

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Sched. B, as amended;

AND IN THE MATTER OF an Application by Enbridge Gas Distribution Inc. for an order or orders approving and/or accepting its Cap and Trade Compliance Plan and approving or fixing rates and/or charges to recover the costs incurred undertaking its Cap and Trade Compliance Plan;

AND IN THE MATTER OF an Application by Union Gas Limited for an order or orders approving and/or accepting its Cap and Trade Compliance Plan and approving or fixing rates and/or charges to recover the costs incurred undertaking its Cap and Trade Compliance Plan;

AND IN THE MATTER OF an Application Natural Resource Gas Limited for an order or orders approving and/or accepting its Cap and Trade Compliance Plan and approving or fixing rates and/or charges to recover the costs incurred undertaking its Cap and Trade Compliance Plan;

**CROSS-EXAMINATION COMPENDIUM OF THE
SCHOOL ENERGY COALITION
(Enbridge Panel)**

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Counsel for the School Energy Coalition

TABLE A1

TABLE 1: 2017 CUSTOMER-RELATED VOLUMES, EMISSIONS, COST OF EMISSIONS AND UNIT RATE

Line	Rate	Budget Forecast Volumes ¹ (10 ³ m ³)	LFE, Voluntary Participant and Other Exempt Gas Volumes ² (10 ³ m ³)	Net Volumes ³ (10 ³ m ³)	Net CO ₂ e Emissions ⁴ (Tonnes CO ₂ e)	Assumed Cost of Allowances ⁵ (\$/tonne CO ₂ e)	Cost of CO ₂ e Emissions ⁶ (\$)	Unit Rate ⁷ (\$/m ³)
1.1	1	4,911,477.9	0.0	4,911,477.9	9,207,189.1	17.70	162,967,246.7	
1.2	6	4,862,269.2	120,126.9	4,742,142.3	8,889,748.0	17.70	157,348,539.5	
1.3	9	262.8	0.0	262.8	492.7	17.70	8,719.9	
1.4	100	0.0	0.0	0.0	0.0	17.70	0.0	
1.5	110	861,434.8	403,080.8	458,354.0	859,242.8	17.70	15,208,597.3	
1.6	115	490,291.9	304,439.5	185,852.4	348,403.9	17.70	6,166,749.5	
1.7a	125	305,896.4	0.0	305,896.4	573,441.7	17.70	10,149,917.2	
1.7b	125D ⁸	325,082.3	0.0	325,082.3	609,408.1	17.70	10,786,522.6	
1.8	135	60,899.0	0.0	60,899.0	114,162.9	17.70	2,020,683.5	
1.9	145	63,318.2	14,091.0	49,227.2	92,282.6	17.70	1,633,402.7	
1.10	170	296,313.0	183,005.6	113,307.4	212,409.1	17.70	3,759,641.3	
1.11	200	170,842.7	170,842.7	0.0	0.0	17.70	0.0	
1.12	300	35,440.4	34,992.0	448.4	840.6	17.70	14,878.3	
1	Total Customer-Related	12,383,528.6	1,230,578.5	11,152,950.1	20,907,621.4	17.70	370,064,898.6	3.3181

Notes:

- (1) Exhibit B, Tab 2, Schedule 1, Table 1, Col. 1 - Col. 2
- (2) Exhibit B, Tab 2, Schedule 1, Table 1, Col. 4 and Col. 5. Rate 300 is landfill gas volume.
- (3) Col. 1 - Col. 2
- (4) Exhibit B, Tab 3, Schedule 1, Table 1, Col. 5
- (5) Internal forecast of carbon allowance pricing based on past auction data and Cap and Trade Regulation
- (6) Col. 4 x Col. 5
- (7) (Col. 6 / (Col. 3 x 1000)) x 100
- (8) Dedicated unbundled customers

Customer-Related Unit Rate Calculation

Cap and Trade Customer Related Charge = Cost of CO₂e Emissions / Net Volumes
= \$ 370,064,898.6 / 11,152,950.1 10³m³
= 3.3181 \$/m³

TABLE A2

TABLE 2: 2017 FACILITY-RELATED VOLUMES, EMISSIONS, COST OF EMISSIONS AND UNIT RATES

Line	Volumes ¹ (10 ³ m ³)	CO ₂ e Emissions ² (Tonnes CO ₂ e)	Assumed Cost of Allowances ³ (\$/tonne CO ₂ e)	Cost of CO ₂ e Emissions ⁴ (\$)	Unit Rate (\$/m ³)
2.1 Company Use					
2.1.1 Fleet	1,500.0	2,811.9	17.70	49,771.3	
2.1.2 Buildings	1,505.9	2,823.0	17.70	49,967.6	
2.1.3 Boilers	3,930.2	7,307.8	17.70	129,348.0	
2.1 Company Use	6,936.2	12,942.8	17.70	229,086.9	0.0018 ⁵
2.2 Unaccounted For Gas (UAF)	98,279.0	184,236.5	17.70	3,260,985.5	0.0271 ⁶
2.3 Compressor Fuel	17,191.8	31,966.0	17.70	565,797.5	0.0048 ⁷
2 Total Facility-Related	122,407.0	229,145.2	17.70	4,055,870.0	0.0337

Notes:

- (1) Exhibit B, Tab 2, Schedule 1, Table 2
- (2) Exhibit B, Tab 3, Schedule 1, Table 3, Col. 5
- (3) Internal forecast of carbon allowance pricing based on past auction data and Cap and Trade Regulation
- (4) Col. 2 x Col. 3
- (5) Cost of CO₂e emissions / Total customer-related volume = [Col. 4 / (Exhibit A1, Table 1, Line 1, Col. 1 x 1000)] x 100
- (6) Cost of CO₂e emissions / (Total customer-related volume - Rate 125D customers - landfill gas volume) = [Col. 4 / ((Exhibit A1, Table 1, Line 1, Col. 1 - Line 1.7b, Col. 1 - Line 1.12, Col. 2) x 1000)] x 100
- (7) Cost of CO₂e emissions / (Total customer-related volume excluding unbundled customers (Rates 125 and 300) + Rate 325 Volume) = [Col. 4 / ((Exhibit A1, Table 1, Line 1, Col. 1 - Line 1.7a, Col. 1 - Line 1.7b, Col. 1 - Line 1.12, Col. 1 + 190,328 10³ m³) x 1000)] x 100

Facility-Related Unit Rate Calculations

Company Use = Cost of CO₂e Emissions for Company Use / Total Customer-Related Volume
= \$ 229,086.9 / 12,383,528.6 10³m³
= 0.0018 \$/m³

Unaccounted For Gas Volumes = Cost of CO₂e Emissions for Unaccounted For Gas / (Total Customer-Related Volume Excluding Rate 125D and Landfill Gas)
= \$ 3,260,985.5 / (12,383,528.6 - 325,082.3 - 34,992.0) 10³m³
= 0.0271 \$/m³

Compressor Fuel Volumes = Cost of CO₂e Emissions for Compressor Fuel / (Total Customer-Related Volume Excluding Unbundled Customers + Rate 325 Volume)
= \$ 565,797.5 / (12,383,528.6 - 305,896.4 - 325,082.3 - 35,440.4 + 190,328.0) 10³m³
= 0.0048 \$/m³

Facility-Related Charge = 0.0018 + 0.0271 + 0.0048 \$/m³
= 0.0337 \$/m³

Table 2: 2017 Forecasted Cost Elements and Amounts²

Cost Element	Forecasted Amount
Revenue requirement implications of IT billing system upgrades and potential future changes	\$76,100
Staffing Resources	\$1,120,000
Implementation, Market Intelligence, and Consulting Support ³	\$561,000
External Legal Counsel	\$125,000
OEB Cap and Trade Framework and Other Regulatory Proceedings	Unknown at this time
Incremental Cap and Trade related GHG Reporting and Verification	\$20,000
Customer Education and Outreach	\$115,000
Bad Debt Provision	\$900,000
Income Tax Implication	Unknown at this time
TOTAL	\$2,917,100

² Where costs have been converted from USD to CAD, a 1.2959 exchange rate has been applied.

³ Implementation, Market Intelligence and Consulting Support have been provided on a best guess basis, recognizing that the Company does not have experience with implementing Cap and Trade and thus may have under or over forecasted at this time.

Witnesses: A. Langstaff
D. McIlwraith
F. Oliver-Glasford
R. Small
E. Vangelova

APPrO INTERROGATORY #6

INTERROGATORY

ISSUE 5 – COST RECOVERY

Reference: Exhibit G, Tab 1, Schedule 1, Page 3, Paragraph 9.

Question:

- (a) If the actual WCI auction reserve price published by the Auction Administrator is now known (expected early 2017), please update the relevant parts of the Application to reflect the use of the actual price rather than a forecast.

RESPONSE

- a) Subsection 71(1) of the Cap and Trade Regulation states, “The minimum price of an emission allowance in an auction is the higher of the annual auction reserve prices most recently established, as of the day of the auction, for each of Quebec and California.” On December 1, 2016, the California Cap and Trade Program and Québec Cap and Trade System released the auction reserve prices based on the pricing formula in the California Regulation, in US dollars, and based on the pricing formula in the Québec Regulation, in Canadian dollars.

Section 71(3) notes,

If an annual auction reserve price is listed in a currency other than Canadian dollars, the price is deemed, in Canadian dollars, to be the amount that would be realized by converting to Canadian dollars the amount at the following rate:

- 1. If, on the day before the day of the auction, the Bank of Canada provided a Canadian dollar exchange rate for that currency, the currency conversion is calculated at that rate.*
- 2. If paragraph 1 does not apply, the currency conversion is calculated at the Canadian dollar exchange rate for that currency as provided by the Bank of Canada for the date that is before, and is as close as possible to, the day of the auction.*

As a result of Sections 71(1) and 71(3), the actual auction reserve price in Canadian dollars will not be known until the day prior to the auction.

Witnesses: A. Langstaff
J. Murphy
F. Oliver-Glasford

Summary Results Report

Ontario Cap and Trade Program

Auction of Greenhouse Gas Allowances

March 2017 Ontario Auction #1

Background

The Ontario Ministry of the Environment and Climate Change (MOECC) held the first auction of greenhouse gas (GHG) allowances on March 22, 2017. The auction included a Current Auction of 2017 vintage allowances and an Advance Auction of 2020 vintage allowances. The information provided in this report is a balance between the need for program transparency and protection of individual auction participants' market positions.

Prior to the certification of the auction, MOECC staff and an independent market monitor evaluated the bids and determined that the auction process and procedures complied with the requirements of The Ontario Cap and Trade Program Regulation (Regulation). As provided below, the Market Monitor made the following findings:

The Market Monitor found that the auction was cleared consistent with the auction clearing rules in the Regulation. To address potential market manipulation or collusion, the Market Monitor also uses a number of economic analysis tools to evaluate the auction results. The Market Monitor confirmed the clearing price and clearing quantities by participant for the Current Auction of 2017 vintage allowances and for the Advance Auction of 2020 vintage allowances. The auction algorithm correctly applied the Regulation requirements covering the bid guarantee. The Market Monitor did not observe any breaches of security or communication protocols. The Market Monitor recommended that MOECC approve the March 2017 Ontario Auction #1 results.

Summary Results

The first table below provides key data and information on the results of the auction. The second table provides qualified bid summary statistics from the auction. Please see Explanatory Notes at the end of this report for descriptions of all summary information.

Table 1: Auction Results for March 2017 Ontario Auction #1

Auction Results	Current 2017 Vintage	Future 2020 Vintage
Total Allowances Available for Sale	25,296,367	3,116,700
Total Allowances Sold	25,296,367	812,000
Total Qualified Bids Divided by Total Allowances Available	1.16	0.26
Proportion of Allowances Purchased by Capped Participants	99.1%	100%
Herfindahl-Hirschman Index	1,705	9,211

Table 2: Qualified Bid Summary Statistics for March 2017 Ontario Auction #1

Qualified Bid Summary Statistics	Current 2017 Vintage	Future 2020 Vintage
Ontario Auction Reserve Price (CAD)	\$18.07	\$18.07
Settlement Price (CAD)	\$18.08	\$18.07
Maximum Price (CAD)	\$49.41	\$27.69
Minimum Price (CAD)	\$18.07	\$18.07
Mean Price (CAD)	\$23.66	\$24.75
Median Price (CAD)	\$19.00	\$19.53
Median Allowance Price (CAD)	\$20.25	\$23.02
Auction Exchange Rate	1.3317	



Ontario Energy Board

Report of the Board

Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities

EB-2015-0363

September 26, 2016

5.3 Approach to Assessment of Cost Implications of the Utilities' Compliance Plans

Consistent with the Regulatory Framework's six guiding principles discussed in Section 3, in determining whether the cost consequences of the Utilities' Compliance Plans are cost-effective, optimized and reasonable, the OEB will consider the following:

1. whether a Utility has engaged in strategic decision-making and risk mitigation, resulting in a Compliance Plan that is as cost-effective as possible in reducing its facility-related and customer-related GHG emissions, and whether the Utility has considered a diversity (portfolio) of compliance options;
2. whether a Utility has selected GHG abatement activities and investments that, to the extent possible, align with other broad investment requirements and priorities of the Utility in order to extract the maximum value from the activity or investment; and,
3. whether the Compliance Plans are sufficiently flexible to adapt to variability in volume, changes in market prices, market dynamics and other sources of risk thereby providing for greater rate predictability as well as mitigating the risk to customers of changes in the Cap and Trade market.

5.3.1 Assessment of Cost-Effectiveness and Optimization

Inherent in the OEB's review of cost-effectiveness and reasonableness is an assessment of whether Compliance Plans reflect optimized decision-making. This includes:

- A consideration of a diversity of compliance options;
- Risk mitigation;
- Whether a Utility has approached its compliance strategy in an integrated manner that extracts maximum value from commitments that integrate multiple benefits; and,
- Whether a Utility has demonstrated flexibility to adapt to changes.

The OEB believes that assessing the Utilities' plans through this lens will lead to cost-effectiveness and greater rate predictability, and will reduce the costs and risk to customers.

To carry out this assessment, the OEB will expect robust and thorough information from the Utilities. The OEB will want to see information from the Utilities that demonstrates they have undertaken a detailed analysis which supports their choice of compliance options, including use of the OEB MACC to pace and prioritize their investments.

Most stakeholders that commented on the issue of Compliance Plan assessment were generally supportive of the OEB's approach. Some environmental groups felt that the cost-effectiveness test should be based on total societal costs and benefits (TRC [Total Resource Cost] or SCT [Societal Cost Test]), and that the OEB should require Utilities to undertake abatement where it is less costly than the procurement of allowances.

Given the newness of the Cap and Trade program the OEB considers it premature to apply the TRC or SCT to the Utilities' Compliance Plans at this time. The OEB will consider the use of additional tests such as the TRC or SCT after gaining experience with the assessment of Compliance Plans.

The OEB's approach to assessing the cost-effectiveness and reasonableness of Compliance Plans is discussed below.

5.3.1.1 Compliance option analysis and optimization of decision-making

The OEB's assessment will require a general understanding of the Utilities' approach to compliance. The OEB expects a Utility to provide an overview of its strategy, including an outline of the activities that it proposes to take to meet its compliance obligations (such as procurement of allowances and offset credits, GHG abatement programs for natural gas customers, and GHG abatement and mitigation activities for the Utility's own facilities and operations, and the rationale behind their selection of compliance actions and activities.

As part of its assessment of cost-effectiveness and reasonableness, the OEB will assess whether the Utilities effectively used the OEB MACC, their forecasts, and any other inputs to prioritize and select the compliance instruments and activities they have decided to include in their Compliance Portfolio.

The OEB will use the information provided by the Utilities to assess whether Compliance Plans reflect optimized and strategic decision-making, including consideration of a diversity of compliance instruments. The OEB will also use the

information provided by the Utilities to assess whether a Utility has selected investments in GHG abatement activities⁴ that, to the extent possible, align with other general investment needs and priorities of the Utility in order to extract maximum value from any GHG abatement activities.

The OEB recognizes that although some longer-term investments in GHG abatement may be more expensive than the price of emissions units in any given year, there may be strategic value in investments that decrease emissions over the longer term. For any activities included in the Compliance Plans that are more expensive per tonne of CO₂e than the annual carbon forecast price, the Utilities should provide a qualitative and quantitative description of the strategic value in these investments (e.g., long-term considerations related to GHG mitigation and the increasing price of emissions units in the longer term).

The OEB also recognizes that in any given year, a Utility may develop a Compliance Plan in which the only activity proposed is the procurement of allowances (and offset credits), if the Utility has determined that this is the most cost-effective and reasonable approach.

The implementation of a Cap and Trade program is a new activity for the Utilities and will require processes for ensuring that any procurement and trading decisions related to carbon emissions units are governed appropriately, similar to activity related to gas supply acquisitions. For the OEB to properly assess whether the Utilities' Compliance Plans are cost-effective and reasonable it will be important to understand how the Utilities have structured their decision-making and ensured they have adequate resources to manage the implementation of the Plan.

5.3.1.2 Performance Metrics and Cost Information

The OEB's assessment of cost-effectiveness and reasonableness will include a consideration of metrics and cost information to be provided by the Utilities. The OEB must assess the cost effectiveness of the Utilities' compliance activities in meeting their emission reduction obligations for customers and their own facilities. That assessment will include a consideration of objective and independent analysis of Utilities' Compliance Plan implementation performance and costs.

⁴ The customer-related GHG abatement activities must be incremental to the Utilities' 2015-2020 multi-year DSM plans (EB-2015-0029/EB-2015-0049).

The metrics and cost information will allow the OEB to assess whether the Utilities have considered a diversity of compliance options and their costs, and whether the Utilities have selected investments in GHG abatement activities that are cost-effective and extract maximum value. The OEB will rely on the performance metrics in the monitoring of the Utilities' activities to ensure continuous improvement in the planning and actions taken to achieve compliance, and the achievement of the government's objectives under the *Climate Change Act*.

Performance Metrics

The OEB will rely on performance benchmarks for the purpose of assessing forecast costs of Compliance Plans. Performance benchmarks will provide objective measures of the Utilities' proposed compliance activities. To assess the cost effectiveness of the Utilities' Compliance Plans, the OEB will require a Utility to calculate and provide key performance metrics, including cost per tonne (\$/tonne) of each compliance instrument or activity and a comparison of costs of investing in GHG abatement activities versus procuring emissions units. The OEB MACC will establish benchmarks for the cost per tonne, as will the results of the allowance auctions, the annual and long-term carbon price forecasts and other carbon market information.

A few stakeholders suggested adding additional metrics, such as a cost per customer, or undertaking further work to develop metrics given the lack of experience with Cap and Trade programs. The metrics that the OEB will use for the assessment of the Utilities' Compliance Plans are intended to measure both cost-effectiveness and reasonableness. The assessment will not be based on an upper limit of costs as would be the case with a cost per customer metric. Rather, because compliance is an obligation for the Utilities, the assessment will need to focus on the most cost-effective approach. This does not mean that the OEB will not consider customer bill impacts, only that the implementation of Cap and Trade cannot be tied to a specific cost per customer. In many cases the costs of the Compliance Plans will be largely dependent on prices in the Cap and Trade market and the cost of abatement opportunities.

With experience reviewing Compliance Plans, and through the monitoring process, there will be an opportunity to identify new metrics that may be useful in the assessment of Utilities' requests for cost recovery. As discussed in Section 8, the OEB intends to establish a working group that will consider, among other things, the need for and design of potential new metrics for evaluating the Utilities' Plans and performance.

Cost Information

Cost information about the compliance options the Utilities propose to use to meet their obligations will allow the OEB to assess a Utility's approach to developing Compliance Plans in a way that is cost-effective and reasonable and protective of the interests of customers. The kinds of information the OEB will need to obtain in order to undertake this assessment include descriptions of the costs of each compliance option, administrative costs, and financing costs.

To benchmark annual Utility costs, the OEB will use the ICE as an annual price forecast for annual compliance activities, and the OEB's 10-year carbon price forecast for long-term activities. These forecasts will provide an independent and objective basis for the assessment of the Utilities' plans for acquisition of allowances and other market based options. The OEB will also benchmark a Utility's Compliance Plan costs against the OEB MACC. The MACC provides the most comprehensive tool for assessment of cost-effectiveness because it identifies the effective cost of the full range of compliance options.

The OEB recognizes that the information necessary for its assessment of costs and performance is likely to include market and commercially sensitive information that will be subject to confidentiality. The treatment of information related to the Utilities' auction and market activities has been addressed in section 4 on confidentiality.

5.3.2 Risk Mitigation

In order to assess the cost consequences of Utilities' Compliance Plans the OEB must have a good understanding of the Utilities approach to risk identification, management and minimization. Understanding the risks that have been considered by a Utility in developing their Compliance Plans will provide the OEB with information to assess the potential for the Plans to address changes in costs and provide for greater rate predictability.

At a minimum, the OEB believes that risk identification should address the following categories of risks inherent in Cap and Trade:

- Volume variability;
- Allowance price variability (including foreign exchange risk);
- Emissions unit availability (i.e., allowances and offset credits);
- Market risk;
- Non-compliance; and,

- Any other risks identified by the Utilities.

The OEB will review the Utilities' risk management strategies to assess whether a Compliance Plan has appropriately considered risks and includes the flexibility needed to address them. Analysis developed by the Utility that includes high, medium and low risk scenarios for each of the above risks will assist the OEB's assessment.

This approach was suggested in the Discussion Paper. The OEB received few comments on this approach, and the comments received were generally supportive.

For participants in Cap and Trade programs, there are a number ways to manage risk, including planning, trading on the secondary carbon market (OTC and exchanges) and potentially hedging (procuring forwards, futures, etc.). In the context of Cap and Trade, hedging means that participants could potentially mitigate their risks by entering into certain types of financial contracts.

While the OEB is not requiring a Utility to undertake hedging activities, Utilities will not be prevented from doing so. If a Utility decides that hedging is a cost-effective and optimal strategy to pursue in its Compliance Plan, the Utility should describe its hedging strategy, identify any potential risks and outline a plan that describes how these risks would be mitigated. The OEB will review the Utility's proposed hedging plans for cost-effectiveness, in accordance with the principles set out in the Regulatory Framework.

All stakeholders that commented on this issue, including the Utilities, were concerned with a Utility undertaking hedging activities at this time. Stakeholders cited an earlier OEB decision with respect to gas supply in which the OEB decided that costs for such activities would not be allowed for recovery in rates (EB-2007-0606). In its reasons for decision in that case, the OEB specifically referred to the developments in the natural gas supply market and was of the view that the hedging activity was not providing value to customers. The OEB does not believe the circumstances are the same in the developing Cap and Trade market and believes that there may be opportunities for customers to benefit from lower overall costs through financial hedging.

5.4 Treatment of longer term investments

Given that provisions in the *Climate Change Act* and *Cap and Trade Regulation* deal with a declining cap and increasing cost of allowances over time, the OEB considers longer-term planning to be a prudent and reasonable activity that the Utilities should

3. Compliance Plan - Forecast versus Actual

	<u>Plan</u>	<u>Actual</u>
Allowances (Auction Confidential and Market Sensitive)		
# of allowances procured		
Price of allowances		
Timing of procurement		
Total cost		
Cost per tonne of GHG		
Offset credits (Market Sensitive)		
# of offset credits procured		
Price of allowances		
Timing of procurement		
Total cost		
Cost per tonne of GHG		
Abatement activities - customer-related		
Type of program		
Total cost		
<i>GIF volume</i>		
<i>GIF price</i>		
GHG reduction		
Cost per tonne of GHG reduction		
Abatement activities - facility-related		
Type of program		
Total cost		
GHG reduction		
Cost per tonne of GHG reduction		

Witness: A. Langstaff
 J. Murphy
 F. Oliver-Glasford

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)
		Forecast			2017 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	-	-	-	-	-	-	-	-	-

BOMA INTERROGATORY #22

INTERROGATORY

Issue 2

Ref: Monitoring and Reporting

- (a) Please confirm that EGD is of the view that its annual monitoring report should be made public. If not, which parts of the report would not be made public; which parts would be made public, and why?
- (b) Please confirm that the Monitoring and Reporting Reports of GIF driven emissions reduction, as well as the methodology used to determine those reductions, with sample calculations, will be available to the public.

RESPONSE

- (a) Enbridge is of the view that the annual monitoring reports may be a mixture of confidential information and commercially sensitive information which may be available to intervenors that are not market participants, through the Board's Practice Direction and Rules in respect of Confidential filings. For example, the Transaction Logs should remain auction confidential as per the *Climate Change Act*. However, the average weighted cost per compliance instrument may be an item that could be produced subject to confidential treatment by the Board under its Rules and Practice Direction given the commercial sensitivity of such information. As experience in the market grows, what should and should not be confidential at varying levels, may be better understood.
- (b) Enbridge will be preparing GIF reports for the Ministry of Energy. These and other information will likely be produced for the verification of GIF results which will occur in 2018.

Witnesses: A. Langstaff
J. Murphy
F. Oliver-Glasford
J. Tideman

SEC INTERROGATORY #2

INTERROGATORY

[B-2-1]

With respect to Enbridge'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 Enbridge's expectation regarding the impact on volume due to the additional cost to customers of Cap and Trade.
- c. [p.3] Please provide a copy of the list of Capped Participants provided to Enbridge from the Ministry of the Environment and Climate Change.

RESPONSE

- a. No adjustments were made to the volume forecast with respect to the impact of the cost of cap and trade on customer usage.
- b. While the Company acknowledges the negative or inverse relationship between the price of natural gas and average use volumes particularly for residential customers as demonstrated in regression models as part of the Board-approved average use forecasting methodology, the Company has no experience to support a distinct expectation regarding the impact on volumes from incremental Cap and Trade obligation costs.
- c. Please refer to the MOECC website for the up to date copy of the Registered Participants list.

<https://www.ontario.ca/page/registered-participants-ontarios-cap-and-trade-program>

Witnesses: J. Murphy
M. Suarez

CCC INTERROGATORY #4

INTERROGATORY

COMPLIANCE PLAN:

Reference: Ex. C/T4/S1/p. 1

Enbridge has set out a list of risks inherent to Ontario's Cap and Trade market:

- Allowance price variability
- Volume variability
- Emission unit availability
- Market risk
- Non-compliance
- Financial transaction risks
- Risk of data dissemination to market participants

For each of the risks identified, please explain who will bear that risk. Will it be Enbridge's ratepayers or its shareholders?

RESPONSE

It should be recalled that the Province has tasked Enbridge with the statutory obligation of acquiring the necessary GHG allowances and credits which reflect the natural gas usage of its customers excluding LFE and voluntary compliant customers. The Board in response issued its Framework for the Assessment of such costs and the Compliance Plans developed by the Utilities.

On November 15, 2016, Enbridge submitted an application requesting approval of its 2017 Compliance Plan and tariffs to recover the costs of meeting the Company's compliance obligations related to its GHG emissions from relevant customers and Company facilities. The Compliance Plan includes a risk management policy, which is intended to mitigate and address the abovementioned risks. While this policy will mitigate risk to the extent reasonable, in some instances to little or no risk, it cannot eliminate all risks.

Witnesses: A. Langstaff
J. Murphy
F. Oliver-Glasford

Interim rates associated with this application, incumbent of its risks, were subsequently approved through the Board's Interim Rate Order dated November 24, 2016. In this proceeding the Board is reviewing for reasonableness Enbridge's Compliance Plan. This includes its risk management policy and strategies. At the conclusion of this proceeding, should the Board determine and find Enbridge's Compliance Plan to be reasonable and approve just and reasonable tariffs, its approval will necessarily extend to the risk management policy. This approval will also necessarily recognize that the above risks exist and that while some risks can be mitigated they cannot be eliminated and accordingly, there is need for a mechanism to adjust for the impact of such risks on costs, whether the impacts increase or decrease actual costs.

The Company is therefore looking for approval not only for final tariffs but also for the proposed variance and deferral accounts which will allow any differences between forecast amounts used to develop the final tariffs and actual costs to be credited to or recovered from ratepayers. These accounts will insure that there is a straight pass through to ratepayers of the actual costs of Enbridge acquiring the necessary GHG allowances and credits that are required by reason of the natural gas usage of relevant customers.

The Company will file future Compliance Plans on a prescribed basis. These filings will similarly request approval for new Tariffs, along with details about known risks and other aspects of Enbridge's Compliance Plan.

Witnesses: A. Langstaff
J. Murphy
F. Oliver-Glasford

BOARD INTERROGATORY #5

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

Ref: Exhibit C, Tab 3, Schedule 6 – Administrative Costs

Preamble:

Enbridge indicates that its Customer Education and Outreach costs of \$46,000 in 2016 was to conduct customer focus groups related to how it should craft messaging related to the Cap and Trade program and for designing and printing customer bill inserts.

Questions:

- a) Please indicate the number of customer focus group sessions Enbridge held, the length of each session and the number of attendees at each session.
- b) Please discuss if Enbridge considered and/or pursued web-based and/or e-mail based outreach and education options as opposed to bill inserts where available. In your response, please indicate the cost of the web-based education and outreach efforts and compare these costs with the bill inserts.

RESPONSE

- a) Enbridge held two focus group sessions in June 2016 with residential customers about Cap and Trade. Each session hosted eight customers and lasted one and a half hours.
- b) Customers who choose Enbridge's paperless bill, and log onto their online MyEnbridge account for this information, access electronic copies of their bill and bill inserts. As a result, these customers had access to electronic versions of the Cap and Trade information in the June customer newsletter insert and November Cap and Trade insert.

Witnesses: C. Meyer
F. Oliver-Glasford

These customers receive an email notification when their new bill and related inserts are available online. A Cap and Trade message was included in this email and directed customers to enbridgegas.com/capandtrade for information about the program.

The Cap and Trade message included on all customer bills was also included on the electronic copies of customer bills.

Customers who prefer to receive a paper bill receive a paper copy of bill inserts. As a result, these customers received a paper copy of the Cap and Trade article in the June newsletter and a paper copy of the November Cap and Trade bill insert.

In addition to receiving a Cap and Trade message on the paper copy of their bill, a Cap and Trade message was printed on the front exterior of the envelope in which the bill is mailed. An additional message printed on the back of the envelope directed customers to information about Enbridge's energy efficiency programs.

The electronic and printed Cap and Trade article in the June customer newsletter did not result in any incremental costs as this is an existing communication channel. The design and printing of the one-panel November Cap and Trade insert in English and French cost approximately 1.5 cents per insert for a total of approximately \$27,000 applied to the 2016 Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA"). This is lower than the anticipated amount.

The 2016 temporary bill messages, bill envelope messages, emails and website content were produced with existing resources and did not result in incremental costs.

BOARD INTERROGATORY #8

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

Ref: Exhibit C, Tab 3, Schedule 6 – Administrative Costs

Preamble:

Enbridge has included a proposed bad debt amount of \$900,000 for 2017.

Questions:

- a) Please confirm that Enbridge intends to include increased bad debt related to the Cap and Trade program for the general service market.
- b) How will Enbridge 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 compared to forecast bad debt expenses from 2013 to 2015 (and 2016 if available).

RESPONSE

- a) Confirmed.
- b) Enbridge manages bad debt based on analysis of total billed revenue and accounts receivable. Since Enbridge will be able to determine the incremental effect of Cap and Trade on both revenue and accounts receivable, the Company can infer the amount of bad debt in relation to Cap and Trade.

Witnesses: D. McIlwraith
R. Small

c)

Bad Debt / Provision For Uncollectibles Included Within Utility O&M

(\$000's)	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
As Filed Forecast Bad Debt Expense ¹	15,172.0	9,500.0	9,500.0	9,500.0
Actual Bad Debt Expense	9,293.0	12,147.5	10,032.6	7,073.3

Notes:

1. 2013 as filed forecast bad debt from EB-2011-0354, 2014 - 2016 from EB-2012-0459.

Witnesses: D. McIlwraith
R. Small

BOARD INTERROGATORY #16

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.8 - Are the gas utility's proposed longer term investments reasonable and appropriate?

Topic: Customer Abatement Activities – Renewable Content Objectives for Natural Gas Pipelines

Ref: Exhibit C, Tab 3, Schedule 4, p. 4

Preamble:

Enbridge indicates that next to conservation, the addition of a renewable content objective for natural gas pipelines is expected to offer one of the more cost-effective carbon abatement measures for Ontario to broadly meet its GHG reduction and climate change mitigation goals.

Enbridge also indicates describes Renewable Natural Gas and power-to-gas as near-term market opportunities.

Question:

- a) Please provide an estimate (range is acceptable) of the cost-effectiveness of the renewable natural gas and power-to-gas, in a way that can be easily compared to an allowance or offset (e.g., Tonne GHG abated / \$).

RESPONSE

It is expected that Ontario's marketplace for renewable content in natural gas pipelines will be undertaken through competitive procurements. Actual pricing will not be available until a formal procurement process is underway.

The Company expects that RNG production originating from landfill sites and anaerobic digesters will be economically viable at a cost of between \$10 and \$20 per gigajoule¹.

¹ Refer to EB-2011-0242 / 0283, "Potential Production of Renewable Natural Gas from Ontario Waste" report prepared by Alberta Innovates Technology filed at Exhibit B, Tab 1, Appendix 1, and "Economic Study of Renewable

Witness: S. McGill

These figures translated to an estimated cost per tonne of abatement in the range of \$100 - \$300 per tonne of GHG abated, in terms of fuel substitution only. This cost range did not take into account any additional potential carbon reduction attributable to various sources of biomethane feedstock which if recognized would serve to reduce the effective cost per tonne of abatement.

If emission offset credits are also generated from the landfill producing the RNG and are factored in the determination of the cost per tonne of abatement associated with RNG in addition to the fuel substitution value of RNG, the effective cost of abatement for RNG could be even lower.

Enbridge expects that the cost per tonne of abatement for hydrogen derived through the power to gas process will be within the same cost per tonne of carbon abatement range.

Further, the abatement cost per tonne of green gas such as renewable natural gas and hydrogen compare favourably with initiatives that use Cap and Trade funds to incent switching to electricity, particularly if such initiatives require duplicative generation, transmission and or distribution energy infrastructure. As such, the appropriate cost effectiveness test includes not just the avoided cost of allowance or offset procurement but should also take into account the avoided cost of duplicative electricity generation, transmission and or distribution energy infrastructure.

Enbridge submits that these numbers may be further refined if incorporated into future Compliance Plans.

Natural Gas Production and Injection Costs in the Natural Gas Distribution Grid in Ontario” report prepared by Electrigan Technologies Inc. filed at Exhibit B, Tab 1, Appendix 4 and Appendix 5.

Witness: S. McGill

SEC INTERROGATORY #14

INTERROGATORY

With respect to potential conflicts of interest:

- a. Does Enbridge 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 Enbridge 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 Enbridge believes any motorizing and reporting is appropriate.

RESPONSE

Enbridge has been communicating with its affiliates and confirmed that they are not registered as market participants. Enbridge is developing plans to be more formalized in its approach. Enbridge is aware of and subject to the provisions of the *Climate Change Act* that apply to related persons and to the protection of the carbon market. In the event that an affiliate registers as a market participant, the Company would undertake any required changes to comply with the Act.

Witnesses: A. Langstaff
J. Murphy
F. Oliver-Glasford