 – 39

For each of the risks identified on these pages, please indicate which risks would reside with Union's ratepayers and with Union's shareholders assuming Union was determined to be prudent in managing each of the identified risks.

Response:

Please see the response at Exhibit B.FRPO.8.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 4, Schedules 1 and 3

Based on the sample schedules provided, please indicate which line/columns would be confidential and which would be available on a public basis.

Response:

Please see Attachment 1. This attachment identifies which information from the sample monitoring and reporting forms provided in Exhibit 4, Schedule 1 would be Strictly Confidential and which would be public. The information highlighted in red would be Strictly Confidential. The information highlighted in grey would be public.

Exhibit 4, Schedule 2 would be entirely Strictly Confidential.

As noted in the response at Exhibit B.Staff.15 b), the monitoring and reporting forms provided in Exhibit 4, Schedule 1 are samples. The final format, lines and columns may change once they are finalized.

Union Gas Limited
Schedule 1: Actual vs Forecasted Compliance Cost
for activity in the 12 month period ending December 31, 2017

		(a)	(b)	(c) = (a) x (b)	(d)	(e)	(f) = (d) x (e)	(g) = (a) - (d)	(h) = (b) - (e)	(i) = (g) x (h)
		2017								
		Forecast			Actual			Variance		
Line No.	Compliance Option	Volume procured (tonnes of CO2e)	Price (CAD/tonne of CO2e)	Cost (CAD)	Volume procured (tonnes of CO2e)	Price (CAD/tonne of CO2e)	Cost (CAD)	Volume procured (tonnes of CO2e)	Price (CAD/tonne of CO2e)	Cost (CAD)
	Compliance Instruments									
1	Emission Allowances	-	-	-	-	-	-	-	-	-
2	Offsets	-	-	-	-	-	-	-	-	-
3	Derivatives	-	-	-	-	-	-	-	-	-
4	Financing Costs	-	-	-	-	-	-	-	-	-
5	Total/Weighted Average - Compliance Options	-	-	-	-	-	-	-	-	-
	Abatement									
6	Customer Abatement Programs	-	-	-	-	-	-	-	-	-
7	Facility Abatement Programs	-	-	-	-	-	-	-	-	-
8	Total Abatement	-	-	-	-	-	-	-	-	-
9	Total/Weighted Average	-	-	-	-	-	-	-	-	-

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 5, p. 1

Please provide a copy of and a summary of the findings resulting from the December 2016 survey noted at line 13.

Response:

Please see the response at Exhibit B.BOMA.32.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 7, p. 1

The evidence indicates that Union has not incorporated any administrative costs associated with the Cap-and-Trade program in its 2017 rates.

a) What is the estimated administrative costs associated with the Cap-and-Trade program that will be incurred in 2017

b) Please explain why Union cannot include recovery of this amount in 2017 rates.

c) Please confirm that by including the costs in a deferral account for later recovery, the ultimate costs paid by ratepayers will be higher than the actual cost because of the addition of carrying costs.

Response:

a) Please see the response at Exhibit B.Staff.1 a).

b) Union did not include the administrative costs associated with the Cap-and-Trade program in its 2017 Rates proceeding due to the compressed timeline to include the Cap-and-Trade program costs in rates. Given the large costs associated with the Cap-and-Trade program customer-related and facility-related obligations, Union's focus was on ensuring those cost components were included in 2017 rates.

   Union's proposal is to include the total 2017 administrative costs in the Greenhouse Gas Emissions Impact Deferral Account (No. 179-152).

c) Confirmed. The deferral account balance for disposition will include interest calculated using the Board's prescribed interest rates.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 7, p. 5

Does the $1 per year impact of excluding the impacts of the customer-related obligation costs noted at lines 12 through 14 include the impact of the administrative costs associated with the cap and trade program? If not, what is the incremental impact of these costs for a residential customer consuming 2,200 m3 annually?

Response:

The residential bill impact of $1 per year reflects the facility-related compliance obligation only and does not include the impact of 2017 administrative costs.

The residential bill impact of the forecast 2017 administrative costs of $4.2 million is approximately $2 for a typical residential customer consuming 2,200 m^3 annually.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit 5, p. 5 & Appendix B & EB-2016-0300
Exhibit G, Tab 1, Schedule 1, Appendix B

The proposed Union rate schedules show two columns of rates, one titled "Including Customer-Related GHG Obligation" and one titled "Excluding Customer-Related GHG Obligation", with a footnote explaining the difference between the delivery charges.

The proposed EGD rate schedules (EB-2016-0300, Exhibit G, Tab 1, Schedule 1, Appendix B) shows one set of charges, including "Cap and Trade Customer Related Charge (If Applicable)" and a "Cap and Trade Facility Related Charge". The NRG rate schedules are similar in format to those of EGD with respect to the cap and trade charges.

Please explain why Union has not adopted the same format for the cap and trade charges as EGD and NRG.

Has Union done any customer engagement to determine if its proposal for the rate schedules is harder or easier for customers to understand than that of EGD or NRG?

Response:

Union was not aware of the presentation format of Cap-and-Trade charges within the rate schedules of Enbridge Gas Distribution ("EGD") or Natural Resource Gas ("NRG") prior to filing its own rate schedules.

In accordance with the Report of the Board (EB-2016-0296), the costs incurred by Union to meet customer-related obligations were included as part of the delivery charge. By providing the delivery rates including and excluding the customer-related GHG Obligation, the rate applied to a customer's bill can be easily identified on the rate schedule without the need to sum individual components of the total delivery charge. This approach is consistent with other charges within Union's rate schedules.

Union has not completed any customer engagement activities with respect to the presentation of Cap-and-Trade charges within the rate schedules.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association (“LPMA”)

a) Given the proposed regulatory schedule for this proceeding, when does Union expect that final rates could be implemented?

b) How does Union propose to deal with any difference between interim and final rates for general service customers and contract customers?

Response:

a) Union expects to implement final rates as part of the next QRAM application that follows the release of the Board Decision for this proceeding.

b) Please see the response at Exhibit B.Staff.20 a).

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Could the proposed merger between Spectra Energy and Enbridge Inc. have any impacts on Union's proposed Compliance Plan? For example, will Union and Enbridge be permitted to have separate strategies once the merger takes place? Please explain how the merger could impact the plan.

Response:

The merger transaction between Spectra Energy and Enbridge Inc., which came into effect on February 27, 2017, has no impact on Union's proposed 2017 Compliance Plan.

Under Ontario Regulation 56/17, Amending O.Reg. 144/16 (The Cap-and-Trade Program) issued February 27, 2017, Union and Enbridge Gas Distribution shall be treated as separate registered participants that are not related persons, as defined in the Cap-and-Trade regulations. Furthermore, Union and Enbridge Gas Distribution will not be permitted to share information related to purchase strategies or bidding strategies or non-public information related to Compliance Plans.

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Reference: Exhibit 3, p. 2

The evidence states that Union has not included abatement or long-term investments in its 2017 Compliance Plan beyond existing initiatives such as DSM. Does Union intend to pursue any actual such projects in 2017 that could lower GHG emissions from its own facilities or from customers beyond the current DSM initiatives. If so, please list those activities.

Response:

Please see the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Reference: Exhibit 3, p. 9

What is the cost of the ClearBlue consulting work (actual and forecast) and how are these costs to be recovered? What is the cost (actual and forecast) of all other related consulting engagements related to Union's Cap-and-Trade Compliance Plan development, and how are these costs to be recovered?

Response:

Union has incurred approximately $49,000 in ClearBlue Markets costs in 2016, and is forecasting an additional $50,000 that is expected to be incurred in the first quarter of 2017 related to the 2017 Compliance Plan.

Please see the response at Exhibit B.Staff.1 a) for a breakdown of 2016 actual and 2017 forecasted consulting costs for all consultants.

All of Union's consulting costs will be recorded in Union's Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152). Costs relating to 2016 are expected to be recovered through Union's 2016 deferral disposition proceeding. For 2017, costs will be recovered through the 2019 Compliance Plan proceeding to be filed by August 1, 2018. As outlined at p.30 of the OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities, Union's Cap-and-Trade related administrative costs will be recovered from all customers in the same manner as existing administrative costs.

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Reference: Exhibit 3, p. 14

The evidence states that Union's 2017 Compliance Plan demonstrates prudent procurement and compliance practices. How does Union intend to demonstrate to its customers that its activities related to Cap-and-Trade are prudent in light of the confidentiality restrictions?

Response:

The OEB will assess the prudency of Union's Compliance Plan through review of both the public and confidential hearing record. Mechanisms to assist the OEB in their review include:

- The guiding principles outlined in the OEB Cap-and-Trade Framework[1];
- OEB review of Union's Compliance Plan;
- OEB review of the cost consequences of Union's Compliance Plan;
- Union's annual monitoring and reporting forms; and
- The use of performance metrics as outlined in the Framework.

[1] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Reference: Exhibit 3, p. 28

What is the current balance in the Greenhouse Gas Emissions Impact Deferral Account?

Response:

The balance in the Greenhouse Gas Emissions Impact Deferral Account as of December 31, 2016 is approximately $2.2 million. For detail please see the response at Exhibit B.Staff.1 a).

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Reference: Exhibit 3, p. 32

Please provide a detailed breakdown of the $670,000 in consulting costs. Does this include work undertaken in 2016?

Response:

The $670,000 in consulting costs is for 2017 only. For a breakdown of consulting costs for 2016 and 2017 please see the response at Exhibit B.Staff.1 a).

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Reference: Exhibit 3, p. 34

The evidence sets out a list of risks that Union has identified related to its 2017 Compliance Plan. These include:

- Forecast volume and auction purchase variability
- Price and foreign exchange risk
- Liquidity risk
- Credit and counterparty risk
- Non-compliance risk
- Government and legislation risk

For each of the risks identified, please explain who will bear that risk. Will it be Union's ratepayers or its shareholders?

Response:

Please see the response at Exhibit B.FRPO.8.

UNION GAS LIMITED

Answer to Interrogatory from
Consumers Council of Canada ("CCC")

Reference: Exhibit 5, p. 1

What is the total cost of Union's customer outreach related to the Cap-and-Trade Program? Please provide all costs incurred to date and the forecast cost for the remainder of 2017. What is the expected annual on-going cost? Has Union collaborated with Enbridge with respect to customer outreach and messaging? If not, why not? Has Union sought funding from the Provincial Government to support customer outreach given this is a government mandated program? If not, why not? How will these costs be recovered? What relief is Union seeking from the OEB in this proceeding regarding these costs?

Response:

The total 2016 incremental cost incurred for Union's customer outreach related to Cap-and-Trade was approximately $22,000. Union has forecasted $8,000 in incremental customer outreach costs in 2017. Union expects that in 2017 and beyond, if Union customer call volumes remain low and the upcoming March 2017 customer survey results indicate an increase in customers' Cap-and-Trade knowledge, Union would decrease the existing frequency and volume of Cap-and-Trade bill insert communications, and will focus on utilizing Union's Cap-and-Trade webpages as a way to provide customers with a central source of up-to-date Cap-and-Trade related information, including a calculator to estimate their individual Cap-and-Trade costs. Union anticipates ongoing costs to remain low and include website updates based on customer feedback and/or where required due to program changes or updates.

These outreach costs were minimized by leveraging existing low-cost, mass-market communication vehicles (e.g bill inserts, bill messages, Call Centre, interactive voice response, web, etc.) in order to maximize education and minimize incremental costs. Cost recovery has only been sought for those outreach activities that are incremental and that do not utilize an existing communication vehicle; for example, costs incurred to build new Cap-and-Trade information webpages.

Union has included customer outreach costs in the Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA"), as approved in EB-2015-0367 on April 7, 2016; therefore, Union did not seek funding from the Ontario government to recover these costs. Union will seek recovery for 2016 GGEIDA costs as part of its 2016 deferral disposition proceeding. As defined in the OEB Cap-and-Trade Framework, Union's Cap-and-Trade related administrative costs will be recovered from all customers in the same manner as existing administrative costs. Please see the response at Exhibit B.Staff.17.

Union began including Cap-and-Trade information within our monthly bill insert newsletters, and Cap-and-Trade messaging on the bill, in September 2016, and both have continued to be included monthly up to the present time (March 2017). For examples of Union's residential newsletter (In-touch), see Exhibit 5, Appendix B. For examples of Union's business newsletter, see Exhibit 5, Appendix C (Energylink).

Union and Enbridge have worked together to ensure consistent messaging is available to customers across our respective service areas. However, some tactics and the frequency of communications have differed between the two companies.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit 3, pp. 29-32

Union provided its projected 2017 Compliance Plan administrative costs. CME wishes to better understand some of the differences between Union and Enbridge. To this end, please provide the following:

a) Why does Union require 13.5 full time employees when Enbridge only requires seven for 2017?

b) Please provide the job descriptions for positions which have not yet been filled for 2017, with an explanation for why those positions have not yet been filled.

c) How will Union track that the level of staffing is "commensurate with the incremental level of effort required across the organization to the cap and trade program?"

Response:

a) Please see the response at Exhibit B.Staff.1 c).

b) There are two positions that have not yet been filled.

   One will be hired in Union's Business Development department with responsibilities focused on RNG. The other will be hired in Union's Technology and Innovation department with responsibilities that will include the assessment of emerging technologies and innovations for the natural gas end-user in the residential, commercial and industrial markets. A more detailed description of these roles is found in the response at Exhibit B.SEC.3.

   For both positions the hiring process has not yet been completed. These roles are within the 13.5 forecast FTEs noted in Union's Compliance Plan (see Exhibit 3, p.29).

c) Please see the response at Exhibit B.Staff.1 d).

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit 3, pp. 29 - 32

Union states that it will incur $275,000 in customer care centre costs in 2017. CME wishes to better understand these costs.

a) Please provide the method of calculation used to compare the cold temperature incident in 2014 and the present Cap-and-Trade impact.

b) Does the $275,000 figure include the impact of Union's ongoing customer outreach and engagement? If so, how much reduction in call centre costs is estimated to be from Union's customer outreach efforts?

c) Does Union estimate that there will be a requirement for any additional employees for the second six months of the rate period?

Response:

a) In late winter and spring of 2014, a 28.8% increase in gas bills resulted in a 300,000 call increase in customer calls to Union's Contact Centres. Using this as a comparator, Union estimated that a 10% increase in gas bills, which is the average increase in gas bills due to Cap-and-Trade charges during the winter months, would result in a 100,000 increase in call volumes. The incremental cost to staff and train temporary employees to respond to this increase in call volume was expected to be $275,000. However, only the actual cost of these temporary staff will be charged to the Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152).

b) Tactics to provide customers with information that may answer their questions regarding the increase in gas bills have been deployed to reduce the need for customers to call the Call Centre (ie. bill inserts, incremental web pages and a Cap-and-Trade calculator on Union's website). These tactics are similar to the outreach used for other customer notifications such as rate changes. The $275,000 does take these tactics into account. Since only the actual increase in costs associated with calls to the Contact Centre will be charged to the Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152), Union's success in providing sufficient information to customers through all communication channels will ultimately have a positive impact on the overall cost incurred.

c) Increases in call volumes are driven directly by the overall size of gas bill and increases to the overall cost of the gas bill for customers. Union anticipates that the volume of calls related to the increase in gas bills due to Cap-and-Trade charges will diminish as gas usage decreases during the spring and through to the end of the year. Union does anticipate that if the Cap-and-Trade charge to gas bills is increased in January 2018, another wave of call increases will occur.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit 3, pp. 29-32

Union has indicated that it estimates it will incur $670,000 in fees relating to external consulting. Is the required consulting services estimated to decrease over time as Union becomes more familiar with compliance, and more about the Cap-and-Trade program becomes certain?

Response:

With 2017 being the first year of Ontario's Cap-and-Trade program, Union is not in a position to comment with any certainty whether consulting services required beyond 2017 are expected to decrease from 2017 levels.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit 2, Schedule 2, pp. 1 - 2

CME wishes to understand differences between Enbridge's and Union's calculations. In EB-2016-0300, Enbridge estimated that the average 21-day strip of Intercontinental Exchange would be $16.90. Union's estimated the 21-day strip of Intercontinental Exchange is $17.24. Please explain why Enbridge and Union's calculation of the average 21-day strip of Intercontinental Exchange are different. In so doing, please discuss the rationale and appropriateness of the differing methodologies for calculating the 21 day strip.

Response:

Both Union and Enbridge's calculation of the California Carbon Allowance ("CCA") futures 21-day strip as of October 31, 2016 result in a USD price of $13.04/tonne. The difference between Union and Enbridge's CAD price is a result of the use of different exchange rates. Similar to the methodology in QRAM for gas rates, Union used a 21-day strip average of 2017 forward foreign exchange rates to calculate a rate of 1.322. In EB-2016-0300, Exhibit B, Tab 4, Schedule 1, p.2, Enbridge notes that it used the exchange rate filed as part of its 2017 Rate Adjustment case.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit 3, p. 46

Union states that an interim solution for recovering costs of capital investments between 2017 and next rebasing application would be required since current mechanisms (including Z Factor) may not be sufficient to recover the costs of these initiatives.

a) Please provide a list of the capital investments that Union discussed for the compliance plan period that were ultimately rejected?

b) What were the level of costs associated with these projects that made the existing mechanisms unsuitable?

Response:

a) There were no capital investments discussed as part of Union's 2017 Compliance Plan. Please see the response at Exhibit B.Staff.14.

b) Please see the response to a) above, Exhibit B.Staff.14 and Exhibit B.Staff.12.

UNION GAS LIMITED

Answer to Interrogatory from
Association of Power Producers of Ontario ("APPrO")

Reference: Exhibit 2, p. 4, Lines 5-17.

a) What percentage of the volumes forecast for natural gas fired generators were derived directly from customer input, and what percentage of the volumes forecast for these customers were derived using historical consumption data? If any other methods were utilized to derive the volume forecasts for these customers, please explain each and identify the relative percentage of the total forecasts that utilized those methodologies.

b) Does Union believe that it can make improvements in the future to develop a more accurate annual forecast for power generators? If no, why not? If yes, please identify each of the specific improvements that might be made.

c) All else being equal, would the use of historical consumption data have the likely effect of overestimating or underestimating the volumes forecast for these customers?

d) Assuming your application is approved as filed, what are the financial consequences to each of:
- Enbridge/its shareholder;
- Rate 125 customers; and
- Other customers,
- of overestimating volume forecasts and of underestimating volume forecasts.

Response:

a) Union's sales group consulted all natural gas fired generation customers prior to determining the customer forecast. Historical results and customer-provided inputs are taken into account by Union's sales group when establishing the customer forecast. Known changes for growth, closures, and changes to a customer's operation are also reflected in the forecast.

b) The very nature of Union's power generators consumption makes it very difficult to predict. Market conditions, weather and availability of non-natural gas power generation will impact a power generator's natural gas consumption.

c) Historical consumption is driven based upon factors that may or may not exist in future years. The forecast has a chance of being underestimated or overestimated depending on the factors influencing the actual demand for natural gas power generation.

d) Union assumes that the question incorrectly asks for explanation of the financial consequences to Enbridge when it is meant to refer to Union. Please see Exhibit B.BOMA.34 a) for an explanation of Union's management of annual gas volume risk through deferral accounting.

UNION GAS LIMITED

Answer to Interrogatory from
Association of Power Producers of Ontario ("APPrO")

Reference: Exhibit 2, p. 6, Lines 13-21.

a) The MOECC has published an updated Guideline for Quantification, Reporting and certification for GHG Emissions - January 2017. What changes, if any, does this make to Union's forecasts GHG emissions?

b) What opportunities are there to improve the methodology used by Enbridge to calculate GHG emissions? E.g. In the future, could Enbridge use actual GHG emissions data to the extent available, rather than utilizing the procedures to estimate missing data set out in the MOECC's Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2016?

c) Why were those opportunities not feasible or practical for the 2017 compliance period?

Response:

a) The Ontario Ministry of the Environment and Climate Change's ("MOECC") updated "Guideline for Quantification, Reporting and Verification for GHG Emissions – January 2017," (the "Guideline") does not result in any changes to either Standard Quantification Method ON.20 or ON.400 methodologies. There were only minor edits made for spelling and clarification purposes.

b) Union assumes this question was intended to refer to Union and not Enbridge. For Union, the GHG emissions forecast is based on volume forecasts prepared in accordance with the existing OEB approved methodology for preparing forecasts, with GHG emissions calculated following the methodologies identified in the MOECC's Guideline. With regard to the GHG emissions forecast, the most significant sources of variability are expected to be due to weather and fluctuations in the natural gas usage by power producers. Additionally, the 2017 emissions forecast would have been improved by the availability of the MOECC's complete list of 2017 capped participants prior to the 2017 Compliance Plan filing date. Please see the response at Exhibit B.IGUA.2 a).

   Currently, for GHG reporting purposes, Union makes every effort to use actual data. Over the last five years, missing data has represented less than 0.5% of the General Stationary Combustion emissions reported and verified under Standard Quantification Method ("SQM") ON.20 (The first year to report emissions under SQM ON.400 Natural Gas Distribution is 2017).

c) Union will continue to make every effort to use actual data for its GHG emissions reporting. As indicated in Section 4 (4) of Ontario Regulation 143/16, only, "a maximum of the lesser of 20,000 tonnes and 3 percent of the amount of greenhouse gas emitted during all specified GHG activities at the facility during a year" can be calculated using methods other than the standard quantification methods outlined in the MOECC's Guideline. As noted in the response at Exhibit B.APPrO.2 b), over the last five years, missing data has represented less than 0.5% of Union's emissions reported under Standard Quantification Method ("SQM") ON.20 General Stationary Combustion (note: These emissions have been verified by an accredited third-party verifier and are expected to represent less than 0.1% of Union's overall facility-related emissions). Furthermore, as mentioned in the response at Exhibit B.APPrO.2 b), the 2017 emission forecast would have been improved by the timely availability of the MOECC's complete list of 2017 capped participants prior to the 2017 Compliance Plan filing date.

UNION GAS LIMITED

Answer to Interrogatory from
Association of Power Producers of Ontario ("APPrO")

Reference: Exhibit 2, Appendix 1.

a) Please reproduce this table after breaking column (b) into two components to show the customer related forecasts attributable to: (i) natural gas fired generators; and (ii) other contract customers.

Response:

a)

Line No.		**Contract Market (b)**
1	Gross Throughput excluding Power customers	7,150,572,217
2	Power customers throughput	1,420,560,000
3	**Gross Throughput (line 1 + line 2)**	**8,571,132,217**
4	DSM Volumes	227,573,753
5	Net throughput (line 3 - line 4)	**8,343,558,464**
6	Throughput to Wholesale customers	344,825,589
7	Throughput to Large final emitters and voluntary participants	5,571,339,548
8	**Net throughput to non-capped participants (line 5 - line 6 - line 7)**	**2,427,393,327**

UNION GAS LIMITED

Answer to Interrogatory from
Association of Power Producers of Ontario ("APPrO")

Reference: Exhibit 3, pp. 24 - 25

a) Did Union engage in discussions with natural gas fired generators to explore options, including but not limited to abatement options, to meet its 2017 compliance obligations in the most cost effective manner possible to result in optimal decision making?

b) Is Union willing to engage in such discussions with natural gas fired generators in the future?

Response:

a) Union did not engage in discussions with natural gas-fired generators regarding the reduction of emissions from a Cap-and-Trade perspective. However, on an annual basis, Union does have discussions with natural gas-fired generators regarding DSM programs that can be utilized to reduce natural gas usage over time.

b) Yes.

UNION GAS LIMITED

Answer to Interrogatory from
Association of Power Producers of Ontario ("APPrO")

Reference: Exhibit 3, pp. 28 - 34

a) What performance metrics could assist the Board in assessing Union's compliance plan performance?

b) Are there any metrics which Union would propose to best assist the Board in measuring Unions' ability to manage the following risks:
   a. Allowance price variability (a.k.a. price and foreign exchange risk),
   b. Volume variability (a.k.a. forecast volume and auction purchase variability),
   c. Emission unit availability (a.k.a. liquidity risk),
   d. Market risk (a.k.a. project execution risk and credit and counterparty risk),
   e. Non-compliance risk, and
   f. Government and legislation risk.

c) Would Union oppose a performance assessment which included a number of different metrics to assess performance across a variety of considerations?

Response:

a-c) The OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363) outlines performance metrics and cost information that utilities are to include in compliance plans. Examples include: cost by year per compliance instrument/activity; forecast cost of allowances per tonne of GHG; forecast price of offset credits; and, forecast abatement GHG reduction. In support of the guiding principles set in the Framework, Union believes these quantitative metrics should be accompanied by qualitative analysis to ensure that results are evaluated considering all the Framework's guiding principles, and to provide the necessary context underpinning compliance decisions. Union would expect the OEB's assessment of its Compliance Plan performance would be conducted as part of existing regulatory processes (eg. Compliance Plan review, deferral disposition proceeding, etc.).

Consistent with legislation and the Framework, it is expected that certain information within Union's monitoring and reporting will be considered Strictly Confidential. Union has filed sample monitoring and reporting forms to be used as a starting point for developing standardized reporting forms in its Compliance Plan (see Exhibit 4, Schedules 1 and 2).

Union believes the OEB established processes (ie. Compliance Plan review, deferral disposition), metrics and monitoring forms provide sufficient oversight to assess performance, and therefore does not support an additional performance assessment process.

UNION GAS LIMITED

Answer to Interrogatory from
Association of Power Producers of Ontario ("APPrO")

Reference: Exhibit 6, pp. 1 - 2

a) Is one practical consequence of Accounts 179-152, 179-154 and 179-155 that Union will be held harmless from any cost consequences associated with its GHG compliance efforts?

b) Did Union consider any mechanisms that might serve to financially incent Union to minimize the net cost consequences of its compliance efforts on ratepayers? If no, why not. If yes, please elaborate on each of these mechanisms.

Response:

a) The purpose of Union's Cap-and-Trade deferral accounts is to record the variance between the actual costs of the Cap-and-Trade program and the amounts recovered in rates, if applicable. The deferral accounts will only include actual costs of the Cap-and-Trade program associated with the utility operations. Costs associated with the non-utility operations will not be recorded in the deferral accounts.

   The allocation of Cap-and-Trade program costs results in an allocation to services that do not have a cost-based rate. For example, the rate for Union's C1 interruptible and short-term firm transportation service is a negotiated market-based rate to a maximum amount defined by the rate schedule. Accordingly, the Cap-and-Trade program costs associated with the C1 interruptible and short-term firm transportation service do not result in an increased rate for recovery of the costs (i.e. the market-based rate negotiated with a customer effectively includes any Cap-and-Trade program costs).

   Please see Exhibit B.FRPO.8 for additional information.

b) Union did not consider incentive mechanisms that might serve to financially incent Union to minimize the net cost consequences of compliance efforts on ratepayers within its 2017 Compliance Plan. Due to the nascence of Ontario's Cap-and-Trade Program and Union's 2017 Compliance Plan, Union's focus has remained on compliance with the OEB Cap-and-Trade Framework[1] and overall prudence in order to achieve reasonable costs for customers. This focus is echoed in the guiding principles outlined in Union's 2017 Compliance Plan (Exhibit 3, p.4):

[1] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

1. Compliance – ensure compliance with legislative and regulatory obligations for natural gas utilities.
2. Diversification – minimize risk through diversification within the compliance portfolio.
3. Flexibility – adapt to evolving market conditions and fluctuations in the compliance obligation.

Further, these principles were included in Union's June 22, 2016 submission to the Board as part of its Consultation to Develop a Regulatory Framework for Natural Gas Distributors' Cap-and-Trade Compliance Plans (EB-2015-0363). Within that submission Union explained:

"The goal should not be to 'beat the market' and assume risk for purposes of trying to 'optimize' costs. Union has a time-tested framework related to the purchase of natural gas for the customers it serves including the associated prudence test. In Union's view, there should not be an over-emphasis on cost optimization, especially at the outset of the cap-and–trade program when the market for allowances is in its infancy and is not liquid."[2]

[2] EB-2015-0363 Union Submission Filed: 2016-06-22 page 2 of 17.

UNION GAS LIMITED

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit 3, pp. 46 of 47

Preamble: "For the 2017 Compliance Plan, Union does not have any long term investment projects that will impact its 2017 obligation within regulation. This is in part due to the infancy of the program and the number of uncertainties that still remain. In addition, there has been insufficient time for Union to bring forth long term investment opportunities and have their cost recovery assured prior to their inclusion in the 2017 Compliance Plan. An interim solution for recovering the cost of capital investments between 2017 and the next rebasing application would be required, since the current mechanisms (including the Z-factor) may not be sufficient to recover the costs of these initiatives. Assurance of cost recovery is required; otherwise, the utility will be absorbing the cost of such investments, while customers realize the benefits of lower compliance costs"

a) Please provide a list of long term investment projects that Union is assessing for consideration for future compliance programs.

b) Does Union expect to incorporate long term investment projects in the 2018 Compliance Plan? If not, when does Union anticipate incorporating any long term investment projects?

c) Has Union commenced conducting feasibility studies, pilot programs, and/or cost benefit analysis for any potential long term investment projects? If not, please describe Union's timing to prepare a long-term strategy.

Response:

a-c) Union has not conducted any feasibility studies, pilot programs and/or cost benefit analysis for RNG. Union has conducted a demonstration program that targeted the conversion of truck fleets to CNG. Union awaits government funding for both of these initiatives. Please see Exhibit B.Staff.14.

As noted in Exhibit 3, page 26, Union has also launched a multi-year pilot project to investigate conversion of its own fleet vehicles from gasoline/diesel to CNG. This program is separate from the potential new business activity outline at Exhibit 3, page 47.

UNION GAS LIMITED

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit 3, pp. 47 of 47

Preamble: "Union is not proposing any new business activities in its 2017 Compliance Plan. However, Union has brought two specific proposals to government for CCAP funding that will reduce GHG emissions in Ontario. These proposals are Renewable Natural Gas ("RNG") and CNG for heavy duty vehicles…Neither of these initiatives is in scope for the 2017 Compliance Plan. However, Union has dedicated resources to evaluating and structuring programs given the significant impact they can have to reduce provincial GHG emissions. Further details on these programs will be brought forward in future compliance plans, to the extent applicable."

a) Please describe how Union has decided resources to evaluating these programs? For example, what type of studies or analysis has Union commenced?

b) When does Union anticipate that any of these projects will be in market and delivering results?

Response:

a) Prior to the initiation of Union's Cap-and-Trade program, Union established a small team dedicated to developing the compressed natural gas market for medium and heavy duty vehicles. This group works directly with municipalities, transit, refuse and trucking fleets to create awareness and educate market participants on the benefits of CNG fuelled medium and heavy duty vehicles to encourage adoption of CNG as a vehicle fuel. As this initiative pre-dates the introduction of Union's Cap-and-Trade program, Union has not included any costs related to this initiative in its Compliance Plan and has not included these dedicated resources in the total 13.5 FTE identified in Exhibit 3, Page 29.

   Included in Union's 13.5 FTE are incremental resources dedicated to RNG. This includes 2.5 FTE from Union's Distribution Business Development group and a portion of 1 FTE in Union's Technology and Innovation group. Detailed role descriptions for these roles are included in Exhibit B.SEC.3.

b) Please see the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit 1, pp. 3 of 12

Preamble: "Since the 1990's, Union has had significant success in implementing Demand Side Management ("DSM") programs to assist customers in reducing their natural gas consumption and related greenhouse gas ("GHG") emissions. For 2017, there is an additional customer abatement program, the Government of Ontario's Green Investment Fund ("GIF"), included in Union's Compliance Plan that is incremental to the DSM plan. Going forward, Union will leverage its experience and skillset in reducing emissions as part of DSM, and evaluate the potential to reduce customer emissions further, thereby reducing Union's compliance obligation. Union will include the outcome of this analysis in future compliance plans"

a) How will Union maintain a differentiation between DSM results and GHG results?

b) Would there be financial benefits for customers if the DSM Framework for DSM were harmonized with the Cap and Trade Framework?

Response:

a) Please see the response at Exhibit B.BOMA.1.

b) Please see Exhibit B.BOMA.4. Union filed a DSM plan for 2015-2020 which addresses the financial benefits of the DSM Framework.[1]

[1] EB-2015-0029

UNION GAS LIMITED

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit 3, pp. 25 of 47

Preamble: "In addition to the GIF, Union is also exploring a number of opportunities for customer abatement such as the use of combined heat and power projects and renewable natural gas in the gas supply portfolio. Prudent customer abatement programs such as these will reduce Union's compliance obligation, resulting in less compliance instruments and provide diversity within the compliance plan. This allows Union to manage both non-compliance and financial risks. As Union evaluates these programs, the outcomes of this analysis will be provided in future compliance plans."

a) Please describe the potential customer abatement programs that Union is exploring other than the use of combined heat and power projects and renewable natural gas.

b) Please describe what analysis Union is undertaking to evaluate the customer abatement programs.

c) Does Union anticipate incorporating customer abatement programs in the 2018 Compliance Plan? If not, when does Union anticipate it will complete its evaluation of the programs?

Response:

a-c) Please see the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: Exhibit 2

With respect to Union's Volume forecast:

a) What adjustments to the 2017 approved volume forecast have been made to account for the impact of additional cost to customers of Cap and Trade?

b) Please discuss Union's expectation regarding the impact on volume due to the additional cost to customers of Cap and Trade.

c) Please provide a copy of the list of Capped Participants provided to Union from the Ministry of the Environment and Climate Change.

Response:

a) No adjustments were made to the 2017 volume forecast.

b) Based on the results of Union's internal regression analysis, the demand for natural gas is inelastic to price. Based on these results, it is estimated that the consumption could vary by only 0.2% to 0.5% for a 10% change in the typical total bill amount, depending on the market segment.

c) Union is unable to provide the list received from the Ministry of the Environment and Climate Change ("MOECC") on October 7th, 2016 as the MOECC has required Union to maintain its confidentiality. This list was provided to the utilities for the sole purpose of facilitating implementation of the program for January 1, 2017. However, on March 6, 2017, the MOECC published a public version of the final Capped Participants list, as found at the following link: https://www.ontario.ca/page/registered-participants-ontarios-cap-and-trade-program

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: Exhibit 3, p. 12 - 15

Please explain what Union means by the principles of:
i) rate predictability and
ii) Flexibility in its compliance plan.

Response:

The principles noted above are identified in the Board's Cap-and-Trade Framework[1] at pp. 7-8. At Exhibit 3, pp. 12-15, Union discusses how its 2017 Compliance Plan demonstrates these principles. This evidence was redacted from the public record as it provides insight into information that has been classified as Strictly Confidential.

In general, Union interprets rate predictability as minimizing future period rate adjustments, and flexibility as the ability to adapt to changes in the carbon market.

[1] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: Exhibit 3, p. 29

Please describe the roles and responsibilities of the proposed 13.5 FTEs related to Cap and Trade.

Response:

Role and Responsibilities	**Number of FTE's**
Cap-and-Trade Team *Manager, Cap-and-Trade* • Overall responsibility for implementation of Cap-and-Trade regulations and compliance plans *Program Manager, Cap-and-Trade* • Leads activities on establishment of process changes, governance structures, reporting and monitoring, regulatory requirements, and compliance plan filings *Cap-and-Trade Advisor* • Leads interpretation and analysis of regulations, research of other jurisdictions, response to Cap-and-trade proposals from ministries, and support communications content regarding Cap-and-Trade	3.0
Environment, Health and Safety *Principal EHS Technical Advisor* • Accountable for all Regulatory reporting of greenhouse gas emissions, including all provincial reporting under O.Reg.452 and O.Reg 143 as well as federal reporting under Section 46 of the Canadian Environmental Protection Act. *Environmental Specialist (2 roles)* • Emissions calculations and reporting, technical support related to Cap-and-Trade and GHG emissions including emissions measurement, assessment of emission reduction opportunities and research.	3.0
Finance *Finance Analyst* • Responsible for the development of business design requirements including billing and reporting changes and the ongoing financial tracking for the new compliance instrument acquisition process, and financial analyses	1.0
Gas Supply *Senior Buyer, Carbon Markets* • Responsible for the development and execution of Union's compliance instrument procurement strategy and the management of Union's CITSS accounts	1.0

Technology and Innovation *Manager, Natural Gas Technology and Innovation and* *Project Manager, Natural Gas Technology and Innovation* • Assessment of emerging technologies and innovations for renewable natural gas, with the goal of increasing the technology and commercial readiness levels of those technologies • Evaluation and development of Cap-and-Trade's Offset Protocols and strategy around offsets *Manager, Customer Technology and Innovation* • Assessment of emerging technologies and innovations for the natural gas end-user in the residential, commercial and industrial markets, that reduce GHG emissions	3.0
Distribution Business Development *Director, Distribution Business Development and Strategic Accounts (25% allocated to C&T)* • Accountable for creating and executing strategies and approach to market required to develop new end use markets for natural gas, including renewable natural gas. Interface with government ministries on the development of Climate Change Action Plan initiatives *Manager, Distribution Business Development – Planning (25% allocated to C&T)* • Supports the development of opportunities in RNG markets by providing research, analytics and stakeholder support *Manager, Distribution Business Development - RNG* • Accountable for developing the market approach for renewable natural gas, identifying partnerships, business models and products with industry partners, potential customers, associations, and government *Business Development Manager* • For RNG, develops new customer and industry relationships in target markets, supports business cases, creates materials on market opportunities, facilitates contracting for services, and develops sustainable processes	2.5
Total	**13.5**

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: Exhibit 3, p. 32

Please explain the basis for the forecasted 10% increase in bad debt expenses related to Cap and Trade.

Response:

Please see the response at Exhibit B.Staff.3 a), b) and c).

The 2013 Board Approved bad debt expense is $6.25 million and 2015 Actual amount is $5.7 million. The average of the two has been rounded to $6 million. At the time of this filing the increase to customer billing was approximately 10% resulting in an estimate of $0.6 million in additional bad debt as a result of Cap-and-Trade.

The actual incremental bad debt amount directly related to Cap-and-Trade as referenced in the response to Exhibit B.Staff.3 b) is expected to be lower than the estimate in 2017 due to the implementation of Cap-and-Trade commencing January 1, 2017 and the lag time before Cap-and-Trade amounts would be included in customer accounts that are written off. Only the actual costs will be captured in the Greenhouse Gas Emissions Compliance Obligation – Customer Related Deferral Account (Account No. 179-154) for future disposition; the forecast of $0.6 million is not in rates and is not in the deferral account.

For 2018 on, Union will begin to develop history as to the true annual amount of Cap-and-Trade costs included in customer accounts written off to bad debt.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: Exhibit 3

Does Union have its own internal Marginal Abatement Cost Curve? If so, please provide a copy.

Response:

Union has not developed its own internal Marginal Abatement Cost Curve.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: Exhibit C, Tab 4-1, p. 17

With respect to the Cap and Trade holding and purchase limits under O.Reg 144/16:

a) Please explain the risks of the holding and purchasing limits.

b) If the Enbridge Inc. and Spectra Energy merger is approved, in which they would become related persons under O.Reg 144/16, does Union expect to have a problem meeting its compliance needs due to the holding and purchase limits?

Response:

a) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the Cap-and-Trade Framework.[1]

   This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

b) Please see the response at Exhibit B.CCC.1.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

If Union met its entire compliance obligations through the purchase of allowances, how many would need to be purchased to meet its forecast 2017 GHG emissions?

Response:

Please see Exhibit 2, Schedule 1, line 26, column e). Union's total forecasted GHG emissions excluding abatement reductions is 15,604,137 tonnes of CO_2e/m^3. One Ontario carbon allowance is equal to one tonne of emissions.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Please explain how Union plans to manage risk of the Cap and Trade program being cancelled at some point after the purchase of any compliance instruments.

Response:

For its 2017 Compliance Plan, Union has no reason to believe that there is risk of program cancellation. If the Cap-and-Trade program was cancelled after Union had incurred costs related to the program, then Union would pass through all prudently incurred costs to customers for recovery.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: Exhibit 3, Tab D

With respect to the ClearBlue Compliance Instrument Purchasing Strategy report:

a) Are there no parts of the report, similar to Alpha Inception LLC's report for Enbridge (See C-1-1, Appendix A) that can be made publically available? If there is, please provide it.

b) Does ClearBlue disagree with any aspect of the publically available above-referenced Alpha Inception report? If so, please explain.

Response:

a&b) Please see the response at Exhibit B.BOMA.35.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

With respect to potential conflicts of interest:

a. Does Union expect any of its affiliate or other related parties to be registered market participants? If so, please provide details.

b. Please provide details of arrangements or protocols Union will have in place to ensure that ratepayers are protected from any Cap and Trade related transactions with an Enbridge affiliate or related parties.

c. Please explain if Union believes any monitoring and reporting is appropriate.

Response:

a) Please see the response at Exhibit B.BOMA.7 a) and b).

b) Please see the response at Exhibit B.BOMA.7 c) and d).

c) Union believes the Affiliate Relationship Code, Climate Change Act, and the existing OEB oversight is sufficient, and does not believe any additional monitoring or reporting is required.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

With respect to cost recovery:

a) Please explain Union's understanding of when the Cap and Trade variance accounts will be reviewed and cleared.

b) Please explain what information Union believes it will be able to provide to all parties (i.e. not just the Board panel and Board Staff), when it seeks a review of its actual compliance plan costs, that it otherwise is not able to provide in this application.

Response:

a) Please see the response at Exhibit B.Staff.17.

b) Please see the response at Exhibit B.LPMA.15 and Exhibit B.APPrO.5.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence ("ED")

Reference: Exhibit 3, pp. 24 - 25

Please provide the following information with respect to Union's 2017 a) industrial; b) commercial & institutional; c) residential; and d) low-income DSM programs:

a) Forecast TRC Test benefit/cost ratios;
b) Forecast TRC Test net benefits;
c) Forecast TRC Test benefits;
d) Forecast TRC Test costs;
e) Forecast 2017 DSM savings (cubic metres);
f) Forecast lifetime DSM savings (cubic metres)
g) Forecast 2017 greenhouse gas emission reductions (tonnes);
h) Forecast lifetime greenhouse gas emission reductions (tonnes); and
i) Forecast 2017 program budgets.

When answering this interrogatory please exclude DSM programs and budgets that pertain to Large Final Emitters and "voluntary participants" in the cap-and-trade program who purchase their own emission allowances.

Response:

a–d) Union's Total Resource Cost ("TRC")-Plus values are calculated at the program level for Residential, Commercial/Institutional, Low Income, Performance Based Conservation, and Large Volume as shown in Table 1 below. Union does not forecast DSM savings and TRC values at a customer level and cannot remove values associated with large final emmitters and voluntary participants.

The Performance Based Conservation program only includes values from RunSmart since the Strategic Energy Management program is not expected to generate savings in the 2017 program year. Union expects the Large Volume TRC in 2017 to be similar to the 2014 program year, the TRC value shown in Table 1 is for the 2014 program year with Rate T1 removed.

Table 1: 2017 TRC

Program	TRC-Plus Benefits[1]	TRC Costs[2]	TRC-Plus Net Benefits	TRC Ratio
	(a)	(b)	(c)=(a-b)	(d)=(a/b)
Residential	$17,418,266	$16,726,828	$691,438	1.0
Commercial/Institutional	$171,144,966	$112,710,794	$58,934,172	1.5
Low Income	$8,990,002	$13,212,829	-$4,222,007	0.7
Large Volume[3]	$102,475,788	$25,181 ,158	$77,294,630	4.1
Performance Based Conservation	$194,934	$135,181	$59,753	1.4

e) Please see the response at Exhibit B.Staff.9 a).

f) Please see the response at Exhibit B.Staff.9 a).

g) Greenhouse Gas ("GHG") emission reductions are expected to be 300,096 tonnes CO2e as a result of 2017 DSM annual natural gas savings.

h) GHG emission reductions are expected to be 4,377,701 tonnes CO2e as a result of 2017 DSM cumulative natural gas savings.

i) As per the Board's EB-2015-0029/EB-2015-0049 Decision and Order[4], Union's 2017 DSM budget is $58,570,073.

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[1] Program savings as filed in 2015-2020 DSM Plan, EB-2015-0029 Application and Evidence, Tab 3, Appendix A
[2] TRC costs values as per EB-2015-0029 Decision and Order
[3] Large Volume TRC values are from the 2014 program year as per Union's 2014 Annual Report with Rate T1 removed
[4] See page 1 of the Decision and Order dated January 20, 2016.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence ("ED")

Reference: Exhibit 3, pp. 24 - 25

Please provide all studies prepared by or for Union with respect to the costs and benefits of increasing its 2017 DSM budget in order to achieve incremental greenhouse gas emission reductions.

Response:

There have been no such studies prepared by or for Union.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence (“ED”)

Reference: Exhibit 3, pp. 24 - 25

Please provide your 2017 natural gas commodity charge per cubic metre.

Response:

The gas supply commodity charges in effect at January 1, 2017 for each of Union’s operating areas are summarized in Table 1.

Table 1 - Summary of Gas Supply Commodity Charges

Line No.	Particulars	Gas Supply Commodity Rate (1) (cents/m^3)
1	Union South	16.0178
2	Union North West - Rate 01, Rate 10	11.7711
3	Union North West - Rate 20, Rate 100	11.4966
4	Union North East - Rate 01, Rate 10	16.3002
5	Union North East - Rate 20, Rate 100	15.9183

Notes:
(1) EB-2016-0334, Tab 2, Schedule 1.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence ("ED")

Reference: Exhibit 3, pp. 24 - 25

Does Union plan to include incremental ratepayer funded customer abatement activities into its 2018 compliance plan? If yes, please provide an approximate range of the budget level for those activities that Union believes is worth considering. If no, please fully explain and justify that position.

Response:

Please see the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence ("ED")

Reference: Exhibit 3, pp. 24 - 25

Please make best efforts to provide the following estimated incremental DSM results based on the assumption that Union's 2017 DSM budget was increased by 25%:

a) Forecast TRC Test benefit/cost ratio;
b) Forecast TRC Test net benefits;
c) Forecast TRC Test benefits;
d) Forecast TRC Test costs;
e) Forecast 2017 DSM savings (cubic metres);
f) Forecast lifetime DSM savings (cubic metres)
g) Forecast 2017 greenhouse gas emission reductions (tonnes);
h) Forecast lifetime greenhouse gas emission reductions (tonnes); and
i) Forecast 2017 program budgets.

Please assume that the incremental budget would be spent as efficiently as possible. If possible, please assume that the incremental budget would be spent only in relation to customers whose emissions Union is responsible for under Cap-and-Trade legislation. Please make and state any additional assumptions as necessary.

If it is necessary to assume a date on which Union would have begun preparation and planning for the use of the incremental spending, please provide a response for two scenarios (a) the date that the draft regulations under the *Climate Change Act* were released (February 25, 2016); and (b) the date that the Cap-and-Trade Framework was released (September 26, 2016).

Response:

This request is onerous and not relevant to Union's 2017 Compliance Plan. Please refer to Union's 2015-2020 DSM Plan (EB-2015-0029) for 2017 forecast details.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence's ("ED")

Reference: Exhibit 3, pp. 24-25

Please make best efforts to provide the following estimated incremental DSM results based on the assumption that Union 2017 DSM budget was increased by 50%:

a) Forecast TRC Test benefit/cost ratio;
b) Forecast TRC Test net benefits;
c) Forecast TRC Test benefits;
d) Forecast TRC Test costs;
e) Forecast 2017 DSM savings (cubic metres);
f) Forecast lifetime DSM savings (cubic metres)
g) Forecast 2017 greenhouse gas emission reductions (tonnes);
h) Forecast lifetime greenhouse gas emission reductions (tonnes); and
i) Forecast 2017 program budgets.

Please assume that the incremental budget would be spent as efficiently as possible. If possible, please assume that the incremental budget would be spent only in relation to customers whose emissions Union is responsible for under Cap-and-Trade legislation. Please make and state any additional assumptions as necessary.

If it is necessary to assume a date on which Union would have begun preparation and planning for the use of the incremental spending, please provide a response for two scenarios (a) the date that the draft regulations under the *Climate Change Act* were issued (May 19, 2016); and (b) the date that the Cap-and-Trade Framework was issued (September 26, 2016).

Response:

This request is onerous and not relevant to Union's 2017 Compliance Plan. Please refer to Union's 2015-2020 DSM Plan (EB-2015-0029) for 2017 forecast details.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence's ("ED")

Reference: Exhibit 3, pp. 24 - 25

Please consider a scenario where the Board directs Union to achieve as many tonnes of incremental greenhouse gas emissions reductions as possible via incremental cost-effective 2017 DSM spending, including through the expansion of budgets for existing programs. Based on that scenario, please estimate:

a) The forecast incremental 2017 greenhouse gas emission reductions (tonnes);
b) The forecast incremental lifetime greenhouse gas emission reductions (tonnes);
c) The estimated cost of purchasing carbon allowances or credits for the tonnes of emission indicated in response to parts (a) and (b) of this interrogatory.

Please assume that the direction is issued by the Board on May 1, 2017. Please state all other assumptions and provide all underlying calculations.

Response:

This request is onerous and not relevant to Union's 2017 Compliance Plan. Please refer to Union's 2015-2020 DSM Plan (EB-2015-0029) for 2017 forecast details.

UNION GAS LIMITED

Answer to Interrogatory from
Environmental Defence ("ED")

Reference: Exhibit 7, schedule 1

a) What are Union's total forecast cap and trade compliance costs for 2017?

b) What are Union's forecast 2017 costs for purchasing of carbon allowances and credits?

c) How many tonnes of emissions does Union forecast it will be responsible for in 2017?

d) What is Union's forecast average 2017 cost per tonne for the purchasing of carbon allowances and credits?

Response:

a) Please see Exhibit 3, Schedule 1, line 9, column i: $276,070,948.

b) The Climate Change Mitigation and Low-Carbon Economy Act, 2016 ("Climate Change Act") outlines prohibitions on the disclosure of certain information. These prohibitions are reflected in Section 4 of the OEB Cap-and-Trade Framework.[1]

   This question refers to information that has been classified as Strictly Confidential. In keeping with the legislation and with the best interests of ratepayers in mind, such information must remain Strictly Confidential in order to maintain the ability to effectively execute on Compliance Plans.

c) Please see Exhibit 2, Schedule 1, line 23: 15,597,229 tonnes CO_2e.

d) Please see Exhibit 3, Schedule 1, line 5, column h for Union's forecast average 2017 compliance cost per tonne: $17.70 CAD/tonne of CO_2e.

[1] Climate Change Mitigation and Low-carbon Economy Act, 2016, S.O. 2016, CHAPTER 7 (Climate Change Act) and Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
Low Income Energy Network ("LIEN")

Reference: Exhibit 3, p. 25

Preamble: "For 2017, there is only one customer abatement program included in Union's compliance plan that is incremental to the DSM plan. Through the Government of Ontario's GIF Union has entered into an agreement with the Ministry of Energy to receive funding of $42 million to enhance the Home Reno Rebate offering and achieve additional GHG emissions reductions through 2018.";"In addition to the GIF, Union is also exploring a number of opportunities for customer abatement such as the use of combined heat and power projects and renewable natural gas in the gas supply portfolio… As Union evaluates these programs, the outcomes of this analysis will be provided in future compliance plans."

a) Please provide a breakdown of Union's plan (including which specific measures will be employed and timing for implementation) for Union's Home Reno Rebate offering through the Green Investment Fund, for 2017 and beyond.

b) Does Union intend to implement social housing retrofits through the Green Investment Fund? If so, please provide a breakdown of Union's plan (including which specific measures will be employed and timing for implementation) for 2017 and beyond.

c) Does Union plan to seek approval from the Board to implement GHG abatement activities/measures that expand or increase funding for Union's existing DSM programs (other than the Home Reno Rebate offering)?

Response:

a) Please see below for the current list of measures included in the enhanced Home Reno Rebate Offering (with funding from the Green Investment Fund – "GIF").

Measure
Basement Insulation
Exterior Wall Insulation
Attic Insulation
Air Sealing
Furnace/Boiler
Wood-burning System
Water Heater

Measure
Window/Door/Skylight
Air-source Heat Pumps
Smart Thermostat

In 2017, electric air-source heat pumps will be added as a measure. No other changes are expected at this time.

b) Union does not intend to implement social housing retrofits through the GIF. Union has a robust low-income DSM program that supports the social housing single family and multi family sectors.

c) No.

UNION GAS LIMITED

Answer to Interrogatory from
Low Income Energy Network ("LIEN")

What potential GHG abatement activities/measures (including categories/types of activities such as those set out by the Board in the *Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities*, and/or specific measures within such categories), other than the Home Reno Rebate, does Union anticipate undertaking in 2018 and beyond? Does Union plan to include any low-income-specific GHG abatement activities/measures in its offerings (and if so, please describe)?

Response:

Please see the response at Exhibit B.Staff.14.

UNION GAS LIMITED

Answer to Interrogatory from
Low Income Energy Network ("LIEN")

Enbridge plans to engage with social service agencies, LIEN and VECC, to deliver programs (presumably GHG abatement programs and education about same) to low-income customers as part of its customer outreach.

a) Does Union intend to do the same?

b) If yes to (a), how does Union plan to engage with social services agencies to deliver programs and education to low-income customers and representatives?

Response:

a&b) Union has not proposed any low-income specific GHG abatement programs. Union does provide comprehensive low-income DSM programs, and in the development of its 2015-2020 DSM Plan, Union consulted heavily with low-income stakeholders. As part of Union's Cap-and-Trade customer outreach (including such items as bill insert newsletters, bill messages and website content), customers have been educated that their Cap-and-Trade costs are directly related to their gas usage and that they can reduce this usage by taking advantage of Union's DSM energy saving programs and tips, including the Low Income Home Weatherization program.

UNION GAS LIMITED

Answer to Interrogatory from
Low Income Energy Network ("LIEN")

Reference: Exhibit 5, Appendix B and Exhibit 7, p. 5

Union estimates somewhere between $70 to $80 increase for 2017 to residential customers' bills annually; $74/year increase on typical residential customer's bill.

a) Please provide the average residential Union natural gas customer's total billed amount for 2016.

b) Please provide the average residential Union natural gas customer's billed amount broken down for each month in 2016.

Response:

a&b) Please see Attachment 1.

UNION GAS LIMITED
2016 Total Bill for an Average Residential Customer Consuming 2,200 m^3 per Year

Line No.	Particulars	January (1)	February (1)	March (1)	April (2)	May (2)	June (2)	July (3)	August (3)	September (3)	October (4)	November (4)	December (4)	Total
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
	Union South													
1	Volumes (m^3)	385	403	332	200	114	64	48	46	48	106	158	295	2,200
2	Total Bill - Rate M1 ($)	85.38	88.25	76.75	56.07	41.12	32.24	30.25	29.83	30.25	43.00	53.90	81.80	648.84
	Union North													
3	Volumes (m^3)	384	328	284	170	102	52	44	48	80	133	232	344	2,200
	Total Bill ($)													
4	Rate 01 - Fort Frances Zone	122.99	108.33	96.71	63.91	46.97	34.24	32.86	33.74	42.36	60.26	89.61	122.47	854.45
5	Rate 01 - Western Zone	118.87	104.82	93.68	62.04	45.85	33.66	32.38	33.22	41.48	58.83	87.10	118.74	830.67
6	Rate 01 - Northern Zone	127.39	112.10	99.98	65.78	48.11	34.82	33.36	34.27	43.24	61.78	92.27	126.42	879.52
7	Rate 01 - Eastern Zone	134.56	118.23	105.28	68.93	50.01	35.79	34.19	35.16	44.74	64.28	96.64	132.89	920.70

Notes:
(1) Total bill calculated using approved January 2016 QRAM rates (EB-2015-0340) including temporary charges if applicable.
(2) Total bill calculated using approved April 2016 QRAM rates (EB-2016-0040) including temporary charges if applicable.
(3) Total bill calculated using approved July 2016 QRAM rates (EB-2016-0181) including temporary charges if applicable.
(4) Total bill calculated using approved October 2016 QRAM rates (EB-2016-0247) including temporary charges if applicable.

UNION GAS LIMITED

Answer to Interrogatory from
Low Income Energy Network ("LIEN")

Has Union considered, and will Union consider, rate mitigation measures (through GHG abatement measures, financial assistance, or other measures), specific to low-income customers to minimize the impact of Cap-and-Trade on low-income customers? Please specify which measures Union has considered and will consider.

Response:

Union has not considered rate mitigation measures for customers from the resulting impacts of the Cap-and-Trade program. Please see Exhibit B.LIEN.3 for information on Union's efforts related to low-income stakeholders.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 6, p. 1
Exhibit 3, p. 29

Preamble: Union states that the balance in the Greenhouse Gas Emissions Impact Deferral Account as of October 31, 2016 was approximately $1.3 million, and that these costs were incurred to prepare for Cap-and-Trade implementation.

a) What are the categories of costs that comprise the $1.3 million?

b) For each cost category, what proportion of the overall cost of $1.3 million does it comprise?

Response:

a-b) For the costs included in the Greenhouse Gas Emissions Impact Deferral Account as of October 31, 2016, the breakdown by cost category is as follows:

Salaries and Wages:	$1.02 million	(76%)
Consulting and Market Research:	$0.27 million	(20%)
Employee Expenses & Other:	$0.05 million	(4%)
	$1.34 million	

The balance as of December 31, 2016 is $2.2 million, as detailed in Exhibit B.Staff.1 a).

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 2, p. 1.

Preamble: In footnote 2 on page 1 of 10, Union states that it initiated an attestation process with customers to validate the list received from MOECC on October 7, 2016.

a) Does Union now have more current information about the lists of mandatory and voluntary participants?

b) If so, is there a difference between the more current information and the information upon which Union submitted its application?

c) If so, what is the impact of the difference on the forecasts included in Union's application?

Response:

a) Yes, there is more current information. The Ministry of the Environment and Climate Change ("MOECC") provided updates each month as they continued to process registrations for new participants after the October 7, 2016 list was provided to Union. In addition, the attestation process undertaken by Union with its customers resulted in a more refined mapping of accounts/contracts to participant registrations with the MOECC.

b) Yes.

c) Based on the most current list of mandatory and voluntary participants, the estimated impact of the difference on the forecasts included in Union's application is shown below:

Market	**Volume** (10^3m^3)
General Service	19,971
Contract Service	(61,799)
Total	(41,828)

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 3, pp. 3 and 29.

Preamble: Union states that it established a Cap-and-Trade team responsible for the integrated implementation of cap and trade across Union.

a) How many people are on this team?

b) Are all team members dedicated solely to Cap-and-Trade responsibilities?

c) What roles do the various team members play?

d) Are these team members part of the 13.5 FTEs that Union estimates it will require in 2017 to meet the incremental level of effort required to implement and execute the Cap-and-Trade program?

Response:

a) There are three permanent FTEs on this team.

b) Yes.

c) The three permanent positions on the team are:

   i. Manager, Cap-and-Trade Design and Implementation
   ii. Program Manager, Cap-and-Trade
   iii. Cap-and-Trade Advisor

Please see the response at Exhibit B.SEC.3 for role descriptions of the identified 13.5 FTEs.

d) Yes.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 3, p. 25.

Preamble: Union states that forecasted customer volumes and emissions reflect the significant impact of DSM programs to ensure that Union's compliance obligation is not overstated.

a) How has Union treated carbon savings resulting from DSM programs achieved by customers who are LFEs?

b) Does Union intend for LFEs count their carbon reductions towards their compliance activities, and if so, by way of what administrative mechanism?

Response:

a) Please see the response at Exhibit B.Staff.9 b).

b) Large Final Emitters ("LFE") are responsible for managing their own compliance plans, and any realized carbon reductions as a result of participating in Union's DSM programs will benefit LFEs through paying a lower carbon cost on their natural gas consumption.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 3, p. 28.

Preamble: Union states that it will review facility abatement opportunities, including an initial assessment of emission reduction options with the highest potential. Once a list of potential opportunities has been identified, a detailed engineering and feasibility study will be completed to determine which opportunities can be practically implemented.

a) It is unclear from the application who will be involved in this review process, and how it will be undertaken. Please explain how Union intends to assess the feasibility of facility-related abatement opportunities, and whether Enbridge intends to engage its customers in this review process.

Response:

a) As part of its 2018 Compliance Planning process, Union will undertake a study to identify and assess a range of possible management strategies and technology options for the reduction of Greenhouse Gas ("GHG") emissions from its own natural gas transmission, storage and distribution operations. The study will focus primarily on facility-related GHG emissions from Union's operations as reported under O.Reg. 452/09 and O.Reg.143/16 and consistent with the applicable sections of the Ontario Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions (January 2017):

- ON.20: Stationary Combustion
- ON.400: Natural Gas Distributor
- ON.350: Operation of Equipment Related to Natural Gas

As part of this work, Union will evaluate each option based on the following criteria:

- Capital and Operating Costs
- Practicability of Implementation/Constraints
- GHG Emissions Reduction Potential
- Noteworthy Advantages and Disadvantages

The results of the study will include the identification of feasible GHG emissions reduction options and the associated cost per tonne of CO_2e. The results of the study will be provided as part of Union's 2018 Compliance Plan and will be reviewed and updated beyond 2018 as part of the annual process of preparing future compliance plans.

As Union develops the 2019 Business Plan for its next major rate application (2019 Rebasing), Union is engaging its customers in order to get their feedback on the outcomes they value as well as their needs and preferences. As part of this process, Union is specifically asking customers for feedback on the pacing of decreasing GHG emissions through changes in its operating and maintenance practices as well as investments in new equipment and technologies.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 5, p.1, Appendix A

Preamble: Union states that it has created a Cap-and-Trade communications plan that has been continually updated based on customer insight and feedback, and that Union had gained insight and feedback through various sources.

a) In the Board's interim decision on bill presentment, the Board planned a working group to examine, among other things, customer communications in order to enhance the transparency of Cap-and-Trade compliance costs included in rates. Has Union been involved in any such further work?

b) If so, please describe what has been done and the status of the initiative?

Response:

a&b) As outlined on p. 36 of the OEB Cap-and-Trade Framework[1], the OEB intends to establish a working group to assist with implementation of specific elements of the Framework. The Framework specifically references that the working group is an opportunity to provide input and advice on the ongoing approach to customer outreach. This working group has yet to be established by the OEB.

[1] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 6, pp.1 and 2.

Preamble: Union requests approval of deferral accounts to separately track the variance between the actual costs incurred related to customer-related GHG obligation cost and the facility-related GHG obligation cost.

a) What is Union's rationale for proposing two separate deferral accounts, one for customer-related costs and another for facility-related costs?

b) How will the allocation methodologies be different between the two accounts?

Response:

a) Union is proposing two separate deferral accounts to allow for administrative simplicity in tracking and reporting the different obligations of the Cap-and-Trade regulations.

b) Deferral Account 179-154 Greenhouse Gas Emissions Compliance Obligation – Customer Related will be allocated to customers covered by Union's compliance obligation based on the actual throughput volumes that generate the Cap-and-Trade obligation.

   Deferral Account 179-155 Greenhouse Gas Emissions Compliance Obligation – Facility Related will be allocated to all customers based on allocation of the UFG, compressor fuel, and company use volumes that generate the Cap-and-Trade obligation. This allocation methodology is consistent with the inclusion of facility-related compliance costs in 2017 rates.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit 1, p. 6.

Preamble: Union states that its 2017 Compliance Plan includes one deviation from the framework. Union calculated the Cap-and-Trade rates suing the 2017 Ontario minimum auction reserve price instead of the 21 day ICE daily settlement prices. Union believes this departure is only required while the Ontario and California/Quebec carbon markets are not linked.

a) Confirm that Union is seeking approval for the deviation from the Framework only in respect of the 2017 Compliance Plan, and not for any other periods during which the Ontario and California/Quebec carbon markets may not be linked.

Response:

a) Union's proposed deviation from the OEB Cap-and-Trade Framework[1] is only for the 2017 Compliance Plan. As outlined in Exhibit 1, p.6, Union believes this departure is only required while the Ontario and California/Québec markets are not linked. However, given the status of linkage at the time of filing the 2018 Compliance Plan, Union will determine whether or not to propose a similar deviation for 2018.

[1] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)

UNION GAS LIMITED

Answer to Interrogatory from
TransCanada Pipelines Limited ("TransCanada")

Reference: Exhibit 7, Schedule 3, Page 12 of 12
Rate Schedules, Rate C1, Page 1 of 2

Preamble: In Reference 1, Union Gas calculates the Cap and Trade commodity charge for Rate C1 Dawn to Dawn-TCPL service, set at $0.004/GJ.

In Reference 2, Union Gas provides a breakdown of Rate C1 charges, including the $0.138/GJ Monthly Demand Charge for the Dawn to Dawn-TCPL path, equivalent to $0.00454 GJ/D.

TransCanada requests additional information on the determination of the Rate C1 Dawn to Dawn-TCPL Cap and Trade commodity charge.

a) For Dawn to Dawn-TCPL Rate C1 Service please fully describe how the 2017 facility-related GHG obligation, found in Reference 1, was determined. Please cite the specific facilities contributing to the facility-related obligation on this path.

Response:

a) Union is proposing to allocate the facility-related obligation costs related to UFG and compressor fuel based on the Board-approved forecast of UFG and compressor fuel requirements. The approved Dawn to Dawn-TCPL UFG and compressor fuel requirements are 203 10^3m^3 and 250 10^3m^3, respectively, and represent 0.3% of the total UFG volumes and 0.2% of the total compressor fuel requirements. Based on this allocation, the 2017 Rate C1 Dawn to Dawn-TCPL forecast of UFG and compressor fuel requirements are 248 10^3m^3 and 308 10^3m^3, per Exhibit 7, Schedule 1, p.3, line 17. These volumes were applied to the facility-related compliance cost unit rate of 3.4240 cents/m^3 to derive $0.019 million of Rate C1 Dawn to Dawn-TCPL facility-related obligation costs.

Union is proposing to allocate the facility-related obligation costs for company use gas to rate classes based on the 2013 Board-approved administrative and general costs. This allocation results in a minimal allocation of less than $0.001 million to Rate C1 Dawn to Dawn-TCPL.

The calculation of the Rate C1 Dawn to Dawn-TCPL compliance cost is provided in Table 1.

The total facility-related compliance cost of $0.019 million is recovered over the approved volume forecast for the Rate C1 Dawn to Dawn-TCPL of 5,000,000 GJ to derive the unit rate of $0.004/GJ ($19,000/5,000,000 GJ), per Exhibit 7, Schedule 1, p.3, line 17.

Table 1
Derivation of Rate C1 - Dawn to Dawn-TCPL Facility-Related Compliance Cost

Line No.	Particulars	Total (1)	Dawn-Dawn-TCPL	% of Total
		(a)	(b)	(c) = (b / a)
1	2013 Approved UFG Volumes (10^3m^3)	63,573	203	0.3%
2	2017 Forecast UFG Volumes (10^3m^3) (2)	80,381	248	0.3%
3	2017 Compliance Cost ($000's) (line 2 x 3.424 ¢/m³)	2,752	9	0.3%
4	2013 Approved Compressor Fuel Volumes (10^3m^3)	152,841	250	0.2%
5	2017 Forecast Compressor Fuel Volumes (10^3m^3) (2)	196,576	308	0.2%
6	2017 Compliance Cost ($000's) (line 5 x 3.424 ¢/m³)	6,731	11	0.2%
7	2017 Company Use Compliance Cost ($000's)	443	0	0.0%
8	2017 Total Compliance Cost ($000's)	9,926	19	0.2%

Notes:
(1) Exhibit 7, Schedule 1, pp.2-3, column (e).
(2) Exhibit 7, Schedule 1, p.3, line 17.

The specific facility contributing to the facility-related obligation on this path is Dawn Station compression, which is required to physically transport gas from Dawn to the Dawn-TCPL interconnect.

UNION GAS LIMITED

Answer to Interrogatory from
TransCanada Pipelines Limited ("TransCanada")

Reference: Exhibit 3, p.29 of 47, Lines 10-12
Report of the Board, Section 6.1, p.30

Preamble: In Reference 1, Union Gas states that as of October 31, 2016, the balance of its Greenhouse Gas Emissions Impact Deferral Account is approximately $1.3 million.

In Reference 2, the Ontario Energy Board states that "[…] administrative costs relating the implementation and ongoing operation of the Cap and Trade program will be allocated and recovered from all customers in the same manner as existing administrative costs."

a) Please provide the balance as of January 1, 2017 for the deferral account noted in Reference 1.

b) Please confirm that Union Gas intends to recover Cap and Trade administrative costs in the same manner as existing utility administrative costs.

c) Does Union Gas expect to recover Cap and Trade administrative costs through a commodity charge or an increase to demand charges?

d) Using the updated deferral account balance provided in a), please provide the estimated amount expected to be allocated to M12 customers, as well as the resulting unit rate impact. If an updated account balance is unavailable, please utilize the balance noted in Reference 1.

Response:

a) Please see the response at Exhibit B.CCC.5.

b) Confirmed.

c) In accordance with the Report of the Board (EB-2016-0296), the Cap-and-Trade administrative costs will be included in rates in the same manner as existing administrative costs, which are recovered in demand and commodity charges.

Union will recover the allocation of the deferral balance from Rate M12 customers through a one-time adjustment based on the customer's contract demand.

d) Per part a) above, $0.2 million of the total 2016 Cap-and-Trade administrative cost deferral balance of $2.2 million will be allocated to Rate M12. Union will recover the $0.2 million from Rate M12 customers based on the 2016 actual contract demand of 4,971,980 GJ. Union estimates the resulting unit rate for deferral account disposition to be $0.042/GJ of contract demand ($0.2 million / 4,971,980 GJ).