



Delivered by electronic mail and RESS

Ontario Energy Board
2300 Yonge Street,
Suite 2601
Toronto, ON M4P 1E4
Attention: Kristin Walli, Board Secretary

November 30, 2017

Dear Ms. Walli,

RE: EB-2017-0275 - EPCOR – 2018 Cap-and-Trade Compliance Plan

Please accept EPCOR Natural Gas Limited Partnership's ("EPCOR") 2018 Cap and Trade Compliance Plan submission. This submission is filed in accordance with the Decision and Order issued by the Ontario Energy Board ("OEB") on September 21, 2017, and the letter of the OEB dated October 11, 2017 granting Natural Resource Gas Limited ("NRG") an extension to file its 2018 Compliance Plan by November 17, 2017. This Compliance Plan has been re-filed on November 30, 2017 following discussions with Board Staff.

As you may be aware, on November 1, 2017 the transaction between EPCOR and NRG was completed, and NRG's natural gas distribution system and associated assets (including agreements, certificates, and orders) were transferred to EPCOR in accordance with the OEB's Decision and Order of August 3, 2017 and varied on October 31, 2017 in OEB file EB-2016-0351 (the "MAAD Order"). The OEB's Decision and Order in EB-2016-0330 dated September 21, 2017 was among the Rate Orders transferred to EPCOR in the MAAD Order.

This Plan is being submitted in confidence as it may contain sensitive material pertaining to file number EB-2016-0236, currently before the OEB. In that application, EPCOR has requested Deferral and Variance Accounts to be established for Cap and Trade.

EPCOR respectfully requests that the OEB issue a decision approving interim rates no later than December 10, 2017, to allow EPCOR sufficient time to adjust billing mechanisms for January 1, 2018.

If you should have any questions regarding this submission, please contact me at (519)773-5321, Ext. 205

Sincerely,

[Original signed by]

Brian Lippold,
General Manager, Natural Gas Canada
EPCOR Natural Gas Limited Partnership

Exhibit 1 – Administrative Documents

1. Executive Summary

For the year 2018, EPCOR expects to source emission allowances required for the 2018 compliance year [REDACTED] now that Ontario's linkage with the California and Quebec programs will be official starting January 1, 2018. EPCOR will also source [REDACTED].

Furthermore, EPCOR will not be implementing emissions reduction strategy for the compliance year 2018. While OEB's Marginal Abatement Cost Curve ("**MACC**") has been released, cost-effective measures identified by the MACC (those with negative marginal abatement cost) are generally associated with DSM programs, which EPCOR is exempt from. EPCOR will continue to evaluate its operations and explore opportunities for emissions reduction, particularly in the Renewable Natural Gas space. For example, [REDACTED], and will use OEB's MACC as a tool to assess these projects' financial feasibility and their potential impact to EPCOR's customer-related and facility-related emission.

On November 1, 2017, EPCOR Natural Gas Limited Partnership ("**EPCOR**") completed the purchase of the assets belonging to Natural Resource Gas Limited ("**NRG**"). As mentioned in the cover letter, EPCOR also takes ownership of all existing matters before the OEB. Naturally, EPCOR's team will require time to fully understand the details of each file and act accordingly.

EPCOR, Blackstone Energy Services Inc. ("**Blackstone**") and NRG worked together in advance of closing to ensure that the Compliance Instrument Tracking System Service ("**CITSS**"), the Ministry of the Environment and Climate Change ("**MOECC**"), and Deutsche Bank (the Financial Services Administrator for the auctions) were aware of the change of ownership and registered so that [REDACTED]

Although EPCOR is new to the Ontario Market, they are a larger organization and will bring greater oversight, stronger Governance and additional resources to the development of future Cap and Trade Plans and associated programs.

2. Administration

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Impact Statement:

The Cap and Trade Compliance Plan will affect all rate payers of EPCOR, including 1 Large Final Emitters ("LFE") participant, IGPC, which will be responsible for the procurement of its own emission allowances.

Confirmation of applicant's internet address:

<http://www.EPCOR.ca/>

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Osler, Hoskin & Harcourt LLP
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Toronto, Ontario, Canada M5X 1B8

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Facsimile: (416) 862-6666
Email: rking@osler.com

Bill Impact:

The Cap and Trade compliance plan will have the following bill impact for the calendar year 2018 for:

Residential Customers: the initial costs will be between 3.2 to 4.5 cents per cubic metre of natural gas.

The average home consumes approximately 2000 cubic metres of natural gas per year. Therefore, customers should expect to pay between \$64 and \$90 for Cap and Trade related costs.

General Service Customers: Commercial and Industrial customers will be impacted. The same volumetric charge of 3.2 – 4.5 cents per cubic metre will be applicable to these rate classes. However, consumption will vary considerably in these categories.

Legislation and approval requests referenced:

Relevant Sections of the legislation and specific approval requests as it relates to this filing are:

Reference	Description
Bill 172	Climate Change Mitigation and Low-carbon Economy Act, 2016
O. Reg. 452/09	Environmental Protection Act
O. Reg. 144/16	The Cap and Trade program
O. Reg. 143/16	Quantification, Reporting and Verification of greenhouse gas emissions
	Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions (Effective January 2017)
EB-2015-0363	Report of the Board: Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities
EB-2016-0330	EPCOR 2017 Cap and Trade Compliance Plan, UPDATED Draft Order and Accounting Orders
EB-2016-0236	Load Forecast and Weather Normalization
RRR Filing Number 2.1.12	EPCOR does not have an approved DSM plan

Deviations from the filing guidelines:

In the Decision and Order, dated September 21, 2017, the OEB approved the development of two variance accounts using the same terminology as proposed by Union Gas Limited ("**Union**"). NRG complied, creating the following two variance accounts:

- The Greenhouse Gas Emissions Compliance Obligation – Customer-related variance account ("**GHG-Customer VA**"); and,

- The Greenhouse Gas Emissions Compliance Obligation – Facility-related variance Account (“GHG-Facility VA”)

The accounts 179-50 (customer-related) and 179-51 (facility-related) were created.

In addition, the OEB directed NRGL to establish a GGEIDA deferral account to capture administrative costs, effective January 1, 2017. These accounts were submitted to the OEB on October 18, 2017 as Appendix C in the Cap-and-Trade Draft Rate Order and Accounting Orders. They were updated by EPCOR and submitted to the OEB on November 10, 2017.

Transitional Issues:

EPCOR’s 2018 Compliance Plan includes two transitional issues. First, for Exhibit 4 – Monitoring and Reporting, EPCOR is reporting on the Year-to-Date activities to the Compliance Plan. As of the filing of this Plan, EPCOR has not completed all Cap and Trade activities it expects to carry out in 2017.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Although oversight and Governance programs have not been fully developed at the time of writing the 2018 plan, EPCOR is committed to a robust review of 2017 processes. EPCOR will plan and implement a more formalized oversight and performance measurement process to ensure adherence to the Framework as well as the plan inherited by EPCOR.

3. Confidentiality

This filing contains Auction Confidential and Market Sensitive information as discussed in the OEB Report dated September 26, 2016 (EB-2015-0363) and required by the *Climate Change Act*. EPCOR requests strict confidential treatment of the following information, clearly identified below in this filing.

This information has been disclosed to Kenneth Poon of Blackstone and Richard King of Osler, Hoskin & Harcourt LLP ("**Osler**"). Both parties have been contracted to advise on the development of this filing.

EPCOR is seeking confidential or strictly confidential treatment of the following information in the 2018 Compliance Plans:

Exhibit	Page and Line Number	Justification
Exhibit 1	Page 1, line 5; 23-24	Auction Sensitive
	Page 1, lines 6-7; 13-14;	Market Sensitive
	Page 5, lines 13-16	Market Sensitive
Exhibit 3	Page 13, lines 22-26; 28-29	Market Sensitive
	Page 13, line 27	Auction Sensitive
	Page 14, lines 1-2; 15-16	Market Sensitive
	Page 15, lines 3-15	Market Sensitive
	Page 15, lines 17-18; 22-27	Auction Sensitive
	Page 16, lines 1-18	Auction Sensitive
	Page 17, lines 1-26	Auction Sensitive
	Page 18, lines 1-33	Auction Sensitive
	Page 19, lines 1-29	Auction Sensitive
	Page 20, lines 1-6	Auction Sensitive
	Page 20, lines 7; 10-20; 24	Market Sensitive
	Page 21, Table 11, lines 1-3; 17-27	Market Sensitive
	Page 21, lines 5-15	Auction Sensitive
	Page 23, lines 17-18	Market Sensitive
	Page 24, lines 5-9, 12-13	Market Sensitive
Exhibit 4	Pages 28-30	Market and Auction Sensitive

Exhibit 2 – Forecasts

1. Forecasting Period

EPCOR will generate one-year forecasts of volume, GHG emissions, and carbon prices for the year 2018.

2. Volume Forecasts

The obvious uncertainty of weather is compounded by EPCOR's dependence on agri-business activities, specifically drying. At the time of forecasting for the 2018 plan, corn, bean and tobacco drying conditions were not accurately measurable. The forecast may require updating upon a review of measurements.

Under the Cap and Trade Regulation, EPCOR is responsible for the greenhouse gas emissions of its entire rate-base, with the exception of 1 Large Final Emitter (LFE) – IGPC. 2018 forecasted values are taken from normalized forecasts within EB-2016-0236, currently in abeyance a waiting re-filing by EPCOR.

Given that EPCOR does not operate its own natural gas storage facilities, its facility-related consumption will include only natural gas loss during distribution, fleet use and office building usage. Distribution loss is calculated by dividing the volume of gas delivered by the volume of gas purchased, on a cubic metre (m^3) basis.

The 2018 distribution loss is estimated using the same methodology used by Union Gas (average weighted 3/2/1), based on historical year-to-date annual gas loss percentage from 2015 to 2017. EPCOR expects the distribution loss (%) in 2018 will be the same as that calculated for 2017. Details for the weighted average calculation are outlined in Appendix A.

EPCOR's fleet consumption for the calendar year 2017 is estimated to be 30,750.74 m^3 (January to September actual consumption was 22,787.12 m^3 , and October to December 2017 consumption is estimated to be 7,963.62 m^3 based on 2016 consumption).

EPCOR's building consumption for the calendar year 2017 is estimated to be 8,658.32 m^3 (January to September actual consumption was 2,319.00 m^3 , and October to December 2017 consumption is estimated to be 2,105.52 m^3 based on 2016 consumption).

EPCOR expects the fleet and building usage in 2018 will be the same as that calculated for 2017.

As outlined in EPCOR's consumption forecast for 2018 in (EB-2016-0236) (currently placed in abeyance by the OEB awaiting refilling by EPCOR Natural Gas Limited Partnership), we expect a 16.1% year-to-year increase in natural gas consumption compared to 2017 due to the following:

- 3% increase due to growth residential and small business
 - already incorporated in the forecast provided in the rate filing EB2016-0236 currently placed in abeyance by the OEB awaiting refilling by EPCOR Natural Gas Limited Partnership
- 10% increase due to expected 10% colder season
- Projected 750,000 m3 increase to the industrial load

Please see Table 1 for the 2018 forecast for customer-related volume and facility-related volume

Table 1 – Forecast of Customer-related and Facility-related natural gas volumes for 2018, in cubic metres, forecasted October 1, 2017

Forecast Range 1-Jan-18 to 31-Dec-18 (forecasted October 1, 2017)	Row	Annual Volume (m ³)
2018 Total Volume (m3)	A = NG(h)	66,579,638.2
2018 IGPC Volume (m3)	B = NG(k)	36,917,685.6
2018 Non IGPC Volume (m3)	C = A - B	30,570,203.8
UFG (2.6453%)	D = C x 2.6453%	808,686.9
2018 Fleet Usage (m3)	E	30,750.7
2018 Building Usage (m3)	F	8,658.3
Customer-related Volume (m3)	G = C - D - E - F	29,722,107.9
Facility-related Volume (m3)	H = D + E + F	848,095.9

Furthermore, EPCOR has been exempt from providing DSM programs to its rate base (RRR Filing Number 2.1.12). EPCOR is currently considering other ways to reduce emissions of its rate base, with a focus on biogas and landfill gas projects. Given the MACC released by the OEB in July 2017 (EB-2016-0359), EPCOR is not ready to incorporate these projects yet for abatement purposes.

3. GHG Emissions Forecasts

EPCOR has used the following factors to convert natural gas consumption volume to emissions, following the MOECC's *Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions* (sections ON.403, ON.404). Based on a standardized GJ to emissions conversion, EPCOR used ON 403 (a) Methodology 1 (equation 400-1) to calculate its carbon dioxide emissions as outlined in the *Guidelines for Quantification, Reporting and Verification of Greenhouse Gas Emissions*.

Methodology 1 is chosen due to potential differences in higher heating value of natural gas received from Union into EPCOR's distribution network.

Table 2 – Forecasted Total Natural Gas Distributed Volume and CO₂ Emission in 2018

NG (h) – 2017 historical (m ³)*	A	63,237,371.2
NG (h) – 2018 Forecast (m ³)	B	66,579,638.2
HHV (h) – from Union (GJ per m ³)	C	0.03881
EF (h) (kg CO ₂ per GJ)	D	49.03
0.001 (tonne per kg)	E	0.001
CO₂ (i) (tonne)	F = B x C x D x E	126,691.4

* 2017 historical volume are based on actual delivery volume between January to September 2017, with and estimated delivery volume for October to December 2017

Table 3 – Forecasted Large Final Emitter (LFE) Natural Gas Delivery Volume and CO₂ Emission in 2018

NG (k) – 2017 historical (m ³)*	A	36,917,685.6
NG (k) – 2018 Forecast (m ³)	B	36,009,434.4
HHV (k) – from Union (GJ per m ³)	C	0.03881
EF (k) (kg CO ₂ per GJ)	D	49.03
0.001 (tonne per kg)	E	0.001
CO₂ (k) (tonne)	F = B x C x D x E	68,520.7

* 2017 historical volume are based on actual delivery volume between January to September 2017, with and estimated delivery volume for October to December 2017

EPCOR's CO₂ emission (CO₂(f)) is taken as the emission from Total Distributed Volume (CO₂ (i)) minus the CO₂ emission from the LFE (CO₂ (k)):

$$\text{CO}_2(\text{f}) = \Sigma \text{CO}_2(\text{i}) - \Sigma \text{CO}_2(\text{k}) = 58,170.64$$

Note that $\Sigma \text{CO}_2(\text{j})$ (From export) and $\Sigma \text{CO}_2(\text{l})$ (from storage) in equation 400-6 are zero for EPCOR. EPCOR does not export any natural gas out of its network and does not operate or own any storage facilities.

EPCOR used ON.404 (a) calculations (equation 400-7) to calculate its forecasted CH₄ emissions for 2018.

Table 4 – EPCOR's Forecasted CH₄ Emission in 2018

t CO₂(i)	A	58,171
EF (CH ₄) - g / GJ	B	966
0.000001	C	0.000001
EF (h)	D	49.03
t CH₄	E = A x B x C ÷ D	1.14609
GWP (CH ₄)	F	21
CH₄ (t CO₂e)	G = E x F	24.07

EPCOR used ON.404 (a) calculations (equation 400-8) to calculate its forecasted N₂O emissions for 2018.

Table 5 – EPCOR's Forecasted N₂O Emission in 2018

t CO₂(i)	A	58,171
EF (N ₂ O) - g / GJ	B	913
0.000001	C	0.000001
EF (h)	D	49.03
t N₂O	E = A x B x C ÷ D	1.08321
GWP (N ₂ O)	F	310
N₂O (t CO₂e)	G = E x F	335.80

EPCOR's GHG emissions for the calendar year 2018 is calculated as follows:

Table 6 – Total Forecasted Non-LFE GHG Emission in 2018

t CO ₂ (i)	A	58,170.64
CH ₄ (i) in t CO ₂ e	B	24.07
N ₂ O (i) in t CO ₂ e	C	335.80
t CO₂e (i) in 2018	D = A + B + C	58,531

EPCOR's forecasted customer-related and facility-related GHG obligations for the calendar year 2018 are calculated to be:

Table 7 – Forecasted Customer-related and Facility-related Annual Emission for 2018

		Annual Customer-related Volume and Emission	Annual Facility-related Volume and Emission
Forecasted 2018 Volume	A	29,722,107.9 m ³	848,095.9 m ³
Emission Factor	B	0.001915 t CO ₂ e per m ³	
Forecasted Emission	C = A x B	56,918 t CO₂e	1,624 t CO₂e

4. Annual Carbon Price Forecasts

EPCOR used the averages of the Intercontinental Exchange (“ICE”) daily settlement prices of a California Carbon Allowance for each day of the forecast period. This was carried through for each month of the forecast year, for carbon allowances of the 2018 vintage year at each delivery month in 2018.

For settlement prices, EPCOR referenced the 21 trading days from September 1st, 2017 to September 29th, 2017. For the exchange rate, EPCOR used the Canadian Dollar Futures Settlements data posted on the Chicago Mercantile Exchange (“CME”) for the January, March, June, September, and December trading strips between September 1, 2017 and September 29, 2017. Prices for future months with no actively traded exchange rate futures (February, April, May, July, August, October, November 2018) were imputed using arithmetic averages (for example, the price of February 2018 delivery on September 1, 2017 was taken as the average of the January 2018 and March 2018 strip prices settled on September 1, 2017). The exchange rates were then applied to the U.S. dollar (“USD”) price to convert the USD price on ICE to Canadian dollars (“CAD”). See Appendix B for all settlement price data in USD, the conversion factors used for each delivery month, and the settlement prices converted to CAD. The average price reported at the bottom of the table is the arithmetic average of the settlement price in CAD posted on the table. From the analysis, EPCOR expects the procurement cost of carbon to be approximately \$15.46 USD per allowance, or \$19.00 CAD per allowance.

Note that the estimated price through the use of the settlement prices on the futures market is above the expected auction minimum price of \$17.80 CAD per allowance, estimated using the following assumptions and calculations:

1. The reserve price of \$13.57 USD per allowance in the 2017 WCI Joint Auctions;

- 1 2. An expected 7.04% increase in the auction reserve price, based on 5% plus the latest annual
2 change in U.S. Consumer Price Index for all U.S. annual inflation rate of 2.04%¹ ending October
3 2017, putting the expected Auction reserve price at \$14.53 USD; and
- 4 3. An average exchange rate of 1.2292 CAD per USD over the 2018 calendar year, using the
5 average of the Canadian Dollar Futures Settlements data posted on the Chicago Mercantile
6 Exchange CME between September 1, 2017 and September 29, 2017 on for twelve months from
7 January to December 2018.

¹ <https://beta.bls.gov/dataViewer/view/timeseries/CUUR0000SA0>

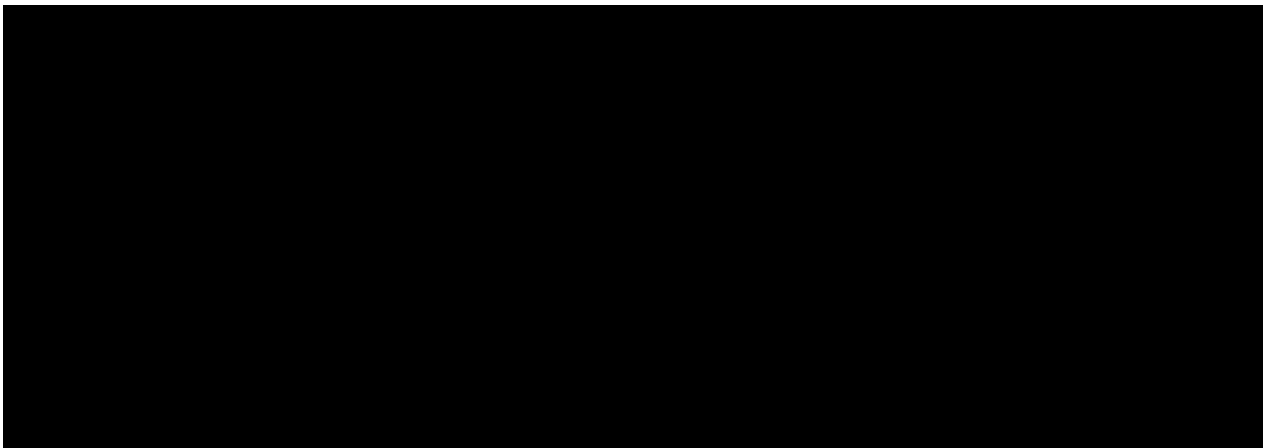
Exhibit 3 – Compliance Plan

1. Overview of Compliance Plan

In establishing the Cap and Trade Compliance Plan for the calendar year 2018, EPCOR continues to follow the guidelines established by the OEB as they relate to carbon outlined in “Report of the Board: Regulatory Framework for the Assessment of Costs of Natural Gas Utilities’ Cap and Trade Activities” dated September 26, 2016 (EB-2015-0363) (the “**OEB Report**”). EPCOR has also taken into consideration comments from Public and Strictly Confidential Decision and Order of Applications for approval of 2017 Cap and Trade Compliance Plan cost consequences. To this end, EPCOR will continue to ensure the 2018 Compliance Plan will adhere to the guiding principles laid out by the OEB: cost-effectiveness, rate predictability, cost recovery, transparency, flexibility, and continuous improvement. EPCOR also believes the compliance plan outlined below is sufficiently flexible to adapt to variability in volume, changes in market prices, market dynamics and other sources of risk.

EPCOR continues to employ consulting services from Blackstone and Osler as it relates to carbon market information and regulatory compliance. Blackstone is providing market intelligence, compliance options analysis, assistance on CITSS account registration and administration. In 2018, Blackstone will begin to provide introductory brokerage services for secondary market emission allowances. Blackstone expects to expand this service to include the procurement of California and Ontario compliance offsets when they become available for compliance purposes for Ontario participants. Osler is providing regulatory and legal counsel, and will act as the oversight body for process validation.

For the calendar year 2018, the overall compliance strategy and approach of EPCOR is the following:



- 1 [REDACTED]
2 [REDACTED]
3 • Consideration of other abatement measures, using OEB's Marginal Abatement Cost Curve
4 (MACC) as a decision making tool.

5 EPCOR will be monitoring regulatory and market developments as they relate to the Ontario Cap and
6 Trade program. EPCOR will continue to adjust its compliance strategy given market and regulatory
7 developments – particularly related to the development of the Ontario offset program for compliance
8 purposes and other emission abatement measures.

9 We believe EPCOR has taken the steps in strategic decision making and risk mitigation that is as cost-
10 effective as possible. Given the timing of the release of OEB-developed Marginal Abatement Cost Curve
11 ("MACC") in late July, and the timing of the EPCOR purchase, EPCOR is still in the early stages of
12 assessing abatement measures, and will develop a more detailed abatement plan for the 2019
13 Compliance Plan.

14 **2. Compliance Option Analysis and Optimization of Decision-making**

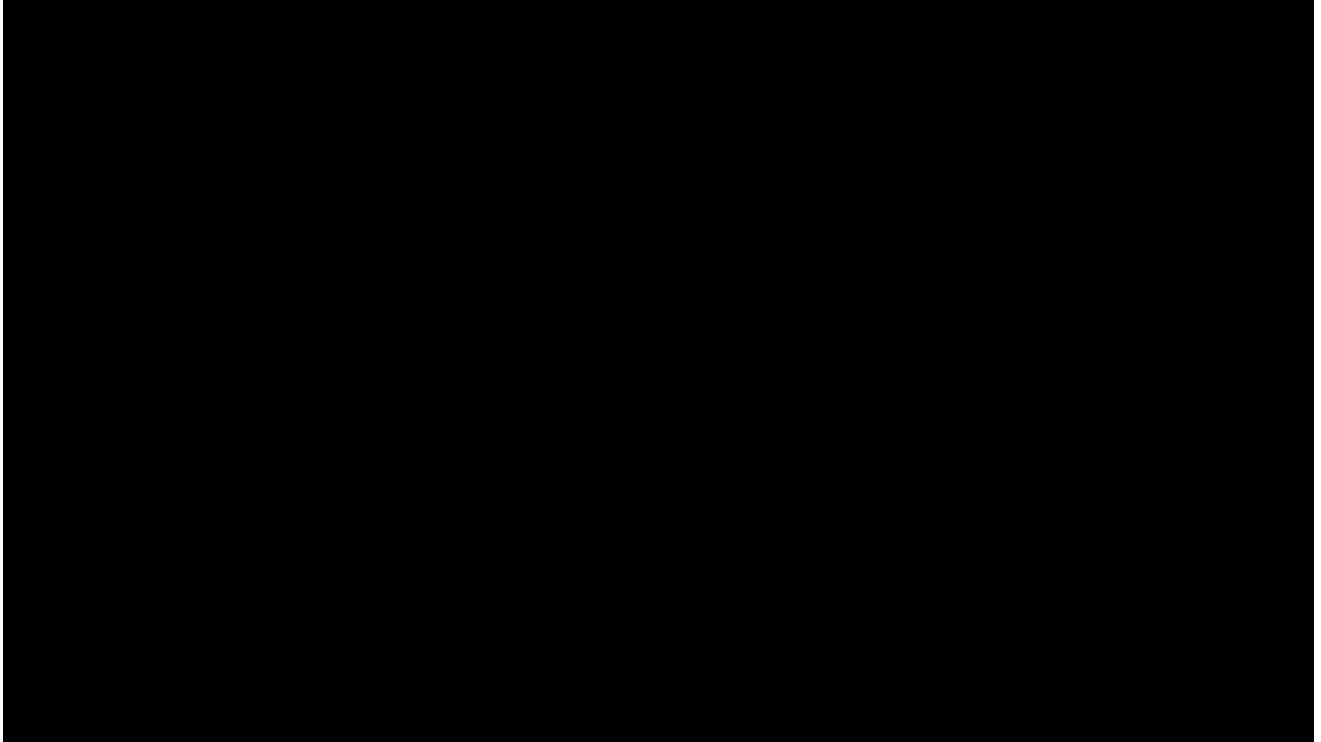
15 For the year 2018, EPCOR will procure [REDACTED]
16 [REDACTED] to cover its customer-related and facility-related emissions totaling
17 58,531 tonnes of GHG emission measured in CO₂e.

18 ***Incorporate offsets into EPCOR's overall procurement strategy***

19 With the official WCI linkage starting January 1, 2018, Ontario entities will have access to California
20 allowances (CCAs) as well as California and Quebec compliance offset credits. Offset credits are
21 expected to be less costly than emission allowances: California Golden Offsets (CCO-Goldens) which
22 have no invalidation risk, tracks approximately 10% lower than the secondary market price, with offsets
23 originating from projects with higher invalidation risks (where credits can be invalidated within 3 to 8
24 years) trading at an even steeper discount.

25 Ontario participants are allowed to fulfill up to 8% of their compliance obligation using offset credits. In
26 2018, EPCOR plans to procure 8% of its estimated 2018 emission in the form of offsets. EPCOR will
27 prioritize offset credits with the lowest invalidation risk. Although these allowances are priced higher

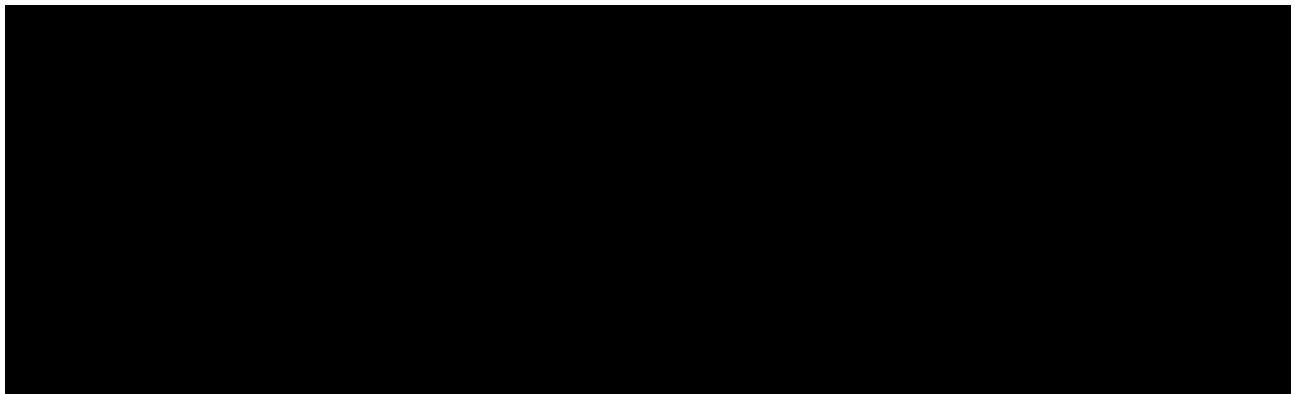
1 than offset credits with invalidation risk, they provide higher certainty to the overall cost of the
2 compliance portfolio.



16 EPCOR is in contacts with secondary market offset credit suppliers and will be ready to transact in 2018.

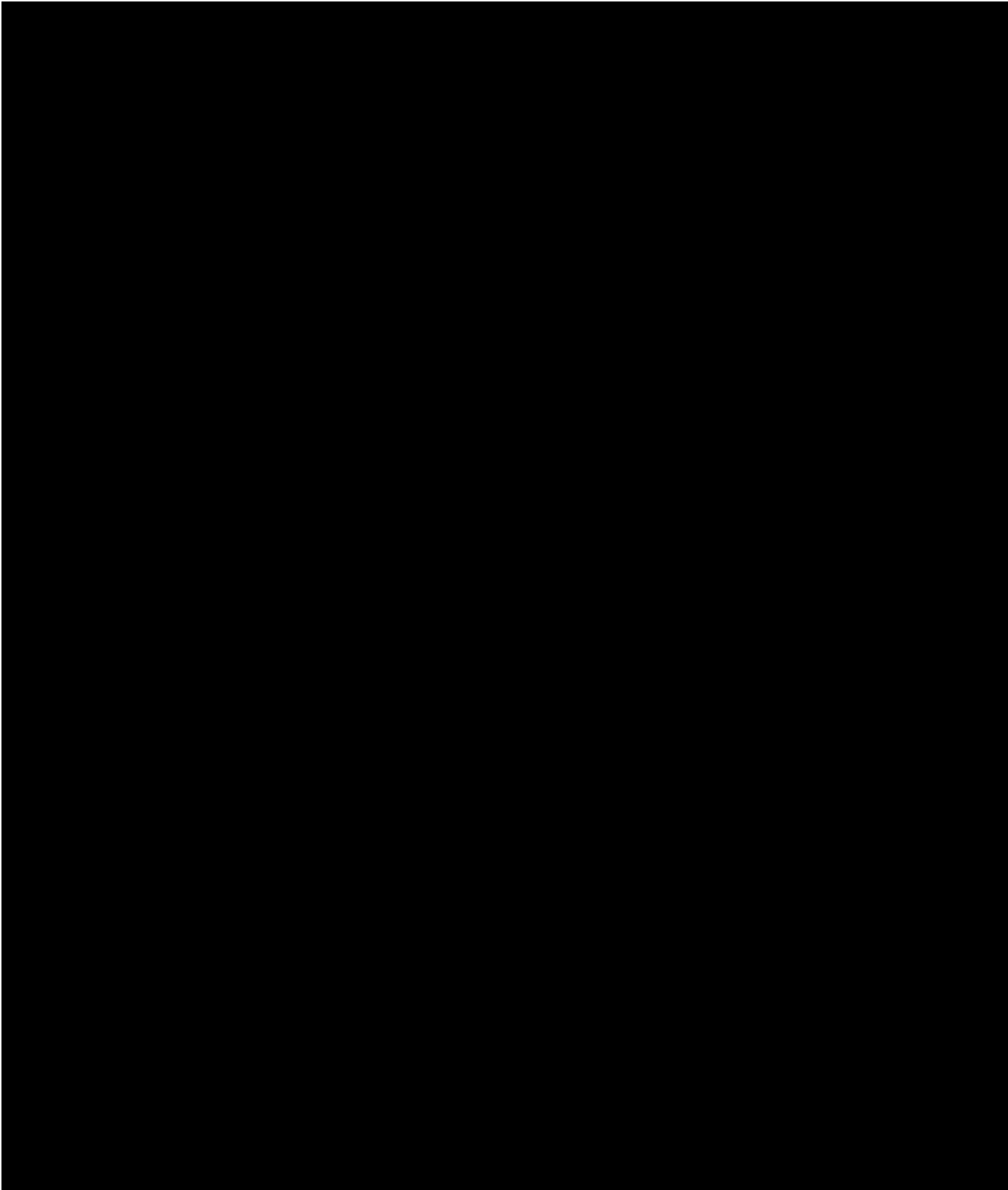


19 With the linkage officially announced for January 1, 2018 and amendments to Ontario's regulations to
20 accommodate the linkage, Ontario participants will participate in the joint WCI auctions, and the
21 Ontario-only auctions will no longer exist.



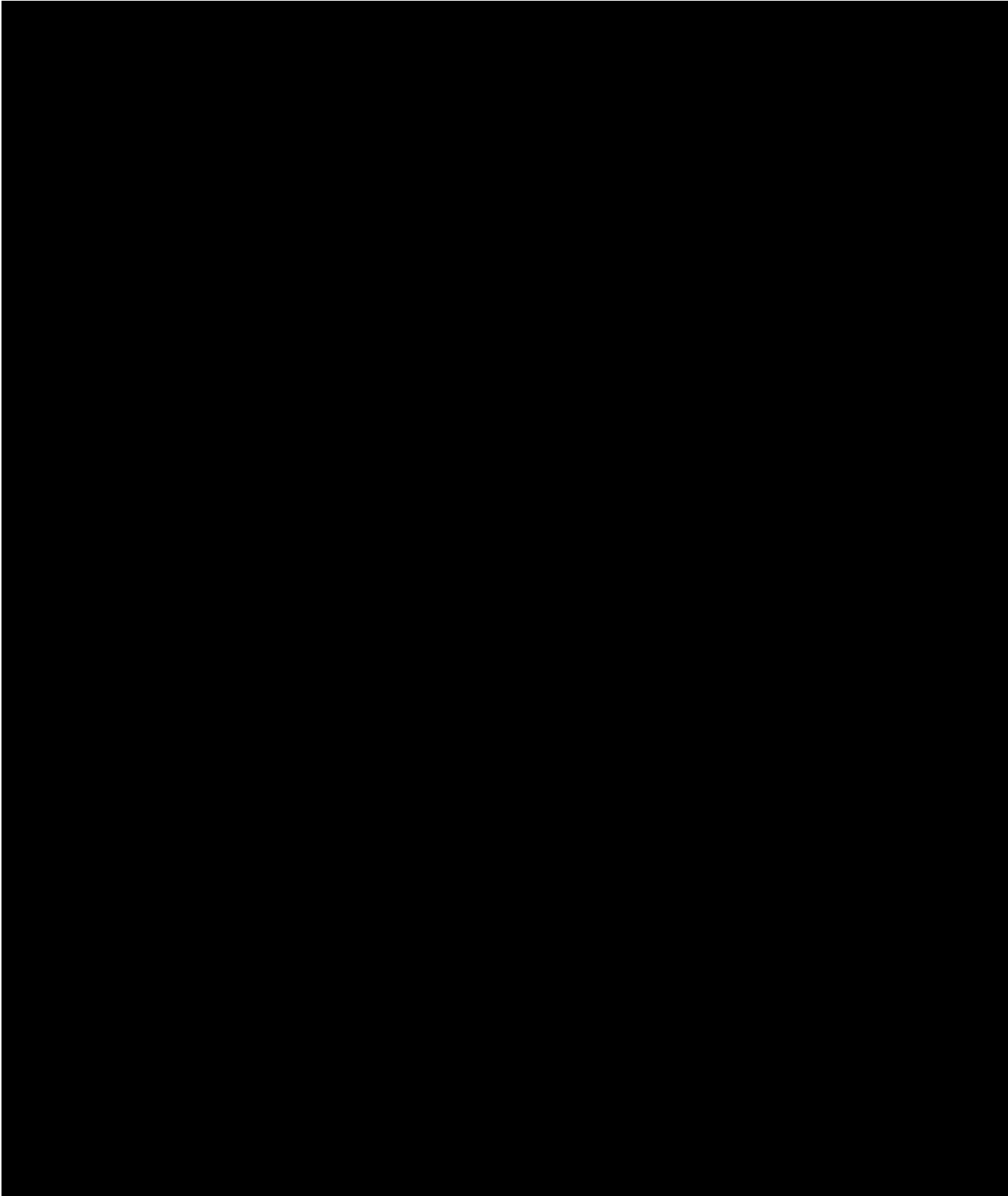
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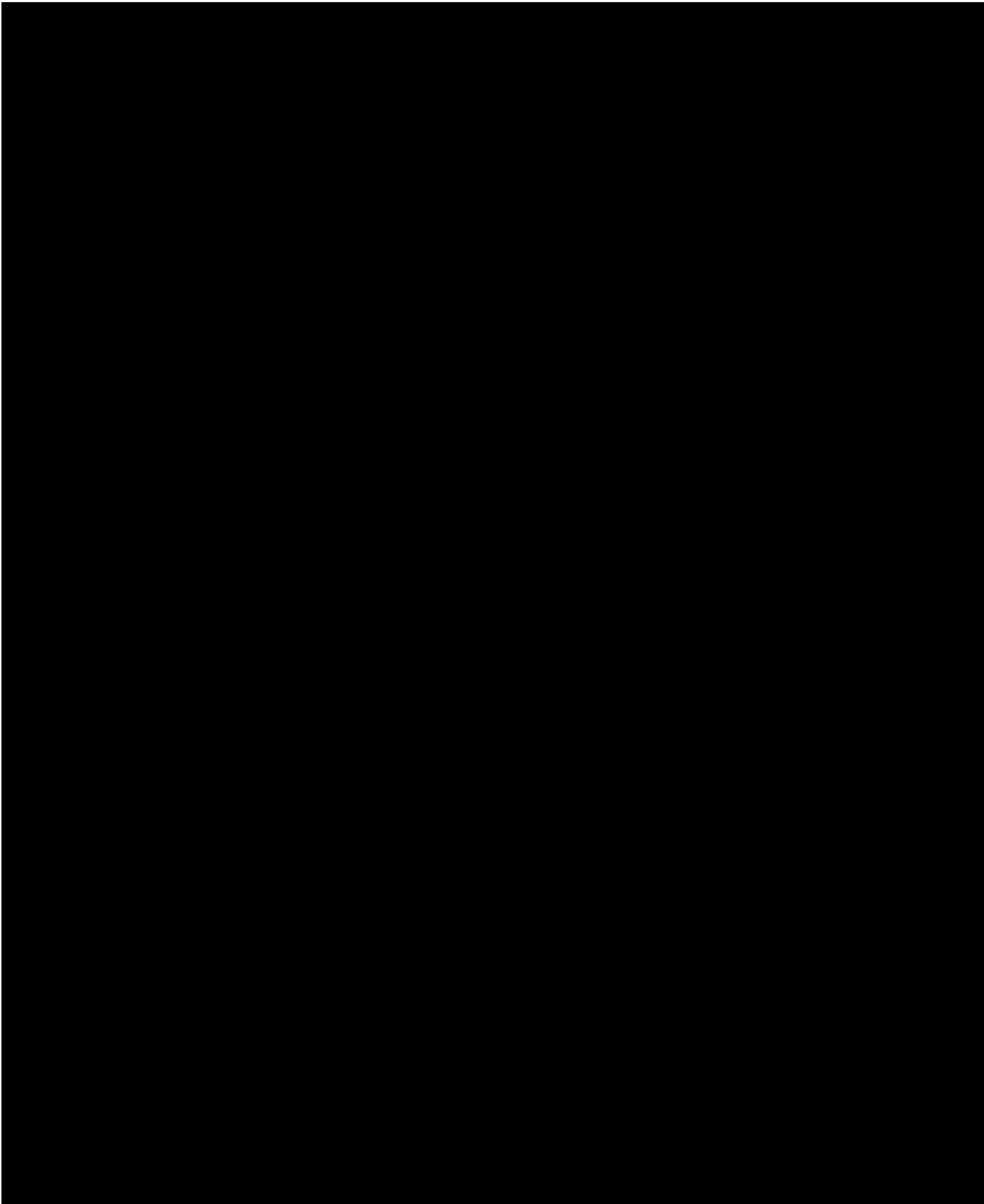


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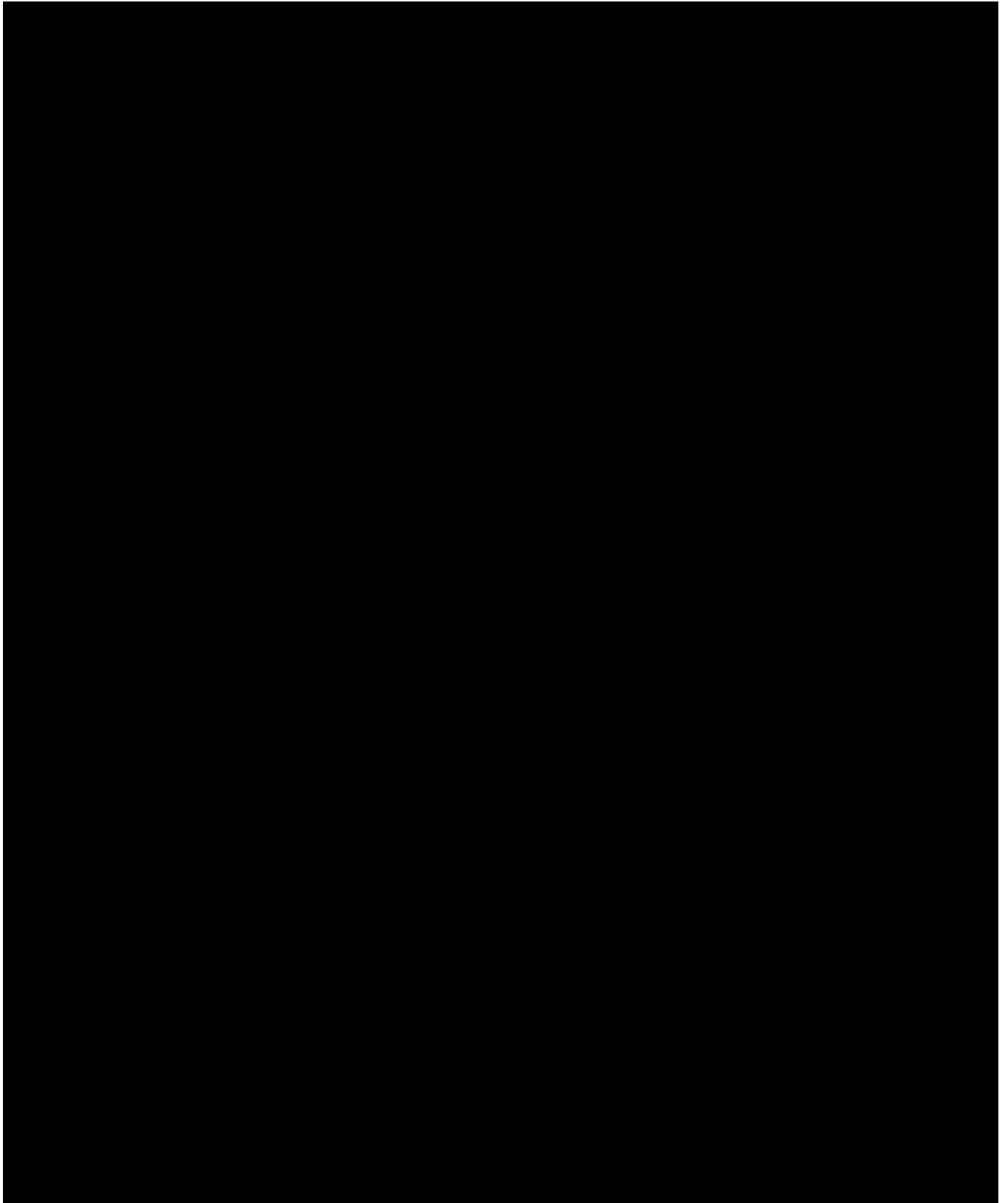
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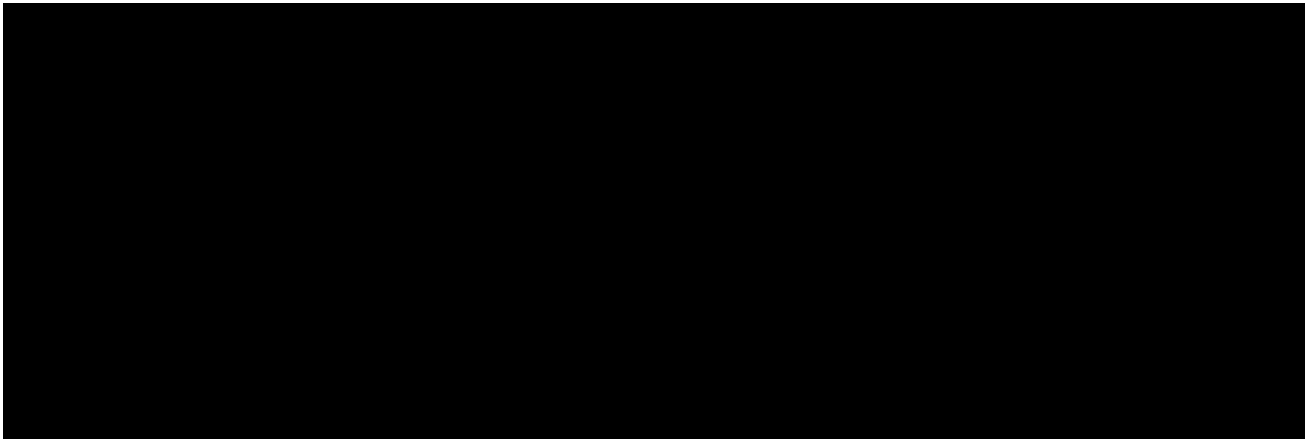


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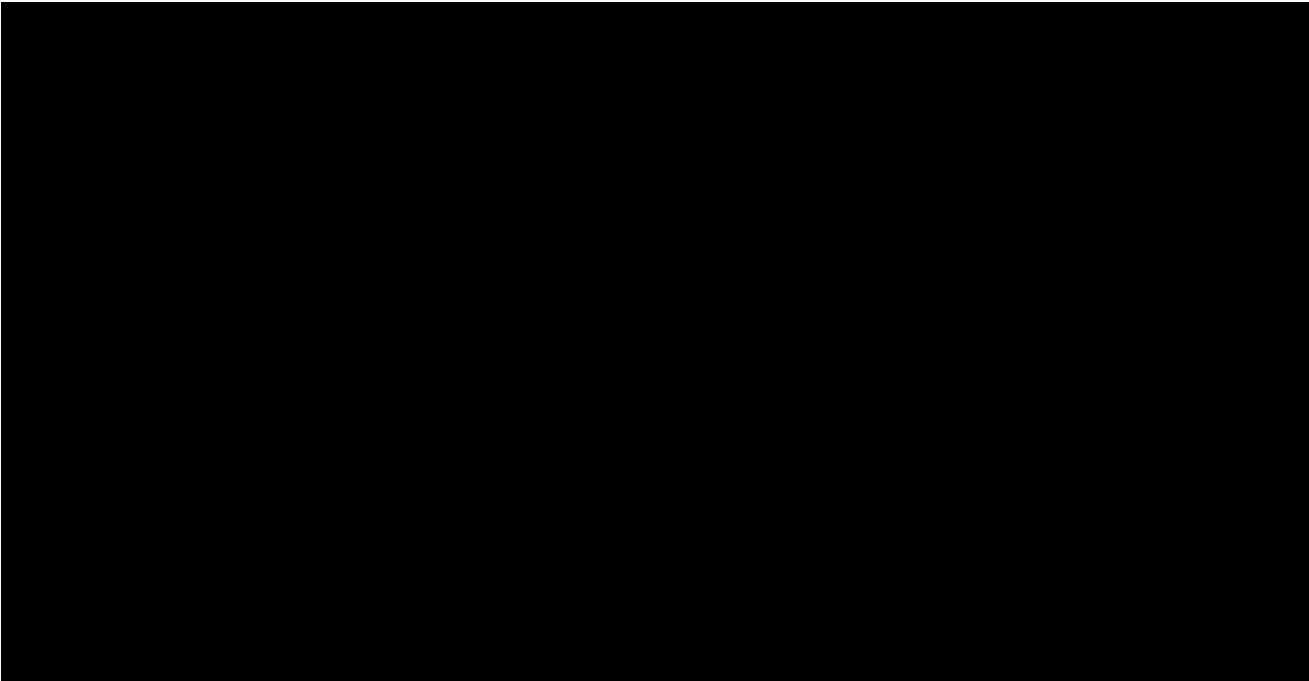


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Starting January 1, 2018, Ontario participants will be able to hold emission allowances and offset credits created by the California and Quebec programs and use these instruments for compliance purposes.



3. Performance Metrics and Cost Information

This section highlights the estimated emissions allowance requirements and associated costs for 2018, using ICE average settlement prices (Market Sensitive):

Table 11 – Example of Credit Procurement Scenario with Strategy B and inclusion of offset procurement

Estimated Total Emission, 2017 (t CO ₂ e)	A	50,762
Forecasted Total Emission, 2018 (t CO ₂ e)	B	58,542

Forecasted Allowance Price (\$ CAD per allowance)	D	\$19.00

[REDACTED]

An outline of the utility's compliance options for 2018 is highlighted below:

[REDACTED]

c. Abatement activities – customer-related: Not applicable for 2018

² Estimated total emission in 2017 (t CO₂e)

³ Estimated total emission in 2018 (t CO₂e)

d. Abatement activities – facility-related: Not applicable for 2018

Administrative Costs

Total projected Administrative Costs for the calendar year 2018 are broken down as follows:

Table 12 – Administrative Costs as it relates to Ontario Cap and Trade compliance

Cost item	Estimated Expense
Consulting Services	\$ 76,500 CAD per year
Legal Services	\$ 12,000 CAD per year
Auditing and Required Verification Services	\$ 7,000 CAD per year
Communications and Marketing	\$ 2,500 CAD per year
Software Maintenance and Development	\$23,000 CAD per year
0.3 Incremental Admin Staff Costs	\$28,000 CAD per year
Banking and Financing Fees	\$6,000 CAD per year
Travel and Accommodations	\$2,000 CAD per year
Total Administrative Costs, 2018	\$157,000 CAD per year

After one year of experience with the carbon market, the learnings have been significant. The costs have become more predictable and impacts to administration more measurable. In 2017, the Utility contracted Blackstone to advise on the carbon market intelligence and assist in developing internal process and expertise as well as provide CITSS account management and general procurement strategies. This is at a cost of \$76,500 CAD. EPCOR included \$12,000 CAD per year for legal services and \$7,000 CAD per year for potential auditing costs. Communication has been reduced to \$2,500 CAD per year with some marketing collateral being provided by the green investment fund. EPCOR expects administrative cost to increase in 2018. The cost drivers are primarily related to work required to develop custom software reports. Accounting, collections, management and billing have new, routine task that are measurable. Banking and finance fees were also incurred to provide security and in some cases finance the procurement of allowances prior to receiving the revenue related to the specific volumetric charges.

It is expected that in 2018, EPCOR will find reductions in legal and software development costs. These saving will not be realized fully prior to 2019.

Financing costs

As mentioned in the 2017 Compliance Plan EB-2016-0330 filed August 9, 2016, the cost of carrying related to the acquisition of emissions units for future compliance will be financed by the Cap and Trade

related deferral account. Financing costs will be assessed at each procurement step (i.e. for each auction and each time EPCOR plans to procure offsets and allowances in the secondary market) by comparing the cost of borrowing against the forecasted cost of procuring the same volume of allowances at a later date, where the forecasted future cost will be based on secondary market information available at the time of procurement as well as OEB's Long-Term Carbon Price Forecast Report.

4. Risk Management

Volume variability

EPCOR expects volume may vary within +/- 10% of the estimate provided in Table 6 of Exhibit 2, due to unforeseen changes in winter forecast as well as from volume variability in agricultural output (therefore natural gas for agricultural use). In 2017, the emissions estimates have adjusted within a 20% range as forecasts change over time. As mentioned in the Forecasting section, a large portion of EPCOR's non-residential rate based uses natural gas for grain drying in the fall; therefore, variability in grain production in a particular year can have major impact on natural gas demand on EPCOR, especially during the 4th quarter of the calendar year. The emission volumes 64,396 and 52,688 t CO₂e (+/- 10% of the forecasted 2018 GHG emissions) are used in the high risk and low risk scenario respectively in the Risk Mitigation and Scenario Analysis, [REDACTED]

[REDACTED].

From experiences over the last year, one scenario that needs to be accounted for is the impact on auction strategies over the four quarterly auctions if emission forecasts underestimate actual emission, particularly if the forecast underestimates consumption in the late winter period (October to December). In this instance, EPCOR will procure adjust the procurement volume from auction to match that of the additional cost of borrowing if emission estimates updated over the calendar year are higher than the original estimates in the compliance plan. The procurement plan outlined in Section 2 of Exhibit 4 considers and is able to adjust for volume variability.

Emissions Unit Availability and Allowance Price Variability

EPCOR expects some variance in emission allowances prices in 2018. For 2018, it is estimated that the number of emission allowances available to compliance entities will be in surplus when compared for the number of allowances required for compliance by Cap and Trade participants, based on modeling

1 results of supply and demand of Ontario emission allowances and OEB's Long-Term Carbon Price
2 Forecast Report. Given that the California Legislature was able to extend the Cap and Trade program to
3 2030 with a two-third majority and bipartisan support, EPCOR expects strong market participation in
4 2018 (entities that purchase and sell allowances for non-compliance purposes), as has been apparent
5 from auction results and secondary market activities in 2017. [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED].

9 [REDACTED] Between November 8,
10 2016 to November 8, 2017, allowance prices in USD has risen over 18.5%, largely due to higher
11 regulatory certainty of Cap and Trade both in the short term and the long term. Given the range of
12 allowance price in USD experienced in 2017, [REDACTED]
13 [REDACTED]; therefore, \$17.01 USD and \$13.91 USD are used in the
14 high risk and low risk scenario respectively in the Risk Mitigation and Scenario Analysis.

15 Over the course of 2017, the exchange rate had also been volatile compared to 2018. Figure 1 shows the
16 Bank of Canada daily exchange rate over the last 12 months. The exchange rate ranged from 1.3743 CAD
17 per USD in early May down to 1.2128 CAD per USD around mid-September, with the first two Ontario
18 auctions reserve price set with a relatively high CAD per USD exchange rate, and the third auction with a
19 relatively low CAD per USD exchange rate. EPCOR will employ the highest (1.3743 CAD per USD) and
20 lowest (1.2128 CAD per USD) Bank of Canada daily exchange rate over the last year for the high risk and
21 low risk scenario respectively in the Risk Mitigation and Scenario Analysis.

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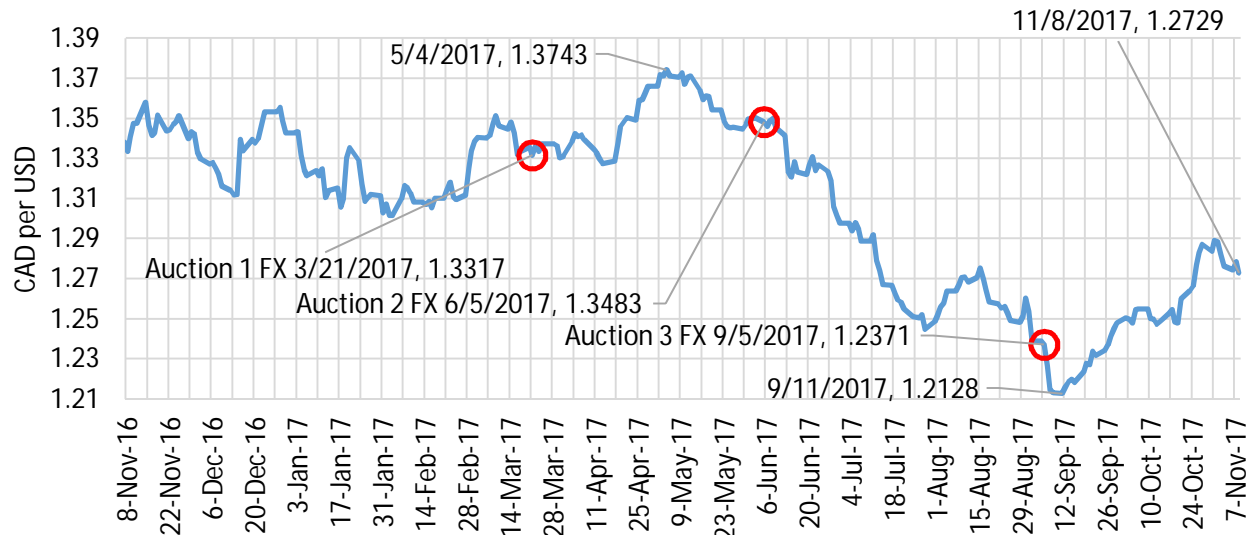


Figure 1 – Historical Bank of Canada Daily Exchange Rate, November 8, 2016 to November 8, 2017

Market risk

For 2018, EPCOR identifies market risk to be very low. The emission allowance market will be mainly driven by the quarterly auctions and compliance requirements. Regulatory certainty due to the extension of the California Cap and Trade program and Ontario's linkage to the wider WCI system have further reduced market risks for 2018.

Non-compliance

For 2018, the risk of non-compliance is very low. Emission allowances are not required to be surrendered to MOECC until the end of the 2020 calendar year. EPCOR is expected to receive the required number of compliance instruments (emission allowances and offset credits) equal to its emissions.

Other risks identified by the utility

EPCOR does not foresee other risk factors in 2018.

Risk Mitigation and Scenario Analysis

The scenario analysis for the duration of the compliance period that includes high, medium and low risk scenarios associated with price risk and volume variability is highlighted below:

Table 13 – Cost Pass-through calculations for medium, high, and low risk scenarios as it pertains to EPCOR's Cap and Trade compliance plan

		MEDIUM RISK	HIGH RISK	LOW RISK
2018 Total Volume (m3)	A	66,579,638.2	73,237,602.0	59,921,674.4
Customer-related Volume (m3)	B	29,722,107.9	26,665,087.5	32,779,128.2
Facility-related Volume (m3)	C	848,095.9	848,095.9	848,095.9
Emission Value (t CO2e per m3)	D	0.001915	0.001915	0.001915
Customer-related Emission (t CO2e)	E = B x D	56,918	51,064	62,772
Facility-related Volume Emission (t CO2e)	F = C x D	1,624	1,624	1,624
Forecasted Price of Allowance (USD)	G	\$15.46	\$17.01	\$13.91
Forecasted Foreign Exchange Rate (CAD per USD)	H	1.2290	1.3743	1.2128
Forecasted Price of Allowance (CAD)	I = G x H	\$19.00	\$23.37	\$16.87
Customer-related Cost (CAD)	J = E x I	\$ 1,081,438.89	\$ 1,193,389.29	\$ 1,059,239.06
Facility-related Cost (CAD)	M = F x I	\$ 30,857.97	\$ 37,956.32	\$ 27,405.74
Customer-related charge (cents per m3)	N = (J ÷ B) x 100	3.63850	4.47547	3.23144
Facility related charge (cents per m3)	O = (M ÷ A) x 100	0.04635	0.05183	0.04574
Customer + facility related charge (cents per m3)	P = N + O	3.68485	4.52730	3.27718
Administrative Cost (CAD)	Q	\$157,050.00	\$157,050.00	\$157,050.00
Administrative Charge (cents per m3)	R = (Q ÷ A) x 100	0.23588	0.21444	0.26209

EPCOR does not plan to undertake any financial hedging activities in 2018.

5. Longer Term Investments

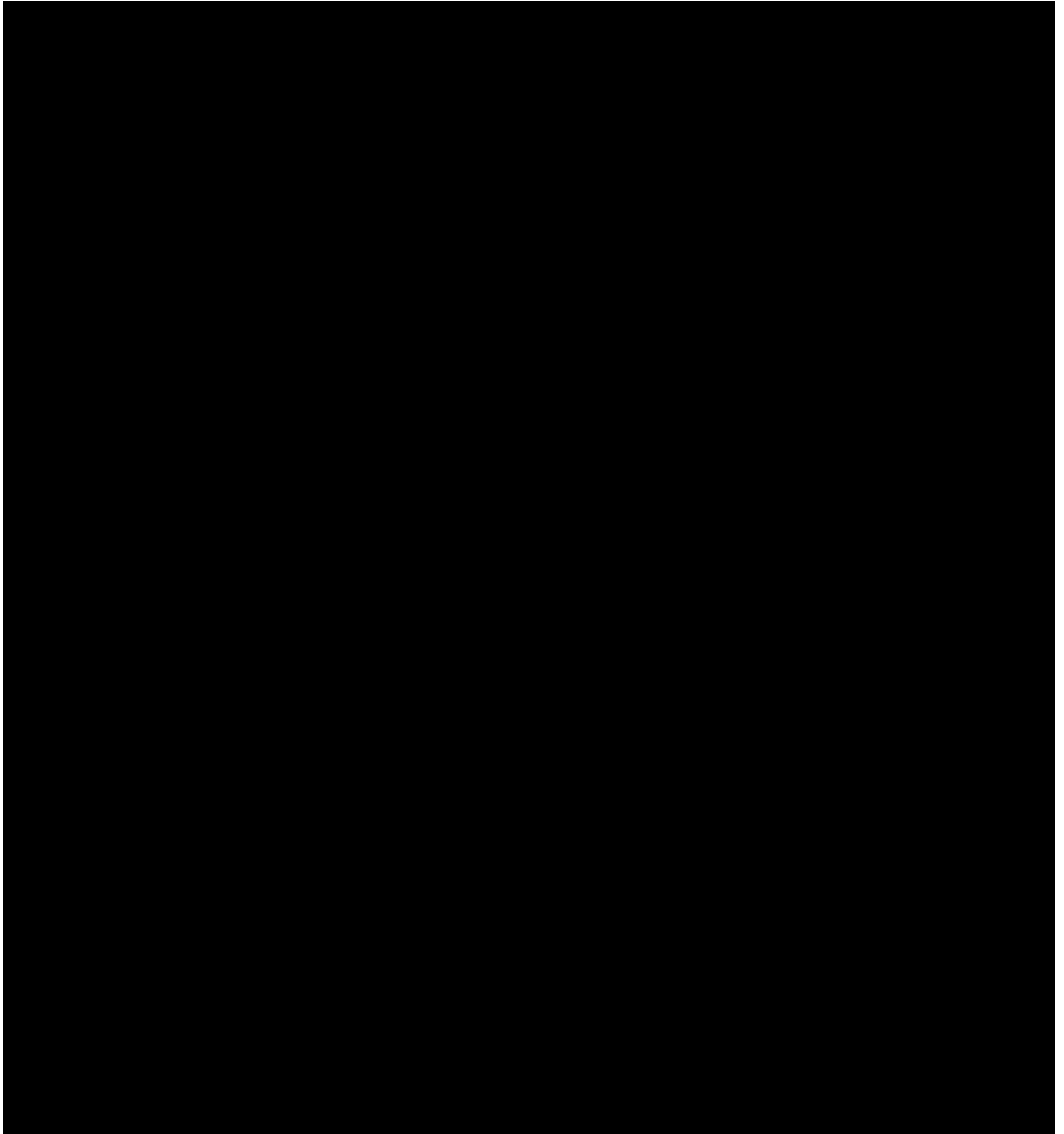
EPCOR is not expected to make long-term investments associated with Cap and Trade for the year 2018.

EPCOR will be using the OEB MACC to identify the financial feasibility of future investment opportunities in future compliance years.

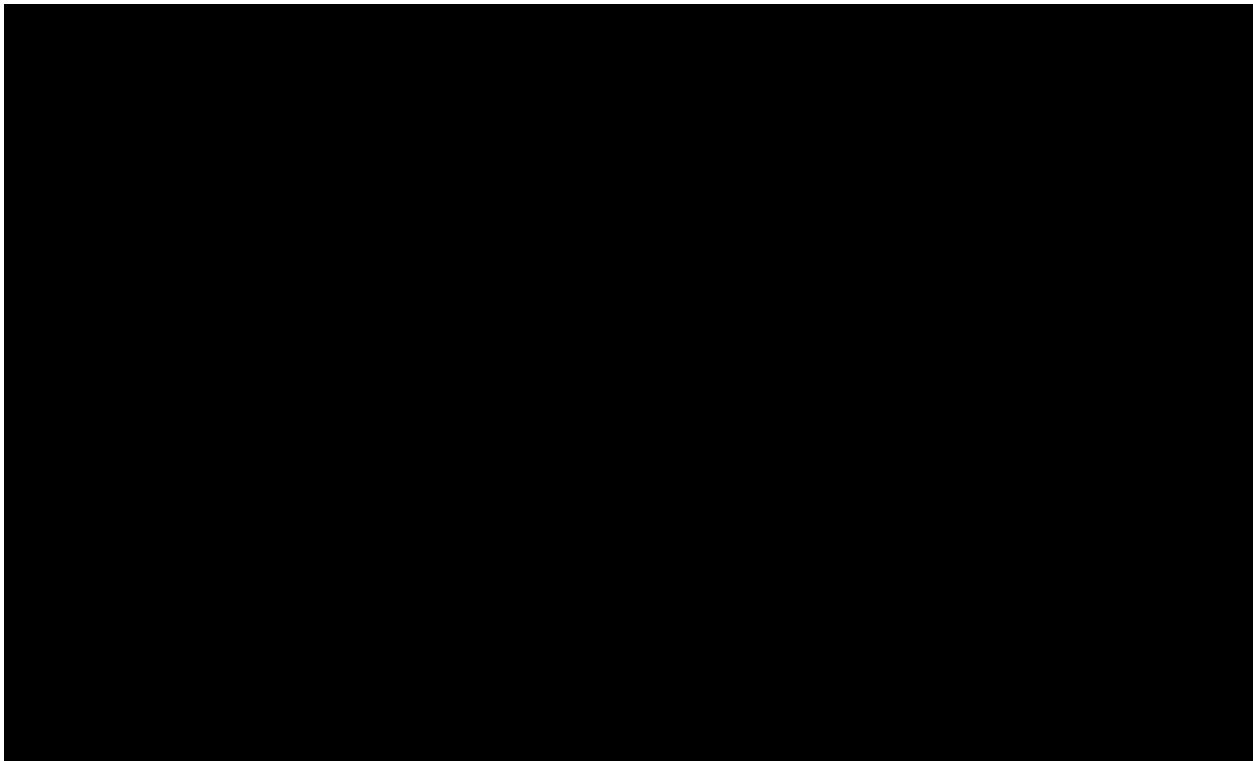
1 **6. New Business Activities**

- 2 EPCOR will not be taking on specific new business activities in 2018 as a result of the Cap and Trade
3 program. However, EPCOR will be putting additional resources into advancing biofuels programs in the
4 Ontario market. EPCOR has significant, proven experience and success in renewables.

Exhibit 4 – Monitoring and Reporting



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Exhibit 5 – Customer Outreach

Key Messaging:

Messaging has changed since the release of the program. Most customers have heard of Cap and Trade at this point in time. In 2018, the focus is on education surrounding household and small commercial load reduction abatement

The messaging surrounding individual cost impacts will remain relatively unchanged. The cost to customers will still vary between 3.3 and 3.6 cents per M3 of natural gas. The average home consumes approximately 2000 cubic metres of natural gas per year. Therefore, customers should expect to pay between \$70 and \$80 more per year for their natural gas.

Commercial and Industrial customers will be impacted. The same volumetric charge of 3.3 - 3.6 cents per cubic metre will be applicable these rate classes. However, consumption will vary considerably in these categories.

Print:

EPCOR plans to purchase ¼ page, colour advertisements in local publications such as the *Aylmer Express* and the *Elgin Weekly*. These education ads will run in the first week of November 2017 and will focus on the promotion of the Home Reno Rebate Program.

Bill Messages and Inserts:

December Gas Bills inserts are also planned. The piece will be consistent with that mentioned above; the Home Reno Rebate. Throughout the remaining year, messages will target reduction and provide advice to customers on programs and specific actions that they may take to reduce energy.

Call-Handling; Scripting:

Website:

We continue to dedicate a page of the website to understanding Cap and Trade. Under the 2016 *Climate Change Act*, Regulations have been issued that pertain to the Cap and Trade Program. This program will affect residential, commercial and industrial consumers in the province of Ontario beginning January 1, 2017. All natural gas utilities, including EPCOR, have been directed to purchase GHG allowances on behalf of its customers. The costs to purchase these allowances will be passed on to customers.

The cost to customers will vary over time, dependent on the actual allowance costs at auction. However, it has been determined that the initial costs will be between 3.3 and 3.6 cents per M3 of natural gas. The average home consumes approximately 2000 cubic metres of natural gas per year. Therefore, residential customers should expect to pay between \$70 and \$80 more per year for their natural gas.

The above message will be accompanied by helpful tips on conservation as well as Home Reno Rebate promotional page. Links will also be on the website, directing customers to updated incentive programs as they are developed, communicated and released.

Union Gas Messaging Market Penetration:

In addition to marketing initiatives planned by EPCOR, proximity to Union's franchise continues to benefit the EPCOR customer. Popular publications and radio in the London, St. Thomas and Tillsonburg areas have proven to reach the entire EPCOR customer base adding additional touch-points.

Exhibit 6 – Deferral and Variance Accounts

In NRG's rate filing (EB-2016-0330), NRG requested the establishment two deferral accounts for purposes of recording and tracking Cap and Trade costs. The above mentioned filing was subsequently put into Abeyance in order for the OEB to review and approve the MAAD Application (EB-2016-0351) filed by NRGL in November of 2016.

In the Decision and Order (EB-2016-0296/EB-2016-0300/ EB-2016-0330) dated September 21, 2017, the OEB approved the development of two variance accounts using the same terminology as proposed by Union. NRG complied, creating the following two variance accounts:

- The Greenhouse Gas Emissions Compliance Obligation – Customer-related variance account (GHG-Customer VA); and,
- The Greenhouse Gas Emissions Compliance Obligation – Facility-related variance Account (GHG-Facility VA)

The accounts 179-50 (customer-related) and 179-51 (facility-related) were created.

In addition, the OEB directed NRG to establish a GGEIDA deferral account to capture administrative costs, effective January 1, 2017. These accounts were submitted to the OEB on October 18, 2017 as in Appendix C of the Cap-and-Trade Draft Rate Order and Accounting Orders. They were updated by EPCOR and submitted to the OEB on November 10, 2017.

Exhibit 7 – Cost Recovery

EPCOR will apply the following Cap and Trade related charges to customers starting January 1, 2018. The unit charges and total costs reported are based on the medium risk scenario provided in Table 13 of Exhibit 3.

1. For customer-related obligations:

- Total Cost: \$1,081,438.89
- Unit charge by rate class: 3.6385 cents per cubic metre will be passed through uniformly to all rate classes, excluding one LFE customer (IGPC)

2. For facility-related obligations:

- Total costs: \$30,857.97
- Unit charge by rate class: 0.0464 cents per cubic metre will be passed through uniformly to all rate classes, including one LFE customer (IGPC)

3. For administrative costs:

- There will be no adjustments to the administrative cost filed in the 2017 Compliance Plan; Administrative rates in 2018 for all rate classes, including one LFE customer (IGPC), will be kept at 0.1560 cents per cubic metre.
- As per Appendix C in the Cap-and-Trade Draft Rate Order and Accounting Orders, a GGEIDA deferral account has been established to capture administrative costs, effective January 1, 2017, and the differences will be disposed of in 2019 either through a rate rider or a one-time adjustment, dependent on the value and it's corresponding impact on the rate payer.

The bill impact on all EPCOR rate payers will be the same, with the exception of one LFE (IGPC) in EPCOR's distribution system. All rate payers except IGPC will see a cap and trade related charge of 3.68485 cents per cubic metre in their delivery cost, and an a cap-and-trade related charge of 0.2359 cents per cubic metre in their administrative charges. IGPC (EPCOR's only LFE) will see a cap and trade related charge of 0.0464 cents per cubic metre in their delivery charges, and will see a cap and trade

1 related charge of 0.2359 cents per cubic metre in their administrative charges. Interim cap-and-trade
 2 related charges for 2018 are summarized in *Table 16*.

3 Customer-related and facility-related deferral and variance account balances are not provided in this
 4 filing.

5 *Table 16 - Interim Cap and Trade related charges Non-Large Final Emitters and Large Final Emitters in all*
 6 *rate classes for 2018*

Rate Class	Non-Large Final Emitter (¢/m3)	Large Final Emitter (¢/m3)
RATE 1	3.68485	0.0464
RATE 2	3.68485	0.0464
RATE 3	3.68485	0.0464
RATE 4	3.68485	0.0464
RATE 5	3.68485	0.0464
RATE 6	3.68485	0.0464

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APPENDIX A – 2018 Unaccounted For Gas (UFG) Forecast

Forecasted distribution loss (in %) is calculated as the weighted average of the distribution loss (in %) over the last three years, with the distribution loss of the most recent year assigned a weighting of 3, the year before that assigned a weighting of 2, and the year before that assigned a weighting of 1. The percentage loss of each year is taken as the difference in the volume of natural gas consumed and the volume of natural gas delivered, divided by the total of natural gas consumed. See the table below for the measured volumes and the weighted loss used in calculating the weighted loss for 2018.

	Volume	Weighting	Weighted Loss (%) (YTD % x Weighting)
FYE 09/30/13			
Gas Consumption	28,231,239 m ³	1	-5.9%
Gas Deliveries	28,789,077 m ³		
Gas Gain (Loss)	(557,838) m ³		
YTD %	-2.0%		
FYE 09/30/14			
Gas Consumption	28,097,184 m ³	2	-6.3%
Gas Deliveries	28,978,088 m ³		
Gas Gain (Loss)	(880,904) m ³		
YTD %	-3.1%		
FYE 09/30/15			
Gas Consumption	28,231,239 m ³	3	-5.9%
Gas Deliveries	28,789,077 m ³		
Gas Gain (Loss)	(557,838) m ³		
YTD %	-2.0%		
Unaccounted for gas calculated at: Sum of Weighted Loss (%) ÷ Sum of Weighting		A	-2.7172%
Load Forecast Volume (excluding IGPC):		B	26,591,858 m3
Unaccounted for Gas % above x Total Volume:		C = A x B	722,560 m3
		D = B + C	27,314,418 m3
2018 Unaccounted for gas (%) calculated at:		E = C/D	2.6453%

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