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April 17, 2017

VIA RESS, EMAIL and COURIER

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

Dear Ms Walli:

**Re: Enbridge Gas Distribution Inc. ("Enbridge")
Cap and Trade Application ("Application")
Ontario Energy Board ("Board") File Number EB-2016-0300
Updated Interrogatory Response**

Please find enclosed an updated interrogatory response for the following Exhibit in the above noted proceeding.

Exhibit I.1.EGDI.STAFF.13

This interrogatory response was being filed through the Board's Regulatory Electronic Submission System and will be available on the Enbridge website at www.enbridgegas.com/ratescase.

Please contact the undersigned if you have any questions.

Yours truly,

[original signed]

Lorraine Chiasson
Regulatory Coordinator

cc: Mr. D. O'Leary, Aird & Berlis LLP
All Interested Parties EB-2016-0300 (via email)

BOARD INTERROGATORY #1

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

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

Preamble:

Enbridge notes that it has applied a key criterion for the purpose of determining the appropriateness of including costs in the GGEIDA. The criterion is that all costs included in the GGEIDA be incremental to the Company's current business and are required for the purpose of the Company meeting its Cap and Trade obligations.

Questions:

- a) Please discuss the process that Enbridge 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) Enbridge has defined Cap and Trade incremental costs as all costs necessary for the planning and implementation related to Cap and Trade, not accounted for in the Company's Customized Incentive Regulation ("CIR"). Such costs may include, but are not limited to, carbon allowance and offset procurement, Cap and Trade market insight, inclusive of offset research, consulting support, business system changes, regulatory proceedings, compliance support, legal support, and incremental personnel. Business system changes may include modifications to existing platforms necessary for tracking and monitoring compliance instruments or future billing system upgrades.

Any costs included within the CIR's budgets for work that was completed by the Company prior to the planning and implementation of a Cap and Trade program are not deemed as incremental Cap and Trade costs, and will not be included as Cap and Trade administrative costs sought for recovery through the GGEIDA. For example, the Company has reported and continues to report GHG emissions from its stationary equipment. The individual and expenses related to reporting this

Witnesses: A. Langstaff
F. Oliver-Glasford

source of emissions is not considered incremental and remains within the Company's CIR. Following the introduction of the Cap and Trade program, the related GHG reporting regulation was expanded to include reporting on emissions from: the distribution of natural gas and operation of equipment related to natural gas. Work related to these additional reporting requirements is deemed incremental.

Cap and Trade related invoices are reviewed by the Cap and Trade group prior to approval, coding (process to ensure proper expense classification) and payment, to assess if the costs are deemed incremental. Additionally, the Accounting Group provides the Cap and Trade Group monthly reports identifying incurred charges against the Cap and Trade cost centre. These reports are reviewed by the Cap and Trade group to ensure that charges to GGEIDA are incremental to the Company's current business and are required for the purpose of the Company meeting its Cap and Trade obligations.

Witnesses: A. Langstaff
F. Oliver-Glasford

BOARD INTERROGATORY #2

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

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

Preamble:

Enbridge indicates that the capital costs incurred in 2016 for its IT billing system is forecasted to be \$516,000.

Questions:

- a) Please indicate how Enbridge proceeded with upgrading its IT billing system and if a third party IT consultant was retained. If a third party consultant was retained, please discuss if Enbridge followed a competitive procurement process.
- b) Please discuss the extent of the IT billing system upgrades that were undertaken and the exclusive need for the upgrades relative to Enbridge's Cap and Trade obligations.

RESPONSE

- a) Early in 2016 Enbridge recognized that Cap and Trade would require a billing system upgrade inclusive of all rate classes which contemplated the use of several unit rates, and allowing for the identification of mandatory and opt-in customers for application or non-application of fees. Enbridge further recognized that a billing system change of this magnitude would require approximately six months once all requirements were known and understood. In March of 2016, Enbridge initiated internal information gathering sessions in order to be ready for a January 2017 implementation date. System integration testing began in the last week of September following development. All systems changes were implemented on December 19, 2016, with an effective date of January 1, 2017.

Enbridge worked to understand internal capacity and determined it was not necessary to retain a third party to complete the billing system modifications.

Witnesses: A. Langstaff
F. Oliver-Glasford

- b) In order to begin collecting Cap and Trade fees, Enbridge was required to incorporate and develop a new module for the Company's billing systems. As identified in Table 4 of the Staff Discussion Paper on a Cap and Trade Regulatory Framework for Natural Gas Utilities (EB-2015-0363), the Board identified that the Company's Cap and Trade cost causation components are to be divided between two categories, namely, customer-related obligations and facility-related obligations. Enbridge further subdivided facility-related obligations into three components: company use, Unaccounted for Gas ("UAF") and compressor fuel. The facility-related obligation subcomponents were required as Enbridge recognized that all rate classes were not subject to the same facility-related obligation Cap and Trade fees. Additional 'spare' components were also incorporated into Enbridge's design. These components are available for a future date and may be used for GGECFCVA clearance.

Enbridge recognized that certain customers, capped participants, would not be assessed customer-related obligation Cap and Trade fees. Within the SAP module, unique identifiers (or flags) were developed, which would be added to a customer's account to remove customer-related obligation Cap and Trade fees. The URICA billing system has been designed so that Cap and Trade fees are customizable. In other words, a URICA customers Cap and Trade charges can be tailored.

BOARD INTERROGATORY #3

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

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

Preamble:

Enbridge indicates that a total of seven full time equivalents (FTEs) are required in 2017 (four FTEs beginning in 2016 at a total cost of \$0.75M and an additional three FTEs in 2017 at a total incremental cost of \$0.37M) at a total cost of \$1.12M.

Question:

- a) Please discuss the process that Enbridge employed in determining the appropriateness of developing a team of four FTEs to support the Cap and Trade program. In your response, please discuss how Enbridge considered and valued expertise in the areas of GHG emissions, carbon market experience, exchange trading experience, experience and understanding of the Cap and Trade program in California and Quebec, participation in the consultations to develop the Ontario Cap and Trade program and the OEB's Cap and Trade Framework.
- b) Please indicate why an average annual cost of \$187,500 is appropriate for each member of the 2016 Cap and Trade team.
- c) Please identify the titles and roles of the 2016 Cap and Trade team members.
- d) Please discuss the rationale and appropriateness of an average annual cost of \$160,000 for each new member of the Cap and Trade team in 2017. Please identify the titles and roles of the additional 2017 Cap and Trade team members.

RESPONSE

- a) At the outset of establishing a team to support the Cap and Trade program in 2015, there were a number of considerations about the program design and related timelines. While experts with experience in carbon markets and trading in

Witnesses: A. Langstaff
F. Oliver-Glasford

California and Quebec would contribute to the team, these experts are more readily available as consultants rather than permanent employees. Enbridge deemed it most appropriate to develop a team with high quality relevant skills and background who can quickly gain expertise in the Cap and Trade program and carbon markets. Enbridge believes this approach provides long term value for Enbridge and its customers.

Best efforts were made to build a team who could develop expertise in the carbon markets as well as Ontario's Cap and Trade Regulation. It was deemed necessary to leverage the in-house expertise for GHG tracking and reporting. Prior to 2015, this expertise was maintained in the Environment, Health and Safety department. This expertise was seen as a cornerstone requirement of the newly formed Cap and Trade team. In addition, business readiness including the upgrading of relevant business systems, and customer communication and outreach were also seen as critical elements. A manager was selected to lead this group and other consultants, as well as to develop and implement the overall strategy and governance. All individuals selected for the Cap and Trade team were chosen based on corresponding skill sets and credentials, and ability to gain expertise within a short time in this new program.

- b) The costs for each Cap and Trade team member are inclusive of direct associated costs such as incentive payments and benefits. Team members in the Cap and Trade team have a high degree of experience and/or credentials, and were required to work to demanding timelines. As well, standard Enbridge and market hiring and pay policies were followed.
- c) & d) The planned roles of the Cap and Trade team are:

- Manager, Carbon Strategy
- Lead, Business Implementation
- Senior Environmental Advisor
- Communications Coordinator
- Junior Environmental Specialist
- Carbon Procurement Specialist
- Document Control Administrator

In 2016, during team development, three to four members of the team covered parts of all the above functions. During the course of 2017, all the positions will be filled. The actuals for team members for the calendar year of 2016 and 2017 will be captured in the respective year's GGEIDA.

Witnesses: A. Langstaff
F. Oliver-Glasford

The average annual cost of \$160,000 is inclusive of direct associated costs such as incentive payments and benefits. This number was estimated at the time of filing Enbridge's 2017 Compliance Plan. It is lower than the average for 2016 team member's cost as there was expected to be relatively more junior additions to the team.

Witnesses: A. Langstaff
F. Oliver-Glasford

BOARD INTERROGATORY #4

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

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

Preamble:

Enbridge notes that it has retained two consultants, Alpha Inception LLC (AI) to assist in the development of a Carbon Market Report and Carbon Strategy Report (cost of \$84,000 USD) and ICF International to provide assistance in analyzing and reviewing the Ontario Cap and Trade program (\$187,000). Further, Enbridge has joined the International Emissions Trading Association (“IETA”) at a cost of \$20,000 CAD for 2016. Further, Enbridge has subscribed to the market intelligences service platform Californiacarbon.info at a cost of \$4,500 USD for 2016.

Questions:

- a) Please indicate if Enbridge undertook a competitive procurement process when selecting each of its consultants (AI and ICF).
- b) Please indicate how Enbridge determined the need to retain ICF in order to assist in its review of the Ontario government’s Cap and Trade program details. In your response, please discuss the needs to retain ICF and if Enbridge considered solely relying on its internal Cap and Trade team.

RESPONSE

- a) In seeking assistance with the development of its 2017 Compliance Plan, Enbridge vetted proposals from several consultants with experience in carbon markets in North America and Europe. Selection criteria used in evaluating the consultants’ proposals included relevancy of consulting experience, cost, carbon market experience, and approach to developing strategic recommendations. AI was deemed to be particularly strong in these key areas and, ultimately, the consultant was retained to assist Enbridge with the development of its 2017 Compliance Plan.

Witnesses: M. Kirk
F. Oliver-Glasford

- b) Given the magnitude and quick evolution to implementation timeline, Enbridge felt it was necessary to engage a consultant to ensure the Ontario government's Climate Change Mitigation and Low Carbon Economy Act and supporting Cap and Trade Regulation was fully understood. The cost for ICF relative to Enbridge's compliance obligation was small. Although Enbridge has a team that is focused on Cap and Trade, it seemed unreasonable at the outset of the program to expect that the team would have ample expertise to read and understand fully all the implications of the legislation.

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 #6

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

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

Preamble:

Enbridge notes that it will incur \$125,000 in external legal counsel fees in 2016 for assistance with its Regulatory submissions and detailed analysis of all Cap and Trade regulatory documents.

Questions:

- a) Please provide a breakdown of the activities/services and hours where external legal counsel was required in 2016.

RESPONSE

Enbridge incurred approximately \$100,000 plus HST in external legal counsel fees in 2016 for legal services related to Cap and Trade. This work involved approximately 200 hours of work that was roughly evenly divided between regulatory advice for related Ontario Energy Board proceedings and advice on interpretation of and compliance with the Cap and Trade legislation.

Witnesses: A. Langstaff
F. Oliver-Glasford

BOARD INTERROGATORY #7

INTERROGATORY

Issue 1 – Cost Consequences

Topic: Administrative Costs

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

Preamble:

Enbridge indicates that in 2017, it forecasts a cost of \$561,000 for implementation, market intelligence and consulting support. Services and deliverables that will be provided to Enbridge include:

- market intelligence and monitoring
- development of an Enbridge specific marginal abatement cost curve (MACC)
- brokerage services
- assistance with offset regulations and implementation
- administrative support including additional IT upgrades for carbon procurement tracking
- attendance at Cap and Trade conferences
- consulting support in developing 2018 Compliance Plan

Questions:

- a) Please provide a breakdown of the forecasted \$561,000 between the activities listed above.
- b) Please discuss the rationale of Enbridge developing its own MACC when the OEB is already undertaking this task, with direct input and consultation from Enbridge.
- c) Please confirm that Enbridge will not incur any costs related to its consultants attending Cap and Trade conferences on behalf of Enbridge (paragraph 27).

RESPONSE

- a) The following table identifies the cost estimates for the above services and deliverables:

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

<u>Service/Deliverable</u>	<u>Cost¹</u>
Market Intelligence Services (Californiacarbon.info, International Emissions Trading Association)	\$36,000
Compliance Plan Development, inclusive of offsets and brokerage fees	\$335,000
Ongoing Cap and Trade Regulation support, inclusive of Marginal Abatement Cost Curve	\$150,000
Conferences, Training and Tradeshow	\$20,000
Witness Support	\$20,000

It should be noted that the forecasted cost of \$561,000 does not include any administrative support related to additional IT upgrades for carbon procurement tracking.

- b) When the Company filed its 2017 Compliance Plan, it was unsure of the process around the development of the Ontario Energy Board's ("Board") Marginal Abatement Cost Curve ("MACC"). Since that time, Enbridge has been identified as a stakeholder in the Board's Technical Advisory Group for the development of its MACC. As a result, Enbridge has not undertaken or completed an internal MACC and at this time intends to use the Board's. However, if it becomes necessary for Enbridge to undertake additional work incremental to the Board's MACC, the Company may request approval if it is to be used in its future Compliance Plans.
- c) Confirmed.

¹ All costs are noted in Canadian currency. For conversion purposes, Enbridge assumed an exchange rate of 1.3.

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

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 #9

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.1 – Are the volume forecasts used reasonable and appropriate?

Issue 1.2 – Are the GHG emissions forecasts reasonable and appropriate?

Volume Forecasts

Topic: Volume Forecasts

Ref: Exhibit B, Tab 2, Schedule 1, pp. 6-7, Tables 1-3
Exhibit B, Tab 3, Schedule 1, pp. 3-5, Tables 1-5

Preamble:

In the tables referenced above, Enbridge provides the 2017 customer-related and facility-related volumes and related GHG forecasts. Questions:

- a) Please discuss whether Enbridge'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 Enbridge's answer above change?
- b) Please discuss whether Enbridge'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 Enbridge's answer above change?
- c) If details on abatement programs and offsets are marked as strictly confidential, how does Enbridge intend to present the volume and GHG forecasts as part of future Compliance Plans when it has abatement activities and offsets to propose?

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

RESPONSE

- a) & b) It is not possible to respond with a blanket answer that provides that the details of each abatement or offset activity must be treated in one of the three ways referenced in the question. Some activities will need to be treated in strict confidence while in respect of others, it may be appropriate to subject different elements of the activity to different treatment. For the purposes of deciding which treatment should apply (i.e., public disclosure, confidential treatment or strictly confidential treatment), each element of an activity will need to be considered on a case by case basis. Enbridge has not found an example from other jurisdictions on how customer or facility related abatement and offset activities are dealt with beyond the high level documentation in the rate schedules. Although Enbridge would prefer to be as transparent as possible, it recognizes that in certain instances, doing so may be at the detriment of ratepayers which the Company is looking to serve and protect.

Accordingly, Enbridge expresses its preference to be conservative at the outset of the market, especially in a non-linked environment, so that the Company's exact financial market position is not inappropriately disclosed. It is Enbridge's view that it is not possible to definitively state at this point in time, that to do otherwise at this early stage would not have any impact on pricing.

In a linked market, the need to take as conservative an approach may diminish. Disclosure of detailed information about abatement and offset activities might no longer need to be treated as strictly confidential with other information being appropriately the subject of confidential treatment under the Ontario Energy Board's Rules and its Practice Direction on Confidential Filings. However, again, caution should be exercised as over time, the linked market may become increasingly supply-constrained as identified by many experts.

While Enbridge may choose to disclose investments in or procurement of abatement and offset projects, it should not be required to divulge pricing or quantity specific information. For example, in the development phase, offset involvement would be characterized by confidential contracts which could include various terms which might for example include pricing an offset at a discount to an auction settlement price. There are of course other examples but this type of information is necessarily strictly confidential under the Climate Change Act. Buying offset projects that are complete, verified and now being sold essentially as an OTC product, would also be strictly confidential as it would comprise part of the Company's specific carbon allowance bidding strategy. In the case of Offsets, linkage of the Ontario with WCI market does not change the level of confidentiality required around offset instruments.

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

- c) Enbridge believes that it may become necessary to develop appropriate protocols for the disclosure of volume and GHG forecasts in future compliance plans where such forecasts will be materially influenced by abatement and offset activities that should be treated as strictly confidential. Enbridge submits that the consideration of such protocols should be undertaken in the context of future compliance plans where such abatement and/or offset activities are being proposed.

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

BOARD INTERROGATORY #10

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.1 – Are the volume forecasts used reasonable and appropriate?

Issue 1.2 – Are the GHG emissions forecasts reasonable and appropriate?

Topic: Volume Forecasts

Ref: Exhibit B, Tab 2, Schedule 1, p. 1, para. 2

Preamble:

Customer-related and facility-related volumetric forecast are based on Enbridge's 2017 Rate Application.

Questions:

- a) Please provide Enbridge's 2017 volume forecast and associated GHGs attributed to gas-fired generators.
- b) Please provide the most recent 2017 volume forecast and associated GHGs attributed to voluntary participants.
- c) Please provide the most recent 2017 volume forecast and associated GHG attributed to mandatory participants.

RESPONSE

- a) Please refer to paragraph 5 of Exhibit B, Tab 2, Schedule 1.
- b) The list of voluntary participants from the MOECC has been updated from time to time as participants have entered the program. The most recent 2017 volume forecast for voluntary participants in Enbridge's franchise area is $160,238.6 \text{ } 10^3 \text{ m}^3$. The associated GHGs are 300,388 tonnes CO₂e.
- c) The list of mandatory participants from the MOECC has also been updated from time to time as participants have entered the program, and may continue to be updated during the year if new mandatory participants join the program. The most recent 2017 volume forecast for mandatory participants in Enbridge's franchise area is $992,650.8 \text{ } 10^3 \text{ m}^3$. The associated GHGs are 1,860,850 tonnes CO₂e.

Witnesses: A. Langstaff
J. Murphy

BOARD INTERROGATORY #11

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.1 – Are the volume forecasts used reasonable and appropriate?

Issue 1.2 – Are the GHG emissions forecasts reasonable and appropriate?

Topic: Volume Forecasts

Ref: Exhibit B, Tab 2, Schedule 1, p.7, Table 3

Exhibit B, Tab 3, Schedule 1, p. 4, Table 3 and p. 5, Table 5

Preamble:

Enbridge outlines total facility-related volumes in the tables referenced above.

Questions:

- a) In Tab 2, Table 3, the total facility-related volume is 122,407,000 m³. In Tab 3, Table 3, Col. 1, the total facility-related volume is 116,970,800 m³. Please reconcile these two amounts and confirm Enbridge's correct total facility-related volume.
 - i. Please confirm whether the emissions calculated in Tab 3, Table 3, Col. 5 (229,145.2 CO₂e) is correct. If not, please update all relevant evidence.
- b) In Tab 3, Table 5, Enbridge calculates its total compliance obligation of 21,136,767 CO₂e (which is based on total facility-related volumes of 116,971,000 m³). Please confirm whether this number is correct. If not, please update all relevant evidence.

RESPONSE

- a) Exhibit B, Tab 3, Table 3, Line 5, Column 1 contained an incorrect formula, which did not include the volume stated in Line 3, Column 1. The revised amount at Exhibit B, Tab 3, Table 3, Line 5, Column 1 is 6,936.2 10³m³ and the total facility-related volumes on Line 8, Column 1 are 122,407.0 10³m³. The evidence has been revised to correct this inadvertent error. Please see evidence update filed February 23, 2017.

Witness: J. Murphy

- i. Enbridge confirms that the total emissions calculated at Exhibit B, Tab 3, Table 3, Column 5 were not impacted by the error mentioned in (a) above, however it has also been determined that the CH₄ and N₂O emission factors on Line 2 of Table 4 of the same Exhibit were incorrect. The evidence has been updated to correct this error, and the revised facility-related emissions are 230,055 tonnes CO₂e as noted at Exhibit B, Tab 3, Table 3, Line 8. Please see evidence update filed February 23, 2017.
- b) Enbridge confirms that the total compliance obligation shown at Exhibit B, Tab 3, Table 5, was not impacted by the error mentioned in (a) above, however due to the error mentioned above in (a) (i) the total emissions have been revised to 21,137,676 tonnes CO₂e as noted at Exhibit B, Tab 3, Schedule 1, Table 5, Line 7 of the update filed February 23, 2017.

BOARD INTERROGATORY #12

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.1 – Are the volume forecasts used reasonable and appropriate?

Issue 1.2 – Are the GHG emissions forecasts reasonable and appropriate?

Topic: GHG Emissions Forecasts

Ref: Exhibit B, Tab 3, Schedule 1, p.4-5, Table 4 and 5

Preamble:

Enbridge, in the table referenced above, shows line 2 (ON.400) is 0.001875 tonnes CO₂e/m³ and on line 5 (ON.20) is 0.001859 tonnes CO₂e/m³. Enbridge uses a budget heat value of 0.03769 GJ/m³ in Table 4, but indicates that in calculating actual emissions, higher heating value will be used instead of this value.

Questions:

- a) Please provide the inputs, assumptions and calculations used to compute 0.001875 CO₂e/m³ and rationale for applying this emission factor to fleet, buildings, and unaccounted for volumes (UAF).
- b) Please provide the inputs, assumptions and calculations used to compute 0.001859 CO₂e/m³ and rationale for applying this emission factor to boilers and compressor fuel volumes
 - i. Please explain whether Enbridge's CO₂ emissions for facility-related were calculated as per Calculation Methodology 2 of ON.23.
 - ii. Please explain whether Enbridge's CH₄ and N₂O emissions for facility-related were calculated as per Calculation Methodology 6 of ON.24 (c).
 - iii. Please explain why a higher heating value of 0.03769 GJ/m³ was chosen, and whether the higher heating value used to calculate actual emissions will be based on measurements taken from gas entering the boilers and compressors.

Witness: J. Murphy

- iv. If default CH₄ and N₂O emission factors from Table 20-4 were used for the calculation, please indicate which row of Table 20-4 was used to calculate the CH₄ and N₂O emission factors, and why.

RESPONSE

- a) Enbridge has used the formulas and emission factors provided in the MOECC “Guideline for Quantification, Reporting and Verification for Greenhouse Gas Emissions”, Section ON.400 to calculate emissions from the distribution of natural gas. The references for the emission factors and global warming potentials used are provided in the notes to Table 4 in Exhibit B, Tab 3, Schedule 1. The CO₂e emission factor of 0.001875 CO₂e/m³ was calculated using the following formula:

$$EF_{CO_2e} = (EF_{CO_2} * GWP_{CO_2}) + (EF_{CH_4} * GWP_{CH_4}) + (EF_{N_2O} * GWP_{N_2O})$$

Where EF is emission factor and GWP is global warming potential.

Enbridge notes that the emission factor of 0.001875 tonnes CO₂e/m³ is rounded, however in calculating the customer-related emissions the volume was multiplied by each of the three emissions factors without rounding.

The emission factor was applied to the volumes for fleet, buildings and Unaccounted for Volumes (UAF) because these volumes are downstream of the custody transfer station, which is the point of regulation used in cap and trade. These types of facility-related emissions are therefore considered as emissions from distribution of natural gas and must be calculated using the ON.400 methodology.

- b) Enbridge has used the formulas and emission factors provided in the MOECC “Guideline for Quantification, Reporting and Verification for Greenhouse Gas Emissions”, Section ON.20 to calculate emissions from general stationary combustion. The references for the emission factors and global warming potentials used are provided in the notes to Table 4 in Exhibit B, Tab 3, Schedule 1. The emission factor was applied to the volumes for boilers and compressors because these types of facility-related emissions are considered as emissions from general stationary combustion and must be calculated using the ON.20 methodology.
- i. Enbridge’s facility-related CO₂ emissions were calculated using Calculation Methodology 2 of ON.23 (b).
 - ii. Enbridge’s facility-related CH₄ and N₂O emissions were calculated using Calculation Methodology 6 of ON.24 (d).

Witness: J. Murphy

- iii. When annual emissions are calculated using the methods referenced in (b) (i) and (b) (ii) above, the actual higher heating values are used. For forecasting purposes the value of 0.03769 GJ/m³, which is the heating value as currently published in Enbridge's Rate Handbook, was used.
- iv. The default CH₄ and N₂O emission factors were obtained from the "Residential, Construction, Commercial/Institutional, Agriculture" row of Table 20-4 in error. Exhibit B, Tab 3, Schedule 1 has been revised and an update filed on February 23, 2017 to include the emissions factors provided on the "Pipelines" row of Table 20-4.

BOARD INTERROGATORY #13

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.1 – Are the volume forecasts used reasonable and appropriate?

Issue 1.2 – Are the GHG emissions forecasts reasonable and appropriate?

Topic: Governance and Accountability

Ref: Exhibit C, Tab 1, Schedule 1, p. 8, 10 and 11, #16, #26

Preamble:

Enbridge indicates that it has assembled a team of employees to form the Carbon Procurement Governance Group (CPGG). In 2017, the team will implement Enbridge's carbon procurement strategy...and ensure secondary market procedures are drafted... Enbridge states that it will apply the Plan-Do-Check-Act/Review (PDCA) model for the implementation and review of its Compliance Plan.

Questions:

- a) Please explain how Enbridge's Cap and Trade strategy will be integrated into the company's business planning process.
- b) Please explain how Enbridge's facility-related abatement opportunities will be integrated into the CPGG decision making process and Enbridge's business planning process.
- c) Is Enbridge's PDCA model the same process as its natural gas supply development and review process? Please explain and identify any differences.
- d) Are the members on the CPGG similar to the team of employees that develop and review Enbridge's natural gas supply plan. Please explain and identify any differences.

Witnesses: A. Langstaff
F. Oliver-Glasford

J. Murphy
A. Welburn

RESPONSE

- a) Enbridge's Cap and Trade strategy is being integrated into the Company's business planning process through ongoing dialogue and planning, between the Carbon Strategy team, teams responsible for customer and facility related abatement and a governance structure that includes executive oversight. Up until the end of 2016, a Carbon Strategy Steering Committee consisting of the vice presidents from Market Development and Public and Government Affairs, Finance, Law, Engineering and Asset Management was in place. With the formation of the Carbon Procurement Governance Group ("CPGG"), with representation from Market Development and Public and Government Affairs, Finance, Energy Supply and Customer Care, Law functions, the Company is in the process of determining if the Carbon Strategy Steering Committee should continue for the purpose of integrating Enbridge's Cap and Trade strategy into the business planning process, or whether incorporation of the forecast cost of carbon into business planning and analytics with expanded oversight of the CPGG will suffice. This will be determined as quickly as possible.
- b) The review of all facility-related abatement opportunities will be reviewed and managed by Enbridge's Asset Management group. This group, in discussion with the Carbon Strategy group, will include the cost of carbon in the analysis of any future projects. The cost of carbon will be dynamic and updated based on market conditions.

The CPGG will be kept apprised of facility-related abatement opportunities for the purposes of adjusting the Company's greenhouse gas emission profile.

- c) Enbridge follows a similar process to the referenced PDCA model when developing its natural gas supply plan. Although the processes follow a similar approach, there are differences in how they are managed due to their unique circumstances and requirements. The following table outlines some similarities and differences in the gas supply planning process and the carbon procurement planning process with respect to the PDCA model:

Witnesses: A. Langstaff
F. Oliver-Glasford

J. Murphy
A. Welburn

Table 1: Comparison of Gas Supply Planning and Carbon Procurement Planning

	Gas Supply Planning	Carbon Procurement Planning
Plan	Uses annual volumetric forecast as well as Board-approved Design Criteria, which has daily constraints. This guides the development of a diverse portfolio of natural gas transportation, storage, and commodity agreements and their related attributes which are used to satisfy the design day demand and forecasted annual demands of the Company. The evaluation and procurement of transportation and storage is typically conducted up to 3 years prior to the effective date and is documented and approved in accordance with the Company's procurement policies and procedures.	Uses annual volumetric forecasts to develop procurement strategy incorporating legislative and business constraints. Carbon procurement does not have daily constraints. Some of Enbridge's planning activities may be greater than a year. Non-voting CPGG members will detail potential strategies. These will be developed based on the following inputs: 1) natural gas forecast and actual volumes; 2) demand side management volumes; 3) natural gas reductions associated with customer and facility-related abatement projects; and 4) carbon market intelligence. The voting members will review and approve a strategy.
Do	Procurement of the transportation, storage, and commodity to augment the Company's existing portfolio. Transportation is typically procured through negotiations with service providers or through open seasons for new and existing capacity posted by service providers. In addition to utility-owned storage, third-party storage is	Procurement based on available instruments as approved by Enbridge's CPGG.

/c

/c

Witnesses: A. Langstaff
F. Oliver-Glasford

J. Murphy
A. Welburn

	procured through a request for proposal (RFP) process. The commodity is procured through a combination of RFP, purchases on electronic trading systems (i.e. NGX), and directly from approved suppliers. The gas supply plan forms part of the Company's annual rate application that is filed with the Board.	
Check	ESSOP meets on a weekly basis to evaluate operational and market conditions that could impact the Company's gas supply plan and to ensure that sufficient supply is procured in the short term	CPGG meets regularly to review operational data and evaluate its position. Non-voting members will summarize relevant carbon market information for voting members.
Act/Review	Monitoring and reporting on gas market changes. PGVA filed with OEB as part of QRAM. Participation in Ontario Energy Board and National Energy Board proceedings that may impact current and future gas supply plans.	Monitoring and reporting on compliance obligations and GHG emissions; report on forecast GHG emissions versus actual GHG emissions. Discussion related to future transactions; refinement and adjustment of strategy.

Witnesses: A. Langstaff
F. Oliver-Glasford

J. Murphy
A. Welburn

d) Although the scope of the CPGG does not include the development and review of the Company's gas supply plan, the diverse nature of the CPGG membership does result in alignment with the development and review of Company's gas supply plan. The current members of the CPGG that are more directly involved with the development and review of the Company's gas supply plan include:

- Vice President, Energy Supply and Customer Care;
- Director, Energy Supply and Gas Storage;
- Manager Gas Supply and Strategy;
- Manager Gas Supply, GD Procurement & Reporting;
- Gas Supply Regulatory Specialist; and
- Gas Supply Optimization Specialist.

Witnesses: A. Langstaff
F. Oliver-Glasford

J. Murphy
A. Welburn

BOARD INTERROGATORY #14

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.1 – Are the volume forecasts used reasonable and appropriate?

Issue 1.2 – Are the GHG emissions forecasts reasonable and appropriate?

Topic: Resources and Capabilities

Ref: Exhibit C, Tab 1, Schedule 1, p. 19; #59

Preamble:

Enbridge states that it has an experienced and qualified employee who is responsible for GHG reporting.

Questions:

- a) What is Enbridge's contingency plan to ensure business continuity in case of an employment disruption (i.e., the employee leaves the company, etc.)? Please explain.

RESPONSE

In January 2017 a new Environmental Reporting Analyst was hired who has begun to learn the GHG inventory and reporting related functions. The Senior Environmental Advisor will continue to oversee this area, and therefore two employees will have knowledge of the GHG inventory and reporting for purposes of contingency and business continuity. Additionally Enbridge has worked long term with a GHG consultant who is very familiar with its GHG inventory and who could be consulted in the event of employment disruption.

Witnesses: J. Murphy
F. Oliver-Glasford

BOARD INTERROGATORY #15

INTERROGATORY

Issue 1 – Cost Consequences

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

Topic: Marginal Abatement Cost Curve

Ref: Exhibit C, Tab 2, Schedule 1, p. 15, #33

Preamble:

Enbridge indicates that it may seek to establish its own MACC or similar analysis for its unique facility-related or customer-related abatement initiatives as appropriate.

Questions:

- a) Does Enbridge intend to use the OEB MACC when developing its compliance plans? Please explain.

RESPONSE

- a) Please refer to Board Staff Interrogatory #7(b) filed at I.1.EGDI.STAFF.7.

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

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.

BOARD INTERROGATORY #17

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.9 - Are the gas utility's proposed new business activities reasonable and appropriate?

Topic: Customer Abatement Activities – Climate Change Action Plan (CCAP) Funding

Ref: Exhibit C, Tab 6, Schedule 1

Preamble:

Enbridge notes that has begun the process of evaluation longer-term GHG emission reduction strategies, some of which would entail the investment in capital assets and infrastructure.

Questions:

- a) Please discuss if Enbridge has made any proposals to the government for CCAP funding and the details of the proposal. In your response, please discuss if Enbridge has been approved for CCAP funding.

RESPONSE

- a) Since the publication of the CCAP Enbridge personnel have met with representatives of the Ministry of Energy, the Ministry of the Environment and Climate Change ("MOECC"), the IESO, the Ontario Energy Board and the Premier's office to discuss initiatives designed to help the government achieve its GHG reduction goals in which Enbridge could participate. Potential initiatives discussed have been: the promotion of geothermal heating; water heating and cooling systems; renewable natural gas; expanded use of compressed natural gas as vehicle fuel; and the move toward net zero building construction. Other discussions have been focused on the coordination of existing DSM initiatives across Enbridge, Union Gas, electric LDCs and the IESO and how incremental funding for energy efficiency measures would be best directed.

Witness: S. McGill

Some of the discussions with the MOECC, the Ministry of Energy and the Premier's Office include the potential for CCAP funding which would be applied as incentives granted to the customer or end-user to encourage them to adopt more GHG friendly technologies. Other discussions have been focused on the coordination of existing DSM initiatives and potential CCAP programs across Enbridge, Union Gas, electric LDCs and the IESO.

BOARD INTERROGATORY #18

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.10 - Are the gas utility's proposed greenhouse gas abatement activities reasonable and appropriate?

Topic: Compliance Plan – Abatement Activities – Facility

Ref: Exhibit C, Tab 2, Schedule 1, para. 39

Preamble:

Enbridge states that it will leverage ongoing asset management projects to maximize the existing investment that is already built into the company's Custom Incentive Regulation. Questions:

- a) Please explain how Enbridge intends to link abatement opportunities related to facility-related GHG emissions with the Company's existing business planning process.

RESPONSE

- a) Please refer to the response to Board Staff Interrogatory #13 filed at Exhibit I.1.EGDI.STAFF.13 (a).

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

BOARD INTERROGATORY #19

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.10 - Are the gas utility's proposed greenhouse gas abatement activities reasonable and appropriate?

Topic: Customer Abatement Activities

Ref: Exhibit C, Tab 3, Schedule 4, pp. 2-3

Preamble:

Enbridge refers to "DSM customer abatement activities" and "incremental ratepayer funded abatement activities" not being incorporated within its 2017 Compliance Plan, but that a focused evaluation of the level, pacing, and cost effectiveness of DSM as a compliance tool would allow the company to consider the inclusion of DSM within a Compliance Plan beyond 2017.

Question:

- a) Please clarify that the incremental rate payer funded abatement activities refer to the abatement activities that are a result of Enbridge's Cap and Trade Compliance Plan and are incremental to the programs approved in the DSM Decision (EB-2015-0029).
- b) Please indicate why no customer abatement programs, incremental to DSM and GIF, are being included in the 2017 Compliance Plan.

RESPONSE

- a) The statement in the question is correct: any contemplation of incremental abatement activities that are a result of Enbridge's Cap and Trade Compliance Plan are, in Enbridge's view, incremental to the programs approved in the DSM Decision (EB-2015-0029). To the extent that any incremental DSM activity should be contemplated for the purpose of further mitigating carbon emissions, this should be addressed and considered in the DSM Mid-Term Review.

Witnesses: M. Lister
F. Oliver-Glasford

- b) The Cap and Trade Framework was released by the Board in September, 2016, and the Compliance Plan was expected to be filed by November, 2016. In its submission, Enbridge put forth that due to the timing of the release of the Framework, it did not have sufficient time to plan, design or implement any proposals for additional rate payer funded customer abatement activities within the 2017 Compliance Plan.

BOARD INTERROGATORY #20

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.10 - Are the gas utility's proposed greenhouse gas abatement activities reasonable and appropriate?

Topic: Facility Abatement Activities

Ref: Exhibit C, Tab 3, Schedule 5, p. 1

Preamble:

Enbridge indicates that it has already completed several key projects that have reduced facility-related GHG emissions to 20% below what they were in 1990, based on replacement of cast iron pipe, pneumatic controllers, damage prevention and improved leak detection & repair.

Question:

- a) Please provide more details on the three projects that achieved the largest GHG emissions, including project timing, scope, and size of reductions.
- b) Please comment on the remaining potential for facility abatement activities in Enbridge's distribution network.
- c) Please indicate why no facility-related abatement programs, incremental to DSM and GIF, are being included in the 2017 Compliance Plan.

RESPONSE

- a) The three projects that achieved the largest GHG emissions abatement are:
 - i. Cast iron replacement – in 1990 there was 1,804 km of cast iron pipe in service, which was completely replaced with polyethylene or cathodically protected steel pipe by the end of 2012. The emissions from cast iron in 1990 were approximately 143,000 tonnes CO₂e, which has been reduced to 0 tonnes CO₂e per year, representing a decrease of 143,000 tonnes CO₂e per year.

Witnesses: J. Murphy
E. Naczynski

- ii. Pneumatic equipment replacement – in 1990 the emissions from pneumatic equipment was approximately 20,500 tonnes CO₂e. Between 1992 and 1999 the number of methane emitting pneumatic equipment was reduced from 220 to 45 through the replacement program. The initiative to reduce emissions from pneumatic instruments included the replacement of high bleed pneumatic devices with low or no-bleed equipment, modification of design to use air instead of natural gas to drive instruments and use of high bleed equipment only when necessary during peak times of year. The emissions from pneumatic equipment in 2015 was approximately 1,200 tonnes CO₂e, representing a decrease of 19,300 tonnes CO₂e per year.
 - iii. Pipeline damages – in 1990 the emissions from damages to the distribution pipeline were approximately 29,400 tonnes CO₂e per year. Between 1990 and 2016, Enbridge has actively worked to reduce damages to the distribution pipeline system through the completion of locates, contractor education and audits. As a result, the number of pipeline damages has decreased by 29% during the last 7 years. The emissions from pipeline damages in 2015 was approximately 15,300 tonnes CO₂e, representing a decrease of 14,100 tonnes CO₂e per year.
- b) While Enbridge has compiled a list of possible facility-abatement projects, an analysis of the GHG reduction potential has not been completed. Enbridge believes that the GHG reduction potential for any given initiative is low. The single largest source of emissions was cast iron pipe and that is now completely removed.
- c) As discussed in Exhibit C, Tab 3, Schedule 5, a list of potential facility-related abatement opportunities had been developed prior to the November 15, 2016 filing date, however it was in the early stages of development and as such feasibility analysis was not completed in order to determine which activities could be completed in 2017.

APPrO INTERROGATORY #1

INTERROGATORY

ISSUE 1 – COST CONSEQUENCES

Issue 1.1 - Are the volume forecasts used reasonable and appropriate?

Reference: Exhibit B, Tab 2, Schedule 1, Page 2, Paragraph 5.

Preamble: In Exhibit C, Tab 4, Schedule 1 at page 10, Enbridge identifies a change in demand by natural gas fired power generators as a factor that influences volume variability.

Questions:

- (a) Please identify the specific improvements Enbridge believes it can make in the future to develop a more accurate annual forecast for power generators?
- (b) Please elaborate on why those specific improvements were not possible or practical to implement for the 2017 compliance period?
- (c) What percentage of the volumes forecast for the unbundled Rate 125 and Rate 300 customers 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.
- (d) Please explain what risks arise from utilizing historical consumption data to provide an Annual forecast for contract customers that declined to provide an annual forecast.
- (e) 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?
- (f) 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) Enbridge recognizes that due to commercial sensitivity, the unbundled power generators may not want to divulge their annual forecast. Their contracts are based on contract demand and independent of the volume. Enbridge recognizes that the unbundled power generators are required to provide annual forecasted natural gas

Witnesses: R. DiMaria
J. Murphy

consumption contractually and under Part III Section 3 of the Rate Handbook. However, Enbridge understands any forecasts provided would be an estimate due to the nature of the electricity market.

Enbridge suggests that increased dialogue with individual power generators in an effort to receive periodic updates. If appropriate, Enbridge could also ask the Independent Electricity System Operator ("IESO") to provide an aggregate forecast of Enbridge's unbundled gas fired generation dispatch. The Company may also review on a regular basis the actual natural gas consumption versus the forecast of the unbundled power generators. Enbridge is open to discussing any recommendations from unbundled power generator customers and APPrO.

- b) Enbridge recognizes that due to commercial sensitivity, the unbundled power generators may not want to divulge their annual forecast; however Enbridge did reach out to power generator customers and asked them to provide their volume forecast during the budget forecast period in April 2016. Power generator customers did provide forecasts in April but some indicated it would be difficult to provide updated forecasts.
- c) 100% of the 2017 forecast volumes for the unbundled power generator customers were based on the forecasts provided by the customers in either the fall of 2016 where available, or where not available, using the forecasts provided in April 2016.
- d) and e) Any volumetric demand forecast has an inherent risk of under-estimation or over-estimation. Historical information provides the Company with guidance, however does not eliminate the risk of either over or under estimation.
- f) Please refer to the responses to Board Staff Interrogatory #24, filed at I.4.EGDI.STAFF.24, CCC Interrogatory #4 at Exhibit I.1.EGDI.CCC.4 and IGUA Interrogatory #6, filed at I.4.EGDI.IGUA.6.

Witnesses: R. DiMaria
J. Murphy

APPrO INTERROGATORY #2

INTERROGATORY

ISSUE 1 – COST CONSEQUENCES

Issue 1.2 - Are the GHG emissions forecasts reasonable and appropriate?

Reference: Exhibit B, Tab 3, Schedule 1, Tables 1 and 2.

Questions:

- (a) The MOECC has published an updated Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017. What changes, if any, does this make to Enbridge forecasts of customer related GHG emissions by rate class?
- (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) No changes are required for the 2017 forecast of customer related GHG emissions by rate class.
- (b) Enbridge is required to follow the methodology in the MOECC Guideline. There are no improvements that can be made in the calculation of customer emissions.
- (c) Given the answer to (b) above, this is not applicable.

APPrO INTERROGATORY #3

INTERROGATORY

ISSUE 1 – COST CONSEQUENCES

Issue 1.5 - Has the gas utility reasonably and appropriately conducted its Compliance Plan option analysis and optimization of decision making?

Reference: Exhibit C, Tab 2, Schedule 1, Page 14, and Exhibit C, Tab 3, Schedule 4.

Questions:

- (a) Did Enbridge 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 Enbridge willing to engage in such discussions with natural gas fired generators in the future?

RESPONSE

- a) Enbridge did engage in individual discussions in 2016 with unbundled natural gas fired generators but the discussions were limited to billing and forecasting. A couple of the power generator customers did express their interest to become an opt-in participant.
- b) Yes, Enbridge is willing to engage in discussions regarding abatement options to help these customers reduce their cap and trade costs.

APPrO INTERROGATORY #4

INTERROGATORY

ISSUE 1 – COST CONSEQUENCES

Issue 1.6 - Are the proposed performance metrics and cost information reasonable and appropriate?

Reference: Exhibit C, Tab 3, Schedule 1, Pages 2-3, Paragraph 8.

Questions:

- (a) What other performance metrics, in addition to the “soft” ceiling price of \$66.49, could assist the Board in assessing Enbridge’s performance in managing the following risks:
 - a. Allowance price variability,
 - b. Volume variability,
 - c. Emission unit availability,
 - d. Market risk,
 - e. Non-compliance,
 - f. Financial transaction risks, and
 - g. Risk of data dissemination to market participants.
- (b) Would Enbridge oppose a performance assessment which included a number of different metrics, rather than just a single metric - the “soft” ceiling price of \$66.49.

RESPONSE

(a) & (b)

Enbridge would consider additional performance metrics beyond the “soft” ceiling price for the auctions. Enbridge understands the Board intends to establish a working group with one aim being the assessment of performance metrics.

As discussed earlier, the OEB also intends to establish a working group to undertake further discussions on the metrics that should be relied upon for assessing and monitoring Compliance Plans, assist the OEB in assessing the effectiveness of the Regulatory Framework and further the development of effective customer communications. More information on the establishment of the working group will be provided in due course.

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

BOMA INTERROGATORY #1

INTERROGATORY

Issue 1

Ref: EB-2016-0300, Exhibit C, Tab 1, Schedule 1, p6 of 18

Preamble: Furthermore, other than the Green Investment Fund ("GIF") whole home energy efficiency retrofit program, there are no incremental customer or facility abatement activities in Enbridge's 2017 Compliance Plan.

Will Enbridge 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

Enbridge will include customer savings and costs from the GIF Whole Home Retrofit Program in a similar but separate format from its DSM program. These savings will not contribute to any potential shareholder incentive.

Witnesses: M. Lister
J. Tideman

BOMA INTERROGATORY #2

INTERROGATORY

Issue 1

Ref: EB-2016-0300, Exhibit C, Tab 2, Schedule 1, p7 of 15

Preamble: An offset credit is similar to an allowance in that it can be retired to satisfy obligations under the Regulation. Similarly, one offset credit is equal to one tCO₂e. Offset credits are created through a verified reduction or absorption of GHG emissions in a sector of the economy not covered by the Cap and Trade program. The reduction must demonstrate "additionality", the concept that the GHG reductions would not have occurred without the payment for the offset and would not have occurred under a business-as-usual scenario.

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

RESPONSE

Requirements for proving additionality are expected to be included in the offset protocols for each project type issued by the MOECC. It is up to the project owner to obtain a third-party verifier, who will review the project to ensure emissions savings are additional.

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

BOMA INTERROGATORY #3

INTERROGATORY

Issue 1

Ref: EB-2016-0300, Exhibit C, Tab 2, Schedule 1, p8 of 15

Preamble: The need for verification of offset credits presents an "invalidation risk", non-existent in the use of allowances. This represents the risk that offset projects may at some point after they are issued be found to have not reduced the stated GHG emissions, and offset credits may be rescinded by the issuing body. Invalidation risk for Ontario offset credits is dependent on how the compliance instruments are defined in the Ontario offset regulation. At the time of preparing this evidence, the MOECC has not released the regulations regarding offsets and offset protocols.

- (a) How does Enbridge expect to verify offset credits? What options are under consideration? Will it be equivalent to verification process used in the DSM Plan?
- (b) When does EGD expect the draft offset protocol (regulation) will be available? Will EGD support the regulation being available for public commencement prior to its coming into force?

RESPONSE

- (a) Refer to the response to BOMA Interrogatory #2 filed at Exhibit I.1.EGDI.BOMA.2 for the response to the first two parts of this question. In response to the third part, in that the verification for the offset project is done by a third party, it is an equivalent process to that used in DSM. However, without experience in offset project development, it would be difficult for Enbridge to confirm whether the verification process is equivalent in all respects to that used in DSM.
- (b) The MOECC released the Draft Offset Regulation on November 15, 2016. The MOECC has contracted consultants to develop 13 offset protocols during 2017. In a January 2017 webinar by the consultant team, led by Climate Action Reserve, it was indicated that each protocol has timelines for development between April and December 2017. Enbridge does support offset protocols and the offset regulation being made available for public comment prior to coming into force.

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

BOMA INTERROGATORY #4

INTERROGATORY

Issue 1

Forecasts

Is the proposed forecast period reasonable and appropriate?

Are the volume forecasts used reasonable and appropriate?

Ref: EB-2016-0300, Exhibit B, Tab 2, Schedule 1, p6 of 7

Preamble: TABLE 2: 2017 FACILITY-RELATED VOLUMES

Given that Unaccounted For Gas (UAF) represents more than 80% of facility related volumes, what is Enbridge's plan to reduce UAF and track its reductions? How does Enbridge's UAF compare with other major gas distribution utilities in North America?

RESPONSE

Enbridge continues to look at and evaluate its UAF to determine if there are ways in which it could be reduced. Facility-related GHG abatement that includes a reduction in venting and fugitive emissions from the distribution system will also contribute to a reduction in UAF, and will be approached as discussed in Exhibit C, Tab 3, Schedule 5. The reductions will be tracked through the Cap and Trade Compliance Plan. For additional facility-related GHG abatement projects which may have a UAF impact, please refer to the response to Board Staff Interrogatory #20 filed at Exhibit I.1.EGDI.STAFF.20.

Please refer to the response to FRPO Interrogatory #2 filed at Exhibit 1.1EGDI.FRPO.2 for a comparison with other gas utilities.

Witnesses: K. Lakatos-Hayward
J. Murphy

BOMA INTERROGATORY #5

INTERROGATORY

Issue 1

Are the GHG emissions forecasts reasonable and appropriate?

Is the carbon price forecast reasonable and appropriate?

Ref: EB-2016-0300, Exhibit C, Tab 1, Schedule 1, p12 of 18

Preamble: All carbon-related market developments will be summarized in the form of a market report. This market report will be distributed to all CPGG members on a monthly basis and prior to any meeting.

Will Enbridge make these reports available to the OEB? To Intervenors? To the Ontario government?

RESPONSE

The carbon market reports will not be made public. Please see the response to BOMA Interrogatory #39 filed at Exhibit I.5.EGDI.BOMA.39.

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

BOMA INTERROGATORY #6

INTERROGATORY

Issue 1

Compliance Plan

Is the gas utility's Compliance Plan overview reasonable and appropriate?

Ref: EB-2016-0300, Exhibit C, Tab 3, Schedule 4, p2 of 7

Preamble: Lastly, the Board notes in section 5.6 of the Framework that the introduction of abatement activities under the Cap and Trade program "creates the potential for significant overlap between existing DSM programs and future Compliance Plans." The Board concludes that "The DSM Framework also includes a mid-term review provision (to be completed by June 1, 2018) that will provide an appropriate opportunity to assess the DSM Framework in light of the Cap and Trade program." Enbridge shares the Board's view regarding the potential for overlap between DSM programs and future Cap and Trade Compliance Plans. 6. Further, the Company agrees that the DSM Mid-Term Review will provide ample opportunity to consider the relationship between DSM programs and other future customer abatement activities, which should include a review of DSM's role within the Company's overall compliance planning activities. A focused evaluation of the level, pacing, and cost effectiveness of DSM as a compliance tool within the DSM Mid-Term Review will allow the Company to consider the inclusion of DSM within a Compliance Plan beyond 2017, while also avoiding disruption of the Company's existing DSM programs currently in market.

- (a) What are Enbridge's expectation for the scope and process for the Mid Term Review?
- (b) Will intervenors and/or the DSM consultative or the OEB's Evaluation Audit Committee be involved?
- (c) Has Enbridge assessed the options relative merging the two frameworks?
- (d) Has any analysis of the costs and benefits of doing so been completed?

Witnesses: M. Lister
F. Oliver-Glasford

RESPONSE

- (a) The scope and process for the DSM Mid-Term Review will ultimately be determined by the Board. At a minimum, Enbridge's expectation for the scope of the Mid-Term review would include the items set out in Schedule D of the February 24, 2016 DSM Decision (EB-2015-0049), as well as the function of DSM and any incremental energy efficiency activity within Compliance Planning needs or requirements. Since the DSM Framework and the DSM Decision were released prior to the release of Government policies and legislation with respect to climate change goals, as well as prior to the introduction of Cap and Trade, an important function of the Mid-Term review should also be to ensure alignment among goals, expectations, and intended outcomes.
- (b) Enbridge anticipates that stakeholder opinions will be sought, and that the Ontario Energy Board will determine who are the necessary participants to the Mid-Term Review.
- (c) & (d) Enbridge has been considering options around merging the two Frameworks at a conceptual level only. Enbridge expects that the issue of convergence, or not, will be a discussion within the DSM Mid-Term review. Enbridge has not conducted any detailed cost/benefit analyses.

BOMA INTERROGATORY #7

INTERROGATORY

Issue 1

Ref: EB-2016-0300, Exhibit C, Tab 3, Schedule 4, p2 of 7

Preamble: In 2016 Enbridge entered into an agreement with the Ministry of Energy ("MOE") to offer an advanced home energy audit and retrofit program over the course of three years through the GIF. The primary objective of this program is to help homeowners save on their energy bills year after year while also reducing overall GHG emissions. The whole home retrofit program was designed to be similar to Enbridge's existing DSM offer, the Home Energy Conservation program, and is available to all customers regardless of primary fuel type. In addition, the funding was also meant to increase the deployment of the Adaptive Thermostats offer, also consistent with the Company's DSM program, as well as funding to pursue educational and behavioural-based GHG reductions.

Given the similarity of the whole home retrofit program to its Home Energy Conservation, how will Enbridge determine which savings are incremental?

RESPONSE

Please refer to LIEN Interrogatory #3(b) filed at Exhibit I.1.EGDI.LIEN.3.

Witnesses: M. Lister
J. Tideman

BOMA INTERROGATORY #8

INTERROGATORY

Issue 1

Ref: EB-2016-0300, Exhibit C, Tab 3, Schedule 4, p4 of 7

Preamble: Enbridge believes that establishing a renewable content objective for natural gas pipeline systems can provide a flexible low-carbon solution that offers good value to customers because it leverages the existing natural gas transmission, distribution and storage infrastructure as well as the heating, water heating and other gas-fired equipment used by our customers. 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.

- (a) Please provide the cost benefit analysis demonstrating that renewable natural gas is "one of the more cost effective carbon abatement measures for Ontario.
- (b) Has the gas utility reasonably and appropriately conducted its Compliance Plan option analysis and optimization of decision making?
- (c) Are the proposed performance metrics and cost information reasonable and appropriate?
- (d) Has the gas utility reasonably and appropriately presented and conducted its Compliance Plan risk management processes and analysis?
- (e) Are the gas utility's proposed longer term investments reasonable and appropriate?
- (f) Are the gas utility's proposed new business activities reasonable and appropriate?

RESPONSE

- a) Please see the Company's response to Board Staff Interrogatory #16 filed at I.1.EGDI.STAFF.16.

Witnesses: S. McGill
F. Oliver-Glasford

A complete assessment of the cost of carbon abatement associated with RNG for the purpose of comparing it to the cost of other alternative measures is not possible until after the province issues Cap and Trade protocols associated with the creation of CO₂ offsets. To the extent that the Company plans to bring forward RNG proposals as part of its carbon abatement program beyond the actions outlined in its evidence in this proceeding, the Company will detail the operational and economic aspects of such plans in future Cap and Trade Compliance Plans applications brought before the Board.

- b – f) Enbridge believes that all aspects of its Compliance Plan are reasonable and appropriate. The full body of thought and evidence which supports this belief is set out in the 2017 Compliance Plan and these Interrogatory responses.

BOMA INTERROGATORY #9

INTERROGATORY

Issue 1

Ref: EB-2016-0300 Exhibit C, Tab 6, Schedule 1, p2 of 2

Preamble: As contemplated in the Framework, certain of the proposals to reduce emissions brought before the Board for consideration by the Company may constitute new business activities. Enbridge has not included any new business activities in this Compliance Plan. The Company expects that some of the carbon abatement initiatives it proposes in the future may constitute new business activities that may not necessarily fit within the scope of the Company's current regulatory construct. If such activities are proposed in a later compliance plan, the Company will seek the required authorization from the Board and/or the provincial government before commencing with such activities.

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 Enbridge'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 Enbridge?

RESPONSE

The undertakings between the Company and the Province of Ontario remain in effect as modified by Order in Council 1540-2009.

The Report of the Board on the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities ("Framework") issued September 26, 2016 under docket number EB-2015-0363 states the following:

The OEB recognizes that the Utilities may be interested in pursuing new business activities that will result from the implementation of the Cap and Trade program in Ontario in order to take steps to reduce emissions and provide for new sources of revenues. The Undertakings between certain Utilities and the government restrict the business activities of the Utilities beyond distribution, transmission, storage and supply of natural gas. The Undertakings do, however, provide the OEB with the ability to permit the Utilities to undertake new businesses on a case-by-case basis.

Witness: S. McGill

Longer term investments refer to investments and activities related to GHG mitigation that span three years or longer (i.e., at least as long as a single compliance period). This type of investment might include, for example, new technologies and new infrastructure. As part of its assessment of cost-effectiveness and reasonableness, the OEB will consider a Utility's long-term strategy for compliance.

The OEB expects Utility's Compliance Plans to include a description of the longer term strategy. **The actual forecasts of planned capital expenditures related to any investments will, however, be dealt with in a Utility's regular rate application and/or any leave to construct cases. This means that although the Compliance Plans will highlight a Utility's thinking around long-term investments, the actual approval of costs and cost recovery will be dealt with like any other type of investment.**"
(Framework, pp.26/27 emphasis added)

The OEB is prepared to consider applications for approval to undertake new business activities on a case-by-case basis as it already does . The OEB will continue to rely on existing accounting policies for non-utility activities and the rules for affiliate relationships, as well as the Undertakings to provide appropriate regulatory treatment of any new business activity the Utilities propose. (Framework, page 27)

The Company is currently examining several alternative business activities that could serve to reduce carbon emissions. Each of these potential activities have unique characteristics in terms of assets, costs and revenues that will influence how they will ultimately be treated by the Board from a regulatory standpoint. None of the initiatives that the Company currently has under consideration have been advanced to the point where they can be included in a regular utility rates or leave to construct application made to the Board. Any proposals made by the Company to the Board with respect to such initiatives will outline the Company's position and rationale behind their proposed regulatory treatment and the extent to which they are provided for in the undertakings between Enbridge and the province.

BOMA INTERROGATORY #10

INTERROGATORY

Issue 1

Ref: 1.5 - Cost Consequences and General (Conflict of Interest)

- (a) Will EGD (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? 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 EGD family will be a registered market participant? Has any EGD 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 EGD affiliated companies, sharing of information with these entities, and the like, which could lead to higher costs for ratepayers?
- (d) Given the scope for abatement activities in EGD's franchise, why has EGD not proposed a full slate of abatement activities for 2017 analogous to the GIF program and addition to the DSM program? Would any profits from cap and trade activities be credited to the ratepayers' account?
- (e) Please confirm that EGD includes no abatement investments in its compliance plan for 2017, other than the GIF program.
- (f) What is the basis of the calculation of the 2017 savings from the GIF program? What will be the percentage of the 2017 savings in 2018, 2019, and 2020?
- (g) (i) Does EGD have full cost recovery for its administration of the Green Investment Fund? (ii) Please provide a copy of the Agreement between EGD and the Ontario Government, pertaining to EGD GIF program. What was the rationale for the \$46 million EGD raised from the government? What is the proposed budget for each year of the compliance period?

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

RESPONSE

- (a) No.
- (b) This is not applicable, as per the answer to (a) above.
- (c) This is not applicable, as per the answer to (a) above.
- (d) Please refer to Board Staff #19 filed at Exhibit I.1.EGDI.STAFF.19. Profits, should any arise, would be factored into the total compliance costs.
- (e) Confirmed.
- (f) The basis of the calculation is Natural Resources Canada's Hot 2000 energy modeling software. The illustrative allocation of volume savings from the GIF program is outlined in Exhibit C, Tab 3, Schedule 4, page 3, Table 2. The current year's savings are considered to be partially effective and have been allocated at 50% with the previous year's volume savings being 100% fully effective. The allocation of 2017 savings in the year's 2018 to 2020 will be fully effective at 100%. Any natural gas savings and resulting GHG emission reductions from the 2017 GIF activities will be taken into account when the 2017 and subsequent years forecasts are trued up and will be documented in the annual monitoring and reporting submitted to the Board.
- (g) (i) Yes
 - (ii) The Ontario Transfer Payment Agreement ("TPA") between the Minister of Energy and Enbridge dated March 31, 2016 relates to Enbridge's GIF activities which involve the extension of several of its DSM programs. None of the funding that may become payable to the Company for such activities are costs included in the Company's Compliance Plan and are therefore not costs proposed to be recoverable in rates. While it is anticipated that GIF funded activity may generate natural gas savings and therefore result in GHG emission reductions in 2017, given the uncertainty of the savings (the program is only really ramping up in 2017) and further given the immaterial contribution that such savings might contribute to GHG emissions reductions this year, the Company has not adjusted its 2017 GHG emissions forecast to reflect any GIF funded forecast reductions. As noted in its pre-filed evidence at Exhibit B, Tab 2, Schedule 1, page 2, at paragraph 7:

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

The GIF-funded customer-related abatement is incremental to anything that has been built into volumes for 2017 and incremental to Enbridge's approved DSM plan. The volume reductions associated with this program have not been included in Table 1, as they are minor relative to the total volumes and are not confirmed at this time. It is anticipated that the volume reduction will be approximately 13,000 10 3m3 , however, this is a test case on reporting and submitting verified volume reductions and will be documented in the annual monitoring and reporting submitted to the Board and used for true up purposes.

Enbridge is therefore of the view that the filing of the TPA would not be of any benefit to the Board in this proceeding. It respectfully declines to produce same.

Enbridge is unable to provide a response for "What was the rationale for the \$46 million Enbridge Gas Distribution raised from the government?" at this time. Please provide the reference or source that is the basis for this question.

It is Enbridge's understanding that the Government of Ontario views the \$100 million maximum GIF spending by the two Utilities as being a "down payment" on its Climate Change Action Plan. GIF has an expiry of the end of 2018 so it does not operate over the term of the compliance period. While not relevant for the purposes of this proceeding as no GIF costs are being included in Enbridge's Compliance Plan, in the interests of being responsive, the maximum total spend by Enbridge under the GIF is \$58 million.

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

BOMA INTERROGATORY #11

INTERROGATORY

Issue 1.4

Ref: Compliance Plan

EGD has stated that it included no customer abatement activities incremental to DSM, save for the GIF program, savings from no new activity, no savings for long-term investments, and no offsets in its 2017 plan. When does EGD anticipate a secondary market for allowance/credit will be available to buy, sell, and trade allowance, in Ontario?

RESPONSE

The secondary market for allowances and credits is already active. An Ontario Carbon Emission Allowance ("OCA") with a delivery date of December 2017 can now be bought, sold and traded on the Intercontinental Exchange ("ICE").

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

BOMA INTERROGATORY #12

INTERROGATORY

Issue 1.6

Ref: General; Exhibit A, Tab 2, Schedule 1, p3

Does EGD also understand that the Board will review the prudence of the costs of implementation of the Compliance Plan subsequent to the compliance year, and agree that the Board should do this?

RESPONSE

Confirmed.

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

BOMA INTERROGATORY #13

INTERROGATORY

Issue 1.6

Ref: Exhibit C, Tab 3, Schedule 1

- (a) Please explain the origin of the soft ceiling price of \$66.49, where is it found in legislation, regulations or program documents? Please explain, in detail, how the price was arrived at and comment on the very large difference between that price, the 2017 Ontario auction reserve price, and recent allowance prices in California and Quebec markets.
- (b) Please explain fully, the sentence: "This (the \$66.49 price) adequately captures the full cost efficiency of the Compliance Plans".

RESPONSE

- a) The price for the allowances held by the MOECC in the "allowance price containment reserve" or "strategic reserve" is sometimes referred to as the "soft" ceiling price for the Cap and Trade market. The price for allowances in the reserve is found in Section 80 of the Cap and Trade Regulation. The value of \$66.49 was estimated by a consultant, however Enbridge now recognizes the price of the top tier to be \$63.81¹. This value is different from the auction reserve price, which is the lowest price that may be paid in the Cap and Trade auctions.
- b) The "full cost efficiency" was intended to capture that the "soft" ceiling price represented by the Reserve Price would be the maximum auction clearing price for the year.

¹ The consultant assumed California's reserve price in the derivation. The recalculated value is based on Ontario's Cap and Trade regulation.

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

BOMA INTERROGATORY #14

INTERROGATORY

Issue 1.7

Ref: Exhibit C, Tab 4, p1
Exhibit C, Tab 4, Schedule 1, p2

- (a) Please explain why would the price of an emission allowance at an Ontario auction be potentially impacted by the difference between the auction market and the over-the-counter market. Please provide examples of potential differences between the two markets.
- (b) Does EGD anticipate that the over-the-counter market will be regulated in any fashion? Will there be any price transparency in that market? Will it become a significant factor in the overall emission instrument market? Please discuss.
- (c) Please confirm that currency and inflation risks are common to all market participants.
- (d) How does EGD distinguish the secondary and tertiary markets?
- (e) How would a "negative" California court decision likely impact the Ontario market (i) in the short term; (ii) in the medium to longer term?

Ref: Exhibit C, Tab 4, Schedule 1, p4

- (f) Please provide the scenarios of emission allowance prices or explain why such information should not be disclosed, given its usefulness to the public and intervenors, and given that the potential scenarios are hypothetical based on such factors as changes in exchange rates, but do not disclose a strategy.

RESPONSE

- a) An example of this is the California Cap and Trade market. There have been periods where the price of emission allowances available at auction is different from emission allowances available on the secondary market. One potential cause for such difference in pricing is regulatory or legislative changes and/or perceived or uncertainty as to regulatory or legislative changes. The price of an emission allowance on the secondary market is continually influenced by events and

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

developments that influence the market over time whereas the price of an emission allowance at auction is isolated to that one point in time. Additionally, supply-demand impacts may result in pricing differences between the price of an emission allowance at auction and on the secondary market.

- b) The Intercontinental Exchange's ("ICE") website provides details regarding the exchange's regulatory construct. ICE currently provides pricing transparency with respect to Ontario Carbon Allowances, with a delivery date of December 2017. Enbridge is unable to comment on whether the ICE market will become a significant factor in the overall emission instrument market. Please also refer to BOMA Interrogatory #18 filed at Exhibit I.1.EGDI.BOMA.18.
- c) Confirmed.
- d) Please see pages 5 & 6 of the Report of the Board – Regulatory Framework for Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities ("Framework"), where the Board identifies and defines secondary and tertiary market instruments.
- e) It is not possible to respond to this question in the absence of having the details of a judicial ruling and without understanding what the question means by "negative". At this point in time, the intent of the pre-filed evidence and its reference to legal challenges to the California Cap & Trade program (Exhibit C, Tab 4, Schedule 1, p.3) was intended to simply identify the risk. The actual extent of the impact of any such judicial decision can only be gauged after a decision has been issued and it has run its course through any available appeals.
- f) The *Climate Change Act* ("Act") at subsections 32 (6) & (7) states that no person shall disclose whether or not the person is participating in an auction and that no person shall disclose whether or not the person is taking part in an auction or any other information relating to the person's participation in an auction, including the person's identity, bidding strategy, the amount of the person's bids and the quantity of emission allowances concerned, and the financial information provided to the Director in connection with the auction. The Company could face serious penal consequences if it fails to comply with these and the other market protection provisions of the Act.

Enbridge is of the view that these price scenarios should not be disclosed to the public and remain strictly confidential. These scenarios form the cornerstone of Enbridge's procurement strategy. The release of such price scenarios into the public would represent a disadvantage to Enbridge ratepayers. The Company has requested that these price scenarios remain strictly confidential in order to protect

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

the interests of ratepayers and to insure compliance with the Act all of which is consistent with the confidentiality provisions of the Framework.

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

BOMA INTERROGATORY #15

INTERROGATORY

Issue 1.7

Ref: Exhibit C, Tab 4, Schedule 1, p17

Please define, and explain the significance of, market limits and holding limits on EGD's ability to acquire or produce the necessary allowance and other emission units.

RESPONSE

The Cap and Trade Regulation has established market limits, including holding and purchasing limits. The holding limit is the maximum number of allowances that can be held in the participant's Cap and Trade accounts at any point in time. As per Section 40 of the Cap and Trade Regulation, a participant's holding limit is 5,433,300 for 2017 vintage emission allowances. The purchasing limit is the maximum percentage of allowances that a participant can purchase in any given auction. Enbridge, as a capped participant, is required to abide by these limits. For example, should Enbridge choose to purchase allowances at auction, it would be restricted to purchase no more than 25 percent of the allowances available at the auction. Due to the size of Enbridge's compliance obligation with respect to the size of the overall market, these limits do restrict Enbridge's procurement strategy in the amounts that can be purchased and held. Additionally there is risk that if Enbridge does not comply with the holding limits, that the MOECC under Section 43 of the Cap and Trade Regulation can remove the excess allowances from its accounts. Enbridge will monitor its holding and purchase limits.

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

BOMA INTERROGATORY #16

INTERROGATORY

Issue 1.7

Ref: Exhibit C, Tab 4, Schedule 1, p19

In the event, as EGD speculated, that acquired carbon allowances were rendered worthless by a change in government policy from cap and trade to a carbon tax, what is EGD's view on how the risk of that loss should be allocated between EGD shareholders and ratepayers. Please explain fully. Are there any terms in the custodial or trust arrangement with Deutsche Bank, or an agreement with the government that in the event the cap and trade program is terminated before, or after, the end of the first compliance period, the funds are returned to the ratepayers?

RESPONSE

Please refer to CCC Interrogatory #4 filed at Exhibit I.1.EGDI.CCC.4.

Enbridge is not privy to custodial or trust arrangements the government has with Deutsche Bank.

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

BOMA INTERROGATORY #17

INTERROGATORY

Issue 1.7

Ref: Ibid, p24

Are the regulations regarding administrative monetary penalties now available? Please provide a reference or link.

RESPONSE

Section 57 of the Climate Change Mitigation and Low-carbon Economy Act, 2016 provides for Administrative Penalties. A regulation which deals with administrative monetary penalties has not been issued by the MOECC.

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

BOMA INTERROGATORY #18

INTERROGATORY

Issue 1.7

Ref: C-4-1, p29

- (a) Please explain the reference to "closed markets" and the sentence of which it is a part.
- (b) Has EGD determined that allowance allocation, purchase and sale, and trading would not be subject to Ontario securities legislation?

RESPONSE

- (a) In reviewing the reference indicated, the imperfect reference to "closed markets" was intended to describe the 'Ontario only' market with its applicable rules in 2017.
- (b) Certain forms of allowance trading may be subject to Ontario securities legislation depending upon the nature of the trading and the views of the Ontario Securities Commission. Enbridge will seek to meet its carbon obligations in accordance with all applicable legislation.

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

BOMA INTERROGATORY #19

INTERROGATORY

Issue 1.10

Ref: Exhibit C, Tab 2, Schedule 1, p13

Preamble: EGD states it will develop its own MACC.

- (a) Will it ask the Board to approve its MACC for use in analysing the reasonableness and prudence of Compliance Plans and expenditures?
- (b) Does EGD believe that each category of abatement project should have its own MACC? Please explain fully.

RESPONSE

- a) Please refer to Board Staff Interrogatory #7(b) filed at Exhibit I.1.EGDI.STAFF.7.
- b) The MACC may include several types of abatement opportunities. Enbridge is unclear as to what is meant by each category; however, Enbridge believes a broad range of GHG reduction opportunities, be they natural gas based or electricity based, should be considered and the marginal cost of abatement for fuel switching abatement opportunities should include the capacity and cost impacts on the existing and alternative energy infrastructure.

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

BOMA INTERROGATORY #20

INTERROGATORY

Issue 1.10

Ref: Abatement Projects

Please confirm that a comparison of costs of abatement projects with the auction reserve price (the minimum price that auction participants can bid, and the information provided by the government after each auction [see Auction Notice for Ontario Cap and Trade Program on March 22, 2017, "ontario.ca/climate-change" for details] which is a publicly available number) should be a part of any future annual compliance plan, and would be part of any subsequent prudency review.

RESPONSE

The cost per tonne of GHG reduction for abatement projects will be compared with the cost of purchasing carbon allowances and will be reported as required in the Board Framework for use by the Board in its subsequent prudency review. Enbridge notes that GHG abatement projects may be pursued even where the price per tonne reduced is higher than the price of a carbon allowance, as per Section 5.3.1.1 of the Board Framework:

The OEB recognizes that although some longer-term investments in GHG 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).

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

BOMA INTERROGATORY #21

INTERROGATORY

Issue 1.10

Ref: Abatement Projects

Are the federal methane regulations now available? If not, when are they expected? If yes, please provide a copy or a link.

RESPONSE

No, the federal methane regulations are not yet available. Environment and Climate Change Canada has indicated a draft will be published in the Canada Gazette in 2017.

Witness: J. Murphy

CCC INTERROGATORY #1

INTERROGATORY

GENERAL:

Could the proposed merger between Spectra Energy and Enbridge Inc. have any impacts on Enbridge'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

On February 27, 2017, the Ontario government made an amendment to O. Regulation 144/16 for the Cap and Trade Program. The amendment provides that Enbridge Gas Distribution and Union Gas Limited are to be treated in 2017 as if "each registered participant were a separate registered participant that is not related to the other registered participant" and therefore requires that both have separate strategies. The merger has not impacted the Company's proposed Compliance Plan. The amendment can be found at: <https://www.ontario.ca/laws/regulation/r17056>.

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

CCC INTERROGATORY #2

INTERROGATORY

COMPLIANCE PLAN:

Reference: Ex. C/T3/S6/p. 3

The evidence states that in 2016 Enbridge assembled a Cap and Trade focused team of four employees at a forecasted cost of \$750,000, which will be sought for recovery through the 2016 GGEIDA. Please provide evidence to demonstrate that these costs are incremental to EGD's normal business activities.

RESPONSE

Please refer to Board Staff Interrogatory #1 filed at Exhibit I.1.EGDI.Staff.1.

Witnesses: A. Langstaff
F. Oliver-Glasford

CCC INTERROGATORY #3

INTERROGATORY

COMPLIANCE PLAN:

Reference: Ex. C/T3/S6/p. 13

What relief, in any, is Enbridge seeking with respect to the 2017 Forecast Cost Elements and Amounts set out in Table 2?

RESPONSE

At this time, Enbridge is not seeking relief in respect of any costs outlined in Table 2 of Exhibit C, Tab 3, Schedule 6. These represent the Company's forecast of administrative costs for 2017. Enbridge plans to seek relief once the costs have been incurred, through a future regulatory proceeding.

Witnesses: A. Langstaff
F. Oliver-Glasford
R. Small

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

CME INTERROGATORY #1

INTERROGATORY

Issue 1 – Cost Consequences

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

Enbridge provided its projected 2017 Compliance Plan Administrative Costs. CME wishes to better understand the compensation costs for Cap and Trade team members, as well as the associated productivity gains associated with the use of existing employees. To this end, please provide the following:

- (a) Please explain why an average total compensation of \$187,500 per annum is appropriate for 2016 Cap and Trade team members, and \$160,000 is appropriate for each new member of the Cap and Trade team members in 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 Enbridge identify the productivity gains associated with cap and trade related activities being performed by existing employees?

RESPONSE

- a) & b) Please refer to the response to Board Staff Interrogatory #3 filed at Exhibit I.1.EGDI.Staff.3.
- c) Some Enbridge employees have absorbed additional work associated with Cap and Trade as a result of policy understanding, internal legal and compliance support, financial process development, and a number of other items that require discussion and determination on practical implementation matters. Enbridge estimates that this additional work in the aggregate totals approximately two to three FTEs of work that is not recognized in the four incremental FTEs incrementally budgeted for Cap and Trade. Enbridge does not look to recover these costs through the GGEIDA and does not plan to have these FTEs recognized in the annual regulatory account true-up. This should therefore be recognized as a productivity gain in that existing employees are undertaking Cap and Trade work without increasing costs.

Witnesses: A. Langstaff
F. Oliver-Glasford

CME INTERROGATORY #2

INTERROGATORY

Issue 1 – Cost Consequences

Administrative Costs

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

Enbridge has forecast \$516,000 in capital costs relating to upgrades to their IT system in 2016. Please provide a more fulsome description the changes required to the billing system as the result of the cap and trade program. Also, please confirm whether further upgrades or changes will be required in 2017 or beyond.

RESPONSE

Please refer to the response to Board Staff Interrogatory #2 filed at Exhibit I.1.EGDI.STAFF.2.

Unless the requirements of the Company change with respect to how it bills its customers, Enbridge does not anticipate additional IT billing system upgrades or changes.

Witnesses: A. Langstaff
F. Oliver-Glasford

CME INTERROGATORY #3

INTERROGATORY

Issue 1 – Cost Consequences

Administrative Costs

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

Enbridge states that it forecasts a cost of \$561,000 for implementation market intelligence and consulting support, spread amongst a variety of activities.

- (a) Please provide a detailed breakdown of the costs among the activities listed.
- (b) Does Enbridge forecast a reduction in the services required as the company becomes more familiar with the cap and trade program, and the cap and trade market matures?

RESPONSE

- a) Please refer to the response to Board Staff Interrogatory # 7 filed at Exhibit I.1.EGDI.STAFF.7 for a breakdown of the costs.
- b) Due to the nascent nature of the Cap and Trade markets and the possibility for additional relevant policy supplements or changes, Enbridge is unable to comment whether market intelligence and consulting support costs will decrease in future years.

Witnesses: A. Langstaff
F. Oliver-Glasford

CME INTERROGATORY #4

INTERROGATORY

Issue 1 – Cost Consequences

Administrative Costs

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

Enbridge estimates that it will incur approximately \$115,000 in customer outreach and education costs during 2017. Does Enbridge estimate that these costs will decrease over time as customers become acclimatized to the cap and trade program?

RESPONSE

The Cap and Trade program is nascent and as a result it is difficult to speculate about future customer communication related needs. At this time we do not anticipate a decrease in annual customer outreach and education costs related to Cap and Trade. Actual customer outreach costs related to cap and trade will be recorded in the Greenhouse Gas Emissions Impact Deferral Account (“GGEIDA”).

Witnesses: C. Meyer
F. Oliver-Glasford

CME INTERROGATORY #5

INTERROGATORY

Issue 1 – Cost Consequences

Administrative Costs

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

Enbridge estimates an increase of \$900,000 in bad debts. CME wishes to better understand how the 2017 GGEIDA would operate with this increased debt. To this end, please provide the following:

- (a) If the Board approves the requested increase of \$900,000, and the bad debt does not actually increase, will money be refunded to ratepayers? If not, why not?

RESPONSE

The Company's estimate for bad debt is based on the simplified assumption that an increase in billed revenue will eventually have an incremental impact on accounts receivable write offs. An increase in billed revenue will always lead to slightly higher bad debt cost versus the status quo, and as a result it is improbable Cap and Trade does not increase the Company's actual bad debt expense. Enbridge will capture incremental bad debt associated with Cap and Trade in the GGEIDA. The Board will review this cost element with the Company's submission of GGEIDA for clearance.

Witness: D. McIlwraith

CME INTERROGATORY #6

INTERROGATORY

Issue 1 – Cost Consequences

Issue 1.3 – Is the carbon price forecast reasonable and appropriate?

Topic: Intercontinental Exchange Estimates

Ref: Exhibit B, Tab 4, Schedule 1 – Annual Carbon Price Forecasts

CME wishes to understand differences between Enbridge's and Union's calculations. Enbridge estimated that the average 21-day strip of Intercontinental Exchange would be \$16.90. Please explain why Enbridge's calculation of the average 21-day strip of Intercontinental Exchange is \$16.90, and Union's estimated the 21-day strip of Intercontinental Exchange is \$17.24 (See EB-2016-0296 Exhibit 2, Schedule 2 p. 1 of 2). Please discuss the rationale and appropriateness of the differing methodologies for calculating the 21 day strip.

RESPONSE

In US currency, both companies arrived at the same value for the 21-day strip of a California Carbon Allowance on the Intercontinental Exchange ("ICE") of \$13.04 USD. Refer to paragraph 11 of EB-2016-0300 filed at Exhibit B, Tab 4, Schedule 1.

The price difference (between Enbridge and Union) is a result of the exchange rates. Enbridge utilized its USD/CAD exchange rate filed in EB-2016-0215 at Exhibit D1, Tab 2, Schedule 10 of 1.2959. This exchange rate is based on the 21-day strip from May 3 to May 31, 2016 for delivery in each month of 2017.

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

ENVIRONMENTAL DEFENCE INTERROGATORY #8

INTERROGATORY

Reference: Ex. C, Tab 3, Sch. 1; Ex. G, Tab 1, Sch.1, Appendix A

- a) What are Enbridge's total forecast cap and trade compliance costs for 2017?
- b) What are Enbridge's forecast 2017 costs for purchasing of carbon allowances and credits?
- c) How many tonnes of emissions does Enbridge forecast it will be responsible for in 2017?
- d) What is Enbridge's forecast average 2017 cost per tonne for the purchasing of carbon allowances and credits?

RESPONSE

- a) The total compliance costs are estimated to be \$374,120,769 plus administrative costs. Refer to paragraph 17 and 18 at Exhibit G, Tab 1, Schedule 1.
- b) Please refer to a) above.
- c) Please refer to Table 5 filed at Exhibit B, Tab 3, Schedule 1.
- d) Enbridge is not permitted to provide this information for reasons of confidentiality as set out in the Climate Change Mitigation and Low-carbon Economy Act, 2016 ("Climate Change Act"), Cap and Trade regulations and the Report of the Board in respect of the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities (EB-2015-0363) ("Framework"). See BOMA Interrogatory #37 at Exhibit. I.5.EGDI.BOMA.37 for details around confidentiality matters.

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

FRPO INTERROGATORY #1

INTERROGATORY

ISSUE 1.2 –GHG EMISSIONS FORECAST

Topic: Approach to Handling Implications of Unaccounted for Gas (“UFG”)

REF: Exhibit B, Tab 2, Schedule 1, Page 6 of 7, Table 2 and
EB-2011-0354 Exhibit D2, Tab 6, Schedule 1, Page 3 of 18

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

Enbridge has followed the methodology for calculating GHG emissions as required by the MOECC, which is discussed in the response to Board Staff Interrogatory #12 filed at Exhibit I.1.EGDI.STAFF.12 (a). Unaccounted for Gas is included because these volumes are downstream of the custody transfer station, which is the point of regulation used in Cap and Trade. Enbridge is required to report on its GHG emissions, and therefore purchase carbon allowances, based on the custody transfer station, however costs related to a customers use of natural gas are calculated based on their usage measured on their natural gas meter. Any gas used, lost, or unaccounted for between the custody transfer station and the customers meter is therefore included in the facility-related costs.

Witness: J. Murphy

FRPO INTERROGATORY #2

INTERROGATORY

ISSUE 1.2 –GHG EMISSIONS FORECAST

Topic: Approach to Handling Implications of Unaccounted for Gas (“UFG”)

REF: Exhibit B, Tab 2, Schedule 1, Page 6 of 7, Table 2 and
EB-2011-0354 Exhibit D2, Tab 6, Schedule 1, Page 3 of 18

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 Enbridge 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

As part of Enbridge’s 2013 Rates Application, the Company filed a study which looked at UAF and compared Enbridge’s UAF levels with other major gas utilities. Please see EB-2011-0354, Exhibit D2, Tab 6, Schedule 1. This study determined that: “the Company’s UAF percentage has been consistently lower than the industry averages of 172 utilities within North America”.

The study also concludes that meter uncertainty is a principle source of error. UFG is calculated based on the difference between the custody transfer meters and the over two million customer meters. Currently Enbridge has approximately 40 gate stations with upstream transmission companies, including TCPL and Union Gas, who own the official custody transfer meters (billing meters). These custody transfer meters are required to meet Measurement Canada specifications and are to be verified for billing purposes. Enbridge utilizes downstream check meters to validate the custody transfer meters. However, because the check meters are not used for billing purposes, they do not need to meet Measurement Canada specifications nor be verified. Instead, a process is used whereby each day meter variances greater than 2% are reported to TCPL or Union for investigation. The Company’s experience has been that these meter differences can largely be attributed to the variability in the types of meters (turbine,

Witnesses: K. Lakatos-Hayward
J. Murphy

ultrasonic, rotary) used at the gate stations between both parties and the differences in tolerances. A verification process by Measurement Canada is also used for customer billing meters to ensure that meter tolerances are within +/- 2%.

Despite, the meter tolerances, and variability in UFG, the Company continues to be within benchmark levels of UFG performance. Table 1 presents data from the latest available American Gas Association (“AGA”) Study on Lost and Unaccounted for Gas, completed in 2015 which covers the period 2010 to 2013. It shows average UFG from AGA member utilities as 0.8% of sendout. Through the same period, UFG for the Company was 0.7%.

Table 1: UFG as a Percentage of Sendout

	<i>EGD</i>	<i>AGA</i>
<i>2010</i>	<i>0.7%</i>	<i>1.0%</i>
<i>2011</i>	<i>0.6%</i>	<i>0.7%</i>
<i>2012</i>	<i>0.7%</i>	<i>0.7%</i>
<i>2013</i>	<i>0.8%</i>	<i>1.0%</i>
<i>Average</i>	<i>0.7%</i>	<i>0.8%</i>

*source: AGA
Financial and Operational Information Series
Volume 2015-8, August 2015
Lost and Unaccounted For Gas*

Witnesses: K. Lakatos-Hayward
J. Murphy

FRPO INTERROGATORY #3

INTERROGATORY

ISSUE 1.2 –GHG EMISSIONS FORECAST

Topic: Approach to Handling Implications of Unaccounted for Gas (“UFG”)

REF: Exhibit B, Tab 2, Schedule 1, Page 6 of 7, Table 2 and
EB-2011-0354 Exhibit D2, Tab 6, Schedule 1, Page 3 of 18

Preamble: Paragraph 8 in the EB-2011-0354 reference states: “An article from the AGA likewise stated that the primary cause of UAF is meter uncertainty.⁴” The sentence references “American Gas Association. (2009). Lost and Unaccounted For Gas Cost Recovery Mechanisms. Natural Gas Rate Round-Up.

Please provide Enbridge’s best estimate of measurement-induced UFG as a percent of total UFG.

RESPONSE

The Company estimates that 90% of UFG is attributable to metering.

Witnesses: K. Lakatos-Hayward
J. Murphy

FRPO INTERROGATORY #4

INTERROGATORY

ISSUE 1.2 –GHG EMISSIONS FORECAST

Topic: Approach to Handling Implications of Unaccounted for Gas (“UFG”)

REF: Exhibit B, Tab 2, Schedule 1, Page 6 of 7, Table 2 and
EB-2011-0354 Exhibit D2, Tab 6, Schedule 1, Page 3 of 18

Preamble: Paragraph 8 in the EB-2011-0354 reference states: “An article from the AGA likewise stated that the primary cause of UAF is meter uncertainty.⁴” The sentence references “American Gas Association. (2009). Lost and Unaccounted For Gas Cost Recovery Mechanisms. Natural Gas Rate Round-Up.

What adjustments, if any, has Enbridge made to its GHG emissions estimates to account for the attribution of UFG to meter uncertainty?

RESPONSE

Total Unaccounted for Gas (“UAF”) volumes are included as part of the forecast requirements of the amount of natural gas required by the Company to operate its facilities. UAF is a component of the Company’s Facility-related volumes which are then converted to GHG emissions estimates.

In that respect, no additional adjustments were made to UAF volumes, nor to associated emissions estimates, as UAF is determined as the residual between natural gas delivered into the distribution system and natural gas that is billed as consumption to customers. See also the response to FRPO Interrogatory #1 filed at Exhibit I.1.EGDI.FRPO.1 for an explanation of MOECC’s methodology for calculating GHG emissions on all emissions downstream of the custody transfer station.

Witness: J. Murphy

FRPO INTERROGATORY #5

INTERROGATORY

ISSUE 1.2 –GHG EMISSIONS FORECAST

Topic: Approach to Handling Implications of Unaccounted for Gas (“UFG”)

REF: Exhibit B, Tab 2, Schedule 1, Page 6 of 7, Table 2 and
EB-2011-0354 Exhibit D2, Tab 6, Schedule 1, Page 3 of 18

Preamble: Paragraph 8 in the EB-2011-0354 reference states: “An article from the AGA likewise stated that the primary cause of UAF is meter uncertainty.⁴” The sentence references “American Gas Association. (2009). Lost and Unaccounted For Gas Cost Recovery Mechanisms. Natural Gas Rate Round-Up.

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

RESPONSE

Enbridge follows the MOECC methodology ON.400 Distribution of Natural Gas for the calculation of GHG emissions downstream of the custody transfer station. Please also see the response to FRPO Interrogatory #1 filed at Exhibit I.1.EGDI.FRPO.1.

FRPO INTERROGATORY #6

INTERROGATORY

ISSUE 1.4 –COMPLIANCE PLAN OVERVIEW

Topic: Compliance Plan Oversight and Governance

REF: Exhibit C, Tab 1, Schedule 1, Page 7 of 18

Preamble: We would like to understand how Enbridge is proposing to allocate the costs of existing staff resources involved in the Carbon Procurement Governance Group.

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

RESPONSE

There will be no additional costs claimed for work allocated to existing staff resources involved in the Carbon Procurement Governance Group in 2017. Enbridge will seek to keep track of time for purposes of understanding the incremental workload impact of Cap and Trade to the Company and for informing the next IR period.

Witnesses: F. Oliver-Glasford
R. Small

IGUA INTERROGATORY #1

INTERROGATORY

Issue: Cost Consequences – Are the requested cost consequences of the gas Utilities' compliance plans reasonable and appropriate?

Reference: Exhibit C, Tab 3, Pages 3 and 9.

Preamble: EGD assembled a Cap and Trade team of four employees at a forecasted cost of \$750,000 for 2016. In 2017, EGD estimates seven FTEs will be required in order to staff its Cap and Trade team.

Questions:

- (a) What roles or functions did the four employees fulfill in 2016?
- (b) What incremental roles or functions are required to be filled on the Cap and Trade team in 2017?
- (c) How did EGD determine the appropriate salaries for Cap and Trade team members in 2016 and 2017?

RESPONSE

- a) Please refer to Board Staff Interrogatory #3 a) and c) filed at Exhibit I.1.EGDI.STAFF.3.
- b) Please refer to Board Staff Interrogatory #3 c) filed at Exhibit I.1.EGDI.STAFF.3.
- c) Please refer to Board Staff Interrogatory #3 b) filed at Exhibit I.1.EGDI.STAFF.3.

Witness: F. Oliver-Glasford

IGUA INTERROGATORY #2

INTERROGATORY

Issue: Has the gas utility reasonably and appropriately presented and conducted its compliance plan risk management processes and analysis?

Reference: Exhibit C, Tab 4, Schedule 1, Page 12.

Preamble: EGD used a list (current to October 7, 2016) of known capped participants from the MOECC in order to subtract volumes forecasted for capped participants. Mandatory participants have until the deadline of November 30, 2016 to register as mandatory participants.

Questions:

- (a) Has EGD received a more updated list of (or any other more updated information about) mandatory and voluntary participants from the October 7, 2016 list?
- (b) If so, is there a difference between the October 7, 2016 list of mandatory and voluntary participants, on the one hand, and the more updated list (or information) on the other?
- (c) If so, what is the impact of this difference on EGD's forecasts included in this application?

RESPONSE

- (a) Yes, Enbridge has received a more updated list.
- (b) Yes, there is a difference between the October 7, 2016 list and the more updated list.
- (c) Refer to the response to Board Staff Interrogatory #10 filed at Exhibit I.1.EGDI.STAFF.10 for the most recent volume forecasts for voluntary and mandatory participants. The result is a reduction in total emissions and as a result, the allowances which Enbridge is responsible to purchase.

Witnesses: A. Langstaff
J. Murphy

IGUA INTERROGATORY #3

INTERROGATORY

Issue: Are the gas utility's proposed greenhouse gas abatement activities reasonable and appropriate?

Reference: Exhibit C, Tab 3, Schedule 4, Pages 3 and 4.

Preamble: EGD agrees that there is potential for overlap between DSM programs and future Cap and Trade Compliance Plans, and that DSM should be considered a vital part of its overall long-term Compliance Plan.

Questions:

- (a) What steps, if any, does EGD intend to take to identify areas of overlap between DSM programs and its Cap and Trade Compliance Plans?
- (b) How does EGD intend to treat carbon savings resulting from DSM programs achieved by customers who are LFEs?
- (c) Will LFEs be able to count their carbon reductions towards their compliance activities, and if so, by way of what administrative mechanism?

RESPONSE

- (a) Enbridge expects that the relationship between DSM programs and Compliance Plan abatement activity is a matter that will be addressed in the DSM Mid-Term Review. Enbridge anticipates that the Ontario Energy Board's Marginal Abatement Cost Curve and Long Term Carbon Price Forecast will provide useful insights towards understanding how DSM programs fit in compliance planning.
- (b) In 2017, Large Final Emitters (LFE) who participate in DSM programs will reap carbon savings in correlation with natural gas reduced. If an LFE is a mandatory participant or opted into the Cap and Trade program, they are eligible to apply for free allowances, and may also apply for early reduction credits as per the forthcoming aspect of the Cap and Trade regulation. If an LFE reduces their usage below the eligible baseline assessment for the relevant sector, they would in effect have more allowances than their compliance obligation. This means they would be able to sell those allowances or hold onto them until a subsequent period. Likewise,

Witnesses: M. Lister
F. Oliver-Glasford

if an LFE has participated in energy efficiency investments – which may have been incentivized by Enbridge's DSM program – they may qualify under the yet to be published final Early Reduction Credit methodology for the receipt of allowances.

Moving forward, how savings are treated will be a topic for the DSM Mid-Term Review and future Cap and Trade proceedings.

(c) Please see the response to question (b) above.

IGUA INTERROGATORY #4

INTERROGATORY

Issue: Are the gas utility's proposed greenhouse gas abatement activities reasonable and appropriate?

Reference: Exhibit C, Tab 3, Page 2.

Preamble: EGD states that it has developed a multi-department team to discuss abatement opportunities for facility-related GHG emissions and that facility-related abatement opportunities will be reviewed for feasibility.

Questions:

- (a) It is unclear from the application who will be involved in this feasibility review, and how it will be undertaken. Please explain how EGD intends to assess the feasibility of facility-related abatement opportunities, and whether EGD intends to engage its customers in this review process.

RESPONSE

Enbridge is currently working to define this process, which may be integrated into Enbridge's asset management program where possible.

As discussed in LIEN Interrogatory #2 filed at I.1.EGDI.LIEN.2, Enbridge plans to present GHG abatement initiatives to the Board as part of leave to construct or rate application processes. This process will involve stakeholder participation.

Witnesses: J. Murphy
E. Naczynski

LIEN INTERROGATORY #1

INTERROGATORY

COMPLIANCE PLAN SCHEDULE

On what schedule does Enbridge anticipate filing its compliance plans beyond 2017 (i.e., annually, multi-year)?

RESPONSE

Enbridge has not finalized whether it will submit an annual or multi-year plan for compliance plans beyond 2017.

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

LIEN INTERROGATORY #2

INTERROGATORY

GHG ABATEMENT ACTIVITIES/MEASURES

Exhibit C, Tab 2, Schedule 1, page 14 - *"A number of the customer-related emission abatement opportunities are anticipated to be assessed and where appropriate included in future Compliance Plans, but as discussed in the New Business section of the evidence, Exhibit C, Tab 6, Schedule 1, will do so under separate applications or within leave to construct applications."*; Exhibit C, Tab 6, Schedule 1, page 2 – *"It is the Company's expectation that these plans and related investments will be presented to the Board for consideration as part of a future rate application or project specific leave to construct application."*

- a) Please confirm what Enbridge means by "where appropriate included in future Compliance Plans" (emphasis added).
- b) If Enbridge does not intend to present its *"customer-related emission abatement opportunities"* (i.e., GHG abatement activities on customer side) to the Board in future Compliance Plans, but rather during rate applications, what is Enbridge's rationale for doing so?

RESPONSE

- (a) Enbridge has indicated that such initiatives will be presented to the Board as part of future compliance plans if and when such initiatives are developed to the point where they can be meaningfully considered by the Board. For further detail please see the Company's response to BOMA Interrogatory #9 filed at Exhibit I.1.EGDI.BOMA.9.
- (b) Enbridge plans to present presenting customer-related or other GHG abatement opportunities to the Board as part of future rate or leave to construct applications because the Board has instructed the Company to do. For further detail please see the Company's response to BOMA Interrogatory #9 filed at Exhibit I.1.EGDI.BOMA.9.

LIEN INTERROGATORY #3

INTERROGATORY

GHG ABATEMENT ACTIVITIES/MEASURES

Exhibit C, Tab 2, Schedule 1, page 14 - *"In 2017, Enbridge's sole customer-related abatement activity is driven by home energy retrofits which are incremental to currently approved DSM programming and which were funded by the government through the Green Investment Fund ("GIF")* ; Exhibit C, Tab 3, Schedule 4, page 3 – *"The whole home retrofit program was designed to be similar to Enbridge's existing DSM offer, the Home Energy Conservation program, and is available to all customers regardless of primary fuel type. In addition, the funding was also meant to increase the deployment of the Adaptive Thermostats offer, also consistent with the Company's DSM program, as well as funding to pursue educational and behavioural-based GHG reductions."*

- a) Please provide a breakdown of Enbridge's plan (including which specific measures will be employed and timing for implementation) for Enbridge's whole home energy efficiency retrofit program through the Green Investment Fund, for 2017 and beyond.
- b) Please explain how Enbridge's whole home energy efficiency retrofit program is incremental to Enbridge's DSM Home Energy Conservation program.
- c) Does Enbridge intend to implement social housing retrofits through the Green Investment Fund? If so, please provide a breakdown of Enbridge's plan (including which specific measures will be employed and timing for implementation) for 2017 and beyond.
- d) Does Enbridge plan to seek approval from the Board to implement GHG abatement activities/measures that expand or increase funding for Enbridge's existing DSM programs?

RESPONSE

- a) The GIF Program launched on October 31, 2016 and will deliver 25,000 whole home energy efficiency retrofit and Smart Thermostat participants during the term of the Program which ends in December 2018. The measures that will be employed are as follows:

- Attic Insulation upgrade
- High-Efficiency Water heating system installation (natural gas, propane, oil or wood)
- Basement wall insulation upgrade
- Window Replacements
- Wall insulation upgrade
- Drain Water Heat Recovery system installation
- Air Sealing
- Installation of an air source heat pump
- High-Efficiency Space heating system installation (natural gas, propane, oil or wood)
- Smart Thermostats

- b) Any participant that is a non-natural gas customer within Enbridge's franchise or is a participant that resides in the GIF non-natural gas Program delivery area will be attributed automatically to the GIF Program.

The in-franchise natural gas customers will be attributed to either the DSM funded HEC program or GIF funded Program based on a pre-determined attribution methodology.

- c) Where there are opportunities for Enbridge to offer the GIF program to those municipalities that have social housing units and that currently do not qualify for the Enbridge Low Income Winterproofing program, those units will be eligible to participate in the GIF program. The same standard offerings available within the GIF program will be offered to those social housing units. Enbridge has not forecasted separately between social housing units and other participants.
- d) Refer to the response to Board Staff Interrogatory #19 filed at Exhibit I.1.EGDI.Staff.19.

LIEN INTERROGATORY #4

INTERROGATORY

GHG ABATEMENT ACTIVITIES/MEASURES

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 whole home energy efficiency retrofit program, does Enbridge anticipate undertaking in 2018 and beyond? Does Enbridge plan to include any low-income-specific GHG abatement activities/measures in its offerings (and if so, please describe)?

RESPONSE

At this stage, Enbridge is not able to define any further energy efficiency or GHG abatement activity beyond 2018, for either low income or other specific sectors. Before such proposals can be made, the Company needs to understand how the DSM programs and GHG abatement activities are interrelated as well as how any such incremental activity will be funded, governed, and evaluated.

In s5.6 of the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities, the Board acknowledges a "potential for significant overlap between existing DSM programs and future Compliance Plans." The Board further indicated that a Mid-Term Review of DSM would provide an appropriate opportunity to assess the DSM Framework in light of the Cap and Trade program. Enbridge shares this view.

Witnesses: M. Lister
J. Tideman

OSEA INTERROGATORY #1

INTERROGATORY

Issue 1.8, OSEA Interrogatory 1

Reference: Exhibit C, Tab 5, Schedule 1, Pages 3 of 4

Preamble: Enbridge sets out potential long-term compliance options including renewable natural gas, DSM and low-carbon technologies, fuel switching, and fugitive/venting emissions reductions.

- a) Has Enbridge commenced conducting feasibility studies and/or pilot programs for the potential long-term investment options identified?
- b) When does Enbridge anticipate that any of these long-term compliance options will be in market and delivering results?

RESPONSE

a & b)

Please see the Company's response to Board Staff Interrogatory #17 filed at Exhibit I.1.EGDI.STAFF.17. The Company is in the process of determining the feasibility of several carbon reduction initiatives that include RNG, geothermal energy, and Power to Gas technology in addition to continuing to advance its DSM efforts. Discussions are currently underway between the Company and the Ontario Geothermal Association with respect to conducting a geothermal energy pilot project. A Power to Gas pilot project is also now under development in cooperation with the IESO. It is the Company's expectation that some of these initiatives will be presented to the Board for consideration as part of its future Cap and Trade compliance plans and supported by either proposals made in regular rates applications or leave to construct applications.

The timing of these long-term compliance options being in market and delivering results is dependent on the outcome of the pilot projects and cannot be determined at this time. Regarding the timing of RNG, please also see the response to BOMA Interrogatory #28 filed at Exhibit I.5.EGDI.BOMA.28.

Witness: S. McGill

OSEA INTERROGATORY #2

INTERROGATORY

Issue 1.10, OSEA Interrogatory 2

Reference: Exhibit C, Tab 3, Schedule 4, Page 2 of 7

Preamble: "Further, the Company agrees that the DSM Mid-Term Review will provide ample opportunity to consider the relationship between DSM programs and other future customer abatement activities, which should include a review of DSM's role within the Company's overall compliance planning activities"

- a) Would there be financial benefits for customers if the DSM Framework for DSM were harmonized with the Cap and Trade Framework?

RESPONSE

Please refer to BOMA Interrogatory #6 (c & d) filed at Exhibit I.1.EGDI.BOMA.6.

Witnesses: M. Lister
F. Oliver-Glasford

OSEA INTERROGATORY #3

INTERROGATORY

Issue 1.10, OSEA Interrogatory 3

Reference: Exhibit C, Tab 3, Schedule 4, Page 7 of 7

Preamble: "As a result, this 2017 Compliance Plan does not include renewable natural gas volumes; however, Enbridge anticipates that renewable content will play an increasing role future compliance plans as these projects are developed and brought into commercial operations."

- a) When does Enbridge anticipate that RNG will be in market and delivering results?
- b) Has Enbridge forecasted the emissions reductions that could result from the implementation of RNG?
- c) Has Enbridge conducted feasibility studies or pilot programs for the implementation of RNG?

RESPONSE

Please see the Company's responses to Board Staff Interrogatory #16 filed at Exhibit I.1.EGDI.STAFF.16 and BOMA Interrogatory #28 filed at Exhibit I.5.EGDI.BOMA.28.

Witness: S. McGill

SEC INTERROGATORY #1

INTERROGATORY

[A-3-1, p.3]

Please provide a copy of the referenced California Public Utilities Commission Decision.

RESPONSE

A copy of the referenced document can be found at:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M144/K896/144896639.pdf>

Other original and corrected Decision documents related to this CPUC proceeding can be found at:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M128/K520/128520809.PDF>

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M124/K137/124137991.PDF>

Witnesses: S. Mills
F. Oliver-Glasford

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

SEC INTERROGATORY #3

INTERROGATORY

[B-4-1, p.3]

Considering that 2017 will be a year where Ontario's carbon market is not linked to Quebec and California, does Enbridge believe that the ICE forecast price is a good proxy for the expected 2017 Ontario carbon price?

RESPONSE

Enbridge does not believe that the ICE price of a California Carbon Allowance is an appropriate proxy price for a 2017 Ontario Carbon Allowances.

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

SEC INTERROGATORY #4

INTERROGATORY

[C-1-1, p.16)

Please provide a copy of all information, reports, studies and research undertaken by Enbridge or for Enbridge, regarding Cap and Trade best practices, jurisdictional reviews or any other information regarding potential compliance options.

RESPONSE

In 2015, Enbridge and Union Gas engaged ICF to undertake an analysis on the proposed Cap and Trade program and the potential of several GHG abatement opportunities. The final report was submitted to the Ontario Energy Board on April 22, 2016 in the EB-2016-0004 community expansion proceeding¹. Please see Attachments #1 and #2 for additional reports produced by ICF in relation to this scope of work. Enbridge notes that the attached reports represent ICF's opinions, which were developed prior to the release of the draft Climate Change Act and Cap and Trade Regulation.

In 2016, Enbridge and Union Gas engaged ICF to undertake an analysis of the draft Ontario Cap and Trade Regulation. Please see Attachment #3 for this report.

In 2016, Enbridge retained Alpha Inception LLC to prepare two reports: a Carbon Market Report and a Carbon Strategy Report. These were filed under Exhibit C, Tab 1, Schedule 1, Appendix A and B respectively. Some of this information has been filed with the Ontario Energy Board as strictly confidential. Enbridge is not permitted to provide this information for reasons of confidentiality as set out in the Climate Change Mitigation and Low-carbon Economy Act, 2016 ("Climate Change Act"), Cap and Trade regulations and the Report of the Board in respect of the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities (EB-2015-0363) ("Framework"). See the response to BOMA Interrogatory #37 filed at Exhibit I.5.EGDI.BOMA.37 for further discussion on confidentiality.

¹ Refer to EB-2016-0004, Exhibit S3.EGDI.OGA.3.

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

Enbridge Gas Distribution

Impacts of Ontario's Proposed Climate Policy

Kick-off Meeting

July 7, 2015

KICK-OFF: OBJECTIVES

- Provide context of cap-and-trade and an overview of the challenge facing EGD
- Provide ICF an understanding of EGD's business and operational initiatives and investments
- Discuss data and context required to inform analytics





Ontario Climate Policy Context

ONTARIO: CLIMATE POLICY

- The Government of Ontario entered the WCI in 2008 and passed enabling legislation for a cap-and-trade system that same year
- The government did not move forward with plans to implement the system until April 2015 when it announced its intention to establish a cap-and-trade system, and to formally join the WCI cap-and-trade market
- May 15, 2015 – Ontario committed to a new mid-term target to reduce emissions by 37 per cent below 1990 levels by 2030.
- July 2, 2015 - "If we have it up by 2017, we will meet our 2020 targets, with that and the other things we're doing. The goal right now is to have the first auction in the first quarter of 2017". Glen Murray

ONTARIO: TIMELINE

Spring/Summer 2015:

- Consultations on program design, focusing on allowance allocations methods and common understanding of any competitiveness implications
- Proposals for emissions quantifications methods

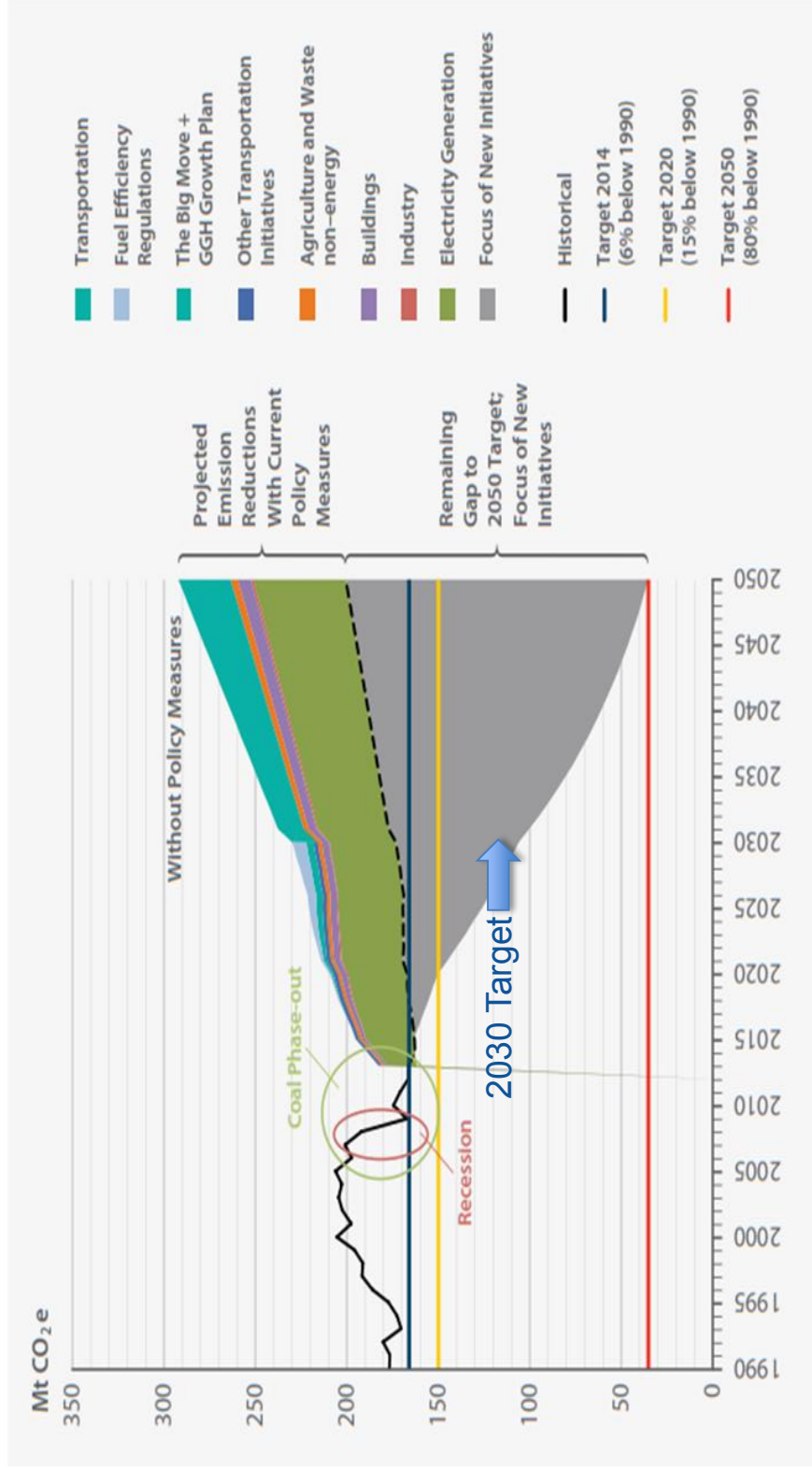
Fall 2015:

- Regulatory proposal posted on the Environmental and Regulatory Registries for comments

Winter 2015/2016:

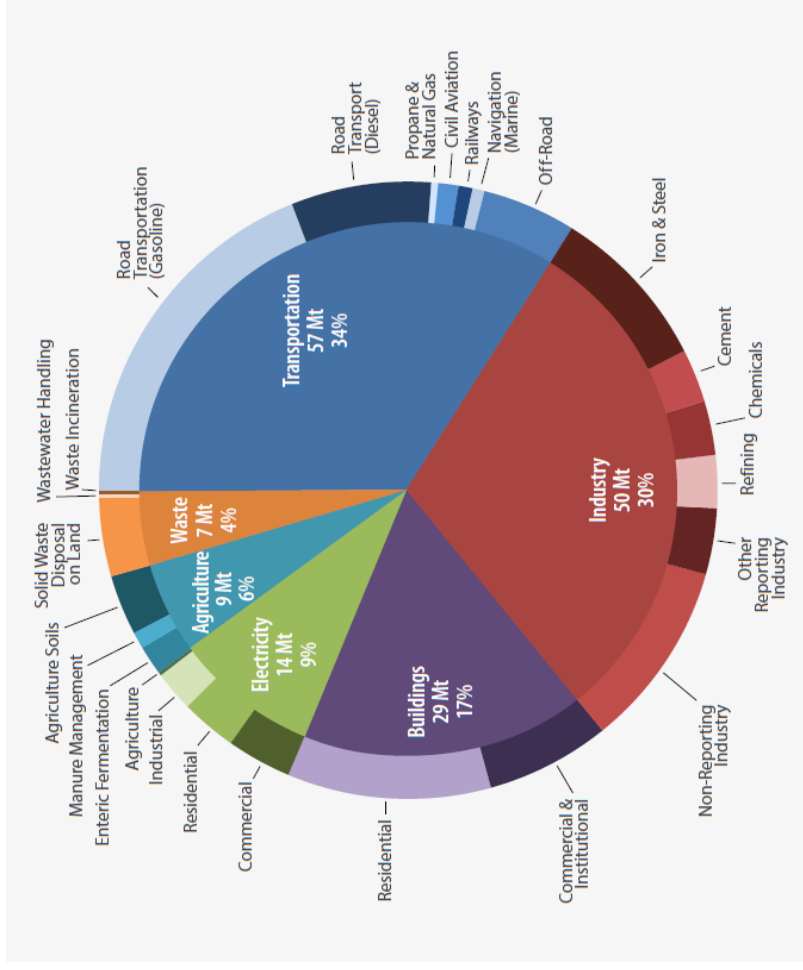
- Draft regulation posted on the Environmental and Regulatory Registries
- ## 2016:
- Final regulation posted on the Environmental and Regulatory Registries

ONTARIO'S EMISSIONS TRAJECTORY



Source: Ontario's Climate Change Discussion Paper 2015, Ministry of the Environment and Climate Change

ONTARIO'S EMISSIONS BY SECTOR



- 100 large (>25kt CO₂e/yr) industrial emitters (32Mt or 20% of total) will be regulated as point source emitters.
- 30 NG fired electricity generators (14 Mt, 8%) will be regulated as point source emitters.
- A dozen NG (50Mt, 30%) and transport (57Mt, 34%) fuel distributors will be regulated based on combustion emissions associated with fuel delivered to many small end users.
- Agriculture (9 Mt) unlikely to be included under the cap. Could provide offsets.

Source: Ontario's Climate Change Discussion Paper 2015, Ministry of the Environment and Climate Change. National Inventory Report 2014 (2012 data); O.Reg 452.09 data

TRANSPORTATION



- Largest emitting sector of the economy.
- Public transportation related investments and fuel efficiency regulations expected to reduce emissions by 5 Mt by 2020 and 50 Mt by 2050.
- Bulk fuel distributors likely targeted to remit allowance equal to annual emissions associated with fuel distributed in Ontario.
- Based on growth in the sector (despite fuel standards) over 60 Mt of allowance will be required annually by 2020.

BUILDINGS



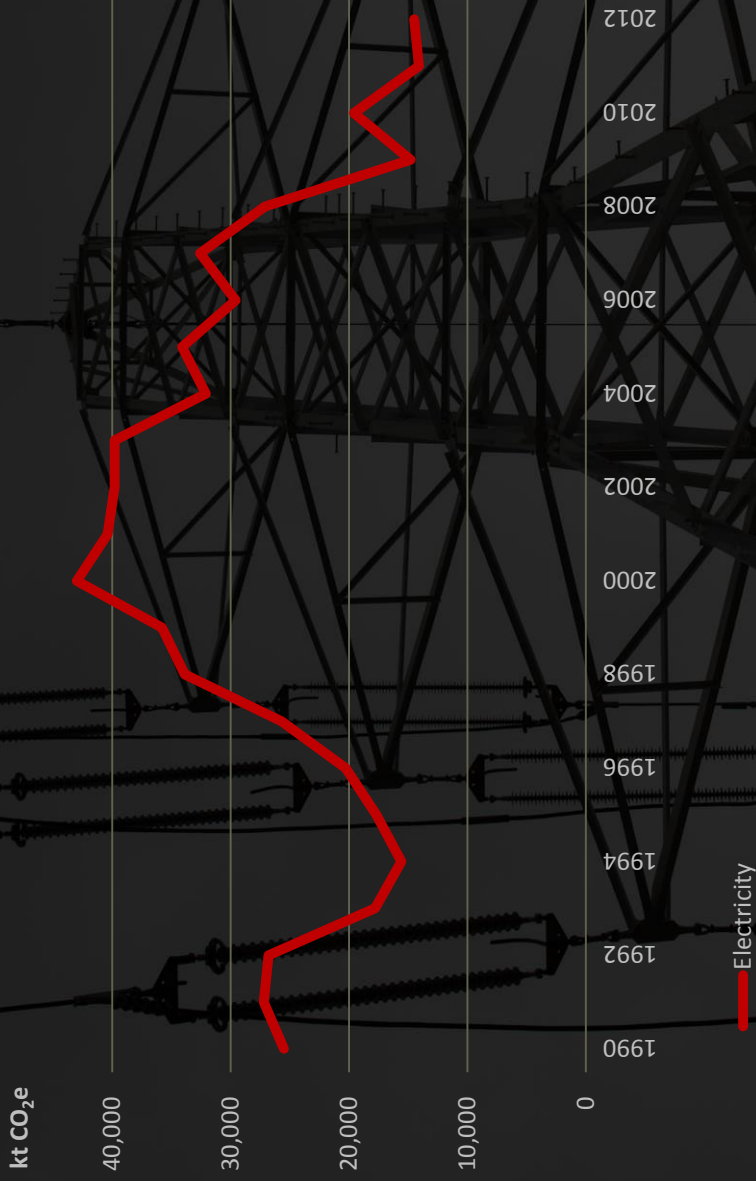
- Emissions are largely related to natural gas combustion (some other fuels).
- 8-10 facilities are over 25 kt annually (ex. large universities).
- Upward trend in emissions expected to continue despite utility energy efficiency programs and building standards due to growth in the economy.
- Fuel distributors will likely be required to remit allowance equal to annual emissions.

INDUSTRY



- Emission reductions due to large N₂O abatement project and economic decline (2008).
- Upward trend in emissions post 2012 (low \$CAD/US and low fuel).
- 90-100 large emitters (+25kt) likely targeted to remit allowance for own emissions. Approximately 35Mt by 2020.
- Fuel distributors will likely remit allowance for small emitters' (<25 kt) fossil fuel combustion, nearly 20Mt annually by 2020.

ELECTRICITY



- Coal shut downs, NG fuel switch, renewables, and energy efficiency measures have reduced annual emissions by 25 Mt since 2000.
- Ontario's electric sector intensity is down over 50% from 1990 to less than 0.1 t CO₂e/MWh.
- Approximately 30 emitters including cogeneration.
- Approximately 20-25 TWh of NG fired generation.
- ICF expects increased natural gas-fired generation as 5GW (or 30TWh/year) of nuclear generation retires or is down for refurbishment (2017-30).



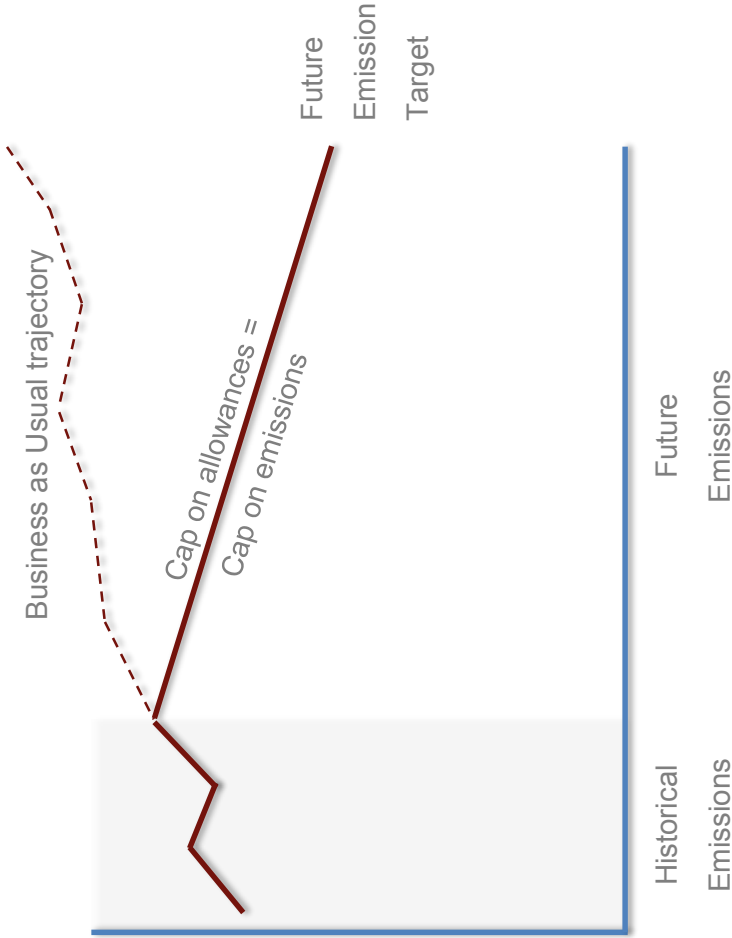
Cap-and-Trade Fundamentals

CAP-AND-TRADE

- A cap-and-trade system imposes a limit on total emissions of greenhouse gases (tCO₂e) for a given period.
- The cap is set equal to the emissions level defined by the policy/target.
- Allowances are made available equal to the cap.
- Emitters are required to remit one allowance for every tCO₂e emitted.
- Emitters can acquire allowance (via auction or trade) or be granted allowance by the authority.
- The cap is lowered over time for each compliance period.
- The price of compliance (\$/tCO₂e) is driven by the stringency of target (vs. current) and the emitters ability to abate.

THE MECHANISM

Set the cap = emission allowances in the market



Achieve objective at the lowest possible cost



Energy Efficiency
Improvements



Fuel Switching to lower
carbon-intensity fuels

Flexibility mechanisms



Early Reduction
Credits



Free
Allocation



Offsets



Price floors /
ceilings

Remit allowance = to emissions



Allowances



The Western Climate Initiative (WCI) Overview

WCI: 2007 - 2015

- Arizona, California, New Mexico, Oregon and Washington (later joined by Utah and Montana) – established the WCI to collaborate on measures to reduce greenhouse gas emissions
- In 2007 and 2008, British Columbia, Manitoba, Ontario and Quebec joined
- From 2007 to 2010 partners worked to develop a regional cap-and-trade program
- California established a cap-and-trade program in 2012, with its first compliance period beginning on January 1, 2013
- 2008 BC passed cap-and-trade legislation but a revenue neutral carbon tax
- 2009 Quebec passed legislation implementing cap-and-trade and harmonized with California in 2013

WCI: ESSENTIALS

- Recommends cap-and-trade, to limit emissions, while promoting technological innovation
- The program includes a broad scope, covering most sectors of the economy, and aims to include a broad geographic scope as well in order to reduce compliance costs and mitigate for leakage potential
- WCI program design guidance is intended to inform development of legislation and/or regulatory language in Partner jurisdictions
- WCI guidance covers the areas of program design that are expected to be the same across all participating Partner jurisdictions
- Certain “common” elements of program design across Partner jurisdictions

WCI: PRINCIPLES

- Recommends cap-and-trade, to limit emissions, while promoting technological innovation
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- Certain “common” elements of program design across Partner jurisdictions

WCI: KEY ELEMENTS

- The WCI program was designed to help Partner jurisdictions achieve their emissions goals affordably and cost-effectively. Important elements for this include:
 - Consistent emission reduction targets
 - Broad coverage
 - Use of emission offsets, from sources not covered by the program,
 - Use of allowances from other trading programs that have been recognized by the WCI Partner jurisdictions.
 - Unlimited holding of allowances for future use
 - Three year compliance periods to allow for flexibility in timing of emission reductions.



Cap-and-Trade Program Design

WCI: REQUIREMENTS FOR LINKING

- Ontario has communicated their intent to “link” their cap-and-trade system with that CA and QC and expects other regions to opt-in as well.
- Linking enables the reciprocal use of compliance instruments from participating jurisdictions.
- While the WCI model is flexible to the point of allowing different types and degrees of linking, from the partial linking of a particular economic sector to full linking – Partner jurisdictions must agree upon variations to full linking.
- California, however, requires that any linked jurisdiction have a program at least as stringent as its own.
- California and Quebec have an agreement to harmonize and integrate their respective mandatory GHG emissions reporting programs and cap-and-trade programs.
- Any allowances to be sold through auction would be available to all participants.

THE TARGET: EMISSION REDUCTION

- Ontario’s target is in sync with WCI goals and partner jurisdictions path to 80% reduction by 2050

Target by 2020	Target by 2030	1990 (MMT CO ₂ e)	2020 (MMT CO ₂ e)	2030 (MMT CO ₂ e)
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QUEBEC

20%
below 1990

TBD

~84

~67

TBD

CALIFORNIA

To 1990
levels

40%
below 1990

~431

~431

~259

ONTARIO

15%
below 1990

37%
below 1990

~177

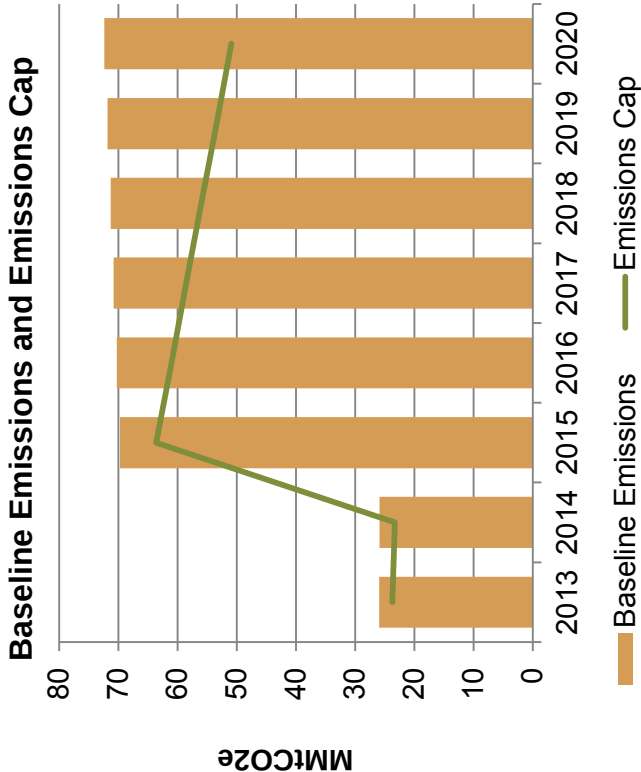
~150

~112

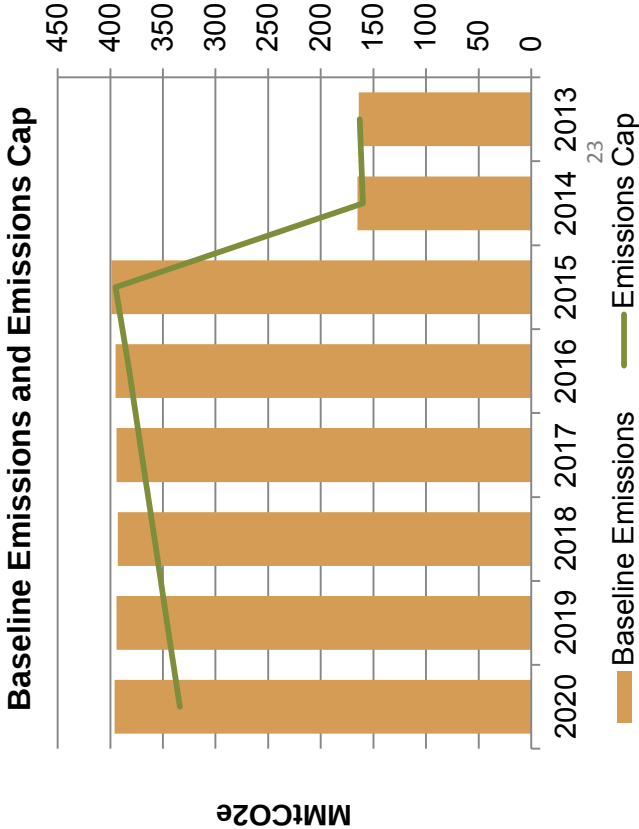
COVERAGE: WCI PRECEDENT

- Cap increases in year 3 (2015) as fuel distributors are included

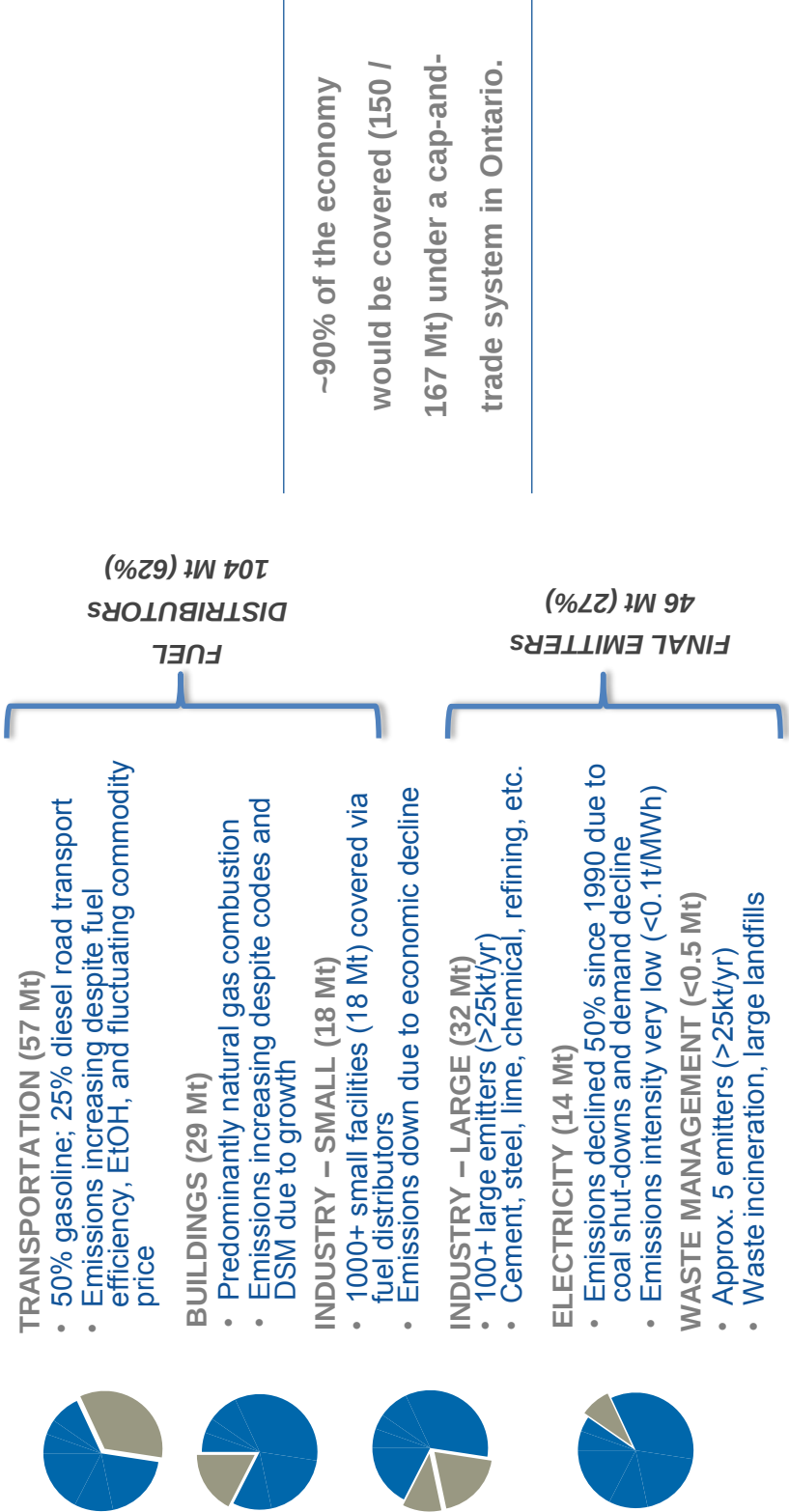
QUEBEC



CALIFORNIA



ONTARIO COVERAGE: ALMOST ECONOMY WIDE



COVERAGE: GASES AND THRESHOLDS

COVERED GASES

- carbon dioxide (CO₂)
- methane (CH₄)
- nitrous oxide (N₂O)
- nitrogen trifluoride (NF₃)
- Sulfur hexafluoride (SF₆)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)

COVERED SOURCES

Any unit or source >25,000 tonnes CO₂e/yr (excluding combustion of eligible biomass) from the following activities:

- Stationary fuel combustion
- Industrial process emissions
- First jurisdictional deliverer of electricity (including generators, retail providers, and marketers)
- Any fuel supplier that distributes liquid transportation fuel, petroleum coke, natural gas, propane, heating fuel, or any other fossil fuel sold or imported for consumption within the Partner jurisdiction

OFFSETS

- Offset credits are used to incentivize reductions in areas of the economy that are difficult to regulate and therefore not covered by the cap-and-trade program.
- Emitters in QC and CA can purchase offset credits from emission reduction projects developed by non-capped entities to meet their regulatory obligations **up to a limit of 8% of compliance obligation**.
- QC and CA offset credit projects are eligible if they meet all prescribed eligibility criteria, including that offset projects must have begun on or after January 1, 2007.

QUEBEC

- Ozone Depleting Substances Projects
- Livestock Projects (Covered manure management)
- Landfill Gas Recovery Projects
- Coal mine methane (2 under Consideration)

CALIFORNIA

- Ozone Depleting Substances Projects
- Livestock Projects (Dairy digesters)
- Urban Forest Projects
- US Forest Projects
- Mine Methane Capture Projects
- Rice Cultivation Projects

ALLOWANCE ALLOCATION

- WCI provides flexibility in determining how to allocate allowances.
- QC and CA allocate free allowance to EITE entities (based on intensity based formula)
- Free allocated drop by between 1% and 2% each year.
- Allowances are fully fungible between the two linked cap-and-trade systems.
- In QC regulated were eligible to receive credit for early actions (allowances) where they could demonstrate that they met eligibility criteria.

QUEBEC

- Grants free allowances to most large industry
- Additional inclusions for free allocation in QC:
 - Electricity importers
 - Electric power generation sold under a contract signed prior to 1 January 2008, that has not been extended, in which sale price is fixed

CALIFORNIA

- Free allowances to most large industry
- Additional inclusions for free allocation in CA:
 - Electricity and **natural gas distributors**
 - Public service facilities

ALLOWANCE ALLOCATION

- QC and CA differ in their coverage / treatment of natural gas distributors.

QUEBEC

- Natural gas suppliers receive no free allocation of emissions allowances, but are allowed to pass on the costs to ratepayers.
- Fuel distribution companies have no defined direct control related to allocation of proceeds.
- They could be allocated funding for programs, including DSM.

CALIFORNIA

- Natural gas distributors receive 100% free allocation, based on 2013 compliance obligations.
- Distributors required to consign 25% of the allowances to auction in 2015 with an increase of 5% annually to 2020. The balance constitutes, “transition assistance” which must be used for the benefit of the ratepayer.
- Suppliers must inform ARB how they want to distribute the allowances which have been freely allocated to them.

INVESTMENT OF PROCEEDS

- Under the WCI, jurisdictions have full flexibility in how to invest the proceeds from cap-and-trade auctions and penalties.
- Optimal program design invests proceeds to fund emissions reductions that help the program meet its target ex. complementary initiative – policy to incentivize conversion of heavy duty vehicles to CNG/LNG.

QUEBEC

- Auction proceeds go to the Québec Green Fund.
- Revenues of more than \$550 million to date.
- Earmarked for the financing of initiatives in 2013-2020 Climate Change Action Plan.
- Investments have focused on:
 - Energy Efficiency and Green Energy
 - Transport
 - Research and Innovation

CALIFORNIA

- Greenhouse Gas Reduction Fund receives auction proceeds, approx. \$2,225 million to date.
- Proceeds from the sale of State-owned allowances are used for strategic investments.
- CA Senate Bill 535 further requires that 25% of auction proceeds benefit disadvantaged communities and at least 10% of auction proceeds be invested in projects located within those communities.



Ontario Cap-and-Trade Impacts: EGD and Broader Ontario Economy

ILLUSTRATIVE SCENARIO

- Informed by WCI, CA, QC and Ontario.

1 COVERAGE

Electricity, industry, fossil fuel distributors.

90% of emissions covered (150 Mt of 167 Mt).

Threshold >25 000 tCO₂e/yr.

CO₂, CH₄, N₂O, HFC, PFC, SF₆, NF₃

2 EMISSIONS TARGETS

2020: 15% below 1990 = 150Mt CO₂e/yr.

2030: 37% below 1990 = 100Mt CO₂e/yr.

2050: 80% below 1990 = 35Mt CO₂e/yr.

3 TIMING

Immediate coverage of fuel distribution sectors seems likely (i.e. no phase-in period like in California or Quebec).

The size and scope of the sector and target and revenue generating expectations of the mechanism necessitate immediate coverage.

4 GRATIS ALLOCATION

Emission intensive trade-exposed industrial facilities will be

granted gratis allocation in year 1 (determined on intensity basis).

Annual allocation will drop (2017-2020, post 2020).

Qualified early movers may get “early action credits”.

5 OFFSETS

Offset types allowed will likely be limited to agriculture, waste,

ODS and possibly forestry. Early vintage offsets could be

created. Exogenous offsets could be allowed as well.

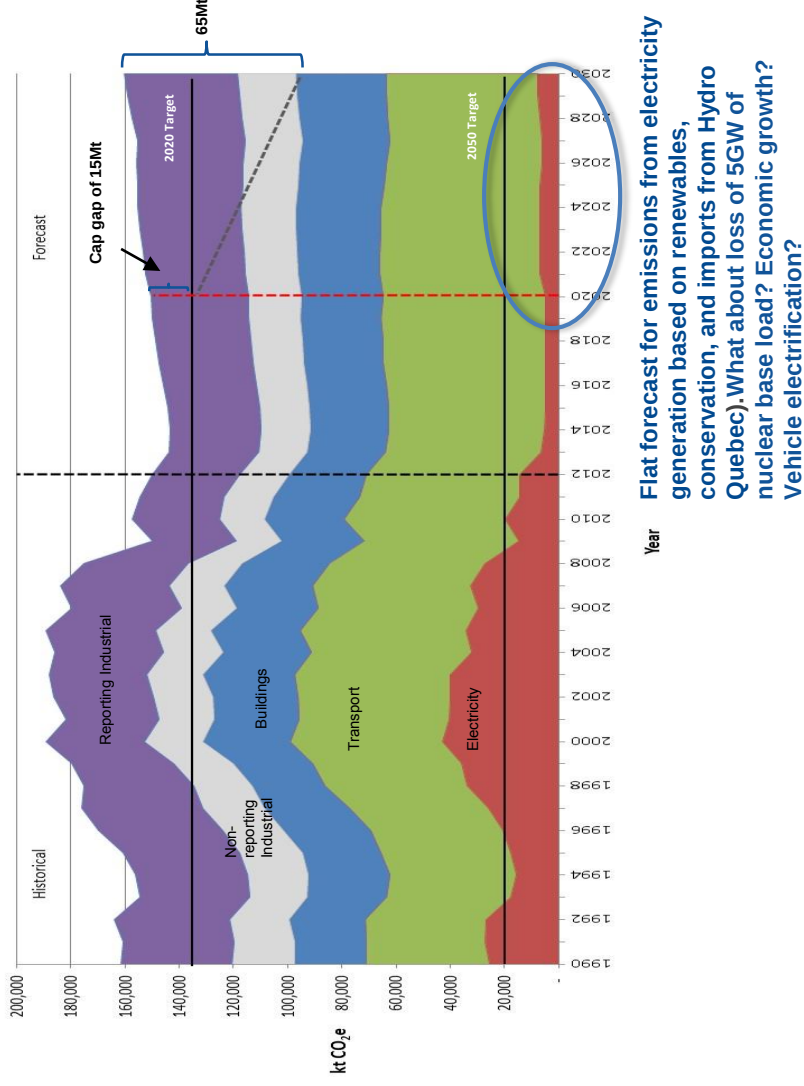
6 TRADING

Floor/ceiling price, holding/purchase limits, auction details, containment reserve, compliance periods.

2018-2020 would be earliest Ontario could link under WCI Principles.

Economy-Wide Emissions Forecast (ICF simulation of Ontario's forecast)

- Industry will be accommodated via gratis allocation until 2020.
- By 2030 “Cap” must drive 40%-50% reduction in NG and transport fuel use.
- What price of CO₂/ will it take to drive abatement in these sectors?
- \$100/tCO₂ => \$0.24/L gasoline or \$5/mmBTU NG.
- Flexibility mechanisms needed to ensure cap does not fail and price volatility is minimized.



POTENTIAL IMPLICATIONS FOR EGD

1 NG consumption will need to decline 40% – 50% by 2030

- Residential, commercial, institutional NG consumption will need to decline by >40%
- Even with protection afforded industrial emitters consumption will need to decline by 20 – 30%
- No net increase in NG consumption for electricity generation

2 Electrification of transport and buildings

- Fuel switch from fossil fuels to electricity in transport (gasoline/diesel) and buildings (NG, oil) required to reduce demand (beyond DSM potential)
- Electricity demand (current and growth) will need to be met with non-fossil sources (nuclear, hydro, renewables)

3 Energy Efficiency / Demand Side Management

- Rate of energy efficiency needs to be dramatically increased (+5X current)
- Rate of DSM and incentives needs to be increased accordingly
- Deeper DSM targets will require deeper analytics and broader scope

POTENTIAL IMPLICATIONS FOR EGD

4 EGD will need to acquire \$300M–\$500M of allowance per year

- Starting in 2017/18.
- $350\text{--}400\text{ bcf/yr} = 20\text{ Mt CO}_2\text{e} = \300M at $\$15 / \text{allowance}$. $\$15/\text{tCO}_2 = \$0.8/\text{mmBTU}$
- For context the commodity price of the NG distributed is $\$1.5\text{B}$ at $\$4/\text{mmBTU}$

5 EGD will need to build allowance acquisition infrastructure

- Accounting, finance, trading, analytics, offset/allowance sourcing, brokerage, MM&V, billing, customer relations, DSM, IT,... EGD's business will be better positioned than most. Opportunity?
- In depth Quebec, California knowledge

6 EGD will need to re-imagine infrastructure and business model

- Existing operations and plans for demand growth vs. 2030/2050 targets and stranded pipe/storage assets
- Combined impact of economy wide demand destruction as well as cost to deliver (including premature retirement of assets) and price of allowance on customers

UNCERTAINTY FOR EGD...

By 2030 natural gas demand in Ontario needs to be in the 600bcf/yr range.

1 WHEN (not IF) WILL DISTRIBUTORS BE COVERED?

Day 1 or Year 3? Will NG distribution companies be covered like Quebec or California?

Will there be allowance WHEN LDCs need it? How long between auction and pass through?

Can I pass carrying/admin costs through? Who decides (MOECC, OEB)?

2 HOW WILL SMALL INDUSTRY BE COVERED?

Will they get free allowance?

Who gets it (distributor has requirement to remit but industry must request gratis allocation)? How?

3 WHAT ABOUT EGD EMISSIONS?

Am I EITE – do I get FREE allowance?

Can I pass along the cost of compliance? All of it? Can I reduce? Fugitives reporting? abatement?

4 WHAT IS THE ROLE OF NATURAL GAS?

Is natural gas a viable fuel circa 2030/2050? How viable – \$5/mmbtu? Industrial? Transport? Electricity? CHP?

What will -40% demand do to price to the commodity price? Price to customer?

5 WHAT IS THE ROLE OF EGD?

Do I know my customers MACCs? Does the ON/OEB?

How much DSM can fuel distributors deliver?

What would -40% DSM cost to deliver? How much does EGD want to do?

Can/should EGD offer compliance optimization solutions for large/medium/small customers?

If EGD doesn't will someone else?

6 WHAT DOES DE-CO₂ IZATION LOOK LIKE?

Less and more expensive NG, stranded assets?

DSM/EE/CDM, renewables, biogas, batteries, connected home, smart grid, smart / thermostats, customer engagement, building standards,...

UNCERTAINTY FOR Ontario...

The Provincial targets (2020, 2030, 2050) seem clear and consistent.

But not much else seems thought through – especially beyond 2020.

MOECC 6 month plan to post Draft regulation and 12-18 month to Final. California had 6 years.

1 NO DETAILS

We can make informed assumptions but we know little about Ontario's envisioned cap-and-trade system. Start date, targets, coverage, offsets, flexibility mechanisms...

2 NO MATH

We are missing all the analytics typically done before a cap is set and a trading system is designed. MACCs, detailed DSM / APs, existing and planned programs/standards...

3 NO PLAN

To date the MOECC proposes “immediate action” on expanded public transit, energy efficient buildings, and support for science research and technology to encourage breakthroughs.

4 LOTS OF MONEY

At \$15/tCO₂ over \$2B in revenue generated per annum – with a 2017, start \$7B by 2020. How will the \$\$s be spent?
The Ontario Conservation First directive will deploy \$2B between now and 2020. OEB NG LDCs DSM = \$700M.

UNCERTAINTY FOR Ontario...

5 THIS IS NOT ABOUT LARGE EMITTERS

Large emitters will be allocated gratis. Electric and gas utility small/medium sized customers, personal and freight vehicles make up the majority of emissions and will likely wear the full cost of allowance.

6 ENERGY EFFICIENCY + DE-CO₂ IZATION

To meet emissions targets we will need to reduce the energy intensity of the economy (energy efficiency) and the GHG intensity of the energy that drives the economy (fuel switching, renewables etc...) or reduce the size of the economy.

7 IS THE SLOPE TOO STEEP

This is not about 2020 targets. The “straight-line” abatement trajectory from 2012-2050 runs through 100MtCO₂ circa 2030. Assuming the economy will grow modestly over the next 15 years, this would call for 65Mt to 75Mt of reductions;

- 50% electrification of the vehicle fleet.
- 40% improvement in energy efficiency in residential, commercial, institutional, industrial NG users or conversion to electric driven operations.
- 5000MW of nuclear base load replacement, new demand resulting from electrification and growth met with non-emitting dispatchable generation –no new NG fired units.
- Natural gas is not a viable transition fuel.
- Transfer of \$100Ms to buy California allowance (assuming they are available).



Summary and Next Steps

WHAT WE KNOW, THINK WE KNOW and DON'T KNOW

By 2030 natural gas demand in Ontario needs to be in the 600bcf/yr range.

- **What We Know:**
 - Ontario to join the WCI cap-and-trade program
 - WCI cap-and-trade program options and precedent
 - Program design in Quebec and California
- **Ontario can “MAKE” own approach for:**
 - Emissions target – in sync with WCI
 - Allowance distribution (allocation vs. auction)
 - **Mode of coverage for fuel distributors**
 - **Revenue distribution from the allowance auction**
- **What We Don't Know:**
 - Specific program design elements for Ontario
 - The analytics informing approach:
 - Economy;
 - Competitiveness; and,
 - GHG emissions in Ontario
- **Ontario will “TAKE” WCI approach for:**
 - Which sectors/facilities will be covered
 - Allowance auctioning and pricing

ONTARIO: TIMELINE

Spring/Summer 2015:

- Consultations on program design, focusing on allowance allocations methods and common understanding of any competitiveness implications
- Proposals for emissions quantifications methods

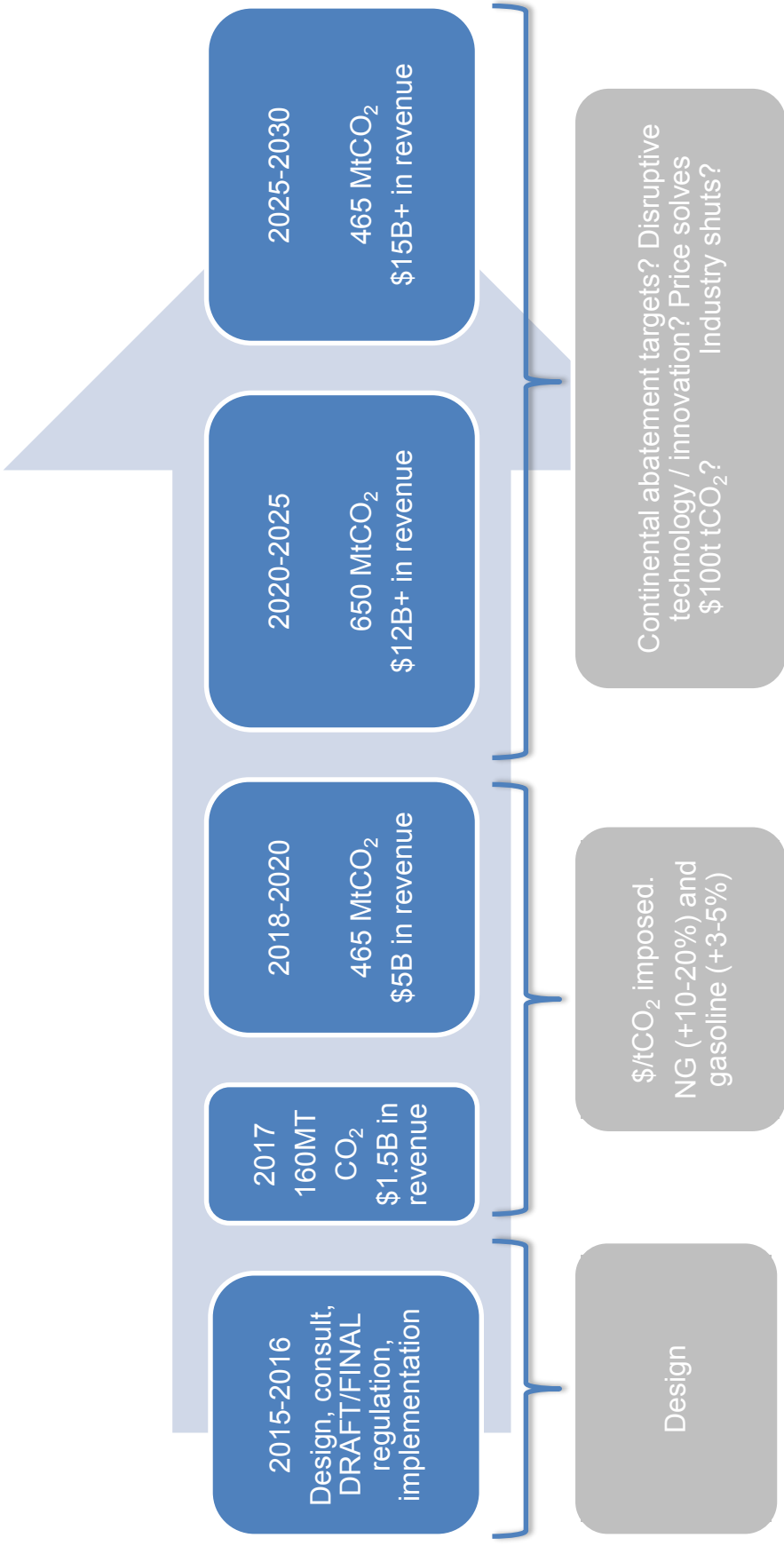
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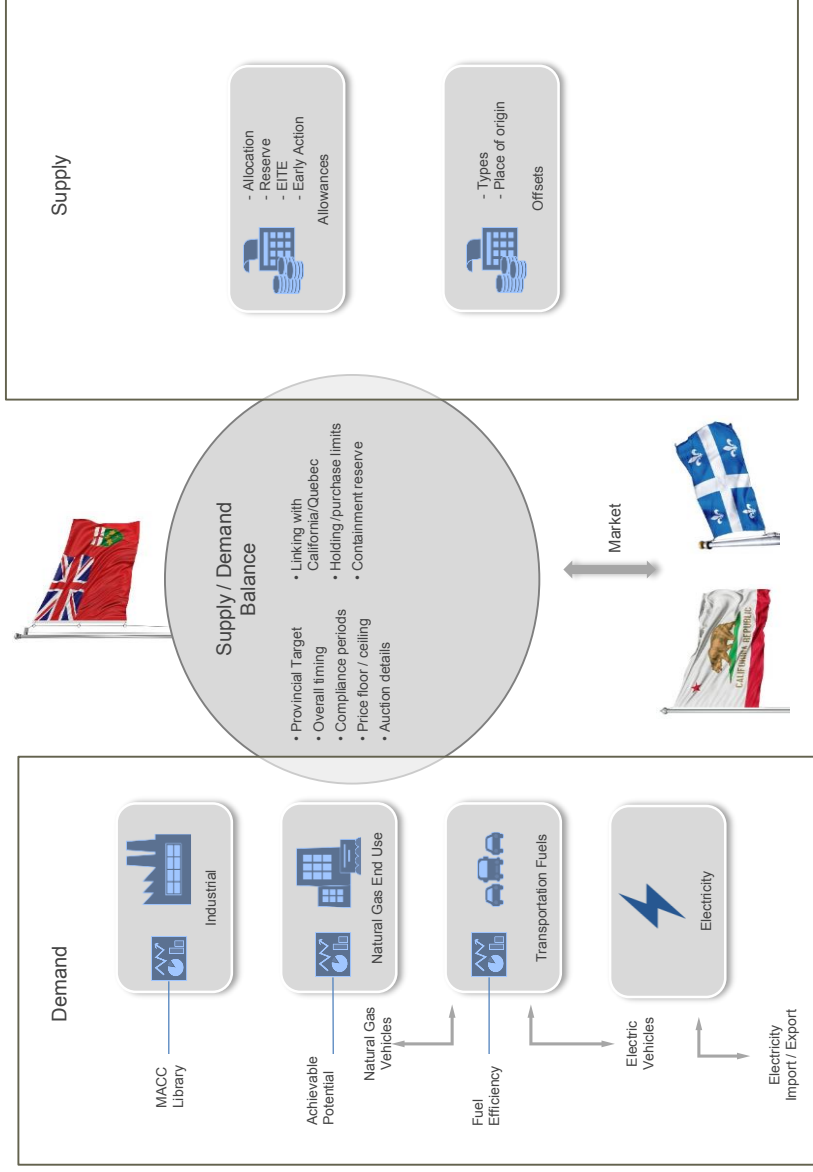
- Draft regulation posted on the Environmental and Regulatory Registries
- ## 2016:
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ONTARIO: CAP-and-TRADE PATHWAY



THE MODEL

ICF has built a model to understand the Ontario cap-and-trade system, identify material issues for ULG, and answer questions.



- General equilibrium model
- Ontario supply / demand solves in context of the greater compliance market
- Modular design to facilitate scenario analysis and expansion, if needed
- Ability to model other externalities such as other market entrants
- Ideally leverage robust / disaggregated data (emissions, abatement)
- Inform internal understanding of mechanism design and engagement with government

EGD: DATA NEEDS FOR MODELLING

Type of Data		cubic metres		
		Natural Gas Consumption	2020 Forecast	2030 Forecast
Customer Consumption Data	Residential			
	Commercial			
	Small Industry, <13,000e3me (by sub-sector)			
	Large Industry, >13,000e3m3 (by sub-sector)			
Demand Side Management Savings	Residential			
	Commercial			
	Small Industry, <13,000e3m3 (by sub-sector)			
	Large Industry, >13,000e3m3 (by sub-sector)			
Feedstock (non-combustion input)				
Combined Heat & Power (CHP) and NG-fired Electricity				
Transportation				
Renewable Natural Gas (RNG)				
New Communities (investment caliber)				
EGD Emissions (incl. vented/fugitives)				

SCHEDULE: EGD CAP-AND-TRADE ANALYSIS

- JULY 7 Project kick-off meeting:
- JULY 17 Design Scenario presentation
 - Assuming data provided by EGD by July 10th
 - Follow up conversations with key individuals July 13th
- JULY 24 Draft final report
- JULY 29 Final report
 - within three business days of receipt of consolidated feedback from EGD



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Ontario Cap-and-Trade Analysis

Phase 1: Background Research & Key Policy Considerations

Prepared for:

Enbridge Gas Distribution

July 2015

High Level Parameters of WCI Cap-and-Trade Principles

Western Climate Initiative (WCI) Overview

- WCI recommends a market-based program, cap-and-trade, to limit emissions while promoting technological innovation.

- The program includes a broad scope, covering most sectors of the economy, and aims to include a broad geographic scope as well, in order to reduce compliance costs and mitigate for leakage potential.

- There are currently three participating jurisdictions in WCI:



- WCI program design guidance is intended to inform development of legislation and/or regulatory language in Partner jurisdictions.

- WCI guidance covers the areas of program design that are expected to be the same across all participating Partner jurisdictions.

- WCI program design is a starting point for Partner jurisdictions looking for emission reductions through common market emissions trading, allowance banking, and offsets.

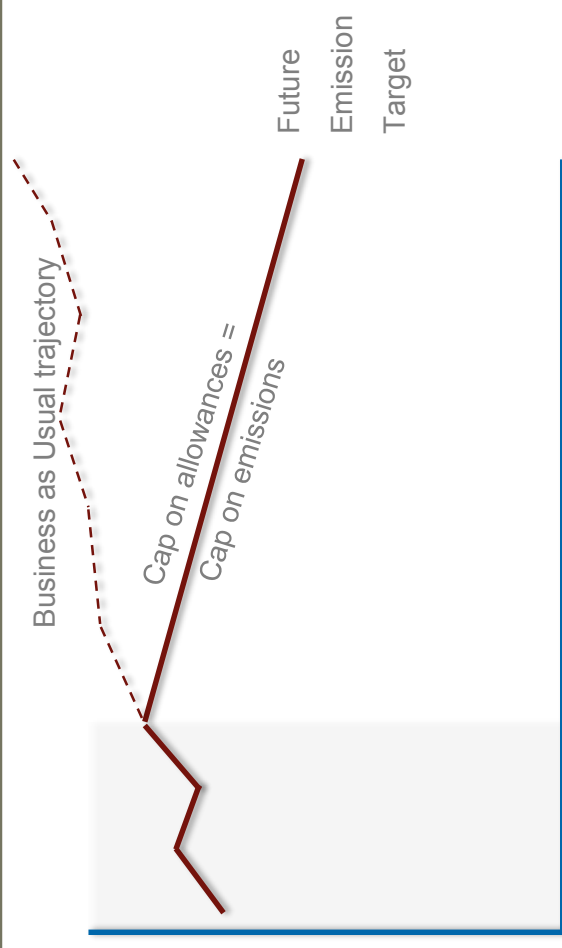
- Certain elements of program design need to be the same across Partner jurisdictions – if a Partner jurisdiction wants to vary from the WCI design parameter, they must prepare a proposal for “how the variance will not adversely affect the regional carbon market”.

- Partner jurisdictions may also impose additional requirements on covered units and sources.



How WCI Cap-and-Trade Works

- The WCI Cap-and-Trade program comprises individual Partner jurisdictions' cap-and-trade programs that are implemented through provincial/state regulations.
- Each Partner jurisdiction sets a cap on emissions from sources covered under the cap-and-trade system. The cap decreases over time, helping the jurisdiction meet its provincial/state level (i.e. economy wide) emission reduction goal.
- The annual cap is equivalent to the total number of emission allowances available each year, which are used for emitter (covered entities) compliance. At the end of each compliance period, emitters must have submitted for compliance one allowance for each tonne CO₂e they actually emit and report.
- Allowances are issued by each Partner jurisdiction and can be freely allocated or sold in regional (WCI) auctions. Emission allowances can be sold and purchased by emitters and third parties. If an entity holds more allowances than it emits, the entity can sell the excess allowances to help pay for internal emission reduction measures, or it can retain the allowances to submit later, helping to reduce compliance costs in the future.



- Emissions measurement and reporting are key components of the WCI cap-and-trade program.
- The WCI program was designed to help Partner jurisdictions achieve their emissions goals affordably and cost-effectively. Important elements for this include:
 - Use of emission offsets, from sources not covered by the program.
 - Use of allowances from other trading programs that have been recognized by the WCI Partner jurisdictions.
 - Unlimited holding of allowances for future use.
 - Three year compliance periods to allow for flexibility in timing of emission reductions.

WCI Coverage

■ Covered Gases:

- carbon dioxide (CO₂)
- methane (CH₄)
- nitrous oxide (N₂O)
- nitrogen trifluoride (NF₃)
- sulfur hexafluoride (SF₆)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)



■ Covered Sources:

- Any unit or source that emits greater than 25,000 tonnes CO₂e/yr (excluding combustion of eligible biomass) from the following activities:
 - Stationary fuel combustion
 - Industrial process or other emissions for industries listed below
- First jurisdictional deliverer of electricity (including generators, retail providers, and marketers)
- Any fuel supplier that distributes liquid transportation fuel, petroleum coke, natural gas, propane, heating fuel, or any other fossil fuel sold or imported for consumption within the Partner jurisdiction



Industry categories: Adipic acid manufacturing; Aluminum manufacturing; Ammonia manufacturing; Cement manufacturing; Electricity generation; Electronics manufacturing; Ferroalloy production; Fluorinated GHG production; Glass Production and other uses of carbonates; HCFC-22 production and HFC-23 Destruction; Hydrogen production; Iron and steel manufacturing; Lead production; Lime production; Nitric acid manufacturing; Petrochemical production; Petroleum and natural gas systems; Petroleum refineries; Phosphoric acid production; Pulp and paper manufacturing; SF₆ emissions from electrical equipment; Soda ash manufacturing; Zinc production; Ore pelletization; Titanium dioxide production; Ethanol production; Silicon carbide production; Any other industrial facilities

Targets and Timelines

- Partner jurisdictions can choose their own emissions reductions targets, the key is they must be at least as stringent as the WCI regional goal and agreed upon by the Partner jurisdictions.
- The WCI regional target is 15% below 2005 levels by 2020.

Jurisdiction	Target by 2020	Target by 2030	1990 (MMT CO ₂ e)	2020 (MMT CO ₂ e)	2030 (MMT CO ₂ e)
 Quebec	20% below 1990	TBD	~84	~67	TBD
 California	To 1990 levels	40% below 1990	~431	~431	~259
 Ontario	15% below 1990	37% below 1990	~177	~151	~112

■ Partner Compliance Periods:

1	2	3
2013/2014	2015 - 2017	2018 - 2020

- Compliance Obligations: At least once each three years, covered entities must submit one allowance for each tonne CO₂e emissions that they emit and report. California and Quebec have decided on different compliance obligation schedules (*see next slide*).
- WCI also recommends that compliance certification reports are submitted by June 30 following the compliance period.

Timelines Continued

■ Compliance Obligation



- *On 1 November following expiry of a compliance period (or if not a business day, on the first following business day), every emitter must have at least as many emission allowances in its compliance account as its verified emissions for every covered establishment during the compliance period or, where applicable, during the years following the last compliance period for which emissions coverage was required.*



California

Covered Emissions Year	Compliance Obligation Due Date	Percent of Compliance Obligation Due
2013	November 1, 2014	30% of 2013 covered emissions
2014	November 1, 2015	70% of 2013 and 100% of 2014 covered emissions
Second Compliance Period		
2015	November 1, 2016	30% of 2015 covered emissions
2016	November 1, 2017	30% of 2016 covered emissions
2017	November 1, 2018	70% of 2015 and 2016, and 100% of 2017 covered emissions
Third Compliance Period		
2018	November 1, 2019	30% of 2018 covered emissions
2019	November 1, 2020	30% of 2019 covered emissions
2020	November 1, 2021	70% of 2018 and 2019, and 100% of 2020 covered emissions

Timelines Continued

■ Allowance Decisions:

- Partner jurisdictions must notify other Partners in advance of the compliance period (one year in advance for existing Partners, six months in advance for new entrants) of the total quantity of allowances it will allocate for that period and how and when allowances will be distributed and retired, including how it will account for allowances for new entrants.
- For the years post-2020, Partner jurisdictions must set allowance budgets at least three years in advance (based on future reduction limits/goals and using at least three years of covered sector reported data).



■ Auctions:

- Regionally coordinated auctions occur at most 4 times per year.
- Auction notices are published at least 60 days before an auction.
- Participants must register for the auction at least 30 days before the auction date.
- Financial guarantees must be submitted by participants at least 12 days before auction.
- Winning bidders must pay in full within 7 days after the auction.



■ Date of Entry:

- A new Partner jurisdiction may enter the regional cap-and-trade program on January 1 of any year. It must be agreed to by the new jurisdiction and existing Partner jurisdictions.



Calculating the Allowance Budget

- WCI provides guidance to Partner jurisdictions for calculating annual allowance budgets – the sum of which is the regional cap.
- Recommendations are provided in order to promote consistency across Partner jurisdictions, as well as transparency in the budget-setting process.
- In this scenario, there are two years for which emissions forecasts are estimated (2012 and 2015) and two rates of decline (ROD₁ and ROD₂) to account for increased program coverage in 2015 (adding fuel distributors).
- Partner jurisdictions who join after 2012 determine preliminary annual allowance budgets in the same manner, with their first-year budget based on the best estimate of emissions for the year they join.

Figure 1. Calculation Of A Preliminary Allowance Budget.

2012 =	2012 emissions forecast for Phase I sources (including emissions associated with electricity imports), determined with CSAD contract support to account for:
	• Population growth* • Economic growth* • Mandatory emissions reductions (including those from complementary policies)*
+ 2012 forecast adjustments, determined by Partner jurisdictions to account for:	
	• Voluntary emissions reductions (including those from complementary policies)* • Shut-down sources • New sources
2013 =	2012 preliminary budget - ROD ₁
2014 =	2013 preliminary budget - ROD ₁
2015 =	2014 preliminary budget - ROD ₁ + 2015 best estimate of Phase II sources
2016 =	2015 preliminary budget - ROD ₂
2017 =	2016 preliminary budget - ROD ₂
2018 =	2017 preliminary budget - ROD ₂
2019 =	2018 preliminary budget - ROD ₂
2020 =	2019 preliminary budget - ROD ₂

* These factors are also used to determine the 2015 best estimate for Phase II sources.

ROD₁ = Rate of decline (i.e., annual decline in allowance budgets) during Phase I, expressed in MMTCO₂e

ROD₂ = Rate of decline during Phase II

Allowance Budget Continued

- Upon consideration of preliminary allowance budgets by the Cap Setting and Allowance Distribution (CSAD) Committee, Partner jurisdictions may revise preliminary budgets and collaborate on established budgets, prior to the first compliance period.
- Each Partner jurisdictions' established budget is intended to provide a basis for developing their regulations to implement the regional cap-and-trade program. It also provides an early indication of the regional supply of allowances.
- Established budgets can be adjusted for certain reasons (e.g. change in participating jurisdictions, change in scope, availability of better data, etc.) to become the final allowance budgets prior to each compliance period.
- California and Quebec annual allowance budgets are presented here.



Quebec	Budget Year	Allowance (millions)
First Compliance Period	2013	23.7
	2014	23.3
Second Compliance Period	2015	63.6
	2016	61
	2017	58.5
Third Compliance Period	2018	56
	2019	53.4
	2020	50.9



California	Budget Year	Allowance (millions)
First Compliance Period	2013	162.8
	2014	159.7
Second Compliance Period	2015	394.5
	2016	382.4
	2017	370.4
Third Compliance Period	2018	358.3
	2019	346.3
	2020	334.2

Allocation of Allowances

- The method of allowance distribution is left to the discretion of each Partner jurisdiction; however, it must be coordinated among Partner jurisdictions, including sharing of quantity, methodology and timing.
- Regardless of the methodology in determining free allowances, they are adjusted annually based on a declining cap adjustment factor.

Free Allowance Allocation:



— Quebec



- Mining and quarrying (except oil and gas)
- Electricity imports from jurisdictions that are covered under a separate cap-and-trade program
- Fixed price contracted electric power signed before January 1, 2008
- Steam and air conditioning supply for industrial purposes
- Manufacturing

— California



- Industrial facilities
- Electrical distribution utilities
- University covered entities and public service facilities
- Legacy contract generators
- Natural gas suppliers
- Public wholesale water agencies

- *Further detail on California and Quebec allowance allocation is found in the following section.*

Allocation of Allowances Continued

- Early reduction allowances (ERAs) are permitted under WCI
- The eligibility period set by WCI is for ERA projects that reduced emissions between January 1, 2008 and January 1, 2012
- To be eligible, ERA projects must be:

Real

Voluntary

Permanent

Additional

Verifiable

Owned

Enforceable

- California did not employ ERAs (though they allowed early action offset credits)
- Quebec granted early reduction credits – free allowances for early action in reducing GHG emissions. There was a maximum quantity of early reduction credits allowed per emitter.
- GHG emissions begun and reduced during the eligibility period (January 1, 2008 to December 31, 2011) were eligible for early reduction credits. Reductions were assessed against a reference period of January 1, 2005 to December 31, 2007, inclusively.
- Eligibility criteria included: reductions made in the covered establishment of covered GHG emissions; belong to the emitter; represent at least 1 tonne CO₂e; do not result from decreased production or closure or from a GHG increase elsewhere; are voluntary; are permanent and irreversible; and are additional.
- On-site transportation activities and GHG sequestration were not eligible for early reduction credits.

Auctions

■ General Rules and Rates:



- The auction of emission units consists of a single round of bidding, using sealed bids.
- Emission units are auctioned in lots of 1,000 units of the same vintage and may contain units from different partner entities.
- The floor price was set at \$10 for auctions conducted in 2012, increasing 5% annually plus the rate of inflation. The 2015 auction floor price was announced at \$12.08 (CAD) and \$12.10 (USD)
- Participating Quebec entities can purchase units in USD or CAD during joint auctions.
- The day before each joint auction, an Auction Exchange Rate (USD to CAD) is determined and set. The joint auction floor price is determined to be the higher of the California or Quebec announced prices after applying the Auction Exchange Rate.

■ Purchasing Limits:



- There are no WCI recommendations.
- Quebec allows up to 25% of the total units auctioned to be purchased by one emitter, or up to 4% of the total units to be purchased by one participant, or up to 4% of the total units to be purchased by a group of participants related to one emitter.
- Starting January 1, 2015, CA allows up to 25% of the allowances offered in the Current Auction and 25% of those in the Advance Auction for covered entities, opt-in entities, and electrical distribution utilities or direct corporate associations. For voluntarily associated entities or group of voluntarily associated entities with a direct corporate association, the purchase limit for both current and advance auctions is 4% of the allowances offered.

Auctions Continued

- Both California and Quebec stipulate that emission units of current or previous vintages that remain unsold may be put up for sale as soon as the final sale price of the emission units has been above the minimum price for 2 consecutive auctions. The unsold units up for sale again cannot exceed 25% of the total emissions units planned for that auction.
- Unsold advance auction units are held for sale when the vintage becomes the current year (i.e. held for 3 years).
- **Current Auction (current and previous vintages):**
 - WCI set a *minimum* of 10% of the allowance budget to be auctioned in the first compliance period, increasing to 25% in 2020.
 - The annual allowances allocated for auction are divided evenly over the quarterly current auctions.
 - Generally, allowances available for Current Auction = Annual allowance budget - Free allocated - Reserve (- Voluntary RE set-asides for California)
 - If a Partner jurisdiction cannot auction allowances, they must notify the other Partner jurisdictions at least 6 months before the beginning of auctions scheduled for each compliance period. The fact that a WCI Partner jurisdiction cannot auction allowances shall not preclude the other Partner jurisdictions from doing so.

Auctions Continued

▪ Advance Auction (3 years in advance):



- California sets aside 10% of allowances from budget years 2015 to 2020 for the advance auctions.
- The annual allowances allocated for advance auction are divided evenly over the quarterly advance auctions.

• Reserve Auction Account:



- Reserve sales are not held at the same time as current auctions (California holds its 6 weeks after).
- California has an Allowance Price Containment Reserve, in which it sets aside 4% of allowances from budget years 2015 – 2017 and 7% of allowances from budget years 2018 – 2020.
- Quebec has a reserve account as well, in which it sets aside 4% of allowances from budget years 2015 – 2017, 7% of allowances from budget years 2018 – 2020, and 4% of allowances available under the cap set for 2021 and beyond.
- California and Quebec set prices for sales in 2013 (divided equally) at: Category A/Tier I, \$40 per emission unit; Category B/Tier II, \$45 per emission unit; and Category C/Tier III, \$50 per emission unit. As of 2014, these prices increase 5% annually plus inflation.
- In Quebec , the reserve account allowances may be used to adjust the free allocation or may be sold.
- Only Quebec emitters can access Quebec reserve allowances and only California emitters can access California reserve allowances.

Auctions Continued

- California has an additional reserve - Voluntary Renewable Electricity Reserve Account - related to voluntary renewable electricity (VRE)
 - California sets aside 0.25% of allowances from budget years 2015-2020.
 - Purchasers of eligible voluntary renewable electricity (renewable electricity and renewable energy credits (REC) that are not mandated by the Renewables Portfolio Standard) can request retirement of allowances on their behalf.
 - Generation must be new (not have served load prior to July 1, 2005); voluntary renewable electricity must be directly delivered to California; and RECs must be for generation occurring during the year for which allowance retirement is requested.
 - Allowances are retired from the VRE reserve account each year for eligible voluntary renewable electricity generated in the previous year.
 - Note: The WCI Partners recommend that RECs have no role in the WCI Partner jurisdictions' mandatory GHG reporting and compliance protocols.



Offsets

- The WCI Partner jurisdictions will limit the use of all offsets, and allowances from other GHG emission trading systems that are recognized by the WCI Partner jurisdictions, to no more than 49% of the total emission reductions from 2012-2020 in order to ensure that a majority of emission reductions occur at WCI covered entities and facilities.
- Emitters in Quebec and California can purchase offset credits from emission reduction projects developed by non-capped entities to meet their regulatory obligations up to a limit of 8% of compliance obligation.
- Quebec and California offset credit projects are eligible if they meet all prescribed eligibility criteria, including that offset projects must have begun on or after January 1, 2007.
- Offset project emission reductions must be: real, additional, quantifiable, permanent, verifiable, and enforceable.
- Offset credits can be invalidated within 8 years.

Offsets Continued



■ Quebec Project Types:

 Ozone Depleting Substances Projects

 Livestock Projects (Covered manure management)

 Landfill Gas Recovery Projects

 Under Consideration:

- Active coal mines – destruction of methane from drainage system
- Active underground coal mines – destruction of methane from ventilation air



■ California Project Types:

 Ozone Depleting Substances Projects

 Livestock Projects (Dairy digesters)

 Urban Forest Projects

 US Forest Projects

 Mine Methane Capture Projects

 Rice Cultivation Projects

Offsets Continued

■ Location:

- WCI recommends that Partner jurisdictions may issue offset certificates for projects located within its own jurisdiction as well as from within North America
-  California has opted to allow offset projects that occur in North America + United States Territories, as long as they use ARB compliance offset protocols
-  Quebec opted to only issue offset credits for projects within its own jurisdiction, except in part for ODS projects. ODS contained in foam must be destroyed in Canada or the United States. Removal of the foam and refrigerants from appliances and extraction of ODS from the foam must be carried out in Canada. Foam, ODS and appliances recovered outside Canada are not eligible.

■ Crediting Period:

-  WCI recommends a crediting period for non-sequestration offset projects to be 10 years. For sequestration projects, it may not exceed 25 years before renewal, and the total crediting period (including all renewals) may not exceed 100 years for sequestration projects.
- Quebec stipulates that an offset credit project may be conducted during a continuous period of not more than 10 years, and does not specify a separate period for sequestration projects.
- California sets a crediting period for a non-sequestration offset projects to be no less than 7 years and no greater than 10 years. For a sequestration offset project, the crediting period must be no less than 10 years and no greater than 30 years.
- After the crediting periods, applications can be filed for renewal if the project still meets all eligibility criteria.

Offsets Continued

■ California Early Action Offset Credits:



- Early action offset projects must first be registered with approved Early Action Offset Programs before being eligible to become early action offset credits.
- Early action offset credits issued by an Early Action Offset Program must be third party verified before being issued as an offset credit.
- Early action offset credits are available for offset projects that occur (and realize emission reductions) between January 1, 2005 and December 31, 2014.
- Offset projects for early action offset credits must be located in the United States.
- Offset project reductions must result from the use of any of the offset quantification methodologies with the exception of the most recent protocol for rice cultivation projects.
- Early action offset credits can also be invalidated within 8 years.

Banking



- Parties who obtain allowances (e.g. purchasers, covered entities, covered facilities) are allowed to bank allowances without limitation (i.e. hold a compliance instrument from one compliance period for sale or surrender in future compliance periods).
- However, there are restrictions on the number of allowances any one party may hold (to prevent market manipulation).
- Borrowing of allowances from future compliance periods is not allowed.
- There is no limitation on how long an emission allowance may be held for future use. Unlimited banking allows compliance entities to decide how best to use emission allowances over time. This flexibility can substantially reduce compliance costs across compliance periods.
- California compliance instruments do not expire, until they are surrendered, voluntarily submitted, or retired. Unlimited banking in California is subject to a holding limit on allowances, as follows: Holding Limit = $0.1 \times \text{Base} + 0.025 \times (\text{Annual Allowance Budget} - \text{Base})$, where “Base” equals 25 million tonnes CO₂e, and “Annual Allowance Budget” is the number of allowances issued for the current budget year.
- Quebec also allows unlimited banking.

Cap-and-Trade Mechanics in California and Quebec

California Free Allowances

- The allocation of free allowances is determined for each emitter based on the activity sector: industrial, refineries, electrical distribution, and natural gas distribution.
- Industry allocation is based on the product output-based methodology, considering efficiency benchmark for each NAICS sector and activity, and the industry assistance factor. Alternatively, it is based on the energy-based allocation methodology, considering steam and fuel consumption, along with the industry assistance factor.
- The industry assistance factor is used to address risk of leakage. All industries (with high, medium and low leakage risk) receive 100% assistance in the first two compliance periods. For the third compliance period (2018 – 2020), medium leakage industries (e.g. petroleum refineries, food manufacturing) receive 75% assistance and low leakage (e.g. pharmaceutical and aircraft manufacturing) receive 50% assistance.
- Refinery allocation in the second and third compliance periods, uses the product-based allocation method, using the “complexity weighted barrel” (CWB) benchmark and refinery-reported CWB product data.

- The total allowance budget for the electrical distribution sector is divided amongst each electricity utility by a pre-determined percentage. Allowances provided to the utilities must be used exclusively to benefit retail ratepayers.

The allocation of free allowances is determined for each emitter based on the activity sector: industrial, refineries, electrical distribution, and natural gas distribution.

- Allowances to natural gas distributors are based on the 2011 emissions for the natural gas supplier.
- Natural gas utilities must consign a percentage of freely allocated allowances to auction each year starting in compliance period 2 (see table below).
- Allowances provided to the utilities must be used exclusively to benefit retail ratepayers.

Compliance Period	2				3
Year	2015	2016	2017	2018	2019
Percent Consigned	25%	30%	35%	40%	45%
					50%

Quebec Free Allowances

- The quantity of free allowances is determined for each emitter based on the activity sector (e.g. cement, lime, aluminum, etc.), intensity target, combustion vs. process emissions split, and actual annual quantity of reference units produced (e.g. tonne of product produced).
- Each year, 75% of free allowances are provided to the emitters in January. The remaining 25% are granted to the emitters following filing of the emissions report.
- The following sectors **do not receive free allowances**: oil and natural gas extraction; electric power generation, transmission and distribution; **natural gas distribution**; and pipeline transportation of natural gas.
- These sectors must purchase compliance units (allowances or offsets) at auction or on the open market to meet compliance obligations.

Auction Revenues

- WCI partner jurisdictions agreed to a portion of the value represented by each partner jurisdiction's allowance budget (e.g. from auction revenue), to be dedicated to one or more of the following:
 - Energy efficiency and renewable energy incentives and achievement
 - Research, development, demonstrations, and deployment (RDD&D) with particular reference to carbon capture & sequestration (CCS); renewable energy generation, transmission and storage; and energy efficiency
 - Promoting emission reductions and sequestration in agriculture, forestry and other uncapped sources
 - Human and natural community adaptation to climate change impacts.



■ California

- Legislature and Governor appropriate proceeds from the sale of State-owned allowances for strategic investment in projects that support the greenhouse gas emission reduction goals. Proceeds from the sale of advance auction allowances are deposited into the Greenhouse Gas Reduction Fund.

- **Proceeds obtained by electrical distribution utilities and natural gas suppliers must be used exclusively for the benefit of the retail ratepayer.**

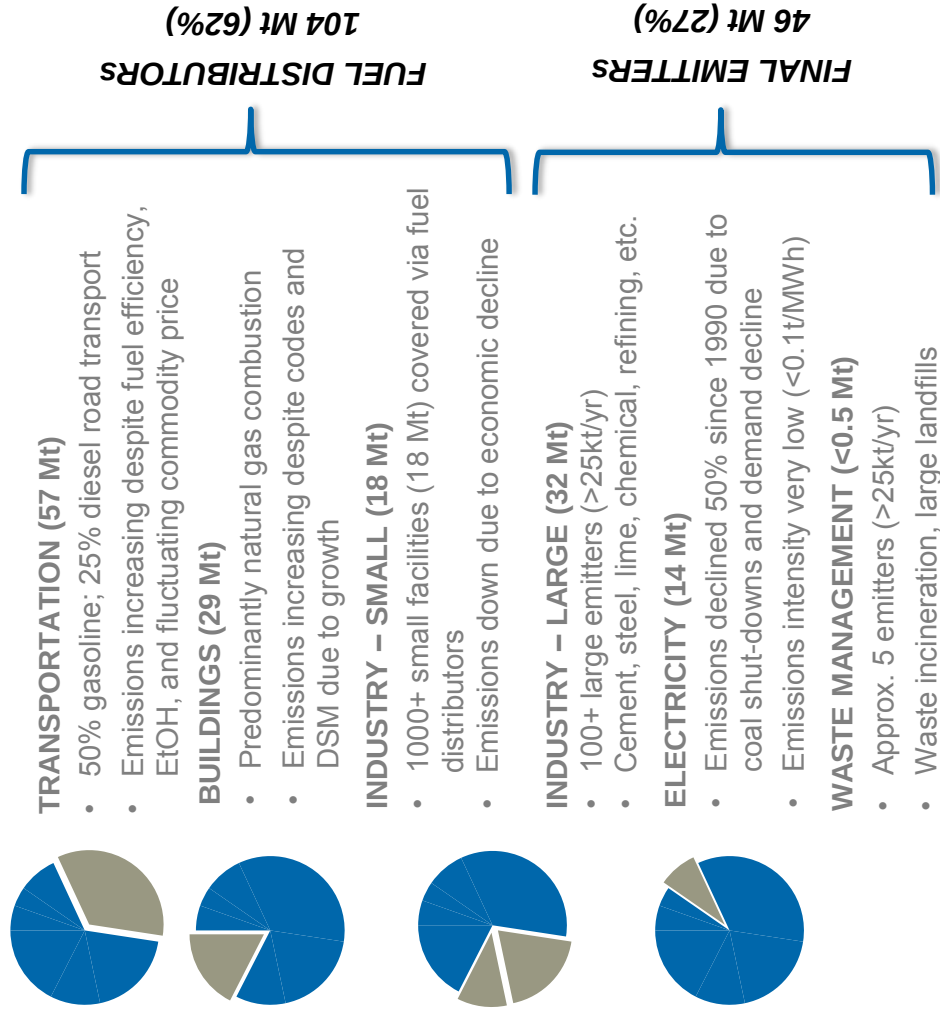


■ Quebec

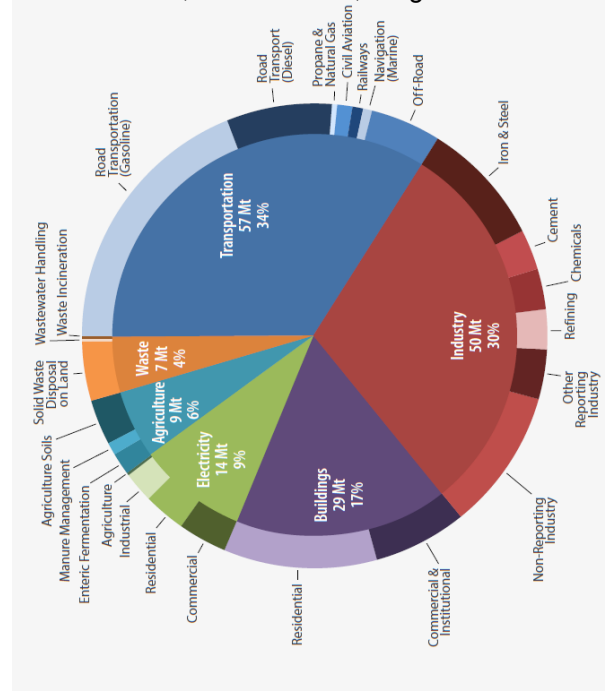
- Revenue generated by the carbon market is allocated to the Green Fund (Fonds vert) and reinvested in full for the implementation of the Climate Change Action Plan (CCAP 2013-2020), whose measures will help reduce GHG emissions, adapt to the impacts of climate change and accelerate the shift towards a strong, innovative and increasingly low carbon economy.

Program Coverage Expected in Ontario

- Ontario will have flexibility in terms of what sectors get covered and by when. Quebec and California have synchronized the sectors to be covered for each of the first two compliance periods under WCI.
- Ontario is expected to join the regional cap-and-trade system for Compliance Period 3 (2018 – 2020)
- Based on California and Quebec, Ontario is expected to include:



~90% of the economy would
be covered (150 / 167 Mt)
under a cap-and-trade system
in Ontario.



Application of Complementary Measures/Initiatives to Reach Targets

California Complementary Measures

- California’s cap-and-trade program is part of AB32, The California Global Warming Solutions Act of 2006. The AB32 Scoping Plan and Update describes strategies, including regulations, market-based approaches (i.e. cap-and-trade), voluntary measures, policies, and other emissions reduction programs. These can be considered complementary measures that will help California meet its state-wide GHG emissions reduction target.



- Examples of California measures:

Complementary Measure	Brief Description
GHG Standards for Passenger Vehicles (Assembly Bill 1493)	Regulations to reduce GHG emissions in new passenger vehicles from 2009 through to 2016.
Sustainable Communities Act (Senate Bill 375)	The Act sets targets for each metropolitan planning organization (MPO) to reduce GHG emissions from passenger vehicle use. As part of the MPO regional transportation plan, each region must establish a sustainable communities strategy that integrates lands use, housing, and transportation planning in order to reduce passenger vehicle emissions.
Renewables Portfolio Standard (Senate Bill X1-2)	Renewable portfolio standard applies to all electricity retailers, including publically owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. The standard required 20% of retail sales to be from renewables by the end of 2013, and 25% by the end of 2016, and 33% by the end of 2020.
Commercial Recycling (Assembly Bill 341)	The Mandatory Commercial Recycling Regulation aims to increase commercial waste diversion, by 2 to 3 million tons of material, annually.
Disadvantaged Communities (Senate Bill 535)	Twenty five percent of proceeds from the Greenhouse Gas Reduction Fund must be used for projects that benefit disadvantaged communities; and 10% of the funds must be used for projects located in the communities.

California Complementary Measures



■ Examples of California measures continued:

Complementary Measure	Brief Description
Advanced Clean Cars Program	This program was developed in collaboration with the federal government, US EPA and National Highway Traffic Safety Administration. Regulations to reduce emissions from new light-duty vehicles by approximately 4.5% each year from 2017 to 2025.
Zero Emission Vehicle Program (ZEV)	The ZEV program is part of Advanced Clean Cars program and requires that approximately 15% of new cars sold in California in 2025 be low or zero emitting vehicles (e.g. plug-in hybrid, battery electric, fuel cell).
Low Carbon Fuel Standard (LCFS)	LCFS requires that the carbon intensity of transportation fuels be reduced by at least 10% by 2020. LCFS encourages investment in alternative fuels.
Building and Appliance Efficiency Standards	Energy efficiency standards have been in place for many years in California. Building energy efficiency standards are updated approximately every 3 years. The last update was in 2013. Appliance efficiency standards are also updated and new standards are also developed. For example, toilet, urinal, and faucet regulations were adopted in April 2015 and appliance enforcement regulations were adopted in May 2015.
California Solar initiative	Customers of California's investor-owned utilities can receive incentives for solar system installations on existing residential homes, and existing and new commercial, industrial, government, non-profit, and agricultural properties.
High Speed Rail	The high speed rail plan is to initially connect San Francisco to the Los Angeles basin in under three hours. It will be expanded to include Sacramento and San Diego, totaling 800 miles with up to 24 stations.
Sustainable Freight Initiative	Currently under development, the California Sustainable Freight Strategy, will reflect the state's vision for a clean freight system (using zero and near zero emissions technologies).

Quebec Complementary Measures

- Quebec developed the 2013-2020 Climate Change Action Plan (2013-2020 CCAP) to address climate change. One of the priorities in the plan is the cap-and-trade system. The other initiatives can be considered complementary measures that will help Quebec meet its provincial GHG emissions reduction target.



- Examples of Quebec measures:

Complementary Measure	Brief Description
ÉcoPerformance	ÉcoPerformance is intended for small and large energy consumers. The program funds initiatives that reduce consumption of energy (specifically fossil fuel combustion) or improve processes. It is available to businesses, institutions and municipalities that burn fossil fuels or that use processes that generate fugitive emissions.
Residual forest biomass	The residual forest biomass program is intended for small (energy other than electricity less than 36,000 GJ/year) and large (greater than or equal to 36 000 GJ/ year). The program finances energy conversion projects from fossil fuel combustion to residual forest biomass. It supports this sector through development of infrastructure and distribution networks in the province. It is available to businesses, institutions and municipalities that burn fossil fuels.
Green fuels	Green Fuels program funds residential upgrades from heating oil to electric or renewable energy heating or hot water systems.
Marine, air and rail transportation efficiency	Financial assistance program to reduce or avoid GHG emissions from marine, air and rail transport. There are two components: infrastructure and equipment; and studies and pilot projects. Companies, municipal organizations and other legally constituted bodies are eligible for funding.

Quebec Complementary Measures



■ Examples of Quebec measures continued:

Complementary Measure	Brief Description
Electric vehicles	The electric vehicle program provides financial incentives to individuals, businesses, non-profit organizations, and municipalities, for the purchase or rental of electric vehicles, plug-in hybrid electric vehicles, hybrid vehicles, or low-speed electric vehicles. Full electric vehicles (of 7 kWh or more) and PHEVs are eligible for rebates of \$4,000 to \$8,000. Electric vehicles with less capacity may be eligible for a \$500 discount. As are hybrid vehicles (until December 2016). Low-speed electric vehicles are eligible for a \$1,000 rebate.
Electricity in the workplace	Companies, municipalities or organizations are eligible to receive funding for the installation of electric vehicle charging stations at the workplace. Financing is for the lesser of 75 % of eligible expenses or \$ 5,000.
Public transit improvement	This program supports public transit agencies in promoting alternative modes of transport (to the personal vehicle). The program has three components: grants to improve public transport services; subsidies for regional public transit; and grants to promote alternative modes of transport.
Bicycle and pedestrian infrastructure support	Program to support municipalities in the development of cycling and pedestrian infrastructure. There are three components: active Transport developments in urban areas; development of the Route verte and branches; and conservation of active transportation infrastructure. The aim is to intensify development of active transportation infrastructure as well as the interconnection with the Route verte.
Reducing GHG through intermodal transportation	There are five components to this program to reduce or avoid GHG emissions through intermodal transport (of goods and people). 1 : Projects with infrastructure expenditure; 1-A: projects whose cost is equal or greater than \$ 1 million; 1-B : projects costing less than \$ 1 million. 2: Projects without infrastructure expenditure. 3 : Pilot Projects. 4 : Studies. 5 : Promotion of maritime and rail modes
New climate technology	Companies , municipal organizations and other legally constituted bodies are eligible for funding.
Biomethanation	This program encourages the development of new technologies or innovative processes for energy efficiency, emerging energy and reducing GHG emissions. The program provides financial support to eligible businesses that want to develop, adapt, use or commercialize a new technology/process through eligible projects.
Composting for small municipalities	This program provides financial support to municipalities and the private sector to install infrastructure for processing organic matter using: biomethanation and composting.
Fuel economy standard	This program is intended for smaller municipalities, counties, or indigenous communities. Financial support is available to help eligible participants to implement domestic or community composters. Instituted a fuel economy standard for light duty vehicles which is expected to reduce GHG emissions from new vehicles by about 35% between 2010 and 2016.

Mitigation and Transition Programs Implemented by California and Quebec

Transition to Cap-and-Trade

- Quebec and California both took a phased approach to implementing the full cap-and-trade program.
 - Cap-and-trade system only covered emissions in the energy and industrial sectors for the first compliance period. Starting in the second compliance period (2015), both jurisdictions folded fuel distributors into the cap-and-trade system.
 - Additionally, the emissions cap for both jurisdictions only started to significantly decline starting in the second compliance period.
 - For Quebec, another phased approach was to have the program officially begin its first phase on January 1, 2013 within Quebec and link to California one year later, on January 1, 2014.
- Quebec and California both use free allocation of allowances to lessen the impact of cap-and-trade. In particular, free allowances are provided to energy-intensive trade-exposed (EITE) industries to ensure industry and global competitiveness. *See previous sections for further detail on free allowances.*
- Finally, both Quebec and California invest revenue from the cap-and-trade system back into the economy to mitigate the economic and social impact of GHG reduction efforts. This is done through regulation, for example, proceeds obtained by electrical distribution utilities and natural gas suppliers must be used exclusively for the benefit of the retail ratepayer. It is also done through mechanisms, such as the Green Fund (Quebec) and Greenhouse Gas Reduction Fund (California), to invest in projects that support the state and province wide GHG emission reduction goals.



Section	Regulation Text	ICF Interpretation	ICF Comments
1. Definitions	In this Regulation, <i>[MOECC Note: In this draft, references to “the Act” are to the proposed Act set out in the first reading version of Bill 172 (Climate Change Mitigation and Low-carbon Economy Act, 2016), introduced on February 24, 2016.]</i> “auction” means an auction held under section 36; “Auction Class 1 emission allowance” means an Ontario emission allowance that is auctioned and that has been classified by the Minister as having a vintage year that is either the auction year or an earlier year; “Auction Class 2 emission allowance” means an Ontario emission allowance that is auctioned and that has been classified by the Minister as having a vintage year that is later than the auction year; “auction year” means, when used in reference to an auction, the calendar year in which the auction is held; “bid price” means the price offered for an Ontario emission allowance, as indicated in a bid submitted under this Regulation; “capped participant” means a mandatory participant or a voluntary participant; “current vintage emission allowance” means an Ontario emission allowance that has been classified by the Minister as having a vintage year that is either the current year or an earlier year; “designated account representative” means, when used in reference to a registered participant, an individual designated by the participant as the participant’s account representative in accordance with section 27; “designated jurisdiction” means, (a) the province of Quebec, or (b) the state of California; “future vintage emission allowance” means an Ontario emission allowance that has been classified by the Minister as having a vintage year that is later than the current year; “NAICS” means the North American Industry Classification System maintained for Canada by Statistics Canada, as amended or revised from time to time;	Most definitions are clear, the following added for brevity: Auction Class 1 Allowance: auctioned current or past vintage year ON allowance Auction Class 2 Allowance: auctioned future vintage year ON allowance Draft Reporting Regulation is to be updated under the proposed Act Note: Reporting Reg appears to prescribe GWPs from the IPCC’s Assessment Report (1996) but not referenced – widely considered outdated now (CH₄ = 21, N₂O = 310). Canada’s National Inventory Report uses IPCC’s Fourth Assessment Report (2012) (CH₄ = 25, N₂O = 298). “verifiable emissions amount” means one of the following amounts that has been set out in respect of greenhouse gas emissions in a year in a report given to the Director under the Reporting Regulation: (1) The amount calculated under paragraph 4 of subsection 7.3 (2) of the Reporting Regulation. - This is total GHG emissions – biomass combustion emissions – [(emissions associated with: coal storage; operation of equipment related to natural gas; cooling units at electricity generators; fugitives from geothermal electricity generating facilities) – (biomass emissions from same activities)] (2) The amount calculated under subsection 7.4 (1), (2) or (3) of the Reporting Regulation. - These are emissions related to: electricity importation (all MWh); natural gas distribution (associate emissions >10,000 t CO₂e); and petroleum product supply (200L or more) Note: designated jurisdiction is Quebec or California. This term is used several times in the Reg. in Sections 17, 24, 25 and 27.	UG/EGD are mandatory, capped participants UG/EGD must become registered participants and must designate an account representative (and up to four alternate accounts reps). See Section 27 for details. Per Section 7.4 (2) in the Reporting Regulation, natural gas distributors must quantify emissions if they expect the emissions associated with NG distributed to end users >10,000 t CO₂e. Per Section 7.6 (1) (a) in the Reporting Regulation, NG distributors must verify the emissions report prescribed in 7.4 (2) if they are >25,000t CO₂e.

Section	Regulation Text	ICF Interpretation	ICF Comments
	“Reporting Regulation” means Ontario Regulation 452/09 (Greenhouse Gas Emissions Reporting) made under the <i>Environmental Protection Act</i>; [MOECC Note: It may be appropriate in some circumstances to read references to the Reporting Regulation in this draft regulation to include the new regulation, proposed to be made under the proposed Act, which would deal with the same subject matter as the existing Reporting Regulation. These references will be clarified at a later time.] “verifiable emissions amount” means one of the following amounts that has been set out in respect of greenhouse gas emissions in a year in a report given to the Director under the Reporting Regulation: (1) The amount calculated under paragraph 4 of subsection 7.3 (2) of the Reporting Regulation. (2) The amount calculated under subsection 7.4 (1), (2) or (3) of the Reporting Regulation.		
2. Compliance periods	The compliance periods are the following: - January 1, 2017 to December 31, 2020. - January 1, 2021 to December 31, 2023 and each subsequent three-year period.	Compliance periods (CP): - January 1, 2017 – December 31, 2020 - January 1, 2021 – December 31, 2023 - And each subsequent three year period (e.g. 2024-2026, 2027-2029, etc.)	First CP commences Jan. 1, 2017 NG distributors are included as mandatory capped participants from the start (no phase-in period).
3. Attribution of emissions	(1) For the purposes of section 13 of the Act, the prescribed activity is one of the following: - All activities set out in Table 2 of the Reporting Regulation that are engaged in at a single facility. - Electricity importation. - Natural gas distribution. - Petroleum product supply. (2) Subject to subsection (4), the amount of greenhouse gas emissions relating to an activity mentioned in subsection (1) that is attributed to a capped participant for a year is the following: - The participant’s verifiable emissions amount in respect of the activity, if a positive or qualified positive verification statement has been issued in respect of the report in which the verifiable emissions amount is set out. - The amount determined by the Director under subsection (3) in respect of the activity. (3) For the purposes of paragraph 2 of subsection (2), the Director shall determine the amount of greenhouse gas emissions attributed to the participant for a year in respect of the activity based on the information available to the Director if: - an adverse verification statement was issued in respect of the report in which the verifiable emissions amount in respect of the activity was set out; or - a revised report setting out the verifiable emissions amount or a verification statement or a revised verification statement in respect of the report in which the verifiable emissions amount was set out was required to be given to the Director and was not given to the Director.	Prescribed activities under the Act include: - Industry (all activities listed in Table 2 of the Reporting Regulation, including electricity generation) - Electricity importation - NG distribution - Fuel supply GHG emissions are attributed to a participant as <u>zero</u> (<i>no requirement for allowances...i.e their compliance obligation is 0</i>) for the following years: - For mandatory participants not required to report and verify emissions under the Reporting Regulation in 2016 (with respect to 2015 emissions): the first 2 consecutive years in which the participant is required to report and verify emissions - For voluntary participants: the first (1) year that the participant is registered and each previous year in which participants was not registered For any capped participant, any year in which the participant is not required to report and verify emissions either under the Reporting Regulation or as a condition of registration (e.g. do not exceed t CO2e threshold) Otherwise, the GHG emissions attributed to capped participants are: - The participants verified emissions (with a positive verification statement) - The amount determined by the Director , if: - An adverse verification statement was issued	NG distribution is a prescribed activity. Clarification required from MOECC: UG and EGD are not required to submit a verified emissions report for the 2015 emissions associated with distributed NG in 2016. Section 3 (4) suggests that the emissions attributed to distributed NG for EGD/UG are zero. As the intent of the Reg. is to include NG distributors from Jan. 1, 2017 (based on number of allowances created under Section 34), clarification of the language in this Section should be requested.

Section	Regulation Text	ICF Interpretation	ICF Comments
	(4) The amount of greenhouse gas emissions attributed to a capped participant relating to a prescribed activity is zero for the following years: - In the case of a mandatory participant who was not required under the Reporting Regulation to give a report to the Director in 2016 with respect to greenhouse gas emissions in 2015 and to have the report verified, each of the subsequent first two consecutive years in which the participant was required to give a report and to have the report verified. - In the case of a voluntary participant, the first year in which the person is registered under the Act and each previous year in which the participant was not registered under the Act. - In the case of any capped participant, any year in respect of which the participant is not required, either under the Reporting Regulation or as a condition of registration, to give a report to the Director and to have the report verified.	b) A revised verification statement or report was required but not provided to the Director	
SUBMISSION OF EMISSION ALLOWANCES AND CREDITS FOR COMPLIANCE PERIOD			
4. Ontario emission allowance or Ontario credit, equivalence in carbon dioxide equivalent	An Ontario emission allowance or Ontario credit is equivalent to one tonne of carbon dioxide equivalent.	1 Ontario Allowance = 1 t CO₂e 1 Ontario Credit = 1 t CO₂e	
5. Submission of emission allowances and Ontario credits, timing	- The deadline for submitting emission allowances and credits under section 14 of the Act for a compliance period is 8 p.m. eastern standard time on November 1 following the end of the compliance period. - The deadline prescribed for the purposes of subsection 14 (9) of the Act is 8 p.m. eastern standard time on the day that is 180 days following the day a revised report is given to the Director, if the report sets out an increase in the amount of greenhouse gas emissions that results in an increase in the amount attributed to a person under section 3. - If the deadline under subsection (1) or (2) falls on a day that is not a business day, the deadline is 8 p.m. eastern standard time on the first business day following the deadline under subsection (1) or (2), as the case may be.	Under Section 14 of the Act, (mandatory and voluntary) participants must submit emission allowances and credits to the Minister in an amount equal to the aggregate amount of all greenhouse gas emissions attributed to the person. - Deadline for allowance submission – 8pm EST November 1 (or the following first business day) following the end of a compliance period (e.g. for first compliance period (2017 –2020), submission due November 1, 2021) - If the amount of GHG emissions attributed to a participant are increased (and therefore a revised verification statement or report was given to the Director) after the November 1 submission deadline (as above), the deadline for allowance submission is 180 days following the day the revised report is submitted (or the following first business day)	The first deadline for submission of allowances/credits will be 8pm EST on November 1, 2021 (first Nov. following the first CP). If your compliance obligation was, for example, 20 Mt/yr, 80 million allowances/credits would be due on Nov. 1, 2021. This is similar to Quebec’s submission rules – with true-up at the end of the compliance period. Differs from the California requirement of partial true-ups each year of compliance period.
6. Restriction, emission allowances	Only the following Ontario emission allowances may be submitted for a compliance period: - Ontario emission allowances transferred into a compliance account as a result of a successful purchase of emission allowances offered for sale under section 37. - Ontario emission allowances classified by the Minister as having a vintage year that is a year in the compliance period or an earlier year.	3 types of allowances can be submitted for a compliance period: - Allowances purchased from sale (i.e. Ontario <u>reserve allowances</u>, Categories A, B, C) - Allowances classified as having a vintage year within the compliance period or earlier years	

Section	Regulation Text	ICF Interpretation	ICF Comments
	3. Ontario emission allowances classified by the Minister as having a vintage year that is either the first or second year following the end of the compliance period, if the emission allowance has been allocated free of charge as a production adjustment. <i>[MOECC Note: Allowances distributed free of charge for production adjustment See Appendix for further information on production adjustments and the distribution of allowances free of charge.]</i>	3) Allowances classified as having a vintage year that is year 1 or 2 following the end of the compliance period. IF it has been allocated free for Production Adjustment (more info in Appendix)	
7. Restriction, credits	Only the following Ontario credits may be submitted for a compliance period: 1. Ontario offset credits created by the Minister before the end of the year following the end of the compliance period. 2. Ontario early reduction credits. <i>[MOECC Note: See Appendix for further information on early reduction credits.]</i> <i>[MOECC Note: To create a robust offset credit program in Ontario, a separate offsets regulation will be proposed later in 2016 if the climate change legislation passes. The offsets regulation will describe the requirements proponents must meet to be able to create, verify and register offset credits for use in Ontario's greenhouse gas cap and trade program, including requirements for protocols. Protocols set out the requirements to demonstrate the offset criteria such as ownership, and that proposed offsets are real, additional, verified, unique, permanent, and enforceable, to ensure that offset projects produce the emission reductions being claimed.]</i>	2 types of credits may be submitted for compliance purposes: 1) Ontario Offset Credits created by the Minister before the end of the year following the end of the compliance period (e.g. offset credits created until the end of 2021 would be accepted for 2017-2020 compliance period) 2) Ontario early reduction credits (more info in Appendix) Offsets regulation to be proposed later in 2016 following passage of climate legislation	

Section	Regulation Text	ICF Interpretation	ICF Comments
8. Manner of submitting emission allowances and credits	(1) A capped participant may submit Ontario emission allowances described in paragraph 1 of section 6 by paying for the purchased emission allowances. (2) A capped participant may submit Ontario emission allowances described in paragraphs 2 and 3 of section 6 and Ontario credits described in paragraphs 1 and 2 of section 7 by taking the following steps: 1. A designated account representative of the participant must submit a notice of the participant's intent to submit the emission allowances and credits to all other designated account representatives of the participant. 2. A second designated account representative of the participant must, no later than two days following the submission of the notice of intent under paragraph 1, confirm the participant's intent to submit the emission allowances and credits to all other designated account representatives of the participant. (3) A capped participant may only submit Ontario emission allowances and Ontario credits under subsection (2) if the emission allowances or credits are held in the participant's holding account. (4) The steps described in paragraphs 1 and 2 of subsection (2) may both be taken by the same individual if the participant has only one designated account representative. (5) Upon receipt of a confirmation under paragraph 2 of subsection (2), the Minister shall transfer the Ontario emission allowances and Ontario credits to the participant's compliance account. (6) If the Minister asks a designated account representative of a participant for information relating to the submission of emission allowances or credits under this section, the account representative shall give the information to the Minister as soon as possible. [MOECC Note: Change in ownership - If the ownership of a facility or person engaging in an activity covered by this regulation changes, the new owner is required to submit any outstanding allowances and credits for emissions from the facility or activity in accordance with this regulation.]	1) Ontario emission allowances purchased through sale (i.e. reserve allowances, Category A, B, C) may be submitted 2) Previous and current vintage allowances, future (1-2 years) vintage allowances (IF received free for Production Adjustment), and Ontario credits may be submitted – see steps Regulation text for details 3) Ontario allowances and credits in 2) may only be submitted if they are held in the participant's holding account 4) If the participant only has one designated account rep, the submission of notice of intent and confirmation may be performed by the same person 5) Allowances and credits will be placed into compliance accounts once Minister receives confirmation 6) Information relating to the submission of allowances or credits shall be provided as soon as possible if requested by the Minister If the ownership of a facility or person engaging in an activity covered by this regulation changes, the new owner is required to submit any outstanding allowances and credits for emissions from the facility or activity in accordance with the regulation.	Admin rules for submitting allowances and credits, i.e. 'reserve allowances' submitted first, then current & older vintage allowances.
9. Minister's removal of emission allowances and credits from compliance account	(1) After the applicable deadline for submitting emission allowances and credits under section 14 of the Act for a compliance period, the Minister shall take the steps set out in subsection (2) in respect of each capped participant's compliance account, in the order in which the steps are set out, until the earlier of the following: 1. The amount of Ontario emission allowances and Ontario credits removed by the Minister from the compliance account is equal to the amount of greenhouse gas emissions required to be submitted by the participant for the compliance period. 2. The Minister has taken all of the steps. (2) The steps to be taken in respect of the compliance account are the following: 1. The Minister shall remove Ontario offset credits that may be submitted for the compliance period, beginning with the credits that were created first and continuing chronologically to the most recently created credits until the earlier of the following: i. The account has no more offset credits	1) Following the deadline for submitting allowances and credits, the steps in 2) will be applied to a compliance account until the earlier of: a) The amount of allowances/credits removed from the account = amount of GHG emissions required for submission by the participant (i.e. they meet compliance) b) All the steps in (2) are taken 2) Steps a) Remove offset credits that can be submitted for the compliance period starting with credits created first and continuing chronologically to the most recently created credits until the earlier of the following: i. The account has no more offset credits	Admin rules related to order in which Minister removes allowances/credits from compliance account: -offsets* (8% limit on compliance obligation) -'reserve allowances' -ERCs -allowances (current vintage & older) -up to 2 future years allowances *OFFSET credits can only be used for up to 8% of a participant's compliance obligation. If annual compliance obligation was 20 Mt from 2017

Section	Regulation Text	ICF Interpretation	ICF Comments
	i. No more of those credits remain in the compliance account. ii. The amount of credits removed from the compliance account represents eight per cent of the greenhouse gas emissions attributed to the participant for the compliance period. 2. The Minister shall remove any Ontario emission allowances described in paragraph 1 of section 6 until no more of those allowances remain in the compliance account. 3. The Minister shall remove any Ontario early reduction credits until no more of those credits remain in the compliance account. [MOECC Note: See Appendix for further information on early reduction credits.] 4. The Minister shall remove any Ontario emission allowances described in paragraph 2 of section 6, beginning with the emission allowances with the earliest vintage year and continuing chronologically to the emission allowances with the most recent vintage year, until no more of those emission allowances remain in the compliance account. 5. The Minister shall remove any Ontario emission allowances described in paragraph 3 of section 6, beginning with the emission allowances with the earlier vintage year and continuing chronologically to the emission allowances with the later vintage year, until no more of those emission allowances remain in the compliance account. (3) The Minister shall retire all emission allowances and credits removed by the Minister under this section.	ii. The amount of credits removed = 8% of emissions attributed to the participant for the compliance period b) Remove any allowances purchased through sale (e.g. reserve allowances, Category A, B, C) until no more remain in the compliance account c) Remove early reduction credits (ERCs) until no more remain in the compliance account d) Remove Ontario emission allowances starting with the earliest vintage year to the most recent vintage year, until no more remain in the compliance account e) Remove allowances classified as having a vintage year that is year 1 or 2 following the end of the compliance period, starting with the earliest vintage year, until no more remain in the compliance account (future vintages only allowed IF received free for Production Adjustment) 3) All allowances and credits removed will be retired	through 2020 (80 Mt total in compliance period), the maximum amount of offsets that could be remitted for compliance would be 6.4 Mt. Based on the provincial cap in the first CP (534 Mt), the maximum offset compliance for the province would be 42.7 Mt.
10. Restriction on accounts, shortfall	If a capped participant fails to submit all of the required emission allowances and credits on or before the applicable deadline in accordance with this Regulation, the participant's authority to deal with emission allowances and credits in the participant's cap and trade accounts is restricted under paragraph 4 of subsection 14 (7) of the Act as follows: the participant is prohibited from transferring emission allowances or credits from the participant's holding accounts into any other account other than the participant's compliance account.	If a capped participant fails to submit all of the required emission allowances and credits on or before the applicable deadline (shortfall): 1) The participant cannot transfer allowances or credits from their holding accounts into any other account other than their compliance account This holds true until: - emission allowances and credits are submitted to the Minister in an amount equal to the aggregate amount of all greenhouse gas emissions attributed to the person; AND - the participant shall submit to the Minister additional emission allowances in an amount equal to three times the shortfall.	Admin rules
11. Minister's removal of emission allowances and credits, shortfall	1) The Minister may only remove emission allowances and credits for a compliance period under subsection 14 (7) of the Act until such time as the Director issues an order under paragraph 1 of subsection 14 (8) of the Act. 2) The Minister's authority to remove emission allowances and credits for a compliance period under paragraphs 1 and 3 of subsection 14 (7) of the Act may only be exercised by taking the following steps in respect of the participant's cap and trade accounts in the order in which the steps are set out: 1. The Minister shall remove Ontario offset credits that may be submitted for the compliance period, beginning with the credits that were created first and	1) Allowances and credits for a compliance period may only be removed by the Minister until the Director issues an order to the participant that requires the participant to pay to the Minister of Finance an amount determined in accordance with the regulations in satisfaction of the participant's outstanding obligations. 2) In removing emission allowances and credits held in, or subsequently transferred into, the participant's cap and trade (c&t) accounts – in an amount sufficient to satisfy the shortfall and in an amount sufficient to satisfy the 3:1	Admin rules related to shortfall Reg. points to Section 14(7) in the Act outlining shortfall consequences. If participant fails to submit all required allowances/credits as required by the Reg. by the deadline:

Section	Regulation Text	ICF Interpretation	ICF Comments
	continuing chronologically to the most recently created credits until the earlier of the following: - No more of those credits remain in the cap and trade accounts. - The amount of credits removed from the cap and trade accounts, both under section 9 and this section, represents eight per cent of the greenhouse gas emissions attributed to the participant for the compliance period. 2. The Minister shall remove any Ontario early reduction credits until no more of those credits remain in the cap and trade accounts. [MOECC Note: See Appendix for further information on early reduction credits] 3. The Minister shall remove any Ontario emission allowances described in paragraph 2 of section 6, beginning with the emission allowances with the earliest vintage year and continuing chronologically to the emission allowances with the most recent vintage year, until no more of those emission allowances remain in the cap and trade accounts. 4. The Minister shall remove any remaining Ontario emission allowances held in the participant's compliance account, beginning with the emission allowances with the earliest vintage year and continuing chronologically to the emission allowances with later vintage years, until no more of those emission allowances remain in the compliance account. 5. The Minister shall remove any remaining Ontario emission allowances held in the participant's holding account, beginning with the emission allowances with the earliest vintage year and continuing chronologically to the emission allowances with later vintage years, until no more of those emission allowances remain in the holding account. 3) The Minister shall retire all emission allowances and credits removed by the Minister under paragraph 1 of subsection 14 (7) of the Act. 4) The Minister shall reserve all emission allowances removed by the Minister under paragraph 3 of subsection 14 (7) of the Act for the purposes of auctions.	obligation (submission of additional emission allowances in an amount equal to three times the shortfall) – may only be exercised by taking the following steps: - Remove offset credits that can be submitted for the compliance period starting with credits created first and continuing chronologically to the most recently created credits until the earlier of the following: - The cap and trade accounts have no more offset credits - The amount of credits removed here (and previously under section 9) = 8% of emissions attributed to the participant for the compliance period - Remove early reduction credits until no more remain in the cap and trade accounts - Remove Ontario emission allowances starting with the earliest vintage year to the most recent vintage year, until no more remain in the cap and trade accounts - Remove any remaining Ontario emission allowances held in the compliance account, beginning with the earliest vintage years to the later vintage years, until no more allowances remain in the compliance account. - Remove any remaining Ontario emission allowances held in the holding account, beginning with the earliest vintage years to the later vintage years, until no more allowances remain in the holding account. 3) All allowances and credits removed to satisfy the shortfall shall be retired 4) All additional emission allowances removed (i.e. the amount equal to three times the shortfall) shall be reserved for the purposes of auction.	-Minister may remove allowances/credits in c&t accounts or later transferred into those accounts to satisfy shortfall -Penalty is an additional 3x amount of shortfall – so COST of non-compliance is technically 4x what the cost should have been because it includes paying for the shortfall <u>plus</u> a penalty of 3x the shortfall This is an important consideration for OEB discussions. Would OEB allow penalty costs to be passed through to customer?
12. To Notice of continuing shortfall	A notice under subsection 14 (8) of the Act shall include, in addition to the amount of the outstanding obligations, the following: - A statement explaining that if the participant is eligible to apply for an allocation of free emission allowances, the number of emission allowances the participant would be eligible to receive in the following year may decrease by the number of outstanding emission allowances and credits. - The deadline for submitting sufficient emission allowances or credits to satisfy the outstanding obligations, which must be 30 days from the day that the notice is issued. - A statement that the Director may issue an order under subsection 14 (8) of the Act if the participant does not satisfy the outstanding obligations by the specified deadline.	If the Director gives the participant notice of outstanding obligations, in addition to the amount of outstanding obligations, the notice shall include: - A statement explaining that if the participant is eligible for an allocation of free allowance, the allowance allocation they would be eligible to receive in the following year may decrease by the number of outstanding allowances and credits - The deadline for submitting sufficient allowances or credits to satisfy the outstanding obligations, which is 30 days from the day notice is issued - A statement that the Director may issue further orders if the participant does not satisfy the outstanding obligations by the specified deadline. The orders may include: - require the participant to pay to the Minister of Finance an amount determined in accordance with the regulations in satisfaction of the participant's outstanding obligations.	Admin rules related to continuing shortfall Reg. points to Section 14(8) in the Act outlining consequences -requirement to pay amount deemed to cover outstanding obligations -potential reduction of free allowance allocation

Section	Regulation Text	ICF Interpretation	ICF Comments
13. Failure to remedy continuing shortfall	The amount required to be paid by an order under paragraph 1 of subsection 14 (8) of the Act shall be determined by applying the following formula: $A = B \times C$ Where, A = the amount required to be paid, B = the lowest bid price accepted for Auction Class 1 emission allowances at the most recent auction, C = the amount of outstanding obligations at the time of the determination.	- decline to distribute emission allowances free of charge to the participant, until the outstanding obligations are satisfied in full. - other consequences as may be authorized by regulation. Should the Director issue an order for the participant to pay an amount to satisfy the participant's outstanding obligations (as referred to section 11 and 12), the formula applied is $A = B \times C$, where A = the amount required to be paid B = the lower bid price accepted for Auction Class 1 allowances (current or previous vintage year allowances) at the most recent auction, C = the amount of outstanding obligations at the time of determination.	Admin rules – see notes for S.12 above. Note that 'C', the amount of outstanding obligations, is the shortfall <u>plus</u> a penalty of 3x the shortfall.
REGISTRATION OF PARTICIPANTS IN THE CAP AND TRADE PROGRAM			
14. Mandatory participants	(1) Each of the following persons is required to register as a mandatory participant under paragraph 2 of subsection 15 (1) of the Act. 1. A person who is exempt from section 7.6 of the Reporting Regulation under section 26 of that regulation. 2. A person who was required under the Reporting Regulation to submit a report and verification statement in 2016 with respect to greenhouse gas emissions in 2015. 2) Subject to subsection (3), a person shall register as a mandatory participant no later than September 1 in the first year in which the person is required to submit a verification statement. 3) A person mentioned in paragraph 1 or 2 of subsection (1) shall register on or after July 1, 2016 and no later than November 30, 2016. 4) The owner or operator of a facility that meets all of the following criteria is exempt from subsection 15 (1) of the Act in respect of the facility: 1. The primary activity engaged in at the facility is electricity generation within the meaning of the Reporting Regulation. 2. No products are produced at the facility other than electricity and any heat, steam or by-product gas. 3. The facility does not receive natural gas directly from an international or inter-provincial natural gas transmission pipeline. 4. No electricity is generated at the facility from the incineration of waste.	Mandatory participants include: - Exempt person [from 26. of Reporting Regulation] that are mandatory for cap and trade program includes: (a) a person who is required to prepare a 2017 report under section 5, if the report is solely in respect of specified Table 2 activities; [i.e. annual emissions (excluding biomass) are >10,000 tCO₂e] (b) a person who is required to prepare a 2017 report under section 6. O. Reg. 398/15, s. 12. [i.e. electricity importers; natural gas distributors (with associated emissions of >10,000 t CO₂e); petroleum product suppliers (of 200 L or more during the year)] - Person who submitted a report and verification statement in 2016 (for 2015 emissions). Timing: - (a) and (b) above register between July 1 and November 30, 2016 - All other mandatory participants register no later than September 1 in the first year in which the person is required to submit a verification statement. Exemption: - Not required to register as a mandatory participant if all below are true: 'Primary activity is electricity generation 'No other products are produced (other than electricity, heat, steam, or by-product gas) 'Facility does not receive natural gas directly from international or inter-provincial pipeline [i.e. exempt if natural gas used is from within Ontario] 'Electricity generation is not from incineration of waste	Note: this means electricity generators do not register as participants in the cap and trade program – they pay for carbon through NG purchases*. With the exception of electricity generators who use natural gas directly from international or interprovincial transmission pipelines. These electricity generators would be mandatory participants. Must register between July 1 and November 30, 2016. *This is significant for UG/EGD as electricity generators are large, variable volume NG consumers – difficult to forecast usage for and subsequently ensure compliance for. Point to be raised with OEB.
15. Voluntary participants	1) For the purposes of paragraph 1 of subsection 16 (1) of the Act, a person mentioned in that paragraph may apply for registration as a voluntary participant in the cap and trade program if the person is the owner or operator of a facility at which an activity set out in Table 2 of the Reporting Regulation is engaged in and the person provides	- May apply to be a voluntary participant if under the Reporting Regulation, the person required to report GHG emissions (for prescribed activities at a prescribed	Electricity generators serviced by a NG distributor (UG/EGD) CANNOT opt-in to cap and trade program. They can open an account to buy-sell credits, but they do not have a 'compliance

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		two positive verification statements in respect of the two most recent reports given to the Director by the person under that regulation. 2) A person who meets all of the criteria set out in paragraphs 1 to 4 of subsection 14 (4) is not permitted to apply for registration as a voluntary participant.	facility) has also verified those emissions (despite not being regulated to do so under section 11 of the Act) for the two most recent reported years. - Exempt facilities (see 14. above) may not voluntarily participate. *therefore electric generators may not opt-in May only apply to be a market participant if not an employee of a mandatory or voluntary participant.		obligation' to be met as carbon costs are embedded in NG costs.
16.	Market participants	A person who is not an employee of a mandatory or voluntary participant may apply to the Director for registration as a market participant in the cap and trade program under subsection 17 (1) of the Act.			Admin rules

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17. Information to be provided for registration	(1) A person who is registering or applying to register under the Act shall give the Director the following information: - The name and contact information of the person and whether the person is a corporation, partnership, sole proprietor or other type of organization. - In the case of a corporation, - the date and place of the incorporation, - the business number, - the names and contact information of the directors and officers, - the names and contact information of persons controlling over 10 per cent of the voting rights attached to all the outstanding voting securities, and - the name of each subsidiary or parent corporation. - In the case of a partnership, - the business number, - the name and contact information of each partner, or, in the case of a limited partnership, the name and contact information of each general partner, and - the name and contact information of each special partner having provided over 10 per cent of the common stock. - If the person has a business relationship with any other person who is registered under the Act or who is required to be registered under the Act or who is registered or required to be registered under similar rules or regulations of a designated jurisdiction, - the name and contact information of the other person, - whether the other person is an individual or a corporation, partnership, sole proprietor or other type of organization, - if the other person is not an individual, the date and place of its incorporation or the date and place of its establishment by other means, a description of the nature of the business relationship, which must include the percentage of shares, securities or other interests of each person held by others and which may be accompanied by a diagram showing the relationship, - the holding account number of the other person, and - the name and contact information of the other person's primary account representative. - A designation of account agents prepared in accordance with section 27. - A document signed by the chief officer of the person registering or a resolution of the board of directors of the person that sets out the following: - An undertaking that the chief officer or board of directors will comply with the Act and this Regulation. - A statement that the information provided under this section is accurate, to the best of the chief officer's or the board of directors' knowledge.	Clearly written/straight forward – see Regulation text for details. (1) In brief, must provide detailed information on corporations, subsidiaries, partnerships, business relation details with other registered facilities, etc. For the purposes of paragraph 4, a business relationship exists between two persons if there is a direct or indirect relationship, in which: - one person owns more than 20% of the securities or has the right or obligation to acquire more than 20% of the securities of the other person - one person shares more than 20% of its directors or officers with the other person or may appoint up to 20% of the other persons directors or officers - one person owns voting securities accounting for more than 20% of the voting rights in the other person - if it is a (not limited) partnership, one person holds more than 20% of the interests in the partnership - if it is a limited partnership, one person is a general partner of the partnership - one person has any direct or indirect influence over voting securities (other than voting securities to secure an obligation), and that person exercised that influence, that person would be entitled to elect a majority of directors of the other person. For the purposes of paragraph 4, a business relationship exists between a group of persons - if two or more persons in the group are controlled by one of the persons in the group (2) Additional details that are required to be provided including Ministry provided unique identifier(s) and NAICS code(s). (3) As a voluntary participant, must provide two verification reports (for the two years immediately preceding the application). MOECC is also considering clearing houses, which would need to be recognized by a regulatory authority responsible for supervising financial markets in Canada; and would need to register according to the same rules as other participants.	Admin rules – Section points to designated jurisdictions (Quebec and California)

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	iii. The chief officer’s or board of directors’ consent to the Ministry giving information relating to the person to authorities in designated jurisdictions when necessary for the purposes of this Regulation and the similar rules and regulations of designated jurisdictions. 7. The percentage of the holding limit allotted to the person in accordance with subsection 21 (5) or 22 (2), if applicable. 8. The percentage of the purchase limit allotted to the person in accordance with section 48, if applicable. (2) In the case of a person registering or applying to register as a capped participant, the participant shall give the Director the following information in addition to the information mentioned in subsection (1): 1. Each unique identifier provided to the person by the Ministry for the purposes of the Reporting Regulation. 2. For each facility in respect of which the person prepares a report and in respect of which verification is required to be conducted under the Reporting Regulation, i. the primary NAICS code and, if applicable, any secondary NAICS codes, and 1 ii. the names and contact information of any persons responsible for preparing the report. (3) In the case of a person applying to register as a voluntary participant, the person must submit a verification statement, prepared in accordance with [MOECC Note: the Reporting Regulation] in respect of each of the two reports prepared in respect of greenhouse gas emissions during the two years immediately preceding the year of the application. (4) For the purposes of paragraph 4 of subsection (1), a business relationship exists between two persons if there is a direct or indirect relationship in which, a) the first person owns more than 20 per cent of the securities of the second person or holds a call, option or other right or obligation to acquire such securities; b) the first person shares more than 20 per cent of its officers or directors with the second person or may appoint up to 20 per cent of the officers or directors of the second person; c) the first person owns voting securities carrying more than 20 per cent of the voting rights attached to all voting securities in the second person; d) if the second person is a partnership other than a limited partnership, the first person holds more than 20 per cent of the interests in the partnership; e) if the second person is a limited partnership, the first person is a general partner of the partnership; or f) the first person has any direct or indirect influence over voting securities of the second person, other than voting securities to secure an obligation, and, if the first person exercised that influence, the first person would be entitled to elect a majority of directors of the second person. (5) For the purposes of paragraph 4 of subsection (1), a business relationship exists between a group of persons if two or more persons in the group are controlled by one of the persons in the group.		

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	<i>[MOECC Note: Registration of clearing houses - Ontario is considering facilitating the participation of clearing houses in the program to provide clearing services for transactions between registered participants:</i> <i>• To be eligible, the clearing house would need to be recognized by a regulatory authority responsible for supervising financial markets in Canada.</i> <i>• Clearing houses would need to register according to rules similar to those in section 17 and submit supporting documentation confirming oversight of their activities by a regulatory authority.</i> <i>• Upon successful registration, an eligible clearing house would receive a clearing house account in which they would be able to temporarily hold allowances and credits to provide clearing services to other registered participants.]</i>		
18. Conditions of registration	(1) It is a condition of registration as a capped participant or as a market participant that the participant must notify the Director of any changes to information provided to the Director under section 17 within 30 days following the change. (2) It is a condition of registration as a voluntary participant that the participant must give reports and verification statements to the Director as if the participant were a mandatory participant. (3) It is a condition of registration as a capped participant that the participant not transfer emission allowances or credits out of the participant's compliance account.	Participants must notify the Director of any changes to any information provided under section 17 within 30 days of the change occurring. Voluntary participants report to the Director as mandatory participants do (e.g. reports and verification statements). Emission allowances or credits cannot be transferred out of the participants compliance account by the participant.	Admin rules
19. Cancellation of registration	(1) The Director may cancel the registration of a capped participant if the participant has requested the cancellation in writing and has satisfied all obligations under section 14 of the Act for the compliance period. (2) The Director may cancel the registration of a market participant if the participant has requested the cancellation in writing and no emission allowances or credits remain in the participant's holding account.	(1) Section 14 of the Act describes the duty to submit emission allowances and credits. Cancellation is only possible after the obligations of a full compliance period are met, including obligations related to compliance shortfall. (2) Clearly written/ straight forward – see Regulation text for details.	Admin rules
CAP AND TRADE ACCOUNTS AND TRANSACTIONS			
20. Cap and trade accounts of registered participants	(1) The Director shall establish a holding account for each registered participant, to and from which emission allowances and credits may be transferred. (2) In addition to the holding account mentioned in subsection (1), the Director shall establish a compliance account for each capped participant, to which the Minister may transfer emission allowances and credits that the participant submits under section 14 of the Act.	The Director establishes two accounts for each participant: - Holding account - Compliance account Referred to as 'cap and trade accounts'	Admin rules
21. Holding limits, current vintage emission allowances, etc.	(1) This section applies in respect of the following: - Current vintage emission allowances. - Ontario emission allowances that are classified as Category A, B or C. - Ontario early reduction credits. <i>[MOECC Note: See Appendix for further information on early reduction credits.]</i> (2) Subject to subsection (3), the total number of emission allowances and credits mentioned in subsection (1) that are held in a participant's cap and trade accounts at any time in a year, or in the cap and trade accounts of participants who are related	Holding Limit (HL): For current vintage allowances, reserve allowances, and early reduction credits, the limit for the total number held in a participants cap and trade accounts is: <SEE Regulation for Equation> MINUS Total number of allowances in the compliance account up to the maximum allowed (an accruing estimate, based on most recent verified emissions report or an amount determined by Director if no verified report available) of the expected compliance	Using the number of ON emission allowances to be created for each year in CP (ref S.34), the limit on emission allowances and credits that can be held in a participant's c&t accounts (incl. holding & compliance accounts) is listed below – calculated using HL equation:

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	persons at any time in a year, shall not exceed the limit determined by applying the following formula: $HL = 2,500,000 + 0.025 \times (C - 25,000,000)$ Where, HL = the limit on emission allowances and credits mentioned in paragraphs 1, 2 and 3 of subsection (1) that are held in the cap and trade accounts during a year, C = the number of Ontario emission allowances created under section 34 for the year. (3) When determining whether or not the limit determined under subsection (2) is exceeded, the amount set out in subsection (4) shall be deducted from the total number of emission allowances and credits held in the participant's cap and trade accounts. (4) The amount deducted under subsection (3) is the total number of Ontario emission allowances and credits held in the participant's compliance account, up to the maximum number determined in accordance with <i>[MOECC Note: an accruing estimate of the expected compliance obligation for the compliance period and the first year of the next compliance period. Each year, the emissions estimate for that year would be based on the most recent verified emissions report available or, in the absence of a verified emissions report, an amount determined by the director. The estimated compliance obligation would increase annually at the beginning of a new compliance year as new verified emissions reports are available and then reset in the second year of the next compliance period to deduct the amount of their compliance obligation for the previous compliance period.]</i> <i>[MOECC Note: Request for adjustment of exemption from the holding limit - A capped emitter that expects to have a significant increase in emissions in a compliance period of at least 250,000 tonnes per year of CO2e may request an adjustment to the estimate by the director for that year and the next year until the verified emissions report for that year is available. Once the verified emissions report is available for the year in which emissions increased, the emissions amount of the verified report would replace the estimate assigned by the director. The capped emitter would need to provide sufficient information to demonstrate that the increase of emissions is expected to be more than 250,000 tonnes per year of CO2e to support the determination of an estimate by the director.]</i> (5) Registered participants who are related persons shall allot the limits calculated under this section among themselves and each related person shall hold emission allowances or credits in an amount that is equal to or lower than their allotted portion of the limit. (6) For the purposes of this section, two persons are related persons,	obligation for the compliance period and the first year of the next compliance period). If a participant expects that their emissions will increase greater than 250,000 t CO2e in a compliance period, the participant can request an adjustment to the holding limit. These same holding limits apply to related participants, where the total limit is allotted in portions to each participant. For the purposes of this section, a business relationship exists between two persons if there is a direct or indirect relationship, in which: - one person owns more than 50% of the securities or has the right or obligation to acquire more than 50% of the securities of the other person - one person shares more than 50% of its directors or officers with the other person or may appoint up to 50% of the other persons directors or officers - one person owns voting securities accounting for more than 50% of the voting rights in the other person - each have the same designated account representative, and that same individual also performs other duties for one of the persons - if it is a (not limited) partnership, one person holds more than 50% of the interests in the partnership - if it is a limited partnership, one person is a general partner of the partnership For the purposes of this section, a business relationship exists between a group of persons - if two or more persons in the group are controlled by one of the persons in the group	<table><tr><th>Cap (ON Allowances)</th><th>Holding Limit (per participant)</th></tr><tr><td>2017</td><td>142,332,000</td></tr><tr><td>2018</td><td>136,440,000</td></tr><tr><td>2019</td><td>130,556,000</td></tr><tr><td>2020</td><td>124,668,000</td></tr><tr><td>2020</td><td>4,991,700</td></tr></table> HL applies to current vintage allowances, reserve allowances and ERCs, NOT offsets. HL is over and above those expected to be required for the compliance obligation. Understanding HLs is VERY important for UG/EGD because in order to avoid steep penalties (ref S.11-13), EGD and UG will have to always be LONG on allowance (this creates a cost that has to be able to be passed on). The intent of HLs (based on MOECC deck, March 4/16) •Holding limits prevent a single entity from obtaining too much market power •Holding limit based on a formula related to the amount of the annual cap •Capped emitters allowed to hold an additional amount representative of their compliance obligation based on their most recent emissions report •Capped emitters can apply to increase this amount for major production increases •Related entities with a control threshold above 50% must share the holding limit •If holding limit is exceeded (limited circumstances), Minister can remove the excess allowances after giving the participant five days to remedy the situation Do either of UG/EGD have related participants? If there was more than one entity representing UG or EGD (related participants, as defined in Reg	Cap (ON Allowances)	Holding Limit (per participant)	2017	142,332,000	2018	136,440,000	2019	130,556,000	2020	124,668,000	2020	4,991,700
Cap (ON Allowances)	Holding Limit (per participant)														
2017	142,332,000														
2018	136,440,000														
2019	130,556,000														
2020	124,668,000														
2020	4,991,700														

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	a) if there is a direct or indirect relationship between them in which the first person, i. owns more than 50 per cent of the securities of the second person or holds a call, option or other right or obligation to acquire such securities, ii. shares more than 50 per cent of its officers or directors with the second person or may appoint up to 50 per cent of the officers or directors of the second person, or iii. owns voting securities carrying more than 50 per cent of the voting rights attached to all voting securities in the second person; b) if they each have the same designated account representative, and that same individual also performs other duties for one of the persons; c) if the second person is a partnership other than a limited partnership and the first person holds more than 50 per cent of the interests in the partnership; or d) if the second person is a limited partnership, the first person is the general partner of the partnership. (7) For the purposes of this section, a group of persons are related persons if two or more persons in the group are controlled by one of the persons in the group.		text) UG or EGD's HL would have to be divided up amongst the related entities.
22. Holding limit, future vintage emission allowances	(1) The sum of the future vintage emission allowances held in a person's cap and trade accounts at any time in a year, or in the cap and trade accounts of related persons at any time in a year, shall not exceed the limit set out by applying the following formula in respect of each future vintage year: $HL_j = 2,500,000 + 0.025 \times (C_j - 25,000,000)$ Where, HL_j = the limit on future vintage emission allowances with vintage year j that are held in the cap and trade accounts during a year, C_j = the number of Ontario emission allowances created under section 34 for year j. (2) Registered participants who are related persons shall allot the limits calculated under this section among themselves and each related person shall hold emission allowances or credits in an amount that is equal to or lower than their allotted portion of the limit. (3) Subsections 21 (6) and (7) apply for the purposes of this section.	Holding Limit: For future vintage allowances, the limit for the total number held in a participants cap and trade accounts is: <SEE Regulation for Equation> These same holding limits apply to related participants, where the total limit is allotted in portions to each participant. For the purposes of this section, a business relationship exists between two persons if there is a direct or indirect relationship, in which: - one person owns more than 50% of the securities or has the right or obligation to acquire more than 50% of the securities of the other person - one person shares more than 50% of its directors or officers with the other person or may appoint up to 50% of the other persons directors or officers - one person owns voting securities accounting for more than 50% of the voting rights in the other person - each have the same designated account representative, and that same individual also performs other duties for one of the persons - if it is a (not limited) partnership, one person holds more than 50% of the interests in the partnership - if it is a limited partnership, one person is a general partner of the partnership For the purposes of this section, a business relationship exists between a group of persons - if two or more persons in the group are controlled by one of the persons in the group	HLs for future years apply to a single vintage year.

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23. When holding limit exceeded	23. (1) The Minister may, at any time starting five days after the day a capped participant is in contravention of section 21 or 22, remove the number of emission allowances or credits that exceed the applicable limit from the participant's holding accounts. (2) The Minister shall, (a) retire all credits removed under subsection (1); and (b) reserve all emission allowances removed under subsection (1) for the purposes of an auction. [MOECC Note: Application of holding limits to clearing houses - Holding limits would not apply to clearing house accounts. Once the instruments are sold and transferred into the buyers account, the allowances are counted against the holding limit of the buyer.]	Exceeding the holding limit: After a 5 days that a participant exceeds either holding limit (current or future), the Minister may remove the number of allowances or credits that exceed the limit from the participants holding accounts. The Minister: - retires credits that are removed - reserves for auction allowances that are removed Holding limits do not apply to clearing house accounts.	Admin rules
24. Account agents, recognition by Director	24. (1) An individual may apply to the Director, in the manner approved by the Director, for recognition as an account agent if the person meets the following eligibility criteria: 1. The individual has not been convicted of a criminal offence in the five years before the individual submitted the application to the Director, unless a pardon, including a record suspension within the meaning of the <i>Criminal Records Act</i> (Canada), has been obtained. 2. The individual has not been found guilty of an offence under the Act. 3. The individual has not been found guilty of an offence under the <i>Commodity Futures Act</i> or the <i>Securities Act</i>. 4. The person does not have an identification number assigned for the purposes of dealing with emission allowances and credits. (2) The application shall include the following: 1. The name, address and date of birth of the applicant. 2. Copies of two government-issued identity documents, one of which must have a photograph, the person's name and date of birth. 3. An attestation by a notary or lawyer, completed no earlier than three months before the application is submitted, verifying the identity of the applicant and certifying the authenticity of the identity documents. 4. The name and contact information of the applicant's employer, if any. 5. Confirmation from a financial institution located in Canada that the person has an account with the institution and that the person's identity was verified at the time when the account was opened. 6. A document signed by the applicant that includes the following: i. A statement that, to the best of the applicant's knowledge, the applicant meets the criteria in subsection (1) and the information provided in the application is accurate. ii. A statement that the applicant consents to the Ministry giving information relating to the person to authorities in designated jurisdictions when necessary for the purposes of this Regulation and the similar rules and regulations of designated jurisdictions. (3) If the Director recognizes the applicant as an account agent, the Director shall assign an identification number to the applicant. (4) It is a condition of recognition as an account agent that the individual provide the Director with updated information within 30 days of any change in respect of the individual's satisfaction of the eligibility criteria under subsection (1).	Clearly written/straight forward – see Regulation text for details.	Admin rules

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	(5) It is a condition of recognition as an account agent that the individual provide the Director with updated information regarding the eligibility criteria under subsection (1) if the Director so requests, within the time specified by the Director. (6) The Director may cancel an individual's recognition as an account agent by providing the individual with written notice of the cancellation if the Director is satisfied that the individual has been convicted of a criminal offence or if the individual no longer satisfies the criteria set out in paragraphs 2 and 3 of subsection (1), or fails to provide information required under subsection (5).		
25. Account agents, who may be designated	25. (1) A registered participant may only designate one of the following as an account agent: 1. An individual who has been recognized as an account agent under section 24. 2. A person authorized to act as an account agent by a designated jurisdiction. (2) Only an individual who resides in Ontario may be designated as the primary account representative.	Clearly written/straight forward – see Regulation text for details. Admin rules	Admin rules
26. Authority of account agents	26. (1) A designated primary account representative or a designated alternate account representative of a registered participant is authorized to act on behalf of the participant to perform any actions that the participant is required or permitted to do under the Act. (2) An individual who is designated as an account viewing agent by a registered participant is authorized to observe the participant's cap and trade accounts on behalf of the participant. (3) If a designated primary or alternate account representative submits a notice or confirmation under this Regulation, the individual must include a statement that he or she is authorized to submit the notice or confirmation on behalf of the registered participant who made the designation and that the information set out in the notice or confirmation is true, accurate and complete to the best of his or her knowledge.	Clearly written/straight forward – see Regulation text for details. Admin rules	Admin rules
27. Designations, requirements and restrictions	27. (1) Each registered participant shall designate, (a) one individual as a primary account representative; (b) subject to subsection (2), at least one and no more than four individuals as alternate account representatives, none of whom may also be designated as the primary account representative. (2) A registered participant who is an individual is not required to designate an alternate account representative. (3) Each registered participant may designate up to five individuals as account viewing agents. (4) The designation shall include the following information in respect of each individual being designated: 1. The individual's name and the identification number assigned by the Director. 2. A statement signed by the chief officer or chief financial officer or a resolution of the board of directors of the registered participant, attesting that the individual has been designated to act on behalf of the registered participant as either an account representative or an account viewing agent, as the case may be. 3. An attestation from a notary or lawyer stating the relationship between the individual and the registered participant.	Registered participants shall designate one individual as the primary account representative (authorized to act on behalf of the participant to perform any actions that the participant is required or permitted to do under the Act). Registered participants who are individuals are not required to designate alternate account representatives. All other registered participants shall designate at least one (1), but no more than four (4), alternate account representatives (one person cannot be a primary and alternate account representative). (Alternates have the same authority as primary account reps). Registered participants may designate up to five (5) account viewing agents (authorized to observe the participant's cap and trade accounts on behalf of the participant). Details of required information for each individual being designated are clearly written/straight forward – see Regulation text for details (4) 1.-5.	Admin rules

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	4. A statement signed by the individual attesting that the individual has been designated to act on behalf of the registered participant for the purposes of this Regulation and that the individual undertakes to comply with this Regulation. 5. If the individual is designated by any other person as an account representative or as an account viewing agent for the purposes of this Regulation or as a person authorized to perform similar functions under the regulations of a designated jurisdiction, a statement signed by the individual, providing the name and contact information of any such person.		
28. Termination of designation	28. The designation of an individual as an account representative for a registered participant terminates when, (a) the Director receives a written request from the registered participant for termination of the designation; (b) all of the registered participant's accounts are closed; or (c) the Director cancels the recognition of the individual under subsection 24 (6).	Termination of account representative designation happens when: - Director receives written request from registered participant to terminate the designation - All of the registered participants accounts are closed - Director cancels the recognition of the individual as an account representative by providing the individual with written notice of the cancellation, if: 'the individual has been convicted of a criminal offence 'the individual has been found guilty of an offence under the Act 'the individual has been found guilty of an offence under the <i>Commodity Futures Act</i> or the <i>Securities Act</i> 'the individual fails to provide information to the Director when requested and in the specified time, regarding updated information regarding eligibility. Clearly written Section – see Regulation text for details. With reference to sections 27 and 28 of the Act. They are as follows:	Admin rules
29. Suspension of authority re accounts	29. (1) The Director may suspend a participant's or a designated account representative's authority to deal with emission allowances and credits held in a participant's cap and trade accounts by providing the individual with written notice of the suspension if the Director has reason to believe that the participant or account representative has contravened this Regulation or section 27 or 28 of the Act. (2) If the Director is satisfied that the participant or designated account representative, as the case may be, is no longer contravening this Regulation or section 27 or 28 of the Act, the Director shall reinstate the authority.	Prohibitions re: cap and trade accounts Unauthorized transfer between accounts 27. (1) No registered participant or recognized account agent shall transfer an emission allowance or credit be-tween the participant's cap and trade accounts in contravention of a requirement or restriction imposed by regulation. Unauthorized holding (2) No registered participant shall hold in the participant's cap and trade accounts an emission allowance or credit that is owned, directly or indirectly, by another registered participant. Exception (3) Subsection (2) does not apply to such registered participants, or in such circumstances, as may be pre-scribed. Prohibitions re: trading Fraud and market manipulation 28. (1) No person shall, directly or indirectly, engage or participate in any act, practice or course of conduct relating to emission allowances or credits that the person knows or reasonably ought to know, (a) results in or contributes to a misleading appearance of trading activity in, or an artificial price for, an emission allowance or credit; or	Admin rules

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		(b) perpetrates a fraud on any person. Attempts (2) No person shall, directly or indirectly, attempt to engage or participate in any act, practice or course of conduct that is contrary to subsection (1). Misleading or untrue statements (3) A person shall not make a statement that the person knows or reasonably ought to know, (a) in a material respect and at the time and in the light of the circumstances in which it is made is misleading or untrue or does not state a fact that is required to be stated or that is necessary to make the statement not misleading; and (b) would reasonably be expected to have a significant effect on the price or value of an emission allowance or credit. Same, misleading or untrue information (4) A person shall not provide any information that the person knows or reasonably ought to know, (a) in a material respect and at the time and in the light of the circumstances in which it is provided is misleading or untrue or does not state a fact that is required to be stated or that is necessary to make the information not misleading; and (b) would reasonably be expected to have a significant effect on the price or value of an emission allowance or credit. Trading where undisclosed change (5) No person shall purchase, sell, trade or otherwise deal with emission allowances or credits if the person has knowledge of information that has not been generally disclosed and that could reasonably be expected to have a significant effect on the price or value of an allowance or credit. Tipping (6) No person shall, other than in the necessary course of business, inform another person of information that has not generally been disclosed and that could reasonably be expected to have a significant effect on the price or value of an emission allowance or credit. Defence (7) A person shall not be found to have contravened subsection (5) or (6) if the person proves that the person reasonably believed that the information had been generally disclosed. Exceptions (8) Subsections (5) and (6) do not apply to the Minister, the Director or a person acting on their behalf.	
30. Minister to transfer upon receiving transfer request	30. (1) Upon receiving a request to transfer emission allowances or credits under this Regulation, the Minister shall transfer the allowances or credits that are identified in the request in accordance with the request, unless the Minister is of the view that, (a) the transfer would result in non-compliance with the Act or the regulations; (b) the Minister has reasonable grounds to believe that an offence has been committed under the Act in relation to the transfer request; or (c) the transfer request contains errors, omissions or is otherwise incomplete. (2) If the Minister refuses to transfer emission allowances or credits under subsection (1), the Minister shall provide notice of the reason for the refusal to all of the designated	Clearly written Section – see Regulation text for details.	Admin rules

Section	Regulation Text	ICF Interpretation	ICF Comments
	account representatives who have taken steps under this Regulation with respect to the transfer request. (3) If the Minister refuses to transfer emission allowances or credits under clause (1) (c), the notice shall identify the errors or omissions or shall include a description of how the transfer request is otherwise incomplete.		
31. When Minister may transfer between registered participants	31. (1) A registered participant may submit a request to the Minister to transfer emission allowances or credits from the participant's holding account to another registered participant's holding account by taking the following steps: 1. A designated account representative of the registered participant who wishes to transfer the emission allowances or credits must submit a notice of the intent to transfer emission allowances or credits to all other designated account representatives of the participant, setting out, i. the number of emission allowances and credits, ii. a description of the emission allowances and credits, and iii. except if the proposed transfer is between related persons, details with respect to the price to be paid for each emission allowance and credit. iv. <i>[MOECC Note: the type of transaction agreement, the date of the agreement, the expected termination date of the agreement, the contact information of other parties involved in the transaction, and all other transactions or products covered by the agreement. The types of contacts that can be specified include one of the following:</i> ☐ <i>over-the-counter agreements that involve a transfer to be completed within three days of the date of the agreement</i> ☐ <i>over-the-counter agreements that involve a transfer to be completed in more than three days from the date of the agreement or involve multiple transfers or includes the sale of other products</i> ☐ <i>exchange agreements]</i> 2. A second designated account representative of the participant must, no later than two days following the submission of the notice of intent under paragraph 1, confirm the participant's intent to transfer the emission allowances and credits mentioned in the notice to all other designated accounts representatives of the participant and to all designated account representatives of the registered participant to whom the emission allowances and credits would be transferred. 3. A designated account representative of the registered participant to whom the emission allowances and credits would be transferred must submit a confirmation that the participant to whom the emission allowances and credits would be transferred intends to accept the transfer. (2) Subject to subsection 30 (1), the Minister shall ensure that upon receipt of a confirmation of acceptance of the transfer under paragraph 3 of subsection (1), the emission allowances and credits specified in the confirmation of acceptance are transferred. (3) The steps described in paragraphs 1 and 2 of subsection (1) may both be taken by the same individual if the participant has only one designated account representative.	Clearly written Section – see Regulation text for details. But, in brief: Steps to submit a request to transfer emission allowances or credits from a participants holding account to another registered participants holding account include: 1. Designated account representative of participant transferring allowances or credits must submit a notice of intent to transfer allowances or credits to all other designated account representatives of the participant 2. A second designated account representative of participant (or the same person if the participant is an individual) must confirm, within two days of notice of intent submission, the participants intent to transfer allowances or credits to all other designated accounts representative of participant and to all designated account representatives of receiving participant 3. A designated account representative of the receiving participant must submit a confirmation that the receiving participant intends to accept the transfer. For clearing houses, registered participants transfer allowances or credits into the clearing house account for the purpose of transferring control to the clearing house. The allowances or credits may only be transferred out of the clearing house to the registered participant receiving the allowances. Clearing houses may only hold allowances and credits for a maximum of 5 days before they must be transferred to the buyer participant or returned to the seller participant. The final confirmation in the participant transfer steps described above (confirmation from receiving participant) would not be required to transfer to/from a clearing house.	Admin rules

Section	Regulation Text	ICF Interpretation	ICF Comments
	(4) If the Minister asks a designated account representative of a participant for information relating to the transfer of emission allowances or credits under this section, the account representative shall give the information to the Minister as soon as possible. [MOECC Note: Transfers involving clearing houses] ☐ Allowances and credits may only be transferred into the clearing house account by a registered participant (i.e., potential seller) for the purpose of transferring control of them to the clearing house, and may only be transferred out of the account to the registered participant receiving the allowances (i.e., buyer) pursuant to the transaction being cleared. ☐ Clearing houses would only be able to hold allowances and credits for a maximum of five days before they must be transferred to a buyer or returned to the seller. ☐ Requests to transfer compliance instruments to or from a clearing house account would not require confirmation from an account representative of the destination holding account.]		
32. Voluntary removal of emission allowances or credits from holding account	32. (1) A registered participant may submit a request to the Minister for the removal of emission allowances or credits from the participant’s holding account by taking the following steps: 1. A designated account representative of the participant who wishes to have the emission allowances or credits removed must submit a notice of the participant’s intent to remove emission allowances and credits to all other designated account representatives of the participant, setting out the number of emission allowances and credits and a description of the emission allowances and credits that are intended to be removed. 2. A second designated account representative of the participant must, no later than two days following the submission of the notice of intent under paragraph 1, confirm the participant’s intent to remove the emission allowances and credits mentioned in the notice to all other designated account representatives of the participant. (2) Upon receiving a confirmation under paragraph 2 of subsection (1), the Minister shall remove the emission allowances or credits specified in the confirmation from the holding account and retire them. (3) The steps described in paragraphs 1 and 2 of subsection (1) may both be taken by the same individual if the participant has only one designated account representative. (4) If the Minister asks a designated account representative of a participant for information relating to the transfer of emission allowances or credits under this section, the account representative shall give the information to the Minister as soon as possible.	Clearly written Section – see Regulation text for details. Note: allowances or credits that are voluntarily removed from holding accounts are retired.	Admin rules
33. Emission allowances in closed accounts	33. If a capped participant’s cap and trade accounts are closed under section 25 of the Act and any Ontario emission allowances or Ontario credits remain in the accounts, the Minister shall take the following steps: 1. The Minister shall reserve the Ontario emission allowances for auctions. 2. The Minister shall retire the Ontario early reduction credits. [MOECC Note: See Appendix for further information on early reduction credits.] [MOECC Note: Pending rules on the creation of Ontario offset credits, Ontario offset credits remaining in closed account would either be retired or reserved to replace	A registered participant may have their cap and trade account automatically closed in such circumstances as may be prescribed (e.g. on request, cancellation of participant’s registration, or other reason, such as violations, etc.) and the Director may impose conditions on the closing of an account. If Ontario allowances or Ontario credits remain in the accounts, the Minister shall: - reserve Ontario allowances for auction - retire Ontario early reduction credits	Admin rules

Section	Regulation Text	ICF Interpretation	ICF Comments																						
	<i>credits that were discovered to be invalid or were reversed (e.g., trees destroyed by forest fire).]</i> <i>[MOECC Note: Posting of transactions - The minister, at least once per year, shall post a list of registrants and a summary of transactions.]</i>	- if/when applicable – Ontario offset credits would either be retired or used to replace invalid or reversed offsets																							
CREATION OF ONTARIO EMISSION ALLOWANCES																									
34. Number of Ontario emission allowances to be created	34. For each year set out in Column 1 of the following Table, the Minister shall create the number of Ontario emission allowances set out opposite the year in Column 2 of the Table: <table><tr><td>Column 1</td><td>Column 2</td></tr><tr><td>Year</td><td>Number of Allowances</td></tr><tr><td>2017</td><td>142,332,000</td></tr><tr><td>2018</td><td>136,440,000</td></tr><tr><td>2019</td><td>130,556,000</td></tr><tr><td>2020</td><td>124,668,000</td></tr></table> <i>[MOECC Note: The Minister will establish the accounts needed to administer the program including accounts for creating allowances, distributing allowances free of charge, distributing allowances by auction, reserving allowances for direct sale, retiring allowances, cancelling allowances, invalidating offset credits, and pending rules on the creation of offset credits, for reserving credits to replace invalid or reversed offset credits.]</i>	Column 1	Column 2	Year	Number of Allowances	2017	142,332,000	2018	136,440,000	2019	130,556,000	2020	124,668,000	Clearly written/straight forward – see Regulation text for details.	Allowances under the cap in the cap and trade program, MOECC excludes approx. 15% of ON's emissions profile. Comparison: ICF's modeling in 2015 assumed closer to 90% coverage of ON's emissions (we only excluded 10% of provincial emissions from the program). ICF also used a slower annual cap reduction factor (approx. 3.5%), whereas MOECC is using approx. 4.2%. <i>ICF's 2015 Model</i> <table><tr><td>Year</td><td>Number of Allowances</td></tr><tr><td>2017</td><td>150,412,000</td></tr><tr><td>2018</td><td>145,232,000</td></tr><tr><td>2019</td><td>139,953,000</td></tr><tr><td>2020</td><td>134,723,000</td></tr></table>	Year	Number of Allowances	2017	150,412,000	2018	145,232,000	2019	139,953,000	2020	134,723,000
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35. Minister to reserve emission allowances for sale, etc.	35. (1) Each time the Minister creates Ontario emission allowances, the Minister shall reserve five per cent of all Ontario emission allowances created for the purposes of sales under section 37. (2) The Minister shall classify the Ontario emission allowances reserved under subsection (1) into three categories with the labels of Category A, B and C, with each category consisting of, to the extent possible, an equal number of emission allowances. <i>[MOECC Note: - Emission allowances will be distributed free of charge annually for each vintage year when the vintage year equals the calendar year- See Appendix for further information on the distribution of allowances free of charge]</i> <i>[MOECC Note – Emission allowances auctioned –Emission allowances remaining following determination of the total amount to be distributed for free, will be reserved for quarterly auctions for that year. Additionally, ten per cent of Ontario emission allowances created with a vintage three years later than the current auction year would also be reserved for annual quarterly auctions.]</i> (3) The Minister shall classify each Ontario emission allowance reserved for the purposes of distribution free of charge or for the purpose of auctions as an emission allowance with a vintage year. (4) After an order is issued under paragraph 1 of subsection 14 (8) of the Act, the Minister shall deduct from the Ontario emission allowances reserved by the Minister for the next auction a number of Ontario emission allowances equal to 25 per cent of the amount of the outstanding obligations at the time of the determination under section 13 of this Regulation.	5% of allowances created by the Minister each year will be set aside for reserve. The reserve allowances will be divided evenly into three categories: Category A, B, and C. A certain amount of allowances will be distributed free of charge each year (for the current vintage year). The remaining allowances each year will be sold at quarterly auctions. Future allowances will be created (with a vintage of three years later). 10% of these will be reserved for quarterly auctions. If there are outstanding obligations, the Minister will deduct (from the allowances reserved for the next auction) and retire the number of allowances equal to 25% of the outstanding obligations.	This Section describes the reserve allowances that will be 'reserved' for sale at fixed prices – designed to act as the 'soft price ceiling' in the market and to provide a supply of allowances in periods of high demand. Note that CA and QC raise the % of allowances put into reserve annually to 7% in the CP starting in 2018. Reserve allowances – each year this amount divided evenly between A, B and C reserve allowance categories. An example of expected amounts in the reserve categories is below, see Section 59 for pricing example. <table><tr><th>Cap (ON Allowances)</th><th>Reserve Allowances for sale (5%/yr)</th><th>Approx. amount in each category A, B and C</th></tr><tr><td>2017 142,332,000</td><td>7,116,600</td><td>2,372,200</td></tr><tr><td>2018 136,440,000</td><td>6,822,000</td><td>2,274,000</td></tr><tr><td>2019 130,556,000</td><td>6,527,800</td><td>2,175,933</td></tr><tr><td>2020 124,668,000</td><td>6,233,400</td><td>2,077,800</td></tr></table>	Cap (ON Allowances)	Reserve Allowances for sale (5%/yr)	Approx. amount in each category A, B and C	2017 142,332,000	7,116,600	2,372,200	2018 136,440,000	6,822,000	2,274,000	2019 130,556,000	6,527,800	2,175,933	2020 124,668,000	6,233,400	2,077,800							
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Section	Regulation Text	ICF Interpretation	ICF Comments
DISTRIBUTION OF ONTARIO EMISSION ALLOWANCES BY AUCTION AND SALE			
36. Distribution by auction	(5) The Minister shall retire the Ontario emission allowances deducted under subsection (4). 36. (1) Each year starting in 2017, the Minister shall auction Ontario emission allowances on four separate occasions, each consisting of a single round of bidding. (2) The Minister may only auction the following emission allowances: 1. Such Ontario emission allowances as have been reserved by the Minister for the purpose of auctions. 2. Any Ontario emission allowances that have been submitted to the Minister under paragraph 2 of subsection 14 (7) of the Act. (3) If, at the end of an auction, any of the Ontario emission allowances that were auctioned remain unsold, the Minister shall reserve them for the purposes of a subsequent auction under subsection (1) and may auction them subsequently, subject to the following rules: 1. An unsold Auction Class 1 emission allowance may be auctioned subsequently only if, following the most recent auction in which the allowance remained unsold, the lowest bid price accepted by the Minister for Auction Class 1 emission allowances was higher than the minimum price at two or more consecutive auctions held by the Minister. 2. An unsold Auction Class 2 emission allowance may be auctioned subsequently in a year that is no earlier than the vintage year of the unsold emission allowance. 3. The maximum number of unsold emission allowances that may be auctioned on a single occasion is the number that is equal to 25 per cent of the emission allowances that are being auctioned on the occasion that, i. have not previously been auctioned, and ii. have been classified as having a vintage year that is the auction year.	Ontario allowances will be auctioned quarterly, with a single round of bidding at each auction. Allowances to be auctioned include: - allowances reserved by the Minister for the purpose of auctions - allowances submitted to the Minister with respect to shortfalls, as additional allowances in an amount equal to three times the shortfall Any allowances that remain unsold at the end of an auction, shall be reserved for subsequent auctions subject to the following rules: - current and previous vintage allowances may be auctioned if the lowest bid price (for current and previous vintage) is higher than the minimum bid price from at least two consecutive auctions - future vintage allowances may be auctioned once they become current vintage - unsold emission allowances being sold at a single auction may not exceed 25% of allowances being auctioned that have not previously been auctioned and that are current vintage year.	Admin rules
37. Distribution by sale	37. (1) Each year starting in 2017, in addition to holding auctions, the Minister shall offer Ontario emission allowances for sale to capped participants on four separate occasions. (2) The Minister shall only offer for sale such Ontario emission allowances as have been reserved for sales under this section. (3) If any of the emission allowances that were offered for sale under subsection (1) remain unsold after the Minister has offered them for sale, the Minister shall reserve them for the purposes of a subsequent sale under this section.	In addition to quarterly auctions, emission allowances (from Categories A, B or C) will be offered for sale four times per year. If allowances go unsold, they will be reserved for subsequent sale.	These are the 'reserve allowances'
38. Minister's notice of auction or sale	38. At least 60 days before an auction or a sale, the Minister shall provide notice of the auction or sale to the public in such manner as the Minister considers appropriate, setting out the following information: 1. The date on which and time period during which bidding in the auction or sale may take place. 2. The location or internet address at which the auction or sale will be held. 3. A summary of the requirements of this Regulation relating to the auction or sale. 4. A summary of the auction or sale process.	Auction and sale notices will be posted at least 60 days in advance. Details to be provided include: - date/time - location (or internet address) - summary of auction or sale requirements - summary of auction of sale process - for auctions – the number of allowances available in each vintage year and the minimum price	Admin rules

Section	Regulation Text	ICF Interpretation	ICF Comments
	5. In the case of an auction, i. the vintage years of the Ontario emission allowances being offered for sale at the auction and the number of emission allowances with each vintage year being offered, and ii. the minimum price of the Ontario emission allowances. 6. In the case of a sale, i. the categories of the Ontario emission allowances being offered for sale and the number of emission allowances of each category being offered, and ii. the price of the emission allowances in each category.	- for sales – the number of allowances available in each category and the price for each category	
39. Financial assurance	39. (1) Financial assurance required to be given by a registered participant under this Regulation for the purposes of bidding in an auction or a sale must meet the following criteria: 1. It must be in Canadian dollars. 2. It must be valid for at least 26 days following the date of the auction or sale. 3. It must be provided in the form of a transfer, irrevocable letter of credit or letter of guarantee issued by, i. a bank within the meaning of the <i>Bank Act</i> (Canada), or ii. a financial services cooperative that is authorized by a statute of Canada or Ontario to carry on business in Canada or Ontario. 4. It must be deposited with and payable to the Minister. 5. It must be for an amount that is greater than or equal to the participant's proposed maximum bid value, as determined under subsection (2) or (3). (2) The participant's proposed maximum bid value for an auction is determined as follows: 1. For each bid price proposed by the participant, multiply the bid price by the number of emission allowances that the participant proposes to purchase at that bid price or at a higher bid price. 2. The highest value calculated under paragraph 1 is the proposed maximum bid value. (3) The participant's proposed maximum bid value for a sale is determined as follows: 1. For each bid price proposed by the participant, multiply the bid price by the number of emission allowances that the participant proposes to purchase at that bid price. 2. Determine the sum of the results calculated under paragraph 1.	Clearly written/straight forward – see Regulation text for details.	Admin rules Illustrative example: If a capped participant is bidding to purchase the maximum amount of allowances possible at an auction* at a price of \$15/allowance, financial assurance would have to be provided to demonstrate the participant could pay \$93,750,000 if the bid was accepted. *For the example, assume 100,000,000 allowances go to auction in a given year (after free allocation allowances and reserve allowances are deducted from the number of allowances created for that year). 25% of those allowances are auctioned in each of the four annual auctions, and at any given auction a capped participant can purchase a maximum of 25% of the allowances being auctioned (ref S.48), so for this ex. 6,250,000 allowances.
40. Bids	40. (1) A registered participant must include the following in a bid submitted in an auction or a sale: 1. The bid price, in dollars and whole cents. 2. The quantity of lots that the participant wishes to purchase. (2) Each bid must be sealed and submitted in the form approved by the Minister. (3) A participant may submit more than one bid in an auction or sale.	Clearly written Section – see Regulation text for details.	Admin rules
41. Payment for purchases	41. (1) A registered participant who has been notified by the Minister that one or more bids by the participant have been successful in an auction or a sale shall pay to the Minister the amount of the successful bids within seven days after receiving the notice. (2) If an amount payable under subsection (1) is not paid within the period specified in subsection (1), the Minister may use the person's financial assurance provided under section 39 to secure the payment.	Payment is due within 7 days of a successful bid. If this deadline is missed, the Minister may use the financial assurance provided before the auction or sale to secure payment.	Admin rules

Section	Regulation Text	ICF Interpretation	ICF Comments
	(3) The Minister shall transfer the Ontario emission allowances paid for under subsection (1) or (2) to the participant's, (a) holding account, in the case of an auction purchase, subject to subsection (5); or (b) compliance account, in the case of a sale. (4) The Minister shall return any unused portions of financial assurance provided under section 39. (5) Despite clause (3) (a), the Minister may transfer Ontario emission allowances purchased at an auction to a participant's compliance account in [MOECC Note: if there is room remaining in respect to the compliance exemption related to the holding limit.]	The allowances are transferred to the participants holding account if purchased at auction. If there is room remaining in the compliance account, the Minister may transfer allowances purchased at auction to a compliance account. The allowances are transferred to the participants compliance account if purchased at sale. Unused financial assurance is returned to the participants.	
42. Summary of auction, sale	42. (1) The Minister shall make available to the public, in a manner that the Minister considers appropriate, a written summary of each auction or sale, setting out the following information: 1. In the case of an auction, i. the lowest bid price accepted for Auction Class 1 emission allowances, and ii. the lowest bid price accepted for Auction Class 2 emission allowances. 2. The registered participants who submitted bids in the auction or sale. 3. Details regarding the number of emission allowances sold, the number of each vintage year or category of emission allowances sold, and a description of how the emission allowances were distributed among the participants who submitted bids, without identifying which participants purchased the emission allowances. (2) The summary shall be made available within 45 days following the conclusion of the auction or sale.	The Minister will release a written summary of each auction or sale within 45 days following the auction or sale. Information in the summary includes: - lowest accepted bid price for auction class 1 and class 2 emission allowances - registered participants who submitted bids - number of allowances sold by vintage year or category - allowance distribution amongst participants (without revealing who purchased allowances)	Admin rules
BIDDING IN AUCTIONS			
43. Permission to bid in auctions	43. (1) A registered participant may apply to the Minister for permission to bid in auctions by submitting the following information to the Minister: 1. The name, contact information and holding account number of the participant. 2. The names and identification numbers of all designated account representatives of the participant. 3. If the participant is an individual, the individual's social insurance number. 4. The form of financial assurance to be given. 5. The percentage of the holding limit allotted to the participant in accordance with section 21 or 22, if applicable. 6. The percentage of the purchase limit allotted to the participant in accordance with section 48, if applicable. (2) Subject to subsection (3), upon receiving an application from a participant that meets the requirements set out in subsection (1), the Minister shall permit the participant to bid in auctions. (3) The Minister shall refuse permission to bid in auctions if any of the following circumstances apply: 1. The participant has given false or misleading information in the application. 2. The participant has failed to disclose information required under subsection (1).	Clearly written/straight forward – see Regulation text for details.	Admin rules UG/EGD must apply for permission to bid in auctions

Section	Regulation Text	ICF Interpretation	ICF Comments
	3. The participant’s registration or cap and trade accounts are subject to conditions under this Regulation or imposed by the Director that prohibit participation in auctions or otherwise prevent emission allowances or credits from being transferred to the participant’s holding account.		
44. Expiry of permission if material change	44. If there is a material change in the information submitted to the Minister under subsection 43 (1), the permission expires and the participant must reapply under section 43 for permission to bid in auctions.	Clearly written Section – refers to Section 43, <i>Permission to bid in auctions</i> – see Regulation text for details.	Admin rules
45. Suspension, revocation of permission	45. (1) The Minister may suspend permission to bid in auctions if the circumstances described in paragraph 3 of subsection 43 (3) apply. (2) If permission has been suspended, the Minister may reinstate the permission once the circumstances described in paragraph 3 of subsection 43 (3) no longer apply. (3) The Minister may revoke permission to bid in auctions if the Minister becomes aware that the participant has given false or misleading information in the application for permission, or if the participant has failed to comply with section 46 or 47 of this Regulation or section 28 of the Act or failed to disclose information required by this Regulation. (4) If the Minister receives notice from a participant who has been permitted to bid in auctions that the participant no longer wishes to bid in auctions, the Minister shall revoke the permission.	Clearly written/straight forward – see Regulation text for details. With reference to sections 28 of the Act, see section 29 (Suspension of authority re accounts) of this document above.	Admin rules

Section	Regulation Text	ICF Interpretation	ICF Comments						
46. Duty to update information	46. A participant who has permission to bid in auctions under section 43 shall, if any of the information submitted as part of the application changes, provide updated information to the Minister at least 40 days before an auction in which the participant wishes to bid.	Participants must notify the Minister of any changes to any information provided under section 43 at least 40 days before an auction where the participant intends to participate.	Admin rules						
47. Criteria to be met before each auction	47. (1) Subject to subsection (2), only a participant who meets the following criteria may bid in an auction held by the Minister: 1. The participant has permission under section 43 to bid in auctions held by the Minister. 2. The participant has given the Minister notice of the participant’s intention to bid in the auction at least 40 days before the auction. 3. The participant has given financial assurance to the Minister at least 12 days before the auction. (2) If any of the information submitted under paragraph 5 or 6 of subsection 43 (1) as part of the participant’s most recent application for permission to bid in auctions changes during the period beginning 39 days before the auction and ending on the day of the auction, the person is not permitted to bid in the auction.	Clearly written/straight forward – see Regulation text for details. For (2) reference to 43 (1), paragraphs 5 and 6 cover: 5. The percentage of the holding limit allotted to the participant in accordance with section 21 or 22, if applicable. 6. The percentage of the purchase limit allotted to the participant in accordance with section 48, if applicable.	Admin/auction rules						
48. Purchase limits	48. (1) A capped participant or a group of capped participants who are related shall not purchase more than 25 per cent of the Ontario emission allowances available at an auction. (2) Capped participants who are related shall allocate the purchase limit set out in subsection (1) among themselves. (3) A capped participant who is a related person shall not purchase more than the share of the purchase limit allocated to the participant in accordance with subsection (2). (4) A market participant or a group of related market participants shall not purchase more than four per cent of the Ontario emission allowances available at an auction. (5) Market participants who are related shall allocate the purchase limit set out in subsection (4) among themselves. (6) A market participant who is a related person shall not purchase more than the share of the purchase limit allocated to the participant in accordance with subsection (5). (7) If a group of related persons includes at least one capped participant and one market participant, the total purchased by the group at an auction shall not exceed 25 per cent of the Ontario emission allowances available at the auction. (8) Participants who are related persons shall allocate the purchase limit set out in subsection (7) among themselves and no more than four per cent of the Ontario emission allowances available at the auction may be allocated to the related persons who are market participants. (9) Subsections 21 (6) and (7) apply for the purposes of this section.	Capped participants or group of related capped participants shall not purchase more than 25% of Ontario allowances available at auction. Market participants or group of related market participants shall not purchase more than 4% of Ontario allowances available at auction. If a group of related participants includes at least one capped participant and one market participant, the total purchase shall not exceed 25% of Ontario allowances available at auction. For the purposes of this section, a business relationship exists between two persons if there is a direct or indirect relationship, in which: - one person owns more than 50% of the securities or has the right or obligation to acquire more than 50% of the securities of the other person - one person shares more than 50% of its directors or officers with the other person or may appoint up to 50% of the other persons directors or officers - one person owns voting securities accounting for more than 50% of the voting rights in the other person - each have the same designated account representative, and that same individual also performs other duties for one of the persons - if it is a (not limited) partnership, one person holds more than 50% of the interests in the partnership - if it is a limited partnership, one person is a general partner of the partnership For the purposes of this section, a business relationship exists between a group of persons	Purchase limit of 25% of the ON emission allowances available at any given auction <table><tr><td>Example of No. Allowances to be Auctioned per yr</td><td>Allowances Auctioned per quarterly auction</td><td>Max purchase per capped participant (25% of allowances)</td></tr><tr><td>100,000,000</td><td>25,000,000</td><td>6,250,000</td></tr></table> The maximum purchase amount in the example could be purchased by a capped participant at each of the quarterly auctions in the example year, for a total purchase of 6,250,000 x 4 auctions = 25,000,000 in that year (if the participant was able to purchase its allowable maximum at each auction).	Example of No. Allowances to be Auctioned per yr	Allowances Auctioned per quarterly auction	Max purchase per capped participant (25% of allowances)	100,000,000	25,000,000	6,250,000
Example of No. Allowances to be Auctioned per yr	Allowances Auctioned per quarterly auction	Max purchase per capped participant (25% of allowances)							
100,000,000	25,000,000	6,250,000							

Section	Regulation Text	ICF Interpretation	ICF Comments
ADMINISTRATION OF AUCTION			
		- if two or more persons in the group are controlled by one of the persons in the group	
49. Lots	49. The Minister shall divide Ontario emission allowances that are to be auctioned into lots in accordance with the following rules: - Each lot, other than the final lot, shall consist of 1,000 Ontario emission allowances. - The final lot may consist of fewer than 1,000 Ontario emission allowances if fewer than 1,000 Ontario emission allowances remain once all other emission allowances have been divided into lots of 1,000. - Each lot may consist of only one of the following combinations of Ontario emission allowances: - Auction Class 1 emission allowances. - Auction Class 2 emission allowances, all of which must have been classified as having the same vintage year.	Allowances shall be auctioned in lot sizes of 1,000 Ontario allowances (the final lot may be less than 1,000 if number of allowances isn't evenly divisible by 1,000). Each lot may consist of only one combination of Ontario allowances: - Auction Class 1 emission allowances - Auction Class 2 emissions allowances (all of which must have the same vintage year)	Admin/auction rules
50. Minimum price	50. (1) The minimum price of an emission allowance in auction year 2017 is determined by applying the following formula: $MP_{2017} = 12.82 \times (1 + 0.05 + Ir)$ Where, MP_{2017} = the minimum price for an emission allowance in auction year 2017, Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30, 2016, as published by Statistics Canada under the <i>Statistics Act</i> (Canada). (2) The minimum price of an emission allowance in an auction year after 2017 is determined by applying the following formula: $MP_y = MP(y-1) \times (1 + 0.05 + Ir)$ Where, MP_y = the minimum price for an emission allowance in auction year y, $MP(y-1)$ = the minimum price for an emission allowance in the auction year immediately preceding year y; Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30th of the year immediately preceding year y, as published by Statistics Canada under the <i>Statistics Act</i> (Canada).	Minimum price in 2017 is: $MP_{2017} = 12.82 \times (1 + 0.05 + Ir)$ Where Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30, 2016. Minimum price for years after 2017 is: $MP_y = MP(y-1) \times (1 + 0.05 + Ir)$ Where, MP_y = the minimum price for an emission allowance in auction year y, $MP(y-1)$ = the minimum price for an emission allowance in the auction year immediately preceding year y; Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30th of the year immediately preceding year y *note – this equation calls for the average CPI over the stated 12-month period, but the equation requires a percentage. In the example provided (ON mthly CPI Jan 2015-16), monthly CPI went from 125.3 in January 2015 to 127.8 in January 2016, so a 2% change in CPI was used in the calculation.	For illustrative purposes this example uses the ON average monthly CPI change from January 2015-16, a 2% increase. The minimum price of an ON emission allowance in 2017 will be calculated as follows: $MP_{2017} = 12.82 \times (1 + 0.05 + 0.02)$ $MP_{2017} = \$13.72$
51. Bids in excess of holding limit, purchase limit	51. (1) After the period of time for bidding has concluded, the Minister shall, in the circumstances described in subsection (2), reject bids or portions of bids of a participant starting with the participant's lowest bid price and continuing in increasing order by bid price. (2) The Minister shall reject bids or portions of bids under subsection (1) if acceptance of all of the participant's bids would result in contravention of a limit under section 21, 22 or 48. (3) The Minister shall reject bids or portions of bids under subsection (1) until the total of the participant's bids remaining would, if accepted, not result in contravention of a limit under section 21, 22 or 48.	Minister shall reject bids or portions of bids (starting with the lowest bid price) if acceptance would result in exceeding current vintage holding limit, future vintage holding limit, or purchase limit. Bids are rejected until remaining bids would not exceed holding or purchase limits.	Admin/auction rules
52. Determination of actual	52. (1) Before accepting any bids, the Minister shall determine whether each participant's actual maximum bid value, as determined under subsection (2), is greater than or equal to the participant's financial assurance.	Actual maximum bid value is determined as the highest value calculated by:	Admin/auction rules

Section	Regulation Text	ICF Interpretation	ICF Comments
maximum bid value	(2) The participant's actual maximum bid value is determined as follows: 1. For each bid price included in the participant's bids, multiply the bid price by the number of emission allowances that the participant proposed to purchase at that bid price or at a higher bid price. 2. The highest value calculated under paragraph 1 is the actual maximum bid value.	For each bid price included in the participant's bids, multiply the bid price by the number of emission allowances that the participant proposed to purchase at that bid price or at a higher bid price.	

Section		Regulation Text	ICF Interpretation	ICF Comments
53. Maximum bid value in excess of financial assurance		53. (1) If the actual maximum bid value of a participant's bids exceeds the value of the participant's financial assurance, the Minister shall remove from the participant's bids enough lots such that the remaining bids would not result in the actual maximum bid value exceeding the value of the financial assurance. (2) The Minister shall remove lots under subsection (1) starting with the lowest bid price and continuing in increasing order by bid price. (3) If the Minister has removed lots under subsection (1), the Minister shall determine at which bid price mentioned in subsection (4), if any, the removed lots could be bid upon without causing the actual maximum bid value to exceed the value of the participant's financial assurance. (4) For the purposes of subsection (3), the bid price must be a bid price that has been included in another participant's bid in the auction and, if there is more than one bid price available to the Minister, the Minister shall use the highest bid price for the purposes of subsection (3). (5) The Minister shall consider bids at bid prices determined by the Minister under subsection (3) for lots that have been removed under subsection (1) as if they were new bids submitted at the bid price determined under subsection (3). (6) If the Minister is unable to determine a new bid price for removed lots under subsection (3), the Minister shall reject the removed lots.	If the participant's actual maximum bid value (defined directly above, S.52) exceeds the value of their financial assurance, the Minister will remove lots until the remaining bids do not exceed the value of the financial assurance. The lots will be removed starting with the lowest bid price and continuing in increasing order. If lots are removed, the Minister will determine if there is a (lower) bid price that these lots could be bid at without exceeding the participant's financial assurance. The Minister will use the highest bid price that has been included in another participant's bid that meets this criteria. If a price can be determined, the Minister shall consider removed bids as if they were new bids submitted by the participant at this bid price. If the Minister is unable to determine a new bid price for the removed lots (i.e. one that allows the participant not to exceed financial assurance AND has been included in another participants bid), the Minister shall reject the removed lots.	Admin/auction rules ICF to provide an example when we meet to review
54. Acceptance of bids		54. (1) In this section, "lowest bid price (Auction Class 1)" means the lowest bid price accepted by the Minister for Auction Class 1 emission allowances; "lowest bid price (Auction Class 2)" means the lowest bid price accepted by the Minister for Auction Class 2 emission allowances. (2) The Minister shall accept bids that have not been rejected under section 51 or 53, starting with the highest bid price and continuing in decreasing order by bid price until no more bids remain or no more emission allowances are available. (3) No bid price that is below the minimum price shall be accepted. (4) Subsection (5) applies if more than one bid has been submitted, (a) at the lowest bid price (Auction Class 1) for Auction Class 1 emission allowances; or (b) at the lowest bid price (Auction Class 2) for Auction Class 2 emission allowances. (5) If the total quantity of emission allowances bid upon at a bid price mentioned in clause (4) (a) or (b) is greater than the quantity of emission allowances available at that bid price, the Minister shall divide the remaining emission allowances available at that bid price between the participants who submitted the bids at that bid price, in accordance with the following steps:	Minister shall accept eligible bids (i.e. excluding bids in excess of holding limit or purchase limit (ref S.51) or in excess of financial assurance (S.53)) starting with the highest bid price and continuing in decreasing order until no more bids remain or no more allowances are available. If, once the Minister reaches the lowest bid price, there are more bids than there are remaining allowances, the Minister shall divide the remaining allowances (at that lowest bid price) between the participants who submitted bids at that price, in accordance with the following steps: - Determine each participant's share of allowances (= quantity of allowances bid at the lowest price by participant/total quantity of allowances bid upon at that lowest price) - Multiply participant's share by remaining allowances (rounding down to nearest whole number) to determine number of allowances distributed to the participant - If any allowances remain after doing this for each participant, assign a random number to each participant who submitted a bid at that lowest bid price, then distribute one allowance at a time in ascending order of random number assignment No bid price below the minimum set price shall be accepted (ref S.50).	Admin/auction rules Bids are accepted in order of highest priced to lowest priced until the available allowances are exhausted, but then all bids are sold at lowest bid price. ICF to provide an example when we meet to review

Section	Regulation Text	ICF Interpretation	ICF Comments
	1. Divide the quantity of emission allowances bid upon by each participant at that bid price by the total quantity of emission allowances that were bid upon at that bid price. This is the participant's share of the emission allowances. 2. Multiply each participant's share determined under paragraph 1 by the quantity of emission allowances remaining, rounding down to the nearest whole number. This is the number of emission allowances to be distributed to the participant. 3. If any emission allowances remain after carrying out the steps under paragraphs 1 and 2, distribute the remaining emission allowances as follows: i. Assign a random number to each participant who submitted a bid at the applicable lowest bid price. ii. Distribute one emission allowance at a time to the participants in ascending order by the random number assigned, until no more of the emission allowances available at that bid price remain. (6) The Minister shall sell each emission allowance in respect of which a bid has been accepted at the lowest bid price (Auction Class 1) or at the lowest bid price (Auction Class 2), as the case may be.	(6) The Minister shall sell each emission allowance in respect of which a bid has been accepted at the lowest bid price (Auction Class 1) or at the lowest bid price (Auction Class 2), as the case may be; – This means that bids are accepted in order of highest to lowest, but then all bids are sold at lowest bid price.	
BIDDING IN SALES			
55. Permission to bid in sales	55. (1) A capped participant may apply to the Minister for permission to bid on emission allowances offered for sale under section 37 by submitting the following information to the Minister: 1. The information set out in paragraphs 1 to 4 of subsection 43 (1). 2. The participant's compliance account number. 3. The percentage of the holding limit allotted to the participant in accordance with section 21, if applicable. (2) Subject to subsection (3), upon receiving an application from a capped participant that meets the requirements set out in subsection (1), the Minister shall permit the capped participant to bid in sales. (3) The Minister shall refuse to give permission to bid in sales if any of the following circumstances apply: 1. The person has given false or misleading information in the application. 2. The participant has failed to disclose information required under subsection (1). 3. The person's registration or account is subject to conditions imposed by the Director that prohibit the person's participation in sales or otherwise prevent emission allowances or credits from being transferred to the person's compliance account.	Clearly written/straight forward – see Regulation text for details. This item refers to bids on sales i.e. reserve allowances, Category A, B, C	Admin/auction rules – this is for 'reserve allowances'
56. Suspension, revocation of permission	56. (1) The Minister may suspend permission to bid in sales if the circumstances described in paragraph 3 of subsection 55 (3) apply. (2) If a permission has been suspended, the Minister may reinstate the permission once the circumstances described in paragraph 3 of subsection 55 (3) no longer apply. (3) The Minister may revoke permission to bid in sales if the Minister becomes aware that the participant has given false or misleading information in the application for permission or if the participant has failed to comply with section 46 or 57 of this	Clearly written/straight forward – see Regulation text for details. This item refers to bids on sales i.e. reserve allowances, Category A, B, C With reference to sections 28 of the Act, see section 29 (Suspension of authority re accounts) of this document above.	Admin/auction rules – this is for 'reserve allowances'

Section	Regulation Text	ICF Interpretation	ICF Comments
	Regulation or section 28 of the Act or failed to disclose information required by this Regulation. (4) If the Minister receives notice from a participant who has been authorized to bid in sales that the participant no longer wishes to bid in sales, the Minister shall revoke the permission.		
57. Criteria to be met before each sale	57. (1) Subject to subsection (3), only a capped participant who meets the following criteria may bid in a sale held by the Minister: 1. The person has been a capped participant for at least 40 days before the sale. 2. The person has permission under section 55 to bid in sales held by the Minister. 3. The person has given the Minister notice of the person's intention to bid in the sale at least 40 days before the sale. 4. The participant has given financial assurance to the Minister at least 12 days before the sale. 5. On the day of the sale, the participant does not hold any emission allowances in the participant's holding account that can be submitted for the current compliance period. (2) For the purposes of paragraph 3 of subsection (1), the notice shall be in the form approved by the Minister and shall include any updates to the information given as part of the application under section 55. (3) If the information submitted under paragraph 3 of subsection 55 (1) as part of a participant's application for permission to bid in sales changes during the period beginning 39 days before the sale and ending on the day of the sale, the person is not permitted to bid in the sale.	Clearly written/straight forward – see Regulation text for details. This item refers to bids on sales i.e. reserve allowances, Category A, B, C	Admin/auction rules – this is for 'reserve allowances'
ADMINISTRATION OF SALE			
58. Lots	58. The Minister shall divide Ontario emission allowances that are to be offered for sale under section 37 into lots in accordance with the following rules: 1. Each lot, other than the final lot, shall consist of 1,000 Ontario emission allowances of the same category. 2. The final lot may consist of fewer than 1,000 Ontario emission allowances if fewer than 1,000 Ontario emission allowances remain once all other allowances have been divided into lots of 1,000.	Allowances for sale shall be offered in lot sizes of 1,000 Ontario allowances (the final lot may be less than 1,000 if number of allowances is not evenly divisible by 1,000).	Admin/auction rules
59. Price	59. (1) The price of an Ontario emission allowance classified as Category A in 2017 is determined by applying the following formula: $P2017 = A \times (1 + 0.05 + Ir)$ Where, P2017 = the price for a Category A allowance in 2017, A = [MOECC Note: <i>Sale price posted by Quebec for a reserve emission unit in Category A in 2016; this will be a dollar value</i>], Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30, 2016, as published by Statistics Canada under the <i>Statistics Act</i> (Canada). (2) The price of an Ontario emission allowance classified as Category B in 2017 is determined by applying the following formula:	Sale price in 2017 of Category A, B, and C allowances is: $P2017 = (A \text{ or } B \text{ or } C) \times (1 + 0.05 + Ir)$ Where, A or B or C = Sale price (\$ value) posted by Quebec for a reserve emission unit in Category A or B or C in 2016 Prices of 2016 Category A, B and C reserve emission units in QC are listed below (calculated based on original 2013 prices in CA of \$40, \$45 and \$50 (CAD) respectively and increased annually by 5% plus inflation to 2020, because not posted by QC at this time):	For illustrative purposes this example uses the ON average monthly CPI change from January 2015-16 (a 2% increase), and estimated QC 2016 reserve prices as follows: QC Reserve Price A = \$46.68 QC Reserve Price B = \$52.52 QC Reserve Price C = \$58.36 The 2017 price of an ON emission allowance classified as Category A, B or C will be calculated as follows:

Section	Regulation Text	ICF Interpretation	ICF Comments
	$P_{2017} = B \times (1 + 0.05 + Ir)$ Where, P_{2017} = the price for a Category B allowance in 2017, B = [MOECC Note: <i>Sale price posted by Quebec for a reserve emission unit in Category B in 2016; this will be a dollar value</i>], Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30, 2016, as published by Statistics Canada under the <i>Statistics Act</i> (Canada). (3) The price of an Ontario emission allowance classified as Category C in 2017 is determined by applying the following formula: $P_{2017} = C \times (1 + 0.05 + Ir)$ Where, P_{2017} = the price for a Category C allowance in 2017, C = [MOECC Note: <i>Sale price posted by Quebec for a reserve emission unit in Category C in 2016; this will be a dollar value</i>], Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30, 2016, as published by Statistics Canada under the <i>Statistics Act</i> (Canada). (4) The price of an Ontario emission allowance classified as Category A, B or C in each year after 2017 is determined by applying the following formula: $P_y = P(y-1) \times (1 + 0.05 + Ir)$ Where, P_y = the price for an emission allowance of the relevant category in year y, $P(y-1)$ = the price for an emission allowance of the relevant category in the year immediately preceding year y, Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30th of the year immediately preceding year y, as published by Statistics Canada under the <i>Statistics Act</i> (Canada).	Reserve price A = \$46.68 Reserve price B = \$52.52 Reserve price C = \$58.36 Sale price for each year after 2017 of Category A, B, and C allowances is: $P_y = P(y-1) \times (1 + 0.05 + Ir)$ Where, P_y = the price for an emission allowance of the relevant category in year y, $P(y-1)$ = the price for an emission allowance of the relevant category in the year immediately preceding year y, Ir = the average Consumer Price Index for Ontario for the 12-month period ending on September 30th of the year immediately preceding year y. *note – these equations call for the average CPI over the stated 12-month period, but the equation requires a percentage. In the example provided (ON mthly CPI Jan 2015-16), monthly CPI went from 125.3 in January 2015 to 127.8 in January 2016, so a 2% change in CPI was used in the calculation. Working assumption is that ON is not linked to CA or QC in 2017. WCI's third compliance period is 2018-2020, it is expected that ON will link with CA and QC at the beginning of that CP.	$P_{2017} = (A \text{ or } B \text{ or } C) \times (1 + 0.05 + 0.02)$ $P_{2017} A = \\$49.95 \text{ (CAD)}$ $P_{2017} B = \\$56.20 \text{ (CAD)}$ $P_{2017} C = \\$62.44 \text{ (CAD)}$ The 2018 est. price of an ON emission allowance classified as Category A, B or C will be calculated as follows (assuming 2% inflation): $P_{2018} = (A \text{ or } B \text{ or } C) \times (1 + 0.05 + 0.02)$ $P_{2018} A = \\$53.45 \text{ (CAD)}$ $P_{2018} B = \\$60.13 \text{ (CAD)}$ $P_{2018} C = \\$66.81 \text{ (CAD)}$

Section	Regulation Text	ICF Interpretation	ICF Comments
60. C)Bids in excess of holding limit	60. (1) After the period of time for bidding has concluded, the Minister shall, in the circumstances described in subsection (2), reject bids or portions of bids of a participant, starting with the participant's lowest bid price and continuing in increasing order by bid price. (2) The Minister shall reject bids or portions of bids under subsection (1) if acceptance of all of the participant's bids would result in contravention of a limit under section 21. (3) The Minister shall reject bids or portions of bids under subsection (1) until the total of the participant's bids remaining would, if accepted, not result in contravention of the limit under section 21.	Minister shall reject bids or portions of bids (starting with the lowest bid price) if acceptance would result in exceeding current vintage holding limit. Bids are rejected until remaining bids would not exceed holding limit.	Admin/auction rules
61. Determination of actual maximum bid value	61. (1) Before accepting any bids, the Minister shall determine whether each participant's actual maximum bid value, as determined under subsection (2), is greater than or equal to the participant's financial assurance. (2) The participant's actual maximum bid value is determined as follows: 1. For each bid price included in the participant's bids, multiply the bid price by the number of emission allowances that the participant proposes to purchase at that bid price or at a higher bid price. 2. The highest value calculated under paragraph 1 is the actual maximum bid value.	Actual maximum bid value is determined as the highest value calculated by: For each bid price included in the participant's bids, multiply the bid price by the number of emission allowances that the participant proposed to purchase at that bid price or at a higher bid price.	Admin/auction rules
62. Maximum bid value in excess of financial assurance	62. If the actual maximum bid value of a participant's bids exceeds the value of the participant's financial assurance, the Minister shall remove from the participant's bids enough lots such that the remaining bids would not result in the actual maximum bid value exceeding the value of the financial assurance.	If actual maximum value exceeds financial assurance, Minister removes enough lots from the participant's bid, such that actual maximum value of remaining bids do not exceed financial assurance.	Admin/auction rules
63. Acceptance of bids	63. (1) The Minister shall accept bids that have not been rejected under section 60 for each category in accordance with this section, dealing with each category of emission allowances in the following order: Category A, Category B, Category C. (2) If the total quantity of emission allowances bid upon in a category is equal to or less than the quantity of emission allowances of that category available, then the Minister shall distribute the emission allowances of that category in accordance with the bids. (3) If the total quantity of emission allowances bid upon in a category is in excess of the quantity of emission allowances of that category available, then the Minister shall distribute the emission allowances of that category in accordance with the following steps: 1. Divide the quantity of emission allowances of the category bid upon by each participant by the total quantity of emission allowances of that category available. This is the participant's share of the emission allowances of that category. 2. Multiply each participant's share determined under paragraph 1 by the quantity of emission allowances of the category available, rounding down to the nearest whole number. This is the number of emission allowances to be distributed to the participant. 3. If any emission allowances remain after carrying out the steps under paragraph 1 and 2, distribute the remaining emission allowances as follows: i. Assign a random number to each participant who submitted a bid for emission allowances of the category. ii. Distribute one emission allowance at a time to the participants in ascending order by the random number assigned, until no more emission allowances of the category remain.	If holding limits are not exceeded, Minister shall accept bids starting with Category A, then B, then C. If total number of allowances within the bids in each category is less than total available allowances in that category, allowances are distributed in accordance with the bids. If the total number of allowances within the bids exceeds total available allowances in that category, Minister distributes allowances as follows: - Determine each participants share of the category by dividing the allowances within the bid by the total allowances available within the category - Multiply the participants share by the total allowances available within the category, rounding down to the nearest whole number - If any allowances remain after doing this for each participant, assign a random number to each participant who submitted a bid in that category, then distribute one allowance at a time in ascending order of random number assignment	Admin/auction rules
MISCELLANEOUS			

Section	Regulation Text	ICF Interpretation	ICF Comments
64. Retention of records	64. A registered participant shall keep all records created by the participant relating to the following matters in a paper or electronic format for a period of at least seven years after the records were created. 1. Transactions in the cap and trade program. 2. Ontario early reduction credits. <i>[MOECC Note: See Appendix for further information on early reduction credits]</i> 3. Offset initiatives and offset credits. 4. Designation of account agents.	Clearly written Section – see Regulation text for details.	Admin/auction rules
65. Forms	65. (1) In this Regulation, if a record is required to be given or submitted, other than a record required to be given or submitted by the Director, the record shall be submitted in a form provided by or approved by the Director and in a manner approved by the Director. (2) The Director may require that a record that is given to the Director under this Regulation be given in an electronic format specified by the Director.	Clearly written Section – see Regulation text for details.	Admin/auction rules

Appendices

A.1 Eligibility for Free Allocation Certain capped participants that have to report and verify their emissions under O. Reg. 452/09 Greenhouse Gas Emissions Reporting may apply to receive allowances free of charge for emissions due to activities listed in Table 2 of the Reporting Regulation. Please refer to the draft cap and trade regulation for more details about which facilities are expected to be mandatory participants under the cap and trade program. Emissions from certain types of operations and activities will not be eligible to receive allowances free of charge including: ☐ A facility that meets the following criteria: a) Electricity generation within the meaning of the Reporting Regulation is the primary activity engaged in at the facility; b) No products are produced at the facility other than electricity, useful thermal energy or by-product gas; and c) No electricity is generated at the facility from the incineration of waste. ☐ Energy use reported under general stationary combustion for the operation of equipment related to natural gas as described in Table 2 of O. Reg. 452/09. ☐ Petroleum product suppliers, natural gas distributors and electricity importers reporting under the other activities categories of O. Reg. 452/09.	Activities eligible to apply to receive free allowances: - Adipic acid production. - Ammonia production. - Carbonate use. - Cement production. - Coal storage. - Copper and nickel production - Ferroalloy production. - General stationary combustion. (excluding use of natural gas) - Glass production. - HCFC-22 production and HFC-23 destruction. - Hydrogen production. - Iron and steel production. - Lead production. - Lime production. - Magnesium production. - Nitric acid production.	Main message – no free allocation for electricity generators or for emissions associated with distributed NG. Section A.2.7 Allocation for Voluntary Participant will be important for EGD/UG to understand. How quickly will EGD/UG be notified that a customer has ‘opted-in’ to the cap and trade program, and is therefore removed from EGD/UG’s compliance obligation? Applications are due to MOECC by Sept. 1, 2016 for 2017 allowances. This point is relevant for OEB discussions.
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☐ Activities associated with reporting only emissions listed in Section 7.3(2) para 1 of O. Reg. 452/09. (e.g., coal storage). ☐ Activities associated with the operation of equipment for a transmission system or a distribution system (electricity) as described in Table 2 of O. Reg. 452/09. New facilities (see Section A.2.8 for definition) do not have a compliance obligation in the first two years of operation and will not be eligible to apply for allowances for those two years.	- Operation of equipment related to natural gas (onshore natural gas transmission compression; natural gas storage; LNG import and export; and pipeline transport of natural gas) - Petrochemical production. - Petroleum refining. - Phosphoric acid production. - Primary aluminum production. - Pulp and paper production. - Refinery fuel gas use. - Soda ash production. - Zinc production. Emissions NOT eligible to receive free allowances: - A facility that meets all criteria below: ‘Primary activity is electricity generation ‘No other products are produced (other than electricity, heat, steam, or by-product gas) ‘Electricity generation is not from incineration of waste - Natural gas use for stationary combustion (for one or more of the following purposes: 1.Producing electricity. 2. Generating steam or providing useful heat or energy for industrial, commercial or institutional use. 3.Pollution control. 4.Reduction of waste volume.) - Petroleum suppliers, natural gas distributors, and electricity importers (reporting under Other Activities in Reporting Regulation) - Activities associated with reporting only the following emissions: i. The emissions associated with coal storage. ii. The emissions associated with the operation of equipment related to natural gas. iii. The emissions associated with cooling units at electricity generators. iv. The fugitive emissions from geothermal electricity generating facilities. - Activities associated with the operation of equipment for the purposes of a transmission system or a distribution system. New facilities: (see Section A.2.8 for definition) do not have a compliance obligation in the first two years of operation and will not be eligible to apply for allowances for those two years.
A.2 How to Apply for Allowances An eligible capped participant may submit an application to the Director for free emission allowances for a budget year. Budget year means the calendar year for which the Minister will create Ontario emission allowances under Section 34 of the draft cap and trade regulation.	Applications for free allowances are due by September 1 the year before the request is being made for (e.g. by Sept. 1, 2016 for 2017 allowances). Eligible capped emitter must provide all the information needed to the Director to allow for the evaluation and determination of which type of allocation method or

Applicants will be required to indicate their facility information (e.g., GHG ID, company name, sector classification, location) and detailed production, process and emissions data needed to apply the calculations described in Section A.2.1 of this document. The director may reject an application where the information provided is incomplete or false. Applications would be due on or before September 1 of the year before the budget year (e.g. facilities submit application on September 1, 2016 for budget year 2017 allowances). The Director will deposit allowances into the holding accounts of the successful applicants by January 15 of the budget year for the first compliance period (e.g., allowances for budget year 2017 will be deposited into facilities’ holding accounts by January 15, 2017). In 2021 only (i.e., the compliance year for the first compliance period), allowances for the 2022 budget year will be deposited by October 24 of 2021 into the holding account of the applicant. For the years after 2021, allowances will be deposited by January 15 of the budget year. (e.g., allowances for budget year 2023 will be deposited into facilities’ holding accounts by January 15, 2023). Director may consider four types of allocation methods for facilities eligible for free emission allowance allocation. The eligible capped emitter must provide all the information needed to the Director to allow for the evaluation and determination of which type of allocation method or methods will be applicable for each facility. <i>(A) Product output benchmark allocation</i> Emission allowances will be allocated on the basis of this method to a capped participant that owns or operates a facility which produces a product that has a product output benchmark listed in Table 1. <i>(B) Energy use-based allocation</i> Emission allowances will be allocated on the basis of energy used at the facility. Facilities that use energy in certain processes, operations or activities are not eligible to apply for this type of allocation. The complete list and details of exclusions are provided in the section on energy use based allocation (Section A.2.4.2). <i>(C) History-based allocation</i> Under this approach, allowance allocations will be based on historical emissions or historical emissions intensity of the facility. Owners or operators of the facilities receiving free allowances under this approach will not be able to apply for an allocation for free emission allowances for those facilities under either the product output benchmark, the direct allocation or the energy use-based method for sources that have already been allocated allowances under the history based allocation. <i>(D) Direct allocation method</i> Sources in respect of which free emission allowances will be allocated under this approach are identified in Table 4. Allocations to these facilities will be based on emissions reported for the source under O. Reg. 452/09. A.2.1 How will free allowances be allocated? Allocations of emission allowances are based on the following general equations. Capped participants applying for free emission allowances shall submit an application, in a form approved by the Director, which includes the information required to complete the following general equation. $At = Bt + Badj_t$ Where: At = total number of allowances that a facility will receive for the budget year “t” Bt= total number of allowances for a facility for budget year “t” without production adjustments Badj_t=total production adjustment allowances for a facility for the budget year “t”	methods will be applicable for each facility and for the determination of the quantity of allowances. This includes detailed production, process and emissions data. Free allowances are deposited into participants holding accounts. For all years, this will occur by January 15 of the budget year (i.e. for 2017, allowances deposited Jan. 15, 2017). An exception is made for year 2022, when the allowances will be deposited by October 24, 2021. There are 4 types of allocation methods, one or a combination, will be applied to each facility. A. Product output benchmark allocation - Applied to facilities which produce a product that has a product output benchmark for fixed process emissions and or for combustion emissions (sources and products listed in Table 1): ‘Source – Iron and steel making – Benchmark products – Iron; BOF Steel; EAF Steel; Limestone used; Coke; Dolomite used ‘Source – Petroleum refining – Benchmark products – CAN-CWB ‘Source – Grey cement manufacturing – Benchmark products – Grey cement ‘Source – Hydrogen manufacturing – Benchmark products – Hydrogen ‘Source – Beer manufacturing – Benchmark products – Beer B. Energy use-based allocation Allowances allocated on the basis of energy used at the facility. Certain processes, operations and activities are not eligible for this type of allocation method: ☐ Coal used in a coke oven to produce coke; ☐ Coal, coke and other carbon material injected directly into the blast furnace as a reductant (excluding any fuels that are used in the hot blast stoves); ☐ Coke oven gas and blast furnace gas used in any process, including electricity generation; ☐ Carbon removed from the iron in a basic oxygen furnace; ☐ Electrodes consumed, coal or coke or other carbon material injected directly into the electric arc furnace, natural gas used for shell cooling (excluding fuel used for oxyfuel firing); ☐ Fuel used to produce clinker from a cement kiln; ☐ Fuel used to produce lime products from a lime kiln (that is not located at a facility that produces both pulp and paper); ☐ Feedstock and fuels used at a facility to produce carbon black; ☐ Fuel used at a facility that produces beer; ☐ Feedstock and fuels used in the processes to produce ammonia, or nitric acid;
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$B_t = AF_t \times [(B_{bpt} + B_{hpt} + B_{dpt}) \times C_{pt} + (B_{bct} + B_{het} + B_{et}) \times C_{ct} + (B_{dct} \times C_{cdt}) + B_{biot}]$ Where: t = the budget year for the allowances, (e.g., allowances for the 2017 year) AFt = assistance factor for budget year “t” AFt is equal to 1 in the first compliance period (2017-2020). Following are definitions of the terms included in the four allocation methods: Bbpt = product output benchmark fixed process allocation value for budget year “t” Bbct is the base number of free emission allowances that may be allocated in respect of a facility’s fixed process emissions for the budget year “t”. This number will be determined based on a formula set out in Section A.2.2 of this document. Bhpt = historical base fixed process allocation value for the budget year “t” Bhct is the base number of free emission allowances that may be allocated in respect of a facility’s history based fixed process emissions for budget year “t”. Allowances will be provided based on either historical fixed process emissions or historical fixed process emissions intensity of the facility. The list of facilities that may be eligible for allocations based on historical fixed process emissions and historical emissions intensity are listed in Table 3 and Table 2 respectively of this document. Bdpt=Direct Allocation for fixed process emissions for the budget year “t” Bdpt is the base number of free emission allowances that may be allocated in respect of a facility’s fixed process emissions for the source for the budget year “t. Allocation will be based on the facility fixed process emissions for the budget year “t-2” reported for the source under O. Reg. 452/09. (See Table 4 for a list of sources and facilities that may be allocated free emission allowances under the approach). Cpt = Cap Adjustment Factor for fixed process emissions for year t (see Table 5) The cap adjustment factor will reduce the number of allowances available for free allocation each year. For fixed process emissions, the cap adjustment factor will be 1 in each year from 2017 to 2020 inclusive. The cap adjustment factor is set at 1 to recognize the limited options available to reduce fixed emissions in the short-term. Bbct= product-output benchmark combustion allocation value for budget year “t” Bbct is the base number of free emission allowances that may be allocated in respect of a facility’s combustion emissions for the budget year “t”. The base number of free emission allowances will be determined based on the calculations set out in Section A.2.3. Bhct = historical base combustion allocation value for budget year “t” Bhct is the base number of free emission allowances that may be allocated in respect of a facility’s historical combustion emissions or historical combustion emissions intensity. The list of facilities that may be eligible for allocations based on historical combustion emissions and historical combustion emissions intensity are listed in Table 3 and Table 2 respectively of this document. Cct = Cap Adjustment Factor for combustion emissions for budget year “t” The Cap Adjustment Factor for combustion emissions will decline every year between 2017 and 2020 inclusive as listed in Table 5. Bdct = Direct Allocation for combustion emissions Bdct is the base number of free emission allowances for the budget year “t” that may be allocated in respect of a facility’s combustion emissions. Facilities will be allocated allowances based on their combustion emissions for the year “t-2” for the source reported under O. Reg. 452/09 (see Table 4 for a list of sources and facilities that may be allocated free emission allowances under the approach). Ccdt= Cap Adjustment Factor for direct allocation for combustion emissions The Ccdt values are listed in Table 4. Bet = energy use allocation value for budget year “t”	☑ Feedstock and fuels used in the processes to produce hydrogen from steam methane reforming; ☑ Any crude oil, feedstock, coke, refinery fuel gas, vent gas, flare gas, and any fuels used in a petroleum refinery process that is receiving allowances using a refinery complexity weight barrel benchmark; ☑ Any feedstock and fuels used at a facility that produces ethylene at an ethylene cracker, and other chemicals other than ethylene; ☑ Feedstock and fuels used at a facility to produce styrene; ☑ Fuel used at institutions, energy from waste facilities listed in Table 4 (i.e. those that receive direct allocation); ☑ Fuel used at any facility listed in Tables 2 and 3 (i.e. those with historical facility intensity or historical emissions-based allocations for process and combustion emissions), and 4 (facilities with direct allocation) except for fuel that is not feedstock or fuel which is directly associated with the operation of either the ammonia facility (both for fixed process and combustion), or the nitric acid facility at CF Industries, Courtright Nitrogen complex (which means these are eligible). C. History-based allocation Allowance allocations based on historical emissions (facilities and products listed in Table 3) or historical emissions intensity (facilities and products listed in Table 2) of the facility. If receive free allocations based on historical data, not able to apply for free allocations under product output benchmark, direct allocation or energy use-based method for sources that have already been allocated allowances under the history based allocation. D. Direct allocation Sources allocated under this approach receive allowances based on reported emissions and include (facilities and sources listed in Table 4): ‘Carmeuse Lime Canada – source: fusite production in lime manufacturing ‘Terra International (Canada) Inc. – source: process emission in nitric acid manufacturing ‘University of Toronto – source: facility ‘University of Western Ontario – source: facility ‘University of Guelph – source: facility ‘York University – source: facility ‘London Health Sciences Centre – source: facility ‘Hamilton Health Sciences Corporation – source: facility ‘Queens University – source: facility ‘Emerald Energy From Waste Inc. – source: facility ‘Clean Harbors Canada, Inc. – source: facility A.2.1 Allocation of Free Allowances $A_t = B_t + B_{adj_t}$
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Bet is the base number of free emission allowances for budget year “t” that may be allocated in respect of a facility’s energy use determined based on the calculations set out in Section A.2.4.

Bbiot = biomass allocation for non-CO2 emissions for budget year “t”

Bbiot is the base number of free emission allowances for budget year “t” for non-CO2 emissions from biomass use. Allocation will be based on facility’s methane and nitrous oxide emissions associated with the use of biomass during the budget year “t-2”. The base number of free emission allowances will be determined based the calculations set out in Section A.2.4. Appendix to the Draft Cap and Trade Regulation

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Badj_t_1 is the number of free emission allowances allocated to account for changes (e.g., in production for products listed in Table 1) not properly accounted for in prior allocations (see Section A.2.6 below). Badj_t_1 could be a positive or a negative number.

A.2.2 How to determine product output benchmark fixed process allocation (Bbpt)

Bbpt will be determined based on the following equation:

Where:

Producti_t-2 is the amount of product i listed in Table 1 that is produced at a facility in the budget year “t-2”. Within some manufacturing categories there may be more than one type of product produced. For example, within the iron and steel manufacturing category there might be two different products from process A (e.g., iron) and process B (e.g., steel). Thus, the “product” in this equation could be tonnes of iron or tonnes of steel. BMp_i is the fixed process benchmark for a product as listed in Table 1. Every “product” will have its own benchmark and is generally based on an average of fixed process emissions per tonne of product within that sector.

A.2.3 How to determine product-output benchmark combustion allocation (Bbct)

Bbct will be determined based on the following equation:

Where:

Producti_t-2 is the amount of Product (i) listed in Table 1 that is produced in the year “t-2”. BMc_i is the combustion benchmark in year “t” for that product as listed in Table 1. Every “product” will have its own benchmark and is generally based on an average of combustion emissions per tonne of product within the sector. Appendix to the Draft Cap and Trade Regulation

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A.2.4 How to determine energy use allocation (Bet) and biomass allocation for non-CO2 emissions (Bbiot)

Bet and Bbiot are determined using the following equations:

Where:

Bet = base energy use allocation value in budget year “t”

EInon_cogen = eligible non-biomass energy input in budget year “t-2” not related to operation of cogeneration system, expressed in GJ. (See Section A.2.4.2 for energy use applications which would not be eligible to receive energy use allocation.)

Eicogen_heat = Energy input in budget year “t-2” used for generating useful thermal energy (e.g., steam) not used for producing electricity in the year (expressed in GJ) calculated pursuant to the equation in Section A.2.4.1.

0.049317 = Emission factor for natural gas (tonnes CO2e/GJ) based on Ontario emission factor

EIno_gas = Energy input in budget year “t-2” for facilities that do not receive natural gas through a pipeline (expressed in GJ)

EFfuel = Fuel specific emission factors in budget year “t-2” for fuels used at facilities that do not receive natural gas through a pipeline (expressed as tonnes CO2e per GJ) as set out in Tables 20-1a, 20-2, 20-3, 20-4, 20-5 and 20-6 in the O. Reg. 452/09 reporting Guideline

A_t is the total number of allowances facility receives for free for year ‘t’

B_t is the total number of allowances for facility for year ‘t’ without production adjustments – Detailed Info follows

B_{adj,t} is the total production adjustment allowances for facility for year ‘t’ This is the number of free allowances allocated to a facility to account for changes not properly accounted for in prior allocations (could be a positive or negative value). This is the “true-up” value used to adjust allocations once data becomes available. For example, a facility submits its application for 2019 free allowances in 2018, using 2017 data (as this is the only full year of data available at the time). 2019 free allowance is calculated using 2019 assistance factor and cap adjustment factor and 2017 data. In 2020, when the 2019 data becomes available, the 2019 free allocation is adjusted based on actual 2019 data. B_{adj,t} does not apply to facilities listed in Table 3 (historical emissions-based). All other facilities, regardless of method, will have an adjustment.

B_t is based on a number of parameters, including:

‘AF_t Assistance Factor (= 1 in first compliance period 2017-2020);

‘C_{pf} Cap Adjustment Factor for fixed process emissions (= 1 in first compliance period 2017-2020);

‘C_{cd} Cap Adjustment Factor for combustion emissions (= 1 in 2017; = 0.9543 in 2018, = 0.9086 in 2019, = 0.8629 in 2020);

‘C_{cdh} Cap Adjustment Factor for direct allocation for combustion emissions (= 1 for all facilities listed in Table 4 in 2017, = 1 for all facilities for 2018-2020 EXCEPT for Carmeuse Lime Canada, Terra International (Canada) Inc., and Clean Harbors Canada, Inc. which = 0.9543 in 2018, = 0.9086 in 2019, = 0.8629 in 2020);

‘Allocations based on applicable methods (process and combustion for product, history, and direct methods); – Detailed Info follows

‘Allocations based on energy use; – Detailed Info follows

‘Allocations for biomass. – Detailed Info follows

Product output benchmark fixed process allocation: Bbpt

- Based on **quantity of product** in year “t-2” (i.e. for budget year 2019, use data on quantity of product from 2017) multiplied by a **fixed process benchmark** value (listed in Table 1 for each product)

$$B_{bpt} = \sum_i^n [Product_{i,t-2} \times BM_{p,i}]$$

Product output benchmark combustion allocation: Bbct

- Based on **quantity of product** in year “t-2” multiplied by a **combustion benchmark** value (listed in Table 1 for each product)

$$B_{bct} = \sum_i^n [Product_{i,t-2} \times BM_{c,i}]$$

Historical allocation: Bbpt, Bbct,

- Emissions-Based fixed process and combustion emissions allocations are determined by the Director based on **historical 2011-2013 process and combustion emissions at each facility** (eligible facilities are listed in Table 3)

Heatimported = Thermal steam energy imported by the facility from a 3rd party in the year “t-2” (expressed in GJ) NBF = Fraction of energy input from non-biomass fuel used in the cogeneration unit in the year t-2 unit (expressed in GJ/GJ) Appendix to the Draft Cap and Trade Regulation 51 0.061646 = Natural gas emission factor based on a boiler operating at 80% efficiency (0.049317/0.8) (allowances/GJ of useful thermal energy) where 0.049317 is the emissions factor for natural gas based on Ontario emissions factor B_{biot} = biomass allocation for non CO2 emissions for budget year “t” E_{biomass_i} = Total energy input from biomass used anywhere at the facility in year “t-2” (expressed in GJ) E_{Fbiomass_CH4_i} = Fuel-specific emission factor for CH4 for year “t-2”(tonnes per GJ) (set out in ON.20 in O. Reg. 452/09 Guideline) E_{Fbiomass_N2O_i} = Fuel-specific emission factor for N2O for year “t-2”(tonnes per GJ) (set out in ON.20 in O. Reg. 452/09 Guideline) A.2.4.1 Energy Input Used to Determine Useful Thermal Energy (E_{lcogen_heat}) A.2.4.1.1 Subject to A.2.4.1.2 and A.2.4.1.3, InterimE_{lcogen_heat} is determined using the following calculations: Where: InterimE_{lcogen_heat} = Energy input used for generating useful thermal output (e.g., steam) in the year “t-2” (expressed in GJ) E_{total_cogen} = Total energy input (including biomass) to the cogeneration system in the year “t-2” (expressed in GJ) Heatcogen = Total useful thermal output from the cogeneration system in the year “t-2” (e.g., steam excluding electricity) (expressed in GJ). Useful thermal output is as defined in the Guideline incorporated under O.Reg. 452/09 Energy_{electricity}= Total electricity output from the cogeneration system in year “t-2” (expressed in GJ) A.2.4.1.2 If InterimE_{lcogen_heat} is less than the total fossil fuel input into the cogeneration system in year t-2, then E_{lcogen_heat} is equal to the InterimE_{lcogen_heat} that is calculated using the formula above. Appendix to the Draft Cap and Trade Regulation 52 A.2.4.1.3 If InterimE_{lcogen_heat} is greater than total fossil fuel input into the cogeneration system in year t-2, then E_{lcogen_heat} is equal to total fossil fuel input into the cogeneration system. A.2.4.2 Eligible Energy Input Facilities can apply for energy use allocation based on energy used at the site, except for the energy used in the following types of processes, operations or sources. □ Energy used for the production of products that have product based benchmarks (set out in Table 1); □ Energy used in facilities listed in Table 4(with the exception noted below); □ Energy used at sources in facilities with historical facility intensity (set out in Table 2); or □ Energy used at facilities listed in Table 3. The detailed list of energy uses, the emissions from which are not eligible to receive energy use allocation are as follows: □ Coal used in a coke oven to produce coke;	- Intensity-Based fixed process allocation is based on quantity of product in year “t-2” multiplied by the historical fixed process emission intensity for that product (produced by the specific <u>facility listed in Table 2</u>) $B_{hpt} = \sum_{i=1}^n [Product_{i,t-2} \times EI_{p,i}]$ - Intensity-Based combustion allocation is based on quantity of product in year “t-2” multiplied by the historical combustion emission intensity for that product (produced by the specific <u>facility listed in Table 2</u>) $B_{hct} = \sum_i^n [Product_{i,t-2} \times EI_{c,i}]$ Direct allocation: B_{dpt}, B_{dct} - Allocation based on the facilities fixed process emissions for year “t-2” as reported - Allocation based on the facilities combustion emissions for year “t-2” as reported Energy use allocation: $B_{et} = [(EI_{non-cogen} + E_{lcogen_heat}) \times 0.049317 + (EI_{no_gas} \times EF_{fuel}) + (Heat_{imported} \times NBF \times 0.061646)]$ - Based on the following factors: ‘E_{l_{non-cogen}}’ Eligible non-biomass (and not related to operation of cogen system) energy input in year “t-2” (energy uses not eligible include: energy used for production of products listed in Table 1 (covered by product benchmarks); energy used in facilities listed in Table 4 (direct allocated facilities with 3 exceptions); energy used in facilities with historical data (facilities covered in Table 2 and Table 3) – detailed list including noted exceptions listed in B. above). Capped participants can apply for allowances for steam imports (including facilities that receive free allowances from any other type of method – product, history, direct). ‘E_{lcogen_heat}’ Energy input in year “t-2” used for generating useful thermal energy (see below) not used for producing electricity ‘E_{l_{no_gas}}’ Energy input in year “t-2” for facilities that do not receive natural gas through a pipeline ‘EF_{fuel}’ Fuel specific emission factor in year “t-2” for fuels used at facilities that do not receive natural gas through a pipeline (EFs provided in Reporting Guideline) ‘Heat_{imported}’ Thermal steam energy imported by the facility from a 3rd party in year “t-2” ‘NBF’ Fraction of energy input from non-biomass fuel used in a cogen unit in year “t-2” Useful thermal energy: InterimE_{lcogen_heat} - Based on total energy input including biomass to the cogen system in year “t-2” (E_{l_{total_cogen}}), total useful thermal output from cogen system in year “t-2 (Heat_{cogen}) (useful thermal output is defined in the Guideline), and total electricity output from cogen system in year “t-2” (Energy_{electricity}) - If InterimE_{lcogen_heat} < total fossil fuel input into the cogen system in year “t-2” then E_{lcogen_heat} = InterimE_{lcogen_heat} - If InterimE_{lcogen_heat} > total fossil fuel input into cogen system, then E_{lcogen_heat} = total fossil fuel input into the cogen system.
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☐ Coal, coke and other carbon material injected directly into the blast furnace as a reductant (excluding any fuels that are used in the hot blast stoves); ☐ Coke oven gas and blast furnace gas used in any process, including electricity generation; ☐ Carbon removed from the iron in a basic oxygen furnace; ☐ Electrodes consumed, coal or coke or other carbon material injected directly into the electric arc furnace, natural gas used for shell cooling (excluding fuel used for oxyfuel firing); ☐ Fuel used to produce clinker from a cement kiln; ☐ Fuel used to produce lime products from a lime kiln (that is not located at a facility that produces both pulp and paper); ☐ Feedstock and fuels used at a facility to produce carbon black; ☐ Fuel used at a facility that produces beer; ☐ Feedstock and fuels used in the processes to produce ammonia, or nitric acid; ☐ Feedstock and fuels used in the processes to produce hydrogen from steam methane reforming; ☐ Any crude oil, feedstock, coke, refinery fuel gas, vent gas, flare gas, and any fuels used in a petroleum refinery process that is receiving allowances using a refinery complexity weight barrel benchmark; Appendix to the Draft Cap and Trade Regulation 53	$InterimEL_{cogen,heat} = [EL_{total,cogen} \times \left(\frac{Heat_{cogen}}{Heat_{cogen} + Energy_{electricity}} \right)]$ Shutdowns - Not eligible to apply for free allowances in the calendar year following a permanent shut down - In the year after the shutdown, the facility must apply for production adjustment, to be allocated to the facility - If the adjustment is negative, the facility shall return the required number of allowances (of a vintage eligible for use in the compliance period), to be auctioned by the Minister - If the facility does not return the allowances, the Minister will deduct them from the facility's holding account - If there are insufficient allowances in the holding account, the 3 allowances for every 1 that it was short rule applies Voluntary Participants - Free allowances are allocated first by product output benchmark (if produces a product in Table 1). If not, then by energy-use based allocation. - Voluntary participants must apply by September 1 the year before the allocations are for New Facilities - New facilities compliance operation starts in their third year of operation - New facility can be: 'an existing facility that exceeds 25,000 tonnes CO2e for the first time in or after 2017 'a facility that begins operations on January 1, 2016 or later (and has annual emissions above 25,000 t) - New facilities are not eligible for free allocation for first two years of operation - Starting in the third year, free allowances are allocated first by product output benchmark (if produces a product in Table 1). If not, then by energy-use based allocation. - Ministry may develop, in the future, a facility specific intensity allocation for new facilities if the product benchmark is not applicable and there are significant process emissions
☐ Any feedstock and fuels used at a facility that produces ethylene at an ethylene cracker, and other chemicals other than ethylene; ☐ Feedstock and fuels used at a facility to produce styrene; ☐ Fuel used at institutions, energy from waste facilities listed in Table 4; ☐ Fuel used at any facility listed in Tables 2, 3 and 4 except for fuel that is not feedstock or fuel which is directly associated with the operation of either the ammonia facility (both for fixed process and combustion), or the nitric acid facility at CF Industries, Courtright Nitrogen complex. Any capped participant is eligible to apply for allowances for steam imports. This includes any facility that is receiving free allowances from any other type of allocation method (e.g., product output benchmark, history-based allocation, direct allocation). A.2.5 Determining History Based Allocations (Bhpt, Bhct) This approach provides an allocation free of charge based on either the historical average emissions for a facility or a facility specific emissions intensity that is based on historical emissions per tonne of product. A.2.5.1 Historical Emissions-Based Fixed Allocation The list of facilities eligible to apply for allowances based on the historical emissions-based fixed allocation along with the basis for how the allocation was determined is set out in Table 3. A.2.5.2 Historical Intensity-Based Allocation Facilities eligible for free emission allowances based on historical intensity allocation are listed in Table 2. Allocation (Bhpt) will be determined as the product of the facility's historical intensity (i.e. historical emissions	

per production of a tonne of product) and the product produced based on the equation below. A facility may produce one or more products. The historical intensity fixed process allocation is calculated as follows: Where: Bhpt is the facility base allocation for fixed process emissions. Product_{i,t-2} is the amount of a given product <i>i</i> produced in the year “<i>t-2</i>”. Appendix to the Draft Cap and Trade Regulation 54	EIp_i is the historical fixed process emissions intensity for product <i>i</i> produced by the facility listed in Table 3. The historical intensity combustion allocation is calculated as follows: Where: Bhct is the facility base allocation for combustion emissions. Product_{i,t-2} is the amount of product <i>i</i> produced in the year “<i>t-2</i>”. EIc_i is the historical combustion emissions intensity for product <i>i</i> produced by the facility listed in Table 3. A.2.6 Production Adjustment Factor (Badj_t) The production adjustment factor is the number of allowances allocated to facilities to account for changes (e.g., in production for products listed in Table 1) not properly accounted for in prior allocations. This value shall be calculated where the entity was covered under the Cap-and-Trade Program in year “<i>t-2</i>” (i.e., starting in 2018 for allocations for budget year 2019). For example, a facility eligible for free allowances would submit an application for 2019 emission allowances on or before September 1, 2018 that includes their production and energy use data for 2017 because their 2018 data has not been reported yet. The 2017 data is used to calculate allowance allocation. The assistance factor and the cap adjustment factor for the year 2019 will be used to determine the allocations for 2019. When the 2019 data becomes available in 2020, the allocation for 2019 that was previously made based on 2017 data (depending on the allocation method used for the facility) will be adjusted. The number of allowances that were received for budget year 2019 (based on 2017 production and energy use data) are then subtracted from the allocation based on the actual 2019 data to give Badj_t. The resulting Badj_t could be positive or negative. The Badj_t is calculated as follows. Where: Badj_t = production adjustment allowances for the budget year “<i>t</i>” (allowances) Appendix to the Draft Cap and Trade Regulation 55 Aft-2 = Assistance factor for the budget year “<i>t-2</i>” Cp_{t-2} = Cap Adjustment Factor for fixed process emissions for budget year “<i>t-2</i>” (see Table 5) Cc_{t-2} = Cap Adjustment Factor for combustion emissions for budget year “<i>t-2</i>” (see Table 5) Ccd_{t-2} = Cap Adjustment Factor for combustion emissions for facilities with direct allocations for the budget year “<i>t-2</i>” as listed in Table 4 Bt-2 = the number of allowances that were provided to the facility for the budget year “<i>t-2</i>” not including the production adjustment allowances for that budget year All other parameters are as described in Sections A.2.1 to 2.5 of this policy proposal. Badj_t term does not apply to facilities listed in Table 3 of this policy proposal and hence no such calculation will be made for those facilities. Facility with production adjustment allowances from budget year “<i>t</i>” shall be allowed to be use up to that amount for compliance for budget year “<i>t-2</i>” (e.g., production adjustments allowances for the budget year 2022 can be used in the compliance year 2021). A.2.6.1 Shutdown
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In the calendar year following a permanent shut down of the facility (i.e., person ceases to engage in the activity as per O. Reg. 452/09), the capped participant would not be eligible to apply for allowances under “Bt” of Section A.2.1 in the document, that is the allowances for a facility for budget year “t” that does not include production adjustments.

A facility must apply for a production adjustment in the year after the shutdown. If the production adjustment value is positive, the calculated production adjustment amount will be allocated to the facility. If the production adjustment value is negative, the facility shall return to the Minister the number of allowances equal to the negative amount. The Minister will auction the returned allowances. The allowances required to be returned must be of a vintage eligible for use in the compliance period. If a facility does not return the allowances by the deadline specified by Minister, the allowances will be deducted from the facility’s holding account. In a situation where there are insufficient allowances in the holding account, the 3:1 requirement (facility required to retire three additional allowances for everyone it was short) will apply to the shortfall. Appendix to the Draft Cap and Trade Regulation

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A.2.7 Allocation for Voluntary Participant

A voluntary participant (i.e., facility that decides to opt-in) that is eligible to receive free allowances (see Section A.1) will be allocated allowances based on the following hierarchy of allocation methods:

- a) Product output benchmark: If the facility produces a product for which a benchmark is included in Table 1, the facility will be allocated allowances based on that benchmark.
- b) Energy-use based allocation: If the facility produces a product for which no benchmark is included in Table 1, the facility will be allocated allowances based on the energy use allocation method.

Applications for allowances for voluntary participants will have to be submitted by September 1 of the year before each budget year for which the voluntary participant is seeking an allocation.

Facilities will be required to have an authorized person sign off on the application for allowances for the first two years. For the budget year 2019 the application will have to be based on verified data submitted through O. Reg. 452/09.

A.2.8 Allocation for New Facilities

New facilities will have a compliance obligation starting in their third year of operation. New facility is defined as:

- a) any existing facility with emissions that has to be verified and is 25,000 tonnes of CO2e or more for the first time in or after 2017;
- b) any facility that begins operations on January 1, 2016 or later and that has annual emissions that have to be verified and is 25,000 of CO2e tonnes or more per year.

The new facilities will not be eligible for free allocation for the first two years of their operation.

For the third year in operation, new facilities with annual emissions equal to or greater than 25,000 of CO2e tonnes per year would be allocated allowances based on the following hierarchy of methods:

- a) Product output benchmark: If the facility produces a product for which a benchmark is included in Table 1, the facility will be allocated allowances based on that benchmark.

- b) Energy-use based allocation: If the facility produces a product for which no benchmark is included in Table 1, the facility will be allocated allowances based on the energy use allocation method.

Appendix to the Draft Cap and Trade Regulation

The Ministry is considering implementing an approach to develop facility specific intensity allocation in the future for new facilities, where there are no applicable product-output benchmarks and there are significant fixed process emissions.		
A.3 Director’s Authority to Adjust Allocations If a facility receives an adverse verification statement or does not submit an emissions report, the Director can assign a value for the purpose of allocation calculations and submission of allowances in respect of emissions or other parameters. Where a capped participant who is eligible for free allocations fails to submit all of the required emission allowances and credits on or before the prescribed deadline the Director may also reduce the free allocations available to the capped participant by the amount of the shortfall.	Clearly written/straight forward – see Regulation text for details.	
A.4 Early Reduction Credits A.4.1 Background Certain capped participants will be eligible to apply for early reduction credits that may be used the same way that Ontario allowances can be used pursuant to the regulation. Early reduction credits (ERCs) are in addition to the emissions allowances created by the Minister under Section 34 of the draft cap and trade regulation. The number of allowances that an eligible capped participant receives will be based on the proposed approach in this Appendix. There will be a maximum of two million ERCs available for distribution. If applications for ERCs exceed the amount available they will be distributed on a pro rata basis. If the applications for ERCs total less than two million, only the amount requested will be created and distributed, subject to meeting the criteria below. A.4.2 Eligible Emissions for Early Reduction Credits Early reduction credits are expected to be available for demonstrated reductions in eligible GHG emissions. GHG emissions are “eligible emissions” for the purposes of an application for Ontario early reduction credits if the emissions are: a) reported and verified under O. Reg. 452/09; b) the type of emissions that would be eligible for free allocation; and c) not emitted from a facility that is eligible for free allocation under the product-output benchmarking approach. Appendix to the Draft Cap and Trade Regulation 58 A.4.3 Application for Early Reduction Credits Capped participants that have “eligible emissions” as defined under Section A.4.2 must submit an application to the Director by June 1, 2017. An application for early reduction credits shall include the following information: a) The name, contact information and holding account number of the applicant. b) A description of the “eligible emissions” at the facility during the reduction period. c) A description of the actions taken to achieve the reduction of eligible emissions that is being claimed for the purposes of applying for early reduction credits and the dates that the reduction occurred.	ERCs may be used in the same way as Ontario allowances. Maximum of 2 million ERCs available for distribution. If more applications for more than 2 million are received, they will be distributed on a pro rata basis. If less, there will not be extra ERCs remaining, only the requested amount will be created and distributed. Eligible Emissions: - reported and verified under Reporting Regulation - type of emissions eligible for free allocation - not emitted from a facility that is eligible for product-based benchmark free allocation Applications: - Due by June 1, 2017 - Details of information required in the application clearly provided (see A.4.3), but includes a verification report prepared by an accredited verification body Period: - ERCs will be awarded during the reduction period: January 1, 2012 to December 31, 2015 (<i>The reduction period must be within these dates and consecutive years</i>) - Reductions calculated based on the reference period: average annual emissions from January 1, 2009 to December 31, 2011 (<i>This is a defined period</i>) Eligibility Conditions: - Clearly written/straight forward – see section A.4.5 - Key criteria include: ‘Annual average of eligible emissions at the facility during the reduction period is lower than annual average of eligible emissions at the facility during the reference period.	Main message – as NG distributors or electricity generators are not eligible for free allocation, also not eligible for Early Reduction Credits. Need to understand what EGD/UG customers that have ‘opted-in’ to the cap and trade program in order to remove the associated EGD/UG compliance obligation. These customers may be eligible for ERCs – should not matter to EGD/UG provided they are properly scoped out of their compliance obligation.

d) Documentation demonstrating that the reduction of eligible emissions meets the criteria set out in Sections A.4.2, A.4.4 and A.4.5 of this document. Documentation must be adequate for a review by an accredited verification body (see subsection (f)). e) The amount of the reduction of eligible emissions that occurred, expressed in tonnes of carbon dioxide equivalent calculated using one of the following methods as they apply to the eligible emissions: 1. The relevant standard quantification method under O. Reg.452/09; 2. a mass balance calculation method; or 3. a method recognized by the industry and meeting the requirements of the ISO 14064-2 standard. f) A verification report prepared by an accredited verification body (as defined in the GHG Reporting Regulation) in accordance with ISO 14064-3. g) Information needed to calculate the maximum quantity of early reduction credits. h) A statement signed and dated by an individual who is authorized by the person mentioned in Section 7(1) of O. Reg. 452/09 to sign on behalf of the person, certifying that: 1. The individual has examined the application to ensure that it is complete and accurate, and Appendix to the Draft Cap and Trade Regulation 59 2. The application has been prepared in accordance with the Cap and Trade Regulation and the statements and information contained in the application are true and fair to the best of the individual's knowledge. The Director may reject an application where the information provided is incomplete or false. If successful on the application, the emission allowances will be deposited into the holding account of the applicant by June 1, 2018. A.4.4 Reduction Period and Reference Period for Creation of Early Reduction Credits ERCs will only be awarded for reductions of eligible emissions during the reduction period. The reduction period is between January 1, 2012 and December 31, 2015. Reductions will be calculated based on the "reference period" which is the average annual emissions at the participant's facility from January 1, 2009 to December 31, 2011 inclusive. A.4.5 Eligibility Conditions for Creating Early Reduction Credits To be eligible for Early Reduction Credits the following criteria must be met: ☐ The reduction was achieved during the reduction period. ☐ The annual average of eligible emissions at the facility during the reduction period is lower than the annual average of eligible emissions at the facility during the reference period.	'Average intensity of eligible emissions at the facility during the reduction period, is lower than the average intensity of eligible emissions at the facility during the reference period. - Regarding the average intensity of eligible emissions, see calculations below Average Intensity of Eligible Emissions During Reduction Period: $I_{\text{Reduction } j} = \frac{\sum_{i=n}^{2015} \text{GHG}_{ij}}{\sum_{i=n}^{2015} P_{ij}}$ For the number of consecutive years of the reduction period (e.g. 2012 to 2015): Sum of annual eligible GHG emissions related to production unit "j" divided by Sum of annual quantity of production unit "j" Average Intensity of Eligible Emissions During Reference Period: $I_{\text{Reference } j} = \frac{\sum_{i=2009}^{2011} \text{GHG}_{ij}}{\sum_{i=2009}^{2011} P_{ij}}$ For the number of years of the reference period (i.e. 3 years, 2009 to 2011): Sum of annual eligible GHG emissions related to production unit "j" divided by Sum of annual quantity of production unit "j" Individual Facility Limit: - Single facility limited to a maximum number of ERCs $\text{ERC}_{\text{max}} = N_Y \times \sum_{j=1}^k ((E_{\text{Reference}(i)} - E_{\text{Reduction}(i)}) \times P_j)$ N_Y Number of calendar years in reduction period K Total number of production units at facility $E_{\text{Reference}(i)}$ Average annual eligible emissions from production of unit j during reference period (calculated using Equation 1 of Schedule 1 – this is sum of eligible emissions years 2009 to 2011 divided by 3) $E_{\text{Reduction}(i)}$ Average annual eligible emissions from production of unit j during reduction period (calculated using Equation 2 of Schedule 1 – this is sum of eligible emissions for each year in reduction period divided by the number of consecutive years in the reduction period) $P_j = 1$ IF 'Avg. annual quantity of production units produced during reference period (Eq.3 in schedule 1 - sum of production years 2009 to 2011 divided by 3) is less than or equal to average annual quantity of production units produced during reduction period
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☐ The average intensity of eligible emissions at the facility during the reduction period, is lower than the average intensity of eligible emissions at the facility during the reference period as calculated using the equations below. ☐ An attestation that the applicant has legal ownership of the emission reductions being claimed from the project. ☐ Reductions are calculated using the same calculation method and the same factors for all years 2009 to 2015 in which the reductions are being claimed. ☐ The reduction must not have been achieved as a result any of the following: a) Actions that were required to be taken as a result of legislative or regulatory provision; b) The closure of a facility or a part of a facility; c) A decrease in production at a facility; Appendix to the Draft Cap and Trade Regulation 60 d) Moving operations from one facility to another facility; or e) Actions that were taken as part of a project that was credited or financed in whole or in part by another cap and trade or GHG reduction program or project. ☐ Reductions are permanent and irreversible; projects which sequester carbon that could be later released to the atmosphere will not be considered for early reduction credits. ☐ If the emissions reduction is achieved as a result of the substitution of a fuel with a replacement fuel at the facility: a) The average price paid for the replacement fuel during the reduction period must have been higher than the average cost of the fuel that was substituted during the same period; and b) The person must have paid for the modification or replacement of equipment at the facility in order to use the replacement fuel during the reduction period. A.4.6 Calculating Average Intensity of Eligible Emissions A.4.6.1 Calculation of Average Intensity of Eligible Emissions During Reduction Period The average intensity of eligible emissions during the reduction period shall be calculated by applying the following formula. Where: I Reduction j = the average intensity of eligible emissions for production unit j as approved by the Director during the reduction period j = production unit as approved by the Director i = year n = the first year of the reduction period	(Eq.4 in Schedule 1 - sum of production for each year in reduction period divided by the number of consecutive years in the reduction period) $P_j = \frac{\text{Eq.4/Eq.3}}{\text{Eq.3}}$ IF 'Eq.3 is more than Eq.4.	
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GHG_{ij} = eligible GHG emissions of the facility, relating to the production unit <i>j</i> for year <i>i</i>, in tonnes of CO₂ equivalent Appendix to the Draft Cap and Trade Regulation 61	P_{ij} = the annual quantity of production unit <i>j</i> as approved by the Director and produced by the facility for the year <i>i</i> A.4.6.2 Calculation of Average Intensity of Eligible Emissions During Reference Period The average intensity of eligible emissions during the reference period shall be calculated by applying the following formula: Where: I Reference <i>j</i> = the average intensity of eligible emissions for production unit <i>j</i> as approved by the Director during the reference period <i>j</i> = production unit as approved by the Director <i>I</i> = year GHG_{ij} = eligible GHG emissions of the facility, relating to the production unit <i>j</i> for year <i>I</i>, in tonnes of CO₂ equivalent P_{ij} = the annual quantity of production unit <i>j</i>, as approved by the Director, produced by the facility for the year <i>i</i> A.4.7 Limit for Individual Facility A.4.7.1 Formula for Calculating Limit The maximum number of early reduction credits that may be awarded in respect of the reduction of eligible emissions at a single facility is determined by applying the following formula: Where: ERC_{max} = the maximum number of Ontario early reduction credits that may be created in respect of the reduction of eligible emissions at a single facility <i>NY</i> = the number of calendar years included in the reduction period Appendix to the Draft Cap and Trade Regulation 62 K = the total number of production units at the facility <i>J</i> = production unit as approved by the Director ER_{reference} (<i>j</i>) = the average annual eligible emissions from the production of production unit <i>j</i> during the reference period, calculated using Equation 1 of Schedule 1, expressed in tonnes of carbon dioxide equivalent E_{Reduction} (<i>j</i>) = the average annual eligible emissions from the production of production unit <i>j</i> during the reduction period, calculated using Equation 2 of Schedule 1, expressed in tonnes of carbon dioxide equivalent <i>P_j</i> = the value determined under Section A.4.7.2 A.4.7.2 Determining P_j For the purposes of Section A.4.7.1, <i>P_j</i> has a value of 1 if the average annual quantity of production units <i>j</i> produced during the reference period, calculated using Equation 3 of Schedule 1, is less than or equal to the average annual quantity of production units <i>j</i> produced during the reduction period, calculated using Equation 4 of Schedule 1. <i>P_j</i> shall be determined by dividing the result of Equation 4 of Schedule 1 by the result of Equation 3 of Schedule 1, if the average annual quantity of production units <i>j</i> produced during the reference period, calculated using Equation 3 of Schedule 1, is more than to the average annual quantity of production units <i>j</i> produced during the reduction period, calculated using Equation 4 of Schedule 1.
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A.5 Complementary Reporting Changes The Ministry is proposing complementary changes to the reporting regulation and incorporated guideline to support the implementation of the cap and trade programs. The proposed changes include: a) Collection of additional product, process and energy use information to support the calculations for free allowance allocations (e.g., refinery data); b) General requirement for measurement of certain parameters required to support the calculations for free allowances, with an accuracy requirement of 5%; c) Reporting and verification for voluntarily participants; d) Revisions to the regulation and calculation methods in the Guideline to estimate emissions from electricity importation; and e) Refinements of the Guideline to: 1. Clarify requirements for petroleum product supply and introduce the use of an attestation form; 2. Introduce default emission factors for calculating emissions from electricity importation; and 3. Refine reporting of different types of biomass used in a facility.	This section defines changes in the Reporting Regulation and associated guideline that were required to support the implementation of the cap and trade program. In brief, changes include: - Additional product, process and energy use information required for free allowance calculations - Measurement of certain parameters required for free allowance calculations - Voluntary participants in the cap and trade program must also report and verify - Revisions to calculation methods to estimate emissions from electricity imports - Revision of guideline to: clarify requirements for petroleum product supply, introduce an attestation form; introduce default emission factors for electricity imports; refine reporting for different types of biomass.	
A.6 Definitions “accredited verification body” means a verification body that is accredited to ISO 14065 by a member of the International Accreditation Forum; “ammonia” means ammonia produced by the ammonia production activity as defined in O.Reg. 452/09; “Beer” means beer produced at the facility through fermentation with yeast; “BOF steel” means steel produced from the a basic oxygen furnace; “CAN-CWB” means direct Canadian Complexity Weight Barrel (CAN-CWB) excluding hydrogen production and cogeneration as calculated in accordance with the Guideline under O.Reg. 452/09; “Carbon Black” means carbon pellets, powders or other products produced by the pyrolysis of hydrocarbon feedstock; “coke” means coke produced by a coke oven at an iron and steel facility; “dolomite used” means dolomite added to the blast furnace; “dolomite lime” means dolomite lime produced by a lime kiln at the facility; “Dolopel” means lime that has been processed twice in lime kilns at the same facility; “EAF steel” means steel produced from the electric arc furnace; “Ethylene” means the ethylene produced from the processing of natural gas liquids or feedstock from the refining of crude oil and its derivatives; “glass bottles and jars” means glass products produced through the glass production activity set out in Table 2 of O.Reg. 452/09; “Grey cement” means clinker produced from a cement kiln at the facility, blended with limestone and gypsum at the facility; “High Calcium Lime” means high calcium lime produced by a lime kiln at the facility; “High value chemicals” means ethylene, benzene, butadiene and polypropylene; “Hydrogen” means hydrogen produced using steam hydrocarbon reforming, partial oxidation or other transformation of the hydrocarbon; and does not include hydrogen that is in the feedstock to a steam hydrocarbon reforming, partial oxidation or other transformation processes; “institution” means educational services and Health Care and Social Assistance as per NAICS(North American Industry Classification System) Code 61 and 62; “Iron produced” means liquid iron produced by a blast furnace;	Clearly written/straight forward – see Regulation text for details.	

“ISO 14064-3” means standard ISO 14064-3, published by the International Organization for Standardization (ISO) and entitled “Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions”, as amended from time to time;

“ISO 14065” means standard ISO 14065, published by the International Organization for Standardization (ISO) and entitled “Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition”, as amended from time to time;

ISO 14064-2 means standard ISO 14064-2, published by the International Organization for Standardization (ISO) and entitled “Greenhouse gases -- Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements,” as amended from time to time;

“limestone” means limestone added to the blast furnace;

“Magnesium” means any magnesium metals, magnesium alloys or magnesium products produced at the facility where a covered gas or carrier gas is used in the production process;

“nitric acid” means nitric acid produced by the nitric acid production activity set out in Table 2 of O.Reg. 452/09;

“Pulp and paper” means the sum of pulp products and paper products produced at a facility; and

“White cement” means clinker produced from a cement kiln, blended with limestone and gypsum to produce white cement at the facility.

Schedule 1: Equations for use under Section A.4.7

Equation 1

Where:

EReference (*j*) = the average annual eligible emissions from the production of production unit *j* during the reference period, expressed in tonnes of carbon dioxide equivalent

Ei *j* = the eligible emissions from the production or use of production unit *j* during year *i*, expressed in tonnes of carbon dioxide equivalent

j = production unit

i = each year in the reference period.

Equation 2

Where:

EReduction (*j*) = the average annual eligible emissions from the production of production unit *j* during the reduction period, expressed in tonnes of carbon dioxide equivalent

Ei *j* = the eligible emissions from the production or use of production unit *j* for year *i*, expressed in tonnes of carbon dioxide equivalent

i = each year in the reduction period

j = production unit

m = the year in which the reduction period begins

n = the number of consecutive years in the reduction period

Equation 3

Where:

PRReference (*j*) = the average annual quantity of production units produced during the reference period

P *i j* = the quantity of production units produced during year

i = each year in the reference period

j = production unit

Equation 4

Where:

PRReduction (*j*) = the average annual quantity of production units produced during the reduction period

Pi *j* = the quantity of production units produced during year *i*

i = each year in the reduction period

j = production unit

m = the year in which the reduction period begins

n = the number of consecutive years in the reduction period

SEC INTERROGATORY #5

INTERROGATORY

[C]

Please explain how Enbridge developed its 2017 Compliance Plan in the context of Ontario's initial 4 year compliance period.

RESPONSE

Please refer to Paragraph 6 filed at Exhibit C, Tab 1, Schedule 1 in the January 27, 2017 filing, which says:

Upon receiving the Final Cap and Trade Framework (EB-2016-0363) on September 26, 2016, Enbridge set to work developing its Compliance Plan. Enbridge's 2017 Compliance Plan is a starting point upon which to build over the coming years and compliance periods. Given the Ontario carbon market is nascent and the Company is on the steep part of the learning curve, Enbridge has focused on creating a prudent one-year procurement plan coupled with strong governance processes.

Except as disclosed in the publicly available portions of its Compliance Plan, Enbridge is not permitted to provide further information for reasons of confidentiality as set out in the Climate Change Mitigation and Low-carbon Economy Act, 2016 ("Climate Change Act"), Cap and Trade regulations and the Report of the Board in respect of the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities (EB-2015-0363) ("Framework").

See the response to BOMA Interrogatory #37 filed at Exhibit I.5.EGDI.BOMA.37 for more discussion on confidentiality.

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

SEC INTERROGATORY #6

INTERROGATORY

[C-1-1, Appendix A, p.24]

Please rank the listed reasons for the poor participation rates in WCI auctions to date.

RESPONSE

According to Alpha Inception, LLC, they estimate the ranking of reasons for poor participation rates in WCI auctions to-date:

1. Lack of certainty in California's post-2020 Cap and Trade Program;
2. Outstanding legal challenge;
3. Structural deficiency in the program that has led to a massive oversupply of allowances; and
4. General de-risking by both compliance and speculative entities after a massive price drop in carbon allowances under the Regulation Greenhouse Gas Initiative ("RGGI") that was caused by the unexpected Supreme Court stay ruling on the federal regulation under the Clean Power Plan.

Witnesses: A. Langstaff
Alpha Inception

SEC INTERROGATORY #7

INTERROGATORY

[C-1-1, Appendix B, p.4]

Please provide a copy of Enbridge's internal Marginal Abatement Cost Curve.

RESPONSE

Please refer to Board Staff Interrogatory #7(b) filed at Exhibit I.1.EGDI.STAFF.7.

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

SEC INTERROGATORY #8

INTERROGATORY

[C-2-1, p.8]

Please provide examples of potential offset opportunities.

RESPONSE

The MOECC has indicated that offset protocols will be developed for 13 project types. Please refer to the MOECC website (<https://www.ontario.ca/page/cap-and-trade-offset-credits-and-protocols>):

Ontario has awarded a contract to the Climate Action Reserve to adapt 13 existing offset protocols (from existing regulated and voluntary offset markets) for use in Ontario and Quebec under the cap and trade program. Three protocols will be in place by early 2017, with the remainder in place by 2017-18.

Examples of the offset opportunities include:

1. Landfill Gas Capture and Destruction
2. Mine Methane Capture and Destruction
3. Ozone Depleting Substances Capture and Destruction
4. N₂O Reductions from Fertilizer Management
5. Emission Reductions from Livestock
6. Organic Waste Digestion
7. Organic Waste Management
8. Forest (reforestation, avoided conversion, and improved forest management)
9. Afforestation
10. Urban Forest
11. Grassland
12. Conservation Cropping
13. Refrigeration Systems

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

SEC INTERROGATORY #9

INTERROGATORY

[C-3-6, p.4]

Please provide a copy of all reports or other deliverables provided by ICF International.

RESPONSE

Please refer to SEC Interrogatory #4 filed at Exhibit.I.1.EGDI.SEC.4.

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

SEC INTERROGATORY #10

INTERROGATORY

If Enbridge 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

Paragraph 7 of EB-2016-0300, Exhibit B, Tab 3, Schedule 1 identifies that Enbridge's emissions forecast is 21,136,676 tonnes of carbon dioxide equivalent ("tCO₂e"). Since one emission allowance is equivalent to one tCO₂e, Enbridge requires 21,136,676 emission allowances to meet its 2017 compliance obligation.

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

SEC INTERROGATORY #11

INTERROGATORY

[C-4-1]

Please explain how Enbridge plans to manage risk of the Cap and Trade program being cancelled at some point after the purchase of any compliance instruments.

RESPONSE

Please refer to Consumer Council of Canada Interrogatory #4 filed at Exhibit I.1.EGDI.CCC.4.

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

SEC INTERROGATORY #12

INTERROGATORY

[Ex.C-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 Enbridge expect to have a problem meeting its compliance needs due to the holding and purchase limits?

RESPONSE

- a. Please refer to the response to BOMA Interrogatory #15 filed at Exhibit I.1.EGDI.BOMA.15.
- b. Please refer to the response to CCC Interrogatory #1 filed at Exhibit I.1.EGDI.CCC.1.

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

SEC INTERROGATORY #13

INTERROGATORY

[C-6-1, p.2]

Does Enbridge expect to require changes to its Undertaking with either, the Province of Ontario, the Ontario Energy Board Act itself, or any regulations made under it, or require a Government Directive under section 27.1 of the Ontario Energy Board, to undertake new business activities for the purposes of carbon initiatives it may propose in the future? If so, please describe.

RESPONSE

Please refer to BOMA Interrogatory #9 filed at Exhibit I.1.EGDI.BOMA.9.

TCPL INTERROGATORY #1

INTERROGATORY

Issue 1 – Cost Consequences

- Reference:
- 1) EB-2016-0300, Application, Exhibit G, Tab 1, Schedule 1, Appendix A, Page 2 of 10
 - 2) EB-2016-0300, Application, Exhibit G, Tab 1, Schedule 1, Appendix A, Page 1 of 10
 - 3) EB-2016-0300, Application, Exhibit G, Tab 1, Schedule 1, Appendix A, Pages 9 and 10 of 10

Preamble: In Reference 1, Enbridge calculated the Company Use unit rate of 0.0018 cents/m³. Footnote 5 states that it was calculated using the following formula:

“Cost of CO₂e emissions / Total customer-related volume = [...]”

Reference 2 is a table titled “Table A1: 2017 Customer-related Volumes, Emissions, Cost of Emissions and Unit Rate”. Table A1 does not include Rate classes 325, 330, 331 and 332 or their corresponding forecast volumes.

In Reference 3, Enbridge shows that Rate 325, 330, 331, and 332 are subject to the Company Use rate.

TransCanada has concerns regarding Enbridge’s calculation of the Company Use unit rate.

- Request:
- a) Please confirm that Enbridge calculated the Company Use unit rate of 0.0018 cents/m³ on the basis of total customer-related volumes, as noted in Reference 1.
 - b) Please provide the Company Use rate in cents per GJ.
 - c) For Rate classes 325, 330, 331, and 332:

Witnesses: A. Kacicnik
A. Langstaff

- i. Please confirm that the total customer-related volume as calculated in Reference 2 does not include the forecast volumes of the noted rate classes. If not confirmed, please explain.
 - ii. Please confirm that the noted rate classes are subject to the 0.0018 cents/m³ company use charge as shown in Reference 3.
 - iii. Please provide the 2017 budget forecast volumes for each noted rate class.
 - iv. Please confirm that by not including the forecast volumes of the noted rate classes in the calculation found in Reference 1, the Company Use unit rate is larger than necessary to recover Company Use costs. If not confirmed, please explain.
- d) If appropriate given the responses to c), please provide the revised Company Use unit rate. If Enbridge believes the rate in Reference 1 is correct, please fully explain why.

RESPONSE

- a) Confirmed.
- b) The Company Use unit rate of 0.0018 cents/m³ is equal to 0.0478 cents/GJ.
- c) i. Confirmed.
- ii. Confirmed.
- iii. The 2017 forecast volume for Rate 325 can be found at Exhibit G, Tab 1, Schedule 1, Appendix A, page 2, Note 7. The 2017 volume forecast for Rates 330 and 331 is zero. Given that the Company only has a very limited operational experience with Rate 332 service, the Company has set Rate 332 2017 volume forecast at zero.
- iv. Confirmed. However, please also see the response to part d) below.

Witnesses: A. Kacicnik
A. Langstaff

- d) The Company would like to highlight that its proposed 2017 Cap and Trade charges work in conjunction with its proposed 2017 Greenhouse Gas Emissions Customer and Facility Costs Variance Account (GGEFCVA). This approach will ensure that the Company neither over or under recovers its customer-related and facility related emissions obligation costs (said differently, both the customers and the Company will be kept whole with respect to emissions obligation costs).

Please see responses to IGUA Interrogatory #6 filed at I.4.EGDI.IGUA.6 and Board Staff Interrogatory #24 filed at I.4.EGDI.STAFF.24 for the description of the 2017 GGEFCVA and of how any balance in the account will be cleared to customers.